Andreas Krause

Theoretical Foundations of Commercial Banking

Problems with indicative answers

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All models are wrong, but some are useful.

George E. P. Box

Preface

This booklet accompanies the textbook 'Theoretical Foundations of Commercial Banking' and provides indicative answers to the problem sets provided therein. For each problem, I have provided a suggested answer of how I intend it to be addressed. In many cases there will be alternative approaches to provide an answer, or additional aspects from the same or different models can be used. It is for this very reason that the answers provided here are merely indicative, not comprehensive, and certainly not conclusive.

The way the indicative answers have been constructed is based on intuition rather than a close examination of the models and their specific results. This has been done on the one hand to encourage a deeper understanding of the results from models, rather than a focus on the narrow confines of the model itself. On the other hand, the problem sets itself are constructed such that specific information to use the detailed results of the models is not possible in most cases. The reason is again to encourage an engagement with the essence of these models and their key results rather than the detailed outcomes, which are based on specific modelling assumptions and give rise to formulae that are only valid in these specific circumstances.

Each problem requires either a single model to provide an answer or the combination of a number of models, in most cases two models, although in some instances a wider picture is required, encompassing more models. For each problem I have provided an indicative answer as well as the models that are to be applied in this answer, identified by the chapter number in the main text. At the beginning of the booklet I have provided a model key which comprises a list of all the problems that can be solved using each model, once more identified by the chapter in the main text and indicated whether for a problem only this model is required (simple problems) or knowledge of additional models is needed (compound problems).

Andreas Krause
Bath, April 2026

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Model key

The below key indicates the problems that can be solved with each of the models presented, as identified by their chapter number, from the main text. As indicated, there are two types of problems, simple and compound problems. Simple problems can be solved using a single model only, while for compound problems, multiple models are required for a complete answer, this might be two or more models. In some instances it might be possible to provide a partial answer using only a single model or a selection of the models that are required. Therefore, this key allows to identify those problems that can be solved when having studied only selected models.

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Part I
The importance of banks

Problem 1

During a meeting of the Chamber of Commerce in Porteven, a city that acts as a commercial centre for a mainly rural area, a discussion arises on the relevance and importance of banks. While this discussion is not pursued during the formal meeting, it gets picked up again by a group of business representatives at the drinks reception following the formal part of the meeting. Herbert Blømsted, owning a plumbing business with six employees, remarks that banks are essential for him. Without banks, so he argues, he would not have been able to set up his business in the first place or expand it to have even the small number of employees he currently has. The loans they provided were essential in allowing him to purchase the required stock of goods and, especially, the vans he needs for each of his employees. Arguing against him, Matthias Vliem remarks that he is not denying that banks are useful and of course he has used them many times during the last 30 years in which he has developed houses in the rural areas around Porteven. However, so he expands, they are just a convenience rather than an integral part of the economy.

How would Matthias Vliem argue his case?

Indicative answer

The argument Matthias Vliem can put forward is that banks merely act as a 'pass-through' of the funds from depositors to borrowers. They play no active role as the money ultimately is obtained from depositors, who could lend the money directly to borrowers (firms in this instance), and thereby circumvent banks. In this scenario banks are nothing more than a 'market place' in which depositors (lenders) and firms (borrowers) are brought together and thereby reduce transaction costs that might otherwise emerge from the difficulty of matching lenders and borrowers. It is in today's world that any reduction of transaction costs by banks would be very minimal as online matching platforms would provide a simple and low-cost alternative to provide loans to companies directly.

Model(s) used: Sect. 2.1

Problem 2

Argaguay is struggling to develop its economy and a large number of politicians across the political spectrum believe that this is due to the country having a very poorly developed banking system with only few banks that make barely any profits; it is therefore that they propose to develop the banking system further. Many economists, on the other hand, point out that there is no lack of funding for investments as they have a very efficient informal market for loans where the general public directly lends to companies seeking funds. They explain that it is the efficiency of this market that makes banks unnecessary and their existence a marginal phenomenon in the economy.

Would the development of the banking system in Argaguay affect the ability of companies to obtain loans?

Indicative answer

The informal credit market in Argaguay is very efficient, which implies that loan rates are competitive and hence banks will have to compete with this market. Unless bank are able to offer additional benefits, they will have to compete with the direct loans that are currently given and not make a difference to the provision of loans overall. While more loans might be given by banks, this would not affect the investments of companies as competition would ensure the loan rates remain at a competitive level. There is thus no added value by having more banks operating in the economy.

Model(s) used: Sect. 2.1

Problem 3

The developing country of Ranonda has experienced a period of economic crisis due to collapsing prices for many rare earth metals, whose export account for most of the economic activity in the country. Responding to the economic crisis, the government of Ranonda has allowed a foreign bank to operate with the aim of promoting investments into other sectors of the economy that thus far have been neglected, as they have no functioning banking system thus far. The success of allowing the foreign bank to operate is seen critically by many observers. It has been suggested that investment is much lower than it was prior to the economic crisis, despite now having a bank facilitating the provision of loans, even after adjusting for various macroeconomic factors. The fingers are pointed at the foreign bank, who is said to make excessive profits from its monopolistic position and charges higher loan rates than is normally justified while paying very low deposit rates, extracting profits from the economy in Ranonda. It has been suggested that returning some of the profits to their customers will increase investments as more funds are retained in Ranonda.

Would returning some of the profits to their customers positively affect the investments that are made?

Indicative answer

The critical problem is that the bank has market power and therefore is able to generate profits by charging higher loan rates, which will reduce investment as the marginal product of investments need to be higher in this case. Having to return some of the profits will not change the loan rate the bank will charge as it will still seek to maximize its profits. It might have a small offsetting effect to return some of the profits in that more funds will be available in Ranonda that can be used for investment, but this is unlikely to off set the effect of the reduction in investments due to the higher loan rate.

Model(s) used: Sect. 2.2

Problem 4

Gonçalo Pereira is the head of the Competition Commission and responsible for assessing the banking sector, having been promoted to this role based on his experience and contribution to the supervision of the food retail market. After only a few days in his new position he announces a major review of the banking sector and has explicitly invited representatives of peer-to-peer lending organisations to contribute to the review. He justifies this move by stating that they act as direct competitors to banks by facilitating loans directly between borrowers and lenders. Having interacted with Gonçalo Pereira during the review, representatives of the banking sector are not surprised to find that the interim report of the review states that banks are yielding too much market power, making the market inefficient, leaving loan demand below optimal levels, and that peer-to-peer lending should be encouraged for the loan market to become more efficient.

How does Gonçalo Pereira justify these initial recommendations?

Indicative answer

We see that Gonçalo Pereira subscribes to the view that banks are acting as pure intermediaries. It is that the market power of banks increases loan rates and decreases deposit rates to generate profits; this has the consequence that the higher loan costs will reduce loan demand and hence investment. With peer-to-peer lending, the loan rate will be lower and the deposit rate, which is the same as the deposit rate, higher, making both parties better off and due to the lower loan rate, investment will be increasing.

Model(s) used: Sect. 2.2

Problem 5

Paula Soveran is leading the treasury team at Polia Ltd., a large retail chain with stores across the country. Her duties encompass the management of any excess short-term funds the company has available and ensuring the company has access to adequate funds for its daily operation, but also for any investments the company needs to make. Currently her main concern is the financing of another 10 stores to be opened within the next year, for which she needs to raise additional funds. An informal meeting with other senior managers of the company discusses the options available. Raising additional equity is quickly dismissed as not viable with the existing owners and so the discussion turns to the question of whether to go for additional bank loans as previously done without problems, or to issue bonds for the first time. The idea of issuing a bond quickly gets many supporters who point out that the banks have recently become more and more interfering in investment decisions. While banks cannot veto any decisions, they have on many occasions made clear that they would not support some decisions and that any future funding might be put at risk if a certain approach to grow their market share is taken. When issuing bonds, so the argument, this would not happen as there are no regular review meetings with bondholders, and hence they cannot interfere. Dissenting voices point out that the concerns of banks have never really limited the growth of the company, rather it was free advice. Further, they claim, banks often offer better conditions than the bond market, making bank loans cheaper, especially so as the bank market is currently very competitive. Paula Soveran emphasises that the economy is heading for a recession and the impact on the business is uncertain. While they offer a budget range of products that should do well in a recession, a large part of the profits are generated in the luxury end of the market and there the impact is more difficult to predict. It could be that in a recession this market shrinks due to customers cutting back expenditure, but on the other hand might well be willing to spend money on little luxuries which they offer. This uncertainty about the future returns on the investment they are making should be taken into account.

The further discussion quickly settles on one point they consider key: which one is cheaper, a bond or a bank loan?

Indicative answer

If markets are competitive, as indicated by some members in the meeting, bank loans may well appear cheaper. If we assume that banks can extract more value from the company, this may take the form of being able to obtain a larger repayment in the case our strategy is not successful in the expected recession. Banks may be able to do so as they are monitoring a company and have therefore a much better idea on their ability to make payments, while bond holders will have to rely more on the information of the company. Hence, in any restructuring of the loans, the bank should be able to extract more surplus than bond holders. This additional surplus the bank can extract will be reflected in a lower loan rate offered by banks, compared to bonds. However, the additionally extracted surplus in case the company does not perform well imposes additional costs on Polia Ltd. and need to be weighed against the lower headline rate. If markets are overall perfectly competitive, then the total costs considering the interest paid and the additional surplus extracted by banks, would cancel each other out. Banks and bonds are equally expensive.

Model(s) used: Sect. 2.3

Problem 6

In a discussion on the merits of a strong banking system during a meeting of a regional development agency, a banking representative points out the unique ability of banks to monitor borrowers better than the general public and thereby ensure funds available to companies are used effectively and recovered in case investments fail to deliver. A local company counters this by saying that banks hardly do this for free and companies are charged for this through higher loan rates, surely. In response, the banking representative says that the market is way too competitive to allow that and loan rates are lower than other forms of debt finance companies have access to.

Is this statement true?

Indicative answer

Banks are competitive, but even though interest rates remain low, the higher recovery of monies from failed investments provides an additional income stream to banks. If banks are truly competitive, they would reduce the loan rate accordingly to take into consideration this higher recovery rate. Thus the lower loan rate, compared to other forms of debt, does not imply that bank loans are cheaper. With lower recoveries by other lenders, the companies would retain a larger fraction of monies from failed investments than with banks. These twi effects, in competitive markets, should offset each other, making a bank loan as expensive as other forms of finance.

Model(s) used: Sect. 2.3

Problem 7

The government of Calanda seeks to develop a financial sector, particularly banks, to aid economic growth. Thus far the economy has relied either on loans provided directly by wealthy individuals or from banks abroad. The government claims that it is essential to develop a competitive banking system to avoid any inefficiencies and compete with the current provision of loans, which has worked effectively in the past. Critics say that this will have no effect on the economy as competitive banks will not influence investment decisions differently than with the current arrangements. Those in favour of developing the banking sector point to the fact that banks as specialist institutions will become better informed and that will allow banks to provide loans at lower loan rates. In the discussion between the government and its advisors it was also mentioned that a non-competitive banking system might give worse results than the current arrangements for loans.

Having been given contradictory advice that ranges from banks being beneficial to banks would make no difference to banks being detrimental, the government seeks advice from consultants on the benefits and costs of developing a banking system. What should the advice be?

Indicative answer

A competitive banking system where banks make no profits will be neither detrimental nor beneficial the economy, assuming that the current arrangements to provide loans are competitive as well. In this case the banks are only handing through the loans from lenders to borrowers, not affecting the loan rates and hence the existence of banks makes no difference. Even if banks gain an informational advantage, this would not affect the outcome as banks would use their informational advantage to reduce the loan rate in some instances but increase costs to borrowers in other instances, which in a competitive banking system is balanced and does not affect the overall outcome. It is thus that even the expertise of banks would not be beneficial overall, assuming that there are no additional costs associated with this expertise. If the banking system is not competitive then the profits that banks extract from borrowers and depositors will be detrimental as the higher loan costs will reduce the investment. This will remain even if the profits of the bank are returned to borrowers. It is thus that the introduction of a banking system does not bring any advantages, but might be disadvantageous if the banking system is not competitive.

Model(s) used: Sect. 2.1, Sect. 2.2, Sect. 2.3

Problem 8

PLending Ltd. was founded 5 years ago to facilitate tailored peer-to-peer lending. They developed software that provides a platform for borrowers and lenders to negotiate the terms of the loan and is mainly used by high net-worth individual lenders and the borrowers are mainly mid-sized companies. These companies are mostly operating in well-established industries. The companies seeking loans are overall well-established themselves with ample public information about their business available and they typically show profitabilities that are slightly above average, all while using up-to-date technologies and ideas, but not being at the forefront of innovation. While the platform expanded quickly and gained a loyal following by borrowers as well as lenders, its growth has stalled in the last few months. At a strategy meeting of the Board of PLending Ltd. it is noted that the type of borrowers is rather limited to profitable and well-established companies in what many would describe as conventional industries. With many smaller, younger and very innovative industries struggling to secure the finance they need for developing and marketing new and innovative products and ideas, it was brought up that PLending Ltd. could seek to expand into this market segment.

As a member of the board, you argue that such a strategy would inevitably fail as you would unlikely break into this market segment. In your opinion small companies in such newly emerging industries would be either dominated by venture capitalists or banks specialising in such lending, but not peer-to-peer lending. How would you justify your stance?

Indicative answer

The platform of PLending Ltd. reduces the costs of negotiation between borrowers and lenders and as such has found a niche in the market consisting of companies with specific characteristics. If we were seeking to attract smaller and more innovative companies, this would have two effects: firstly, given the smaller size of companies the transaction costs for each loan would increase, relative to the size of the loan. This would make the use of our platform less attractive as the costs are not really varying much with the size of the loan. Therefore, we would lose our competitive edge relative to banks, where depositors face no transaction costs at all and those of borrowers will be much lower. Secondly, the transaction costs will actually increase as more innovative companies are often much more difficult to evaluate and the negotiations might prove to be more burdensome as the owners and managers are often much less professional in business dealings. On the other hand, the higher return these companies often generate, may make any negotiation costs slightly less important to them, which would work in our favour. Taken together, the higher transaction costs in dealing with the newly targeted companies, could well push us out of our niche in which peer-to-peer lending is sustainable and in competition with banks, we would gain only very limited new customers.

Model(s) used: Sect. 3.1

Problem 9

It has been observed that during a recent period of low interest rates that many individuals have used online platforms to provide loans directly to companies or individuals. While the loan rates were attractive compared to deposit rates in banks, some loans did default, imposing losses on the affected individuals. With the economy performing better and interest rates generally increasing, the financial regulator seeks opinions on making the provision of such loans illegal for all but professional investors, pointing out that the provision of such loans has virtually ceased anyway. This suggestion is supported by banks but opposed by companies having taken out such loans and also consumer associations. Companies argue that without being able to access direct loans, they will not only lose access to a form of low-cost finance, but loan rates themselves will increase. Similarly, consumer associations argue that deposit rates will decrease. Banks point out that as in the current economic climate direct loans are barely given, they will hardly make a difference.

Should the regulator outlaw loans to be provided directly to companies?

Indicative answer

It has to be noted that even if direct loans are not observed, the possibility that loans might be provided directly will limit the market power of banks and require them to offer better loan conditions to companies and better deposit rates; the direct loans are on outside option for companies and depositors to obtain better conditions. If such direct loans are not possible, banks can take advantage of the lack of competition from direct loans and increase their profits. On that basis, direct loans should remain a possibility. In terms of the argument that direct loans are not anymore observed, this can be explained with the better economic conditions increasing the expected returns on investments and thus favouring bank loans with their lower cost of negotiating them. In this situation the bank has the potential to extract a larger share of the surplus from companies, causing the loan rate to rise; the threat of direct lending limit this ability of banks to raise loan rates. Thus, even if direct loans are not given, it is the possibility of using them that disciplines banks and it is for this reason that they should be retained.

Model(s) used: Sect. 3.1

Problem 10

Michael Matthews is a well known TV personality who regularly provides advice on financial matters during popular talkshows. He is well known for making rather unusual and often derided suggestions on how to save money on goods and services, but also occasionally suggests how to invest any savings people might have. A long-term issue he has is that in his view banks are paying too low deposit rates to their customers. Consequently, a common suggestion heard from him is to invest money in other schemes, be it shares, bonds, or most recently peer-to-peer lending. During one of his TV appearances, Michael Matthews explains that peer-to-peer lending works with a computer matching borrowers and lenders, splitting the total amount invested into smaller packets and allocating them to different borrowers. His argument now is that this way you get all the benefits of having invested into a different borrowers and receiving the interest they pay, less a small fee charged by the peer-to-peer platform. He contrasts this with banks that take a large part of the interest paid by borrowers and leave depositors with only low interest rates, while at the same time exposing them to the risk of all the borrowers of the bank, as their failure to repay can cause the bank to fail and then you would lose your entire deposit rather than only the small amount lent to the borrower that fails. So, his conclusion, you should deposit with banks only those amounts that you might need in the near future and any other savings should be invested elsewhere, including peer-to-peer lending.

How would you argue that banks do not expose depositors to larger risk than peer-to-peer lending and might well over superior terms than peer-to-peer lending?

Indicative answer

As borrowers need to be monitored to ensure that investments the company makes are sufficiently profitable to ensure that the loan can be repaid, peer-to-peer lending would impose these costs on each lender for each loan they provide. Delegating the monitoring to a single lender would require a degree of coordination that is not feasible given the number of lenders and borrowers as well as their different sizes involved. Furthermore, this would lead to a moral hazard problem as a lender allocated to the borrowing will only have a small amount of his own money at risk, but facing the full cost of monitoring. Shirking the responsibility of monitoring is most likely to be widespread. Therefore, monitoring would have to be conducted by each lender individually, leading to a significant duplication of effort and thus significant costs. Banks, if providing the full loan amount would face these monitoring costs only once for each loan, leading to much lower aggregate monitoring costs. This, of course, has to be balanced against the risk of banks failing and the deposit not being repaid. As banks give a large number of loans, the failure rate of companies, while still stochastic, becomes a nearly known rate and if loan rates are sufficiently high, banks will be able to cover the losses from failing loans with the higher loan rate and will not fail. Hence, the depositors are not exposed to any risk. While banks might offer deposit rates that seem much lower than those offered in peer-to-peer lending, the loan rates need to take into account the risk of default of the companies as well as the monitoring costs of the bank. Even if the deposit rates was lower than the adjustment needed for this risk and the monitoring costs of the bank, it may still be more effective to use deposits over peer-to-peer lending. The reason is that depositors do not have to bear the monitoring costs themselves, which may make it more cost-effective to deposit the savings into a bank rather than invest into loans directly.

Model(s) used: Sect. 3.2.1

Problem 11

Carlos Segrado has inherited significant wealth from a recently deceased relative. In order to diversify his investments, he seeks to invest some of this wealth into loans. He plans to spread his loan investment across a larger number of individual loans in order to reduce the potential losses from defaults. In a conversation with his wife, he says that it is time consuming to provide such loans as he needs to assess the creditworthiness of each borrower. When his wife suggests that he could avoid the hassle and deposit the money with a bank instead, he says that this would not be a good alternative as the deposit rate is lower and the bank might fail and then he loses all the funds, which is highly unlikely with the large number of loans he has given.

Is his reasoning for avoiding bank deposits sound?

Indicative answer

The argument that the return on deposits will be lower than the return on providing loans directly may well be true, but he has to take into account the costs of assessing the credit worthiness of the loans he provides. If banks are seeking to attract deposits from investors like him, the bank will ensure that deposit rates are set such that the return on deposits meet at least the return of direct loans net of any costs. It is therefore that Carlo Segrado's argument that the return on deposits is lower than on loans is not well founded. In term of the risk of the bank failing, he is also wrong in his assessment as the bank can make sure that it will not fail by setting deposits rates accordingly such that the funds available from bank loans are able to cover the commitment of the bank to depositors.

Model(s) used: Sect. 3.2.1

Problem 12

Asle Børgvin has taken over the management of the CreditInvest fund which is managed on behalf of a group of institutional investors; it invests mainly into loans that have been securitised by banks and sold to them. The securitised loans are still administered by the originating bank and they also continue to monitor the companies to ensure compliance with agreements and provide advice to the companies that ensures the loans can be repaid. Going through the investments of the fund, Asle Børgvin is concerned to see that on large loans that have been granted jointly by multiple banks, each bank's effort to ensure the company complies with the loan terms seems to be rather minimal. This is in contrast to smaller loans provided by a single bank, where it seems that banks are much more diligent. In a meeting with banks to discuss the purchase of another set of securitised loans, Asle Børgvin mentions his concerns about their lack of effort in ensuring the quality of the loans is maintained.

How will banks response to these concerns?

Indicative answer

The banks should point out that for large loans which are shared between that, each bank is monitoring, and therefore, while it might be that each bank individually seems to be not doing much to ensure the quality of the loan is maintained, the joined effort by all banks combined will be higher. It will actually be higher than what a single bank will do monitor their loans. It is therefore that larger loans given by multiple banks are actually better monitored than smaller loans given by a single bank only. It is therefore that Asle Børgvin's concerns are unfounded,

Model(s) used: Sect. 3.2.2

Problem 13

Laleh Amiri has been appointed as the loan officer for a portfolio of borrowers in the health sector. Some companies are exclusively provided with loans by Karimi Bank, Laleh Amiri's employer, while other companies obtain loans from different banks, often in cooperation with each other. Her main task is to maintain contact with the senior management of companies and monitor their business activities to safeguard the repayment of the loans for Karimi Bank. Laleh Amiri's effort in keeping informed and providing advice to companies is widely recognised, but her manager raises concern about the amount of time she spends with some customers. In a casual meeting he tells Laleh Amiri that the time she spends with companies where loans are shared with other banks is too high and she might want to focus more closely on other companies with smaller loans that exclusively bank with Karimi Bank. Laleh Amiri defends herself by mentioning that the loans which are shared with other banks are larger than others, even if only considering the share of the loan provided by Karimi Bank; in order to reduce potential losses to Karimi Bank she spends more time on these loans.

Why does Laleh Amiri's manager suggest she spend less time on monitoring these larger loans?

Indicative answer

The larger loans here are provided jointly by several banks and hence will be monitored by several banks. Thus the monitoring effort for these loans by all banks combined will be higher than for loans given only by Karimi Bank, even if Laleh Amiri exerts lower monitoring effort. The optimal level of monitoring that Laleh Amiri engages in needs to take into account the effort of other loan officers at other banks and by exerting the same effort as for individual loans, the effort is suboptimally high and it is for this reason that she is advised to rebalance her efforts.

Model(s) used: Sect. 3.2.2

Problem 14

ContactSoft Ltd. is a company that develops and distributes online games to a small following of game enthusiasts that use elements of 'Steam Punk' in games to raise awareness for environmental concerns. Their games have so far mostly been app-based and required the player to complete tasks of increasing levels of difficulty.

Their latest idea is to enter the market for ’multiplayer online role-playing games’ allowing the players to directly interact with each other and take different roles within the game. This step was taken in response to feedback by players for a more interactive game experience. The specific positioning of the games they developed so far has attracted a loyal but rather small following in a specific sub-culture. The thinking of the owners is that by opening the game up to a more interactive platform that allows players more freedom in their game, it will attract a wider audience. As enthusiasts, they have thus far relied on start-up funding from the foundation of the company three years ago and have re-invested most of the profits back into developing their games by employing programmers for specific tasks as freelancers. The development of an online platform, however, by far exceeds to resources the company has. As not to relinquish control over their company and as a result of their resentment of large parts of the ’establishment’, they decided against seeking funding from venture capitalists, but instead started a fundraising campaign amongst their most enthusiastic players. They found that many of their players were rather wealthy and thought to be able to raise finance in form of loans from them, promising an interest rate of 6% above the current rates for government bonds, in addition to early access to the new game for their backers. The take-up of this offer was, however, very limited and the monies raised fell far short of what is needed. At a games congress, they have been made aware of a bank that has previously provided loans to a number of games developers and the owners of ContactSoft Ltd. are discussing whether to approach this bank.

Does ContactSoft Ltd. has a higher chance of success with the bank than it had with their previous attempt of raising funds directly?

Indicative answer

The development of games can easily be seen as a very nontransparent process, as many creative activities. The desire of developers for perfection, pursuing their own ideals, overly ambitious revisions, or a reluctance to give up unworkable ideas all may make the development much more lengthy, costly, and may even lead to a product that is not accepted in the market. All this aspects are very difficult to monitor for any outside and giving a small part of the funding will not allow the lender significant access to control and monitor the development process. A bank with the requisite experience in the business, however, may be able to monitor progress and direct the company to remain on a path to commercial success. While direct lenders, without an effective way of monitoring, have to rely on the business sense of the company to not stray too far from the rather safe commercial path and into the sphere of idealism, the bank’s monitoring would force the company to prioritise the commercial aspects. When seeking direct lending from their followers, Contact Soft Ltd. was in most cases assessed as not creditworthy by their potential backers due to too weak incentives for prioritising the commercial aspects. It might well be that with a focus on commercial aspects the risks are sufficiently small for a bank to provide the loan. Therefore, approaching the bank would be advisable as long as there is a good commercial basis for their development.

Model(s) used: Sect. 3.2.3

Problem 15

The market for semi-conductors has seen a recent increase in competition despite an increase in over all demand. The expansion of manufacturers who traditionally only supplied their in-house electronics departments with semi-conductor components have reacted to a squeeze in profits margins there by offering their components openly in the market. Given the size of these new entrants, many of the smaller manufacturers are have come under pressure. This also applies to SemiPro Ltd. who seeks to react to its shrinking margins and loss of customers by modernising its manufacturing technology and upgrading their products to the latest standard. An alternative suggestion by the development team to press ahead with a radically new design of semi-conductors that would give them a competitive advantage in many areas, has been dismissed by board for the time being as the technology around it has not been shown to be sufficiently reliable. Having to make substantial investments, they have approached the two main banks they have used for years to obtain a loan. With a unblemished record of repaying any previous loans they had sought, the Chief Financial Officer (CFO) of SemiPro Ltd. was surprised to see both banks first dragging their feet on a decision to approve the requested loan, only, when pressed for a definite answer, to reject their application for a loan of the size requested. Both banks were only willing to provide them with much smaller loans than are needed for the planned investments, making the modernisation and upgrades unfeasible. The CFO's assistant, Carl Lepper, has recently joined SemiPro Ltd. from a market leader in semi-conductor manufacturing and, in response the refusal of the loans needed, suggests to consider a bond offer instead. His experience with his previous employer suggests that the bond market is very receptive to bond issues from this industry.

Do you think a bond issue would be successful?

Indicative answer

The rejection of the loan application by the banks suggests that banks have assessed SemiPro Ltd. to be too risky to grant a loan. The reason for this would be the reduced margins and increased competition the company currently faces and given that the loan would be used to catch up with competitors is unlikely to give them a substantial advantage in the market place. This suggests a low return on investment of the company, limiting the loan rate, combined with substantial risks if the performance deteriorates further.

Given the situation of the company it is reasonable to surmise that they might well switch to the strategy of introducing newly designed semi-conductors. This strategy, given the state of the technology, would be very risky. Thus there is a potential moral hazard problem for any lender. The banks can, through monitoring, ensure this strategy is not chosen against their will, but nevertheless reject the loan, deeming even the proposed strategy as too risky. The offer of a small loan, which the bank surely knows would not be sufficient for the needs of the company, can be seen as an offer they know will be rejected by the company, but is made to maintain the banking relationship. When issuing a loan, any monitoring of SemiPro Ltd. will not be as well conducted as thoroughly as a bank would be able to and thus the moral hazard problem is likely to aggravate the risks to the lender. It is therefore unlikely that a bond issue would be successful, unless potential bondholder assess the risks of SemiPro Ltd. very differently. The comparison to a competitor that can raise funds in the bond market, neglects the difefrent position the two companies are in. As a market leader the profit margins should well be higher and the risks more limited, given the large market share. This would result in lenders assessing the risks as sufficiently small and also the moral hazard to be limited as a market leader typically already employs the best available technology. In conclusion, a bond issue is unlikely to be successful.

Model(s) used: Sect. 3.2.3

Problem 16

Yuki Hanada manages a hedge fund specialising in credit risk and is considering investments based on securitised bank loans and bonds issued directly to investors. In assessing the risks of each potential investment, she is surprised to find that bank loans are generally riskier than bonds. This seems to be the case despite banks monitoring the companies they provide loans to, which is supposed to reduce the risks of loans compared to bonds, where monitoring of companies by bondholders is usually absent. When assessing the quality of monitoring by banks, she found that larger loans that are provided jointly by several banks are less monitored by each bank than loans originated by a single bank, but nevertheless show lower risks. Trying to make sense out of her findings, Yuki Hanada asks a colleague for an explanation. Her colleague brushes off her observation by stating that banks are not really good at assessing risks and what banks call monitoring is not much more than a boozy dinner with senior managers. Unsatisfied by this explanation, she seeks further advice to explain this apparent negative relationship between monitoring and the default risk of companies.

How would you respond to Yuki Hanada's inquiry?

Indicative answer

There are two components that need to be distinguished. There is firstly the difference between bonds and loans. Bonds are generally not monitored and hence there are no constraints on the investment decisions of companies, apart from incentives through the loan rate. Bondholders will only lend to the company through a bond if they deem that the investment decision of the company is not too risky, and they ensure this by charging a loan rate which is sufficiently low; this however, necessitates that the risks companies are taking is sufficiently small to generate sufficient return to bond investors. In contrast to that, if companies are monitored by banks the choice of high-risk investment can be prevented or made more difficult. With no or lower incentives for banks to choose high-risk investments, banks can charge higher loan rates, which then in turn allows higher risks to be taken by companies while the bank still makes a profit. Once companies are monitored by banks, the level of monitoring will depend on the incentives of banks. If multiple banks monitor a single company as they have jointly provided loans, each bank may reduce the level of monitoring, but as multiple banks conduct monitoring, the overall effect is nevertheless that the level of monitoring increasing, which can explain the lower risks of those companies compared to companies that are monitored by only a single bank.

Model(s) used: Sect. 3.2.2, Sect. 3.2.3

Problem 17

Alten Valley is a remote but relatively prosperous community, consisting of a mixture of farms, wellness hotels and associated gastronomy, traditional craft shops with a worldwide market, and a small mining operator extracting high-quality coal used in art supplies. Due to its remote location, banking services in the area are very limited and consequently businesses have managed by using loans between each other as the need arose, but wealthy private individuals also provided loans. During the annual summer festival, the idea emerges that the businesses in the community should set up their own bank. During the coming days, with clearer heads, the idea is discussed again and again. Those opposing the creation of a bank point out that the current system of businesses and individuals lending to each other works well and therefore a bank is not needed, it would merely add costs. Supporters of the bank suggest that costs might actually be reduced, even though all agree that arranging the loans and negotiating the terms are neither time-consuming nor difficult. They also point out that in a neighbouring valley, a pure farming community, a similar approach had been tried a few years ago and it did not work and they reverted back to the old system of direct lending. In particular the lenders were reluctant to provide deposits to the bank that it could then subsequently lend out, instead preferring to continue lending directly.

What could the argument of those suggesting lending costs for companies will reduce, be?

Indicative answer

Currently loans are provided directly between lenders and borrowers, thus each lender is exposed to the full risk of the loan. In case a bank is set up, the bank would provide multiple loans and the proceeds bundled before being paid out to depositors. This implies a diversification of the loan portfolio and hence reduces the risk. With reduced overall risks, the risk premium, if we assume market participants to be risk averse, will be reduced. Thus the bank will be able to offer loans at lower interest rates than individual lenders would be able to achieve. The benefits of diversification can now be split between borrowers and depositors such thaty depositors obtain sufficient interest to make depositing funds in a bank more attractive than direct lending. The reason the neighbouring valley was not successful, can be attributed to the fact that as a pure farming community the diversification benefits very limited due to high correlations between loan outcomes. This means that the benefits to banks are not sufficient to induce lenders to deposit their funds into the bank. Alten valley, however, is very diversified and the correlation of loan outcomes would be higher, resulting in higher benefits that could be sufficient to generate the requisite benefits inducing lenders to deposit funds with the bank.

Model(s) used: Sect. 3.3

Problem 18

Fremontir has a banking system that used to be dominated by only three banks, although they were seen being competitive, the competition authority decided that competition between more banks would increase the choice for depositors and borrowers alike and decided to require banks to split up such that a total of eight new banks were created, giving a total of 11 banks competing nation-wide. To their surprise, it was found that the loan rates banks charge have increased after this measure has taken effect. In their investigation of the causes, they take into account any changes in the risks of companies that obtain loans and also any increases in the costs that banks may face, and even after correcting for any such effects, the loan rates were found to be higher than before the split of the banks. It seems contradictory to suggest that competition between banks has reduced and there is no evidence to suggest that.

How can you explain the observation of loan rates increasing after banks have been split up?

Indicative answer

With the number of banks increasing from three to eleven, each bank will be smaller than before they were forced to split up. It will there be that each bank provides less loans than before, reducing the diversification of their loan portfolio. Thus the increased risk of their loan portfolio will require them to charge a higher loan rate, compensating them for the increased risk they are taking.

Model(s) used: Sect. 3.3

Problem 19

Since the advent of online platforms for borrowing and lending, the amount of deposits private households faced has gradually declined. Deposits have been invested into money market funds that are traded on an exchange and invest in government securities mainly. In addition, direct lending portals have become increasingly popular. Potential borrowers, small firms and individuals borrowing $10,000 or $50,000, provide standardised information about themselves on the portal, state the purpose of the loan and suggested terms. Lenders can then evaluate these offers and make counter-offers for a loan of $1,000 to any of the borrowers. The loans will only be paid out if the target amount is reached, i. e. 10 or 50 borrowers agree terms with a lender. Banks have reacted to this development by increasing deposit rates and hope to reverse the outflow of monies from the banking system. However, financial regulators have raised concerns about this development. While on the one hand they are concerned by the increasing risks household face by providing loans through direct lending platforms, they are also concerned about the risks they face when buying or selling money market funds as prices inevitably will vary with market demand. Consumer representatives, however, point out that these investments provide a much higher return than bank deposits and should therefore be welcomed.

Are there any other concerns about the developments observed?

Indicative answer

There are additional concerns especially with respect to the online lending platforms. Each lender needs to evaluate a borrower individual based on the information provided. Thus for each loan, 10 or 50 such evaluations have to take place. This implies a substantial duplication of effort in evaluation of lenders but also in negotiation, causing a loss in economic efficiency. The arrangement may also not be as efficient for borrowers as they might think. Diversification of risks for borrowers will be very incomplete unless their funds are substantial, hence they are exposed to higher risks than a bank would be. This will require higher loan rates to compensate lenders for these risks, making loans potentially more expensive than they need to be. Finally, the move from deposits to money market funds and direct lending undermines the liquidity insurance provided by banks. Deposits can be withdrawn at any time and allows household to use their wealth for consumption if they wish to do so. With money market funds, they can trade these, but the price they receive will not be certain, introducing additional uncertainty to households, and direct loans cannot be accessed at all, limiting consumption choice. This will reduce economic welfare.

Model(s) used: Sect. 3.1, Sect. 3.2.1, Sect. 3.3, Sect. 4.1

Problem 20

Claassen Finance Ltd. is a privately owned institution that grants loans financed by a small number of selected large investors that provide the funds in form of deposits. Given its characteristics, it is not affected by banking regulation and as such is able to focus its business on the provision of loans to selected companies looking for large loans, which they seek to provide alone. While they had initially some success, they find it more and more difficult to retain their borrowers as they all are able to secure loans at better conditions by borrowing smaller amounts from different banks. Their analysis suggests that these better loan conditions are not attributed to lower costs of banks, but some of the differences seem to be associated with banks systematically assigning lower risks to their former customers, but there remains a significant component that is not explained by different risk assessments. Claassen Finance Ltd. cannot see how they always assess companies as more risky than banks and the data they have from monitoring companies they have given loans to, suggest that their risk assessment was broadly correct.

Can you advise Claassen Finance Ltd. of the reasons for their observations?

Indicative answer

Banks, as indicated, will grant only smaller loans and companies therefore will have to seek loans from several banks to meet their demand. The consequence is that all banks monitor the company and this monitoring by all banks combined will be more effective than the higher monitoring effort by Claassen Finance Ltd. alone, reducing the risk of the company to the banks. This will explain the lower risk assessment of the banks and contribute to a lower loan rate being offered by banks. In addition, as Claassen Finance Ltd. provides large loans, they will not be able to give a large number of loans, limiting their ability to diversify their loan portfolio. Banks, on the other hand, provide many smaller loans to different companies, allowing for a much stronger diversification effect. This will reduce the overall risks the banks face more than it does for Claassen Finance Ltd., allowing banks to reduce the loan rate even more.

Model(s) used: Sect. 3.2.2, Sect. 3.3

Problem 21

Reema Khalil has graduated with a degree in philosophy and recently joined Hanover Construction plc on its graduate training programme in finance. Having observed a team negotiating the extension of loans for the company, his manager asks Reema Khalil what she thinks about the demands by banks imposed on the company. She expresses her concern that the banks are going to impose quite a number of restrictions and most major decisions will be subject to consultation with the banks, so the flexibility of the company will be significantly reduced as she does not expect the banks to agree with all decisions the management might find beneficial for the company. Furthermore, as they have negotiated with several banks, she is concerned about the level of intrusion and different demands being put on the company by the banks. Her manager smiles and reassures her that while there will be restrictions on what they can do, these will not be too onerous as the level of interference by banks will not be high as they all rely on each other to discuss changes to the business. Reema Khalil is initially confused, but then finds that while banks might impose restrictions there are also benefits to the company.

What are these benefits Reema Khali's manager refers to and why will banks' interference be less onerous than it appears?

Indicative answer

Banks will impose restrictions on Hanover Construction Ltd. that are in their own interest, the ability of the company to repay the loans; this will benefit the company as the reduced risk of default will result in a lower loan rate and if markets are competitive, the company will have negotiated a loan rate that offsets the costs of any additional constraints imposed on them. The monitoring imposed by banks will be less severe as all banks will benefit from the monitoring of any bank, causing a moral hazard. That will reduce the level of effort banks put into monitoring and what might sound as potentially onerous restriction being imposed by several banks, will turn out to be much fewer restrictions.

Model(s) used: Sect. 2.3, Sect. 3.2.2

Problem 22

In a period of prolonged low-interest rates during a recession in the dominant mining sector of Uralia, investors have been searching for yield. Bank deposits have interests close to zero and government bonds are only marginally higher. Local entrepreneurs have developed an online platform that allows small companies and individuals to seek loans of UR$1,000, UR$5,000, or UR$10,000 at interests of 2%, 4%, or 7%, depending on the risk category they are assigned in an initial screening by the platform. All loans are fixed for 2 or 5 years. While those seeking to borrow money have to undergo an initial assessment, anyone seeking to lend money can do so. The identity of the borrower is only revealed after the loan agreement is finalised, but the amount and risk category are revealed upfront. After a rather slow start, the platform has become a popular investment tool that has been widely promoted by financial advisors and features prominently in many popular TV shows. Banks notice that substantial amounts of deposits are withdrawn and transferred to loans agreed via this platform. They are naturally concerned about the competition for their own business, which often charges a higher loan rate, and would like the financial regulator to intervene.

The banks can obviously not ask the financial regulator to intervene in order to protect their own business from competition. What argument can the banks use to convince the regulator to intervene for their benefit?

Indicative answer

The online platform offers a mechanism to provide loans directly to borrowers. It is common that over longer time periods, individuals but also companies have unexpected needs for cash, such as a bill from a repair that was not anticipated or changes in circumstances. The direct loans do not provide a way to accommodate these requirements. Banks, on the other hand, are able to repay their deposits to all those that need access to cash. Currently lenders are attracted by higher interest on deposits, forgetting the substantial costs they may face if requiring cash. It is socially optimal to have banks conducting the lending, and all funds to be deposited with them. Therefore, while it may at the moment be individually rational for lenders to shun deposits, the overall welfare would improve if bank lending is restored fully.

Model(s) used: Sect. 4.1

Problem 23

AgriBank plc has provided financial services mainly to rural communities. The changing weather patterns do not allow their customers to plan well ahead and the demand for loans as well as the amount of deposits are highly variable. In contrast to that, Industrial Bank plc operates in a more stable market, serving small and medium sized enterprises as well as private customers of the upper middle class. Industrial Bank plc is much more profitable than AgriBank plc, even though the credit risk both banks take are similar. Many private investors attribute the lower performance of AgriBank plc to an inefficient management and high costs in a more rural setting.

Is there an alternative explanation for the lower performance of Agribank plc?

Indicative answer

The demand on the deposits for AgriBank plc are described as variable, while the environment for Industrial Bank plc is seen as more stable. The consequence is that the likelihood of AgriBank plc seeing the withdrawal of deposits is higher than for Industrial bank plc, necessitating AgriBank plc to hold higher cash reserves. With higher cash reserves, AgriBank plc will be able to lend out less of their funds than Industrial Bank plc; given that the provision of loans generates the profits of the bank with cash reserves not attracting any interest, the profits generated by AgriBank plc will be lower. It is thus not the inefficiency of the management or other costs that necessarily drive this result, but the different customer base of these two banks.

Model(s) used: Sect. 4.1

Problem 24

The Ministry of Finance has assembled a task force to improve the competitiveness of the banking sector. In a first informal discussion of the areas to investigate further, a number of members express the opinion that with increasing use of technology banks would become obsolete and seeking to promote the use of online tools would be the best way to improve the banking system by eliminating it. While many disagree with that view, they quickly settle on investigating the question of how to make alternatives to banks more efficient in matching households and companies with demand for loans to those with excess funds they seek to invest. Allowing this matching and also agreeing the terms and conditions of any such loan, along with monitoring of borrowers, should be an area to investigate further. Some additional suggestions are made that any such arrangement would have to be accompanied by an efficient trading facility for loans to ensure that lenders can obtain cash if needed. A small number of members of the task force are, however, trying to direct the discussion away from this idea to make banks redundant. They say that banks have their role in society, even if markets are perfectly competitive they will not be superfluous.

Is the majority of the task force right to seek to eliminate banks by making alternatives more efficient? Explore the thinking behind each group's position.

Indicative answer

The first group see banks as pure intermediaries and believe that eliminating any transaction costs leaves banks without any role. If no such costs exist that justify the role of banks, or these costs can be borne otherwise by an online platform, then banks have no specific role, although it can be argued that the online platform then takes on the role of a bank. However, even the supporters of this view seem to recognise that lenders might need to access their monies during the life-time of the bond and suggest that this could be achieved through trading these loans. This captures the essence of the view of those seeing banks as indispensable as they provide this liquidity insurance. Banks allow depositors (lenders) to withdraw their funds at any time, without the need to find a buyer for the amount deposited in the bank. This increases the overall welfare, even if banks are fully competitive. Thus there is a place for banks in an economy as they provide a unique service.

Model(s) used: Sect. 2.1, Sect. 4.1

Problem 25

Chania has undergone yet another banking crisis that has resulted in the collapse of its entire financial system. The same has happened 11 and 7 years ago. In all three cases, it was depositors that lost trust in the stability of the banks and rather than risk losing their deposits, sought to take out cash. The origin of the loss of trust has never been established and in none of the banking crises has there been an obvious trigger.

Fearing a cycle of ever-repeating banking crises, prominent politicians suggest to overhaul the way banks are operated. Their idea is that all deposits from the public will have to be fully covered by reserves held in either cash or at the central bank. Any lending would be administered by the banks, but on the basis of loans provided to them by a newly established 'Growth and Innovation Bank', which would be financed by the central bank. They claim this would prevent depositors losing any money and therefore make banking crises impossible, while at the same time maintaining the flow of loans to the economy. Presenting his ideas at a conference attended by leading bankers and academics, these ideas are less than politely rejected as not only questionable to ever work given the level of interference by the 'Growth and Innovation Bank' in allocating funds for loans, but also as fundamentally flawed.

Sitting next to senior bank manager, he leans over to you and carefully asks, what fundamental flaws some people are referring to. What would you reply?

Indicative answer

In such a banking system, banks could not invest any of the deposits, apart from holding them as reserves at the central bank. In this sense the deposits are not contributing to the provision of loans, which should reduce economic growth. Of course, the 'Growth and Innovation Bank' could also exist alongside traditional banks, if this was desired, its existence, therefore, makes no difference in principle. If we were to abolish traditional banks, direct lending from 'depositors' would emerge and thereby the funds they have available would contribute to economic growth, unlike in the proposed banking system. While the direct loans are imperfectly liquid, this would not be as good as a traditional banking system, but it would be an improvement over the proposed banking system.

Model(s) used: Sect. 4.2.1

Problem 26

Concerned about the ability of banks to be able to honour all deposit withdrawals in a financial crisis, some commentators in the press have argued to increase the requirements for cash reserves in banks significantly. Regulators and most bankers reject this proposal and suggest that the current amount of cash reserves allows depositors to withdraw as is needed in the normal course of business; any higher liquidity requirements would damage the ability of the banking system to function properly.

Having been invited to provide your own opinion for a national newspaper on this debate, what would your position be?

Indicative answer

Increasing the liquidity requirements reduces the amount of loans banks can provide, which will be detrimental to investment and thus economic growth. It furthermore reduces the returns banks can pay on deposits as cash reserves do not generate any or very low returns to banks. Increasing the liquidity requirements significantly is akin to a road leading to narrow banking as the deposits the bank obtains cannot be lend out as much anymore. Such banking reduces the welfare in the economy and is therefore inferior to the traditional form of banking with low liquidity requirements. While this might occasionally lead to bank runs, their rarity suggests that the benefits of fractional reserve banking will outweigh the costs of occasional bank runs.

Model(s) used: Sect. 4.2.1

Problem 27

DirectLending Ltd. operates a platform to match investors willing to lend funds with companies seeking loans for investments. They offer standardised loan contracts with set times to maturities and loan rates reflecting the risks of the companies seeking loans. They promote their platform as an alternative to deposits for a wide range of customers after a financial crisis that saw a large fraction of banks fail with many depositors losing large fractions of their deposits. Taking out an advert in a leading newspaper, DirectLending Ltd. claims that banks are too unsafe and they should not be allowed to lend out money they promise can be taken out by customers at any time. In response to this advert, the Association of Banks claims that banks in their conventional form are offering a valuable service to their customers and that the proposal would harm the welfare of the country.

Why does DirectLending Ltd. make this claim that banks should not be allowed to lend out deposits?

Indicative answer

Conventional banks allow the implementation of the social optimum of resource allocation by retaining a small fraction of deposits as cash reserves to accommodate any deposit withdrawals during normal times. This means that the presence of banks is providing a higher welfare than relying on direct lending through companies such as DirectLending Ltd. On the other hand, by not allowing banks to lend out deposits, direct lending by ’depositors’ is a superior solution than operating a narrow banking system. As this would imply more business activity for DirectLending Ltd., increasing their profits.

Model(s) used: Sect. 4.1, Sect. 4.2.1

Problem 28

Marcel Schnurli is an advocate of a reform of the banking system. His claim is that banks make excessive profits at the cost of depositors and borrowers alike. He acknowledges the role of banks in providing vital services, such as making payments and their expertise in assessing the risks of potential borrowers, but believes a better way of banking can be found. In his view, banks should be provided with funds by the central bank to provide loans that otherwise would not be granted as the assessment of the borrower is too difficult for the general public, but deposits should be kept for the sole purpose of making payments and safekeeping without being lent out. Lending should be financed directly through an efficient online platform that matches borrowers with potential lenders who seek long-term investments. When defending his position in public debates he gets widespread support from ordinary members of the public, while all economic and banking experts refute the proposal as bad for the economy.

Who is right in their assessment of the idea put forward by Marcel Schnurli?

Indicative answer

The proposal is for narrow banking on the one hand and reliance on direct lending on the other hand; both market forms are inferior to a fractional reserve banking system. The narrow banking aspect of the proposal, where deposits cannot be lend out will reduce the welfare of the economy as these funds cannot be used productively, reducing the loan amount available and earning depositors no returns. The direct lending aspect of the proposal is also inferior to a banking system as depositors cannot withdraw their funds if needed, or only incurring a loss when selling the loan they have provided.

Model(s) used: Sect. 4.1, Sect. 4.2.1

Problem 29

Angelsia has been gripped with the third banking crisis in 11 years and after having bailed out the 4 main banks yet again, a parliamentary commission is established to look at the future of banking in Angelsia such that future costs of failures can be eliminated. It is quickly established that in all cases the cause of the crisis was, as previously, the spread of largely unfounded rumours about the banks through social media. The establishment of a deposit insurance system had been discarded after previous crises by votes in parliament and it seems that there will be no majority for such a system; most members of parliament are seeking a more radical solution to address the problem at no costs to the public. Suggestions are being heard from outside the banking sector that propose a government-backed lending scheme, operated at arm's-length by the now rescued banks. Banks would be allocated an amount they are free to lend and would be held responsible for to the government in that any shortcomings in returns have to be covered from the profits of the banks. Banks would continue to take deposits from the general public, but hold these against government securities to pay some interest to depositors. Other alternative suggestions are that depositors should be prevented from withdrawing their funds during times of crises and instead would be able to obtain only an ever diminishing fraction of them, making losses as they do once deposit withdrawals exceed a certain threshold.

Would any of these two solutions be a feasible alternative to the current banking system?

Indicative answer

These proposals refer to narrow banking and using a system similar to withdrawing deposits at market value only. Both alternatives are inferior to the normal banking system as they provide lower social welfare. Narrow banking makes deposits unavailable for lending and thus causing an inefficiency and the use of market values for deposits in case of withdrawals introduces and additional uncertainty to depositors that reduce their welfare. Thus on first sight the alternatives are not an improvement to the current banking system. It has, however, be balanced against the costs arising from the frequent failure of banks due to sudden depositor withdrawals. Both alternative suggestions are not subject to such withdrawals as in the first case the deposits are fully covered by government securities and in the second case withdrawals would impose costs on depositors, making this less attractive. Hence the costs of bank failures should be significantly reduced. The loss of welfare from a suboptimal banking system has to be balanced against the losses from bailing out banks. If bailouts are frequent and there is an expectation that this would most likely continue n the future, the proposals might well be feasible and an improvement on the current situation. If the need for bank bailouts is very low, however, the welfare losses are most likely to be higher.

Model(s) used: Sect. 4.2.1, Sect. 4.2.2

Problem 30

A regulatory review of the banking system in Odomantis has been launched. Many observers think it lucky that Odomantis has been spared a major banking crisis in recent years, despite many of their main trading partners either having faced a banking crisis or having to take significant steps by the central bank and government to avert such a crisis. A main concern is that depositors in banks lose trust in the stability of their bank and withdraw their deposits, something that cannot easily be controlled through regulation. While many measures have been proposed to improve the governance and risk management of banks to alleviate any concerns that deposits are not safe, it is seen as prudent to address the threat of large-scale deposit withdrawals. Intervening in deposit markets at any point can easily be seen as a sign of weakness of a bank and accelerate any deposit withdrawals, or even trigger such withdrawals even if there is no cause of concern. With banks working well most of the time, it is desirable to not intervene during normal times. Only during times an individual bank or all banks are under stress should an intervention be considered. To make any intervention conform with market principles, a consultation is launched on the following idea: if the withdrawal of deposits is such that, if it continues, the bank is less than 4 weeks from failure, deposits are not repaid in full. Instead they are operating on a sliding scale where the more deposits are withdrawn, the less is repaid. Those depositors remaining with the bank will subsequently see their deposits repaid with bonuses from these savings made by not repaying withdrawals fully.

This proposal has led to a fierce backlash from consumer associations, but would it address the problem of banks failing from deposit withdrawals?

Indicative answer

If the amount a depositor receives in such a situation is appropriate it should prevent any further bank run, assuming depositors are acting rationally. The reason is that with every further withdrawal of deposits the amount obtained reduces, while at the same time depositors retaining their deposits will receive higher payments. If the values are chosen accordingly, the incentive to withdraw deposits are eliminated and should stop. Of course if the bank is fundamentally weak in that the loans they have provided are accumulating losses, then the payments to the remaining depositors will not be enough to ensure they do not withdraw, too.

Model(s) used: Sect. 4.2.2

Problem 31

Alternative Bank eG is a newly formed mutual bank that seeks to offer socially responsible banking. This is not only reflected in the types of businesses that can obtain loans from the bank, but extends also to the behaviour of their depositors, who are also supposed to act socially responsible. To this effect the bank allows depositors to withdraw up to €500 per week without loss of interest, but any higher withdrawals will subject to a penalty which is determined daily based on the amount of withdrawals the day before. While many support the ideas put forward by Alternative Bank eG, they are barely able to attract depositors, despite offering higher interest on deposits than most other, conventional, banks.

Why does the high interest on deposits not attract more customers?

Indicative answer

The key difference of the deposits offered by Alternative Bank eG to that of other banks is that the amount that will be repaid is uncertain as it depends on the withdrawals of other depositors, while for conventional banks the amount will be fixed. While this arrangement is not the same repaying the market value of deposits, this arrangement has the same properties. In particular, it introduces uncertainty about the repayment amount, which reduces the utility deposits can generate from, using Alternative Bank eG. Clearly, the higher nominal interest rate on deposits doe snot fully compensate depositors for this risk.

Model(s) used: Sect. 4.2.2

Problem 32

Banks frequently offer customers accounts that severely limit access for longer periods of time or even do not allow any withdrawals for a specific time period. The interest of these accounts, when compared to accounts that offer unrestricted access, is often substantially higher. Despite these higher interest rates, uptake of these accounts is typically low, which is commonly explained with the preference of depositors to be able to withdraw deposits at short notice. However, banks still offer these accounts, despite them being more expensive. Being new into the banking sector, having recently been hired into a senior position from the retail sector, you question this strategy from a purely financial point of view, acknowledging strategic objectives in binding customers to the bank.

How would a more experienced colleague explain the reason for offering such accounts?

Indicative answer

While the accounts look more expensive to the bank on first sight, the interest paid over the same time period would be higher than for accounts with unlimited access, the expected profits from both accounts are identical. This is because with long-term accounts, any risk from our bank failing is accumulated throughout the lifetime of the account. With loans being given long-term, this means that these risks are realized only after many years. With accounts that can be accessed, depositors are repaid frequently and until loans mature obtain risk-free returns and only the money deposited in the final time period would be at risk, hence they would require lower interest rates as their potential losses are lower. For the bank, however, it means a constant outflow of interest to be pais that cannot be recovered if loans are not being repaid. With an appropriate pricing strategy, these two effects cancel each other out and both accounts are the same costs to us. It makes therefore sense to offer these accounts if there are other strategic benefits associated with long-term deposits, given they do not cost any more.

Model(s) used: Sect. 4.3

Problem 33

Comparing interest rates at banks, you see the following two types of savings accounts and are attracted to those offering terms of 2 years as you are reasonably sure you would not need access to your money for that time period. The first account pays interest annually with 5% p.a. in the first year and 7.25% p.a. in the following year. The other account pays 6.5% p.a. in each year, paid accumulated at the maturity of the account. You are aware that the bank in question mostly provides consumer loans with maturities of roughly 2 years. As the interest paid on the second account is higher overall, you think it is a obvious to choose this account.

Would the first account only be attractive to those depositors relying on interest payments in each year as a source of income?

Indicative answer

If deposit markets are competitive, the expected returns should be equal for both type of accounts. What the deposit rates do not reveal, is the risk of the deposits not being repaid. This will only happen once it is clear that the loans are not repaid to the bank, thus any interest in the first year will be paid for sure, while the interest and deposit in the second year will only be paid if the loans the bank has provided are repaid. With the first account, the depositor will obtain some interest payment for sure, while with the second account both interest payments are at risk. It is these different levels of risks that seem to make the second account more attractive, but it exposes the depositor to higher risks.

Model(s) used: Sect. 4.3

Problem 34

Driven by the desire to reduce the costs of a large number of small banks, government and central bank policy in Soratia encourages the consolidation of the banking sector through mergers. While many saw this move critically as competition between banks would be reduced, others have denied that this is a likely effect. They claim that a substantial number of banks will remain and that no locally or regionally highly concentrated markets would be allowed. Assessing the impact of the mergers conducted to date, the competition authority of Soratia has asked the public for submissions to assess the impact of the consolidation so far. The Chamber of Commerce is one of those having prepared a wide-ranging submission, mainly taking into account the experiences of small and medium-sized companies. While most experiences are relatively homogenous across the companies and across regions, there are large discrepancies when it comes to the lending policies of banks. In particular, some companies report that access to credit has stayed the same or become sightly easier, especially as banks are much more flexible in granting credit lines; others report the exact opposite experience and their access to credit is much more difficult now. Analysing the responses by companies on this point, it is noted that there seems to be no specific pattern to exist for specific regions, company types or even obvious bank characteristics. It emerges after significant data work that those experiencing the most problems with access to credit seem to be those companies whose banks chose to merge with banks in different regions but serving a similar customer base. On the other hand, those reporting easier access to credit were using banks that decided to diversify by merging with banks that operate in different segments of the market, whether these banks were located close or far.

How can you explain this observation?

Indicative answer

Banks provide credit lines and if these are taken up, they need additional funds to meet this demand, which means accessing the interbank market or other sources. Generally the larger a bank is, the larger its aggregate credit lines will be and hence the larger the funds it will need to raise. As raising large amounts of funds will be more costly, larger banks face higher costs and would therefore reduce credit lines. This accounts for less easy access to credit in general in light of the consolidation. There is a second effect, though, that arises from the correlation of such demands on the funds of banks. If demands by companies are highly correlated, the costs are potentially very high as if credit lines are used, the demand for funds will be high, increasing costs significantly. Lower correlations make such high demand less likely and therefore reduces costs, making banks more willing to provide credit lines. In the case of the mergers in Soratia, some banks merged with those covering similar markets, hence the correlation in demands for loans will be approximately stable and the effect from the larger size of the bank dominates, reducing the availability of credit. Those banks that sought to diversify their operations, will probably also reduce the correlation in demand as there different industries or different types of companies will not have the same needs at the same time. This will lower the demand for loans at any point in time, reducing the size of funds that need to be raised and due to the lower costs, they are more willing to provide loans. The effect of the increased bank size is overshadowed by the effect of the lower correlation in loan demands and banks grant credit lines more easily.

Model(s) used: Sect. 4.4

Problem 35

Corneus Ltd. produces medical equipment used by ophthalmologists and is well established in the market with strong cash flows and highly profitable. Occasionally some customers have to delay payment for their orders, although defaults are virtually unknown. To avoid any cash shortages, Corneus Ltd. has agreed with its bank an overdraft facility that has been available for many years. At its annual review date, the bank rather unexpectedly announced that this overdraft facility will be reduced by a third. The Chief Financial Officer of Corneus Ltd. questions this decision as he cannot see any detrimental developments within the company. Their customer advisor agrees that this reduction in their credit lines is not in response to a negative outlook on the company, but rather reflects a general policy decision by the bank to reduce overdrafts and credit lines, especially to companies who rarely use them, like Corneus Ltd. On being probed further, the bank tells the CFO that this is in response to their own liquidity challenges. The bank over the last few years has observed that the use of credit lines and overdrafts has often coincided with deposits being withdrawn, in some cases requiring the bank to seek additional liquidity from the interbank market. While in the past the uptake of credit lines and overdraft had increased, this has reduced recently in the more benign economic climate. In reaction to these developments, the management of the bank has decided to reduce the overdrafts they provide in order to protect their own liquidity position.

How can you explain the decision of the bank?

Indicative answer

The bank faces an increase in the correlation between deposit withdrawals and the uptake of credit lines. As indicated by the bank, this may cause shortages that the bank has to cover with often costly interbank market loans. Initially the uptake of credit lines was quite high, making the additional liquidity the bank held to accommodate these possible take ups, profitable, making bank happy to increase credit lines. As the bank maintained credit lines, we can assume that these two effects approximately cancelled each other out. Now with the take-up of credit lines falling, the higher cash reserves are no longer profitable and banks start to reduce them in order to reduce cash holdings.

Model(s) used: Sect. 4.4

Problem 36

Choming Bank has been subjected by the Regulatory Authority for Banking to severe criticism for its low cash reserves, which on several occasions in the past months lead to them requiring emergency loans from the central bank. In discussions with the Regulatory Authority, representatives from Choming Bank point out that they have repeatedly been caught out by unexpected uptakes of loan arrangements that have been agreed months and in some cases years earlier, combined with higher than expected deposit withdrawals by large corporate clients. They believe that the unexpectedly well-performing economy has lead to a significant increase in investment, causing companies to demand more loans and reducing excess deposits. The Regulatory Authority responds by saying that this can hardly be the case, Choming Bank does hold too little cash reserves or needs to find more long-term sources of funding to avoid having to rely on emergency assistance by the central bank. In a further exchange they claim that increasing either cash reserves or long-term funding will increase their costs and make them less profitable, putting them at a disadvantage to other banks who do not face such measures. Having published the minutes from these exchanges, banking analysts are pouring over the arguments and many dismiss the analysis of the Regulatory Authority that Choming Bank held inadequate cash reserves and support their assertion that having to use more long-term funding is detrimental to their profits.

How would they explain the need for emergency loans by the central and the negative impact of long-term funding on Choming Bank's profits?

Indicative answer

Choming Bank claims that they have been caught out by higher than expected coincidences of a high take up of credit lines and high deposit withdrawals, implying that the correlation between these events has increased, probably together with the incidence rate itself. If the economy has performed better than expected, this is a reasonable consequence and the cash reserves prior to this unexpected change might well have been adequate; it was only in hindsight after knowing how the economy had changed that the vash reserves turned out to be smaller than they should have been. Even with adequate cash reserves, banks facing larger deposit withdrawals or a high take-up of credit lines might require central bank loans, it is more cost-effective to rely on such loans than hold large cash reserves. Requiring more long-term funding will not affect the profits of the bank, however, although the interest paid to short-term deposits are lower. However, it has to be taken into account that the larger interest payment on long-term loans is only payable if the loans the bank has given is repaid. In contrast to that, with short-term deposits, only the final interest payment at maturity of the loan is subject to this conditional payment, balancing the overall payments the bank has to make to depositors. It is only the interest payments that are payable by a bank whose loans are all repaid that are increasing with long-term funding, neglecting the possibility of bank failures.

Model(s) used: Sect. 4.2.2, Sect. 4.4

Problem 37

InnoTranfusion SA is a small company developing medical equipment used for the transfusion of blood in developing countries. As a spin out from a local university, it has thus far relied on the financing by venture capitalists, who in recent years used their contacts to allow the company to borrow funds from some private investors. With their recent expansion, the ability to raise loans privately has been exhausted and they had to seek a bank loan. Having been directed to a bank with a long-standing expertise in financing companies in the medical and health field, the risks of the company are assessed and a loan rate is set at 6.25% p.a. for the first year, to be reviewed annually; this compares with a loan rate of 7.4% for the last loan agreed with private investors in similar market conditions. After a successful year of developing their equipment further and having shown growth of their sales along projected lines, they are surprised to learn that the bank offers them a new loan rate of 6.8%. While changed market condition can account for an increase of 0.2% in the loan rate, the company is at a loss why the loan rate has increased beyond that. The bank explains, in response to their query, that the loan rate reflects the risks as they have assessed it. They point out that while they believe the company has good prospects, the risks they are taking has increased due to some decisions on expanding into less stable markets, which they had previously ruled out.

Why has the risk of the company increased from the previous assessment of the bank?

Indicative answer

The bank is experienced in the market the company operates in, so it can be said that the bank has a good ability to assess their risks. InnoTransfusion SA has previously relied on the provision of loans from investors directly and now has to rely on bank loans. We can assume that due to the experience of the bank their ability to assess the risk of the company is better that of the investors. The consequence is that this higher ability of the bank to determine the risks of the company has lead to a reduction on the loan rate as they were more correctly classified as low-risk, resulting in a lower loan rate. This higher ability of the bank to assess risks, however, reduces the incentives of the company to make decisions that maintain this low risk. This will result in decisions that increase the risk, like the expansion into less stable markets. This increased risk was not anticipated by the bank but was included in the revised loan rate.

Model(s) used: Chap. 5

Problem 38

Baudi Bank has recently expanded from its origins in the area around the city Baudi, dominated by mining non-precious metals and their processing, to the neighbouring area of Lada, which is well known for its expertise in transport logistics, being the location of a major airport, a harbour, and major road crossings. Both areas are attracting entrepreneurs who will set up innovative companies; the lack of venture capitalists in the normal sense has made these companies reliant on funding by the entrepreneur itself and then once the company becomes successful, they may get access to development funds set up by the central government, providing loans. Once companies become sufficiently mature, these government loans are withdrawn and companies have to rely on bank loans to finance their business. It is at this stage that Baudi Bank provides loans to these companies. It has been their practice for years to assess the prospects of companies and once they had made their assessment of the current operation, determine an appropriate loan rate to which they usually added another 0.25%. When expanding into the Lada region, their process was the same, but instead of adding 0.25% to the loan rate they thought was appropriate for the risk of the company as in Baudi, they would subtract 0.25%. Baudi Bank claims this practice of subtracting 0.25% in Lada is not to offer loans at lower rates to gain market share, but reflects their position in the market.

What alternative explanation is there for this practice of Baudi Bank?

Indicative answer

Baudi bank is in a position of knowing the business of companies in Baudi very well as they have been able to gain significant experience in assessing the prospects and risks of the companies there, but in Lada different types of companies operate and Baudi bank will not have the same level of expertise. In making these adjustments, Baudi Bank considers the impact the bank loan has on the incentives of the company to take risks. We can reasonably assume that the government organisation providing the funding in the previous state of company development is not very good at assessing risks, given the wide range of companies they have to assess; they are thus comparable to a direct lender. In Baudi the bank will have a high level of expertise and this the incentives for companies are to increase risks compared to the risks they took under government loan funding. This anticipation of higher risks is reflected in the higher loan rate. In contrast to that, in Lada the bank has a low level of expertise as the type of business operating in this region is different to what they are used to in Baudi. With low levels of expertise, even if higher than the government organisation deciding on loans, companies have an incentive to reduce the risks they are taking, which is again anticipated in Baudi Bank reducing the loan rate accordingly.

Model(s) used: Chap. 5

Problem 39

Jamilla Ltd. is seeking a new loan to finance its ongoing operations. Due to the banking sector being poorly developed in Radustan where they are based, they have so far relied on loans provided by wealthy individuals, as do most other companies. However, with the more difficult economic situation in the country, securing new loans has become difficult. On a business trip to Maranisam, the capital, the owner of Jamilla Ltd. decides to visit two banks and explore the possibility of obtaining a bank loan. He first calls on First National Bank, which has much experience with companies in the infrastructure sector, such as Jamilla Ltd., which is an engineering company working on road and rail projects. The meeting is disappointing in that he is turned down for a loan; the comments from a senior manager at the bank is that while they can mitigate the risks of the company through adequate support, the risks of the company not repaying the loan are nevertheless too high for them.

The visit to Maranisam Bank gives a better result. Although this bank admits to not having lent to many companies like Jamilla Ltd., it has a positive view of the prospects of the company and would be willing to grant the loan. There is however the condition that any major decisions of the company are first discussed with managers at Maranisam Bank. Happy to have secured the loan at more favourable rates than their existing loans, the owner of Jaramilla Ltd. finds the differences in the decisions by the two banks baffling. In both cases it seems that the risks they attribute to the business seems to be broadly similar and in line with what the private lenders have indicated, both want to influence management decisions, but the bank having a better understanding of the business turns down the loan application, while the bank having less understanding of their business approves the loan.

Is there a rational explanation for these two decisions?

Indicative answer

All lenders assess the risks of the company in a similar way, hence different risk assessments cannot be the reason for the different decisions. Banks would want to monitor the company and they may anticipate that this will reduce the risks of the company, allowing them to grant a loan that private lender without such monitoring would not find viable. The differences in the decisions of the banks can be explained by their different levels of expertise. First National Bank has a high level of expertise in the sector Jamilla Ltd. is operating and this implies that there are incentives to increase the risk of the company, making it too risky for the bank to grant the loan, despite the risk reduction from monitoring. Maranisam Bank has a low level of expertise, given their lack of experience in the sector, and this would imply companies reducing their risk-taking compared to the current situation with private lenders. This lowering of risks makes the loan viable for Maranisam Bank anticipating this behaviour, while making it unviable for First National Bank which anticipates an increase in risks. The loan is not viable for private lenders as they are not able to monitor the company and reduce its risks.

Model(s) used: Sect. 3.2.3, 5

Problem 40

Sluiskanaal B.V. is Dutch company that builds locks and maintains canals along many of the canals frequented by tourists. It is well a established and highly profitable company that has grown substantially over the last few years as competitors struggled to survive facing their competition. Having grown considerably, they have outgrown their current banking relationship with Amstel Bank, a bank operating locally at their main site which has known them for over 50 years, and now seek to finance a further expansion of their business through Nederlands Bank, a nationally operating bank. During their discussion with the loan officer of their new bank it has become apparent that he has no real understanding of their business, unlike staff at their former bank. They are nevertheless pleased to obtain a loan offer with a loan rate that is below what they could secure previously. They are even more surprised about the offer as they notice that Nederlands Bank has assessed the risks faced by Sluiskanaal B.V. higher than Amstel Bank had.

As there is no evidence that the costs of Nederlands Bank are lower than for Amstel Bank, how do you explain the lower loan rate offered to Suiskanaal B.V. and will this lower loan rate persist in the future?

Indicative answer

Amstel Bank would have had good knowledge of the company and its operation, making it easy for the bank to assess the risks and prospects of the company. This good knowledge will lead to a higher loan rate as the bank will anticipate that companies in such a situation have an incentive to increase the risks they are taking compared to a baseline case where lenders provide loans directly. With Nederlands Bank having a much less detailed knowledge of the company and will therefore face more difficulties in assessing their risks properly. It in such a situation the company has an incentive to reduce risks compared to the mentioned benchmark. It is thus that with Amstel Bank the company had an incentive to increase risks, resulting in a higher loan rate, while with Nederlands Bank the company has an incentive to reduce risks, giving it a lower loan rate. This result is true for the same level of risk assessment, it is therefore that Sluiskanaal B.V. is able to obtain a better loan rate at Nederlands Banks. As Nederlands Bank bets to know the company better, it should also improve its ability to assess the risks, resulting in a less and less incentives for Sluiskanaal B.V. to reduce risks, leading to an increase in the loan rate.

Model(s) used: Sect. 4.4

Part II
The provision of loans

Problem 41

Sjeverne Komunalije d.d. is a highly regulated utility company whose decision-making is regulated and audited by the national regulator with all board minutes being routinely published in a timely manner, remuneration of all managers published, and expenses tightly controlled. Given the high level of transparency and its profitability, Sjeverne Komunalije d.d. has no problem, securing loans at very favourable rates. A major shareholder of the company laments that the high amount debt of the company is detrimental to its profits and suggests that rather than paying interest to banks, the company seeks funding that makes repayments based on the performance of the company.

Would such performance-related funding be more beneficial to Sjeverne Komunalije d.d.?

Indicative answer

The high transparency of Sjeverne Komunalije d.d. does not allow them to publish a lower performance than it has actually achieved, this will make it optimal for the company as well as the lender of funds to use a contract where the lender participates in the profits of the company rather than receives a fixed amount as repayment. Sjeverne Komunalije d.d. will not be able to reduce these payments to the lender given its high level of transparency, not is there a way to reduce the actual profits through decisions that are detrimental to the company at the time of the repayment.

Model(s) used: Sect. 6.1.1

Problem 42

Barstow Construction plc and Combined Software plc have at the same time issued a bond whose repayment will depend on the performance of their respective companies. The issue of such a bond was a surprise to the market in case of Barstow Construction plc as the company is known for its conservative and very cautious approach in term of decision-making and also the financing of the company. Combined Software plc, on the other hand, has always been more innovative in their financing decisions and they are also known to make bold decisions when operating their company. What is notable is that after adjusting for other different terms in the two bonds, Barstow Construction plc will use 12% of the value of their company to repay the bond, while Combined Software plc only has to use 7% of their company value, despite having a higher risk.

How do you explain the difference in the repayment values between these two companies?

Indicative answer

Barstow Construction plc is described as being conservative in decision-making and financing, this would imply a high level of risk aversion and this implies a high fraction of the company value being used to repay the bond. However, Combined Software plc is less risk-averse as it is described as being innovative and bold, giving rise to a lower fraction of the company being used as repayment for the bond. The higher risks are not relevant as they will be compensated fore by the higher return on the company value and hence a higher value of the company, assuming the positive risk-return relationship holds.

Model(s) used: Sect. 6.1.1

Problem 43

Harrison LLP is operating a hedge fund that specialises in providing innovative loan solutions to companies. On the condition that one of the partners of Harrison LLP becomes a board member of Sulyeog Baljeon, a Korean company generating electricity using hydroelectric dams, they have agreed to provide a loan whose repayment is dependent on the performance of the company. If the company returns more then 6% p.a., the loan does not need to be repaid, while if the companies shows a lower return, its full value including accrued interest of 4.5% p.a. have to be repaid. Such a loan agreement is entered into by Harrison LLP with the aim of diversifying their portfolio. Sulyeog Baljeon rejects the demand by Harrison LLP to obtain a seat on the board and the loan is not agreed.

Why is the appointment of a board member for Harrison LLP so essential?

Indicative answer

Such a loan contract relies on the company not being able to overstate their performance and thereby to avoid having to repay the loan. Having a board member allows Harrison LLP to get an insider's view of the company and thus verify that the company performance is actually above the threshold. This reduces the informational asymmetry between Sulyeog Baljeon and Harrison LLP, making the loan contract feasible.

Model(s) used: Sect. 6.1.2

Problem 44

Convay Finance Ltd. provides a loan to Proven Technologies Ltd. and they specify a loan rate of 5.75% p.a. with a time to maturity of 8 years. Having been recently hired as a graduate at Convay Finance Ltd. you are surprised that the loan rate is not set higher as there seems to be no competitor who will offer them terms below 6.5% p.a. and the profitability of Proven Technologies Ltd. would easily allow them to pay such a higher rate. You are dismissively told by your manager that a higher loan rate would not be worth the hassle.

What is the hassle that your manager refers to?

Indicative answer

With a higher loan rate, the repayment requirement is higher and thus the likelihood of Proven Technologies Ltd. failing to repay its loan is higher; this would then necessitate Convay Finance Ltd. to initiate a costly auditing process. It is thus that the expected costs from auditing the company are higher and these costs seem to outweigh the benefits of the higher interest income, as suggested by the manager.

Model(s) used: Sect. 6.1.3

Problem 45

Samamoto GK specialises in the development of software for automated warehouses and has acquired new clients for which it needs to hire additional programmers, necessitating a loan to finance their salaries until invoices are due. In order to obtain the best loan conditions, Samamoto GK has approached its bank and also two of their investors for a loan. They are surprised to receive an instantly positive response from all they approached, especially from their bank as they have in the past shown very little knowledge and understanding of their business model. The bank offers them a loan at 7.25% p.a. over 6 months, when it is due to be repaid in full, which coincides with the due date for the payment from their new clients. One of the investors, who has financed them since they were founded as a venture capitalist, and is a member of their board, offers them to finance their costs in return for a share of 15% of the profits they generate from the new clients. The second investor has only recently joined the company and also sits on the board; he offers them a similar option to the other investor but requires only 12% of the generated profits. This latter investor specialises investing into well-established companies seeking to expand.

Why do the bank and the investor offer so different form of financing Samamoto GK and why do the two investors offer different terms?

Indicative answer

The bank has little knowledge of the company and will therefore not have the requisite information to assess the outcome of the investment into the new clients; this would allow the company to make misleading claims on the profits the new clients generated, necessitating the bank to instigate a costly audit. It is therefore that a traditional loan is offered to minimise these audit costs. The investors, however, are not only familiar with the company but as board member have deeper insights into the company and will therefore easily be able to verify the profits the company generates. This allows them to offer finance that allows them to participate in the profits of the company. The venture capitalist is less risk averse than the investor making investments into more mature companies only. This can be inferred from the nature of their investments with venture capital being much more risky than equity in mature companies. It is for this reason that the venture capitalist seeks a higher share of the company's profits.

Model(s) used: Sect. 6.1.1, Sect. 6.1.3

Problem 46

Chada Rattanakosin invests into mid-sized companies seeking to expand their business by exploring new markets. She typically offers companies loans with a time to maturity between one and five years, where the loan rate would depend on the risks of the business. For longer times to maturity she usually offers to make an investment into the company requiring the finance that allows her to participate in the profits of the company or the increase in its value.

How would Chada Rattanakosin justify her approach to provide loans for short-term finance and direct investment into the company for long-term finance?

Indicative answer

As an outside investor Chada Rattanakosin would have only limited insights into the true financial position of the company she invests in. Without being able to reliably verify the profits and thus value of the company making direct investments are not beneficial and traditional loans are preferred as they reduce the need for a costly verification of the value of the company (audit). Making direct investments into the company for long-term finance suggests that this uncertainty is reduced. This might be the case that while for short period of times profits can be hidden from outside investors, and thus the value be reduced, but over longer time periods basic reporting requirements will make this much less feasible. It is therefore that Chada Rattanakosin is confident to be able to obtain a fair value for her investments in the long run, which she is not able to secure in the short run.

Model(s) used: Sect. 6.1.1, Sect. 6.1.2, Sect. 6.1.3

Problem 47

Alejandro Meceta leads a team of loan officers that within their bank are responsible for lending to companies in the automotive supply sector and has built up considerable expertise over many years. He and his team pride themselves in having a solid understanding of the companies operating in this industry and the market as a whole. Their expertise is widely acknowledged and based on their lending to many of the leading companies in the sector. Their customers stay loyal as he is usually able to provide them with better loan terms than his competitors. The head of corporate loans, Arthur Delamaitre, acknowledges his team's level of expertise but is concerned that he has not been able to expand his customer base for a few years and suggests to approach companies in the sector that are borrowing from banks with less well informed loan officers. Alejandro Meceta says this will not be a successful strategy as those companies are mostly less well established and therefore more risky. Arthur Delamaitre responds that they should just charge them a higher loan rate, that's fine from a risk perspective.

Why does Alejandro Meceta think this strategy will not be successful?

Indicative answer

Alejandro Meceta has considerable expertise, thus he will have precise knowledge about the companies, which other banks do not seem to have as they cannot compete with his loan rates. It is mainly company with good prospects, the leading companies, that he is able to correctly identify as such. As other banks are less informed, they cannot offer the same low loan rates. The companies these other less well-informed banks are lending to are therefore companies with less positive outlooks and thus higher risks. Alejandro Meceta's expertise would be able to identify their risks correctly, but this would mean that the loan rate would be high; the less well-informed uninformed banks would be able to charge a lower loan rate due to their inferior information, as they cannot fully appreciate the risks of the companies. It is thus that Alejandro Meceta's team would in most cases quite higher loan rates than their existing bank, making the attempt at entering this market futile.

Model(s) used: Sect. 6.2

Problem 48

Norsk Presisjonsmekanikk ASA is a manufacturer of parts used in aircraft engines and turbines. After years of having gone through restructurings and having twice nearly filed for bankruptcy, they are now recovering and gaining market share again, but substantial risk remains for their recovery. Their bank, SHV Bank, has throughout this difficult time period supported the company with loans and advice. Negotiating a new loan to allow the company expanding further, SHV Bank is surprised to learn that Norsk Presisjonsmekanikk ASA has received a loan offer with a loan rate 0.8% below what they are willing offer. Although Norsk Presisjonsmekanikk ASA is not dilvulging the identity of the bank making this loan offer, they are sure that the bank will have not even a basic understanding of the situation Norsk Presisjonsmekanikk ASA is finding itself in. They further mention that in the past this other bank also made them loan offers, but they were not better than what SHV Bank did offer.

How can it be that a less will informed bank makes a better offer to Norsk Presisjonsmekanikk ASA?

Indicative answer

SHV Bank will have much more precise information on Norsk Presisjonsmekanikk ASA than the other bank and hence will be able to assess the risks more precisely. This leads to them offering a higher loan rate than an uninformed competitor would be willing to offer as they do not fully appreciate the risks. That the other bank was offering less generous terms in the past can be attributed to the mixed strategy that bank operate, it might have been that either SHV Bank offered an unusually high loan rate this time or that in the past the other bank was uncharacteristically high.

Model(s) used: Sect. 6.2

Problem 49

ComplexSolutions Ltd. is offering marketing solutions for online advertising and the engagement with influencers. It operates in a highly volatile business in which trends disappear almost as fast as they appear and where clients switch their marketing companies easily due to short-term contracts. Having recently joined this company to manage their accounts and financing of operations, you are surprised that all loans from banks are due in less than 3 months and none had an original time to maturity of more than a year. This is very different situation to your previous employer, Andrews Advertising LLP, where most loans were for multiple years. Andrews Advertising LLP is a much more traditional advertising agency where clients have long-term contracts and tend to change their agency much more reluctantly.

How can you explain the difference in the way these companies are financed?

Indicative answer

The business of ComplexSolutions Ltd. csn be classified as a high-risk company as clients switch in and out of the company and the trends change frequently too, so getting the right clients at the right time might be difficult. This favours the use of short-term loan, even though they are more expensive; it allow the company to extract profits from time to time that then do not have to be committed to the repayment of future loans, making such short-term loans more attractive. In contrast to that, Andrews Advertising LLP is a low-risk company with steady clients in a more stable environment and the lower loan costs for long-term loans is more attractive to them as the risks from having to retain earning to serve loans in the case of future losses are low.

Model(s) used: Sect. 6.3

Problem 50

InstaVolt GmbH is a start-up company that offers electrical back-up systems against power shortages for security systems for smaller clients. Their target market is not well developed and many analysts doubt that they will be able to generate significant business, but they are currently profitable. Seeking to expand their business, they have obtained a loan from their bank. At a board meeting the Chief Financial Officer is heavily criticised for agreeing short-term loans that have a higher loan rate than long-term loans.

How does the Chief Financial Officer justify his decision to choose short-term loans?

Indicative answer

Although short-term loans are more expensive than long-term loans, they allow for the company to extract any surplus in a timely manner. Given that the company is profitable at the moment, it would enable the owners to withdraw these profits and the company does not have to retain them to cover any shortfalls from future time periods. This makes the use of short-term loans more attractive than long-term loans given that the risks of InstaVolt GmbH are substantial.

Model(s) used: Sect. 6.3

Problem 51

Semen Holding PT is a large producer of cement and the leading export company in Indonesia. Although corporate governance regulations in Indonesia are not as well developed as in many other countries, their bank, Bank Daimon, has developed a good understanding of their business and the industry overall. A younger competitor Special Semen PT focuses on the development of cement for specialist applications, but has a weak market position and faces significant competition from larger companies operating in this sector. While Semen Holding PT obtains good loan conditions from Bank Daimon for their choice of long-term loans that other banks cannot match, their assessment of the risks for Spesial Semen PT makes their offer not competitive and Spesial Semem PT obtains a better offer from United Australian Bank plc, a newcomer in the Indonesian market without substantial experience in the cement industry; it chooses a short-term loan to finance its operations as these conditions are better suited to their needs.

Why does Semen Holding PT gets better loan conditions from its bank than from other banks and chooses a long-term loan, while it is the opposite for Spesial Semen PT, accepting a short-term loan from another bank?

Indicative answer

Daimon Bank is experienced in the cement industry and thus able to assess risks precisely. This benefits the low-risk Semen Holding PT as they will be able to obtain a low low rate. Given their low risks, they choose a long-term loan that allows them from benefitting from even lower loan rates as the commitment of accumulated profits to the later repayment of the loan is unlikely to lead to losses. In contrast, Special Semen PT faces has a much weaker market position and is thus much more risky than Semen Holding PT. This will lead the well-informed Bank Daimon to offer high loan rates, which are easily undercut by the much less informed First Australia Bank, who will not assign such a high risk to this company. Given that Spesial Semem PT is highly risky, and the company knows this, it is better for them to choose a short-term loan as they then can extract any profits from the company rather than having to accumulate them for a later repayment of the long-term loan. Given the high risk of losing these accumulated profits, the short-term loan is more attractive to Spesial Semen Pt.

Model(s) used: Sect. 6.2, Sect. 6.3

Problem 52

Sweet Harmony Ltd. operates a chain of small sweet shops in market towns around the country. While their business has come under substantial pressure from supermarkets and online sales, they have so far managed to retain profitability by offering products that are not easily available elsewhere. To finance the renovation of some of their shops, the company seeks a loan from their bank. They have a long-lasting relationship with Finlay Bank, a small bank located near their headquarters; this bank knows the company well and has provided loans in the past and would be willing to lend them the funds required. In recent years the bank has struggled, however, and lost customers, despite offering deposit rates above the market average. They have obtained an offer for a loan at a lower loan rate from another bank, Gormeley, but this bank has been widely criticised for treating depositors unfairly by not increasing deposit rates as the central bank increased interest levels and has no discernable knowledge of the company or the retail business overall. The size of the loan Gormeley offers is not fully covering the amount required for the renovation, but Sweet Harmony Ltd. can use funds that are destined for other projects to make up the difference.

How should Sweet Harmony Ltd. approach financing the renovation?

Indicative answer

Finlay Bank has a good knowledge of the company and hence we can reasonably assume that it will have low auditing costs of the company cannot repay its loan. On the other hand, it will have high funding costs as it offers high deposit rates. The situation at Gormeley is the opposite; they offer low deposit rates and hence face low funding costs. However, their lack of knowledge of the company and the industry in general will most likely cause any auditing costs to be high. With this scenario, it would now be most beneficial to obtain the loan from Gormeley and then supplement this with a subordinated loan from Finlay Bank, assuming that the costs of this loan does not exceed the costs of removing the funding from other projects.

Model(s) used: Sect. 6.4

Problem 53

Malinder Bank is a specialist bank that provides loans exclusively for small and medium-sized companies in the leather industry, which dominates the region the bank operates in. Over the years it has built up expertise in this industry and has a thorough understanding of its operation. As the region the bank operates in has low levels of wealth, it has always struggled to attract sufficient deposits to finance their loans and had instead to rely on more expensive interbank loans and brokered deposits. In recent years Malinder Bank has faced competition from banks located in other, more wealthy regions that offer loans to their clients at more favourable conditions, despite having only scant knowledge of the way these companies operate. Their customers are happy to accept these loans from competitors and Malinder Bank is left to provide subordinated loans to complement the loans offered by their competitors.

How can Malinder Bank react to this competition from banks in other regions?

Indicative answer

The banks in other regions have a competitive advantage in that the deposit rates they have to pay are lower, given the problems Malinder Bank has in funding their loans. However, Malinder Bank has a competitive advantage in that it knows the company and industry very well, which should reduce any auditing costs of failing companies. This leads to a situation where other banks provide the main loan and Malinder Bank is relegated to supplement this loan with smaller subordinated loans. Unless Malinder Bank can reduce its funding costs to become more competitive for the senior loan, it will be impossible to compete with the banks from other regions.

Model(s) used: Sect. 6.4

Problem 54

Pierbattista Zuppi has obtained a loan to expand his business of selling high-quality leather goods by opening a second shop in a neighbouring town. He found the process exhausting as no bank seemed to be willing to provide him with a loan of the size he needed, having approached all of the major banks in the town. Being short of funds, he took the agreement in principle for a smaller loan to another bank and asked for them to top up the loan, but none was willing to do so. It was only by chance that he met a now retired colleague advising him to approach the Banca Cooperativa di Pelle, a small cooperative bank located in a town about an hour's drive away. While Pierbattista Zuppi had never heard of this bank, he applied for a loan and to his surprise was approved for the full funding he needed. The loan conditions were worse than that of the main banks and so he decides to obtain a loan from the main bank and then supplement it with a second loan from Banca Cooperativa di Pelle, to which they agreed for a supplement of 0.25% on the standard loan rate. In a personal meeting they reveal that they have to charge higher loan rates as they also pay higher deposit rates than other banks for their members. But as a bank set up to support the leather industry over 200 years ago, they have the knowledge and expertise to provide loans where most banks would refuse to approve them, even though their assessments of loan applicants are usually similar.

Why would Banca Cooperativa di Pelle be willing to provide a loan where other banks refuse, but Peirbattista Zuppi would take the largest possible loan from a main bank?

Indicative answer

As pointed out, Banca Cooperativa di Pelle has higher funding costs than mainstream banks and would thus have to charge a higher loan rate, but this is at least partially compensated for by their expertise which should reduce any monitoring costs of the loans and also the audit costs in case Pierbattista Zuppi fails to repay his loan, giving them a competitive advantage that allows them to grant a higher loan amount. Pierbattista Zuppi will prefer a loan from the main bank as due to their lower funding costs they offer lower interest rates. It is then only the additional funding that is obtained at a higher rate, making it overall more cost effective than obtaining the full loan amount from Banca Cooperativa di Pelle.

Model(s) used: Sect. 6.4

Problem 55

Moussa Diallo is attending the opening of a new business in the town his company, Diallo Trading Ltd., is located. Having gone through a difficult time with his company accumulating large losses due to competition from larger competitors, he shares his frustration with his bank at the reception after the speeches have completed. He complains to other business owners that his bank was not willing to reduce the amount he has to repay on his loans, despite his financial difficulties, while a neighbouring business in a similar situation has received a reduction of nearly a third on the amount they need to repay and another business he knows of has seen a reduction of a quarter. He carries on to complain that in one case the business did not even provide any collateral while he had to pledge his entire inventory and in the other case the business even was much safer than his with very little uncertainty about their future. He finishes with a sigh and the comment that his banks clearly does not like him, but prefers other businesses.

Is Moussa Diallo's assertion that his bank just dislikes him justified?

Indicative answer

In order for a loan to be successfully renegotiated, the collateral provided must not be too valuable to the bank. In the case of the first business there was no collateral, hence the condition for a successful renegotiation of the loan could be met relatively easily, but Moussa Diallo has provided collateral that as inventory of a trading company is probably easily sold by the bank and thus sufficiently valuable for the bank to refuse a reduction of the loan amount. In the case of the second business, the low risks of the business also implies that there is limited scope for them to recover from their situation, making is rational for the bank to reduce the amount that needs to be repaid, while Moussa Diallo's company seems to have bigger risks, which also means a bigger potential for recovery. It is thus not that Moussa Diallo is disliked by banks, but that the combination of valuable collateral and reasonable chances of his company recovering has led to the bank refusing to reduce the debt burden.

Model(s) used: Sect. 6.5

Problem 56

Herbert Sedlmayr is the owner of Seldmayr Antiquitäten in Vienna's city centre. His business of buying antique furniture and decorations at auctions and selling them in his shop has been negatively affected by rising rents and competition from online businesses. Having usually financed the purchase of items through bank loans with the purchased items being used as collateral, he sees his future prospects negatively and believes that he will not be able to repay his loans fully. Discussing his concerns with his contact at Wiener Bank, he is offered a reduction in the outstanding loan amount of 20% to help him overcome his current difficulties. While he appreciates the move by the bank, he does not think that it will help him much in the future as he does not see a significant improvement in his business ahead. However, the bank is refusing to reduce the loans further pointing out that less than half the loans he has outstanding are covered by items purchased.

Why does Wiener Bank not offer a larger reduction in the loans to Herbert Sedlmayr?

Indicative answer

The amount of loan reduction will depend on two factors, the level of collateral and the prospects of a recovery. It can be assumed that the provision of collateral in the form of the purchased items will have contributed to the reduction where about half of the collateral value is accounted for, assuming that the bank can sell the items at the auction price. There is no significant further increase in the loan reduction as the prospects of his business improving are bleak and hence even a further reduction would probably not help him.

Model(s) used: Sect. 6.5

Problem 57

Special Toys Ltd. is a major importer of novelty toys from all over the world and distributes these to many independent shops around the country. It commonly finances the import of their toys through a bank loan secured on the value of this shipment from the time of shipment to its final sale, a time period of many months; other operating costs are financed through unsecured loans with a different bank. Each of the loans are of approximately equal amounts. With the ever more widespread use of online markets, their business has suffered losses in recent years and they seek a relieve of about half their debts to return to profitability and make necessary investments into their distribution system. The banks generally agree that the future of the business is anything but certain, although not without a chance of survival.

Will both banks likely agree to write off their loans to allow the company investments into their distribution network?

Indicative answer

It is unlikely that the bank financing the import of toys will be agreeing to such a move. They are holding collateral and will thus face only a small loss in case the bank will fail. It is thus only likely that the bank having provided unsecured loans will agree to a write off of some of the loans, assuming that the chances of the company recovering in the future are sufficiently high to secure the repayment of the lower loan amount, but not as good as to ensure the repayment of the full loan amount. With one bank unlikely to write off their loan and the other bank willing to write off parts of their loan, the total write-off will not be sufficient for the company to make the necessary investments.

Model(s) used: Sect. 6.5

Problem 58

Fandresena Rakoto is negotiating a loan for Hermel Ltd, a company building small machines for the building trade, such as cement mixers or pneumatic drills. Discussing the terms the bank offers her, she bemoans the high interest rate of 6.7% the bank demands, which she finds high compared to what she previously had arranged with another bank. In their response, the bank replies that she cannot compare the loans only on their loan rate, but needs to take the wider conditions into account; for example the current loan offer allows the Hermel Ltd. to repay the loan early for a small additional fee, giving the company flexibility. Unimpressed by these interventions, Fandresena Rakoto remarks that it is of little value to her as the investment for which the loan is will be for machinery that will last pretty much as long as the maturity of the loan she has applied for, repaying the loan early is for that reason not a meaningful option, especially as there is an additional fee to be paid.

Is Fandresena Rakoto right to dismiss the value of being able to repay the loan early?

Indicative answer

While Hermel Ltd. might not be able to repay the loan directly, they might be able to obtain a loan for better conditions at a future point, for example if the loan rates fall. In this case they could repay the current the current loan through taking up a new loan at lower loan rates. It is this option that may let look the current loan rate look more expensive than another loan that does not allow for this option. Thus Fandresena Rakoto needs to consider the value of this early loan redemption when comparing the loan rates of this loan and that of a competitor bank, including the early redemption fee.

Model(s) used: Sect. 6.6

Problem 59

Century Publishing Ltd. is currently not profitable after overpaying for the translation rights of a few authors that were not popular with readers. The management is, however, convinced that the latest acquisition, which is nearing completion, will sell well and make the company highly profitable again. In order to finance the acquisition of the rights to this book and the expected large print run, Century Publishing Ltd. seeks a loan from its bank. They offer them a loan with a loan rate of 7.2% p.a. for a time of two years, which covers the time until they will receive payment from distributors for the published book. As a long-standing customer, the bank offers them the option to repay the loan after one year if the book sells that well that they are able to do so. Even though Century Publishing Ltd. have received an offer for a loan at an interest rate of 6.8% p.a. at another bank, without the possibility to repay the loan early, they accept the offer of 7.2% p.a. of their bank. Century Publishing Ltd. does not expect the book to sell that good that they will be able to repay their loan after one year.

Why do they nevertheless accept the offer of their bank?

Indicative answer

While Century Publishing Ltd. might not have the funds to repay the loan after one year, they might be able to obtain a new loan for the remaining year at a better loan rate. In particular, as they are currently not a good financial position as they are not profitable and the risks from the new book will substantial, they will attract a high loan rate. If the book sells well, their position will have changed and they should be able to obtain a loan at a much lower interest rate, while no increase in the interest rate can occur if the book does not sell well and the risks of the company do not reduce. It is this possibility that makes the offer of their bank attractive, despite having a higher interest rate.

Model(s) used: Sect. 6.6

Problem 60

Camille Saint-Marc has handed in his notice as a management consultant to set up his own company. At his leaving party, his former manager tells him 'Always take out long-term loans, they are cheaper and if you run into difficulties, it is easier to negotiate with banks. With short-term loans they are much more difficult.'

Is this sound advice?

Indicative answer

Long-term loans might be looking cheaper as the total interest paid is lower than for short-term loans. However, long-term loans are not necessarily cheaper overall as such long-term loans typically limit the ability of the company to pay out realised profits, loan conditions of require them to be at least partially retained within the company; this will increase the amount that the bank obtains if the company fails at a later point, increasing the costs to the company owner. It is generally only cheaper to obtain long-term loans if the risk of failure are sufficiently low, thus only companies with low risks will find long-term loans genuinely cheaper. The ability to renegotiate long-term loans more easily can be justified to some degree. The amount a bank is willing to reduce the loan amount by is increasing in the risks of the company and the longer the time to maturity of the loan, the higher the risk given the long time period to be covered. However, the willingness to make such reductions is limited the higher the risks, thus for longer maturities as the possibility of a recovery is higher, too. It is thus that renegotiations of the loan amount in times of the company being in financial difficulties are less likely to be successful, but if they, are the reduction offered will be higher. These potential benefits over short-term loans need to be balanced against the costs of long-term loans for high-risk companies. It is therefore not advice that is universally appropriate, especially for a new company, which usually has high risk.

Model(s) used: Sect. 6.3, Sect. 6.5

Problem 61

'Of course, companies with better investments are monitored less by banks because there are fewer risks to banks, so there is no point in wasting time and effort.'

Is this assertion correct?

Indicative answer

Companies that generate high returns are not monitored less because of the lower risks they pose to banks, but instead this is the result of an incentive that employees in banks conducting this monitoring have. Companies with better investments, that is those that can generate more profits, have more funds available to share with managers to not enforce diligent investment. It is this possibility that managers supposed to monitor companies receive private benefits from not monitoring the behaviour of companies appropriately. This ability of the company to increase such payments reduces the incentives for employees to monitor as their failure to do so will still see them receive payments from the company, even though no bonus is paid by the bank due to their failure to monitor properly. To prevent this occurring, the bank has to increase the bonus payments of the employee, but as this affects their profits, fails to increase it to maintain the same level of monitoring as for less profitable companies. It is thus not the lower risk banks are exposed to that leads to the reduction of monitoring, but the incentives of employees to not monitor as effectively due to benefits they can obtain when not monitoring.

Model(s) used: Sect. 6.7

Problem 62

In recent years, Lamarck Bank has grown considerably as the town they are operating in has opened a business park and attracted a number of new companies. The head of corporate loans, Julian Lamarck, who is also the deputy chairman of the board, has so far overseen personally all larger loans the bank has provided. He had regular meetings with the management of these companies and discussed their investment plans and general business progress to safeguard the loans of the bank. With the expansion of the loan portfolio, this is no longer possible and he has decided to delegate this task to employees and he himself will focus on the acquisition of new customers. He is worried that with the delegating the monitoring of existing borrowers to employees, the level of monitoring will decrease, even if he pays his employees well. He sees this as a particular concern as many of the companies seeking loans are newly founded and benefit from guidance for their future development and avoid the pitfall of many new companies that any funds are seen by the founders as an opportunity to indulge in their private passions.

Are the concerns of Julian Lamarck justified?

Indicative answer

Provided that appropriate measures are taken in the remuneration of the employees conducting the monitoring, the monitoring effort will actually increase. Paying the employee a bonus for any loan that is repaid will ensure that a high effort is made to monitor companies as only then will the employee receive this additional payment. If the companies are new and therefore risky, he will have to offer significant bonuses given the inherent risks of the businesses. It will thus require a significant expense on part of the bank to ensure that the companies are investing diligently.

Model(s) used: Sect. 6.7

Problem 63

Georg Malewitch is a venture capitalist investing into small promising companies in the technology sector. Many company founders have no business experience and need substantial help on how to manage their company, but also on how develop sound financial and investment policies. Once the companies have grown, they are taking on bank loans and he always advises them to take loans from at least two different banks. In his advice to companies he stresses that when selecting banks carefully, this increases the amount of loans they can get to grow more quickly. What he does not tell them is that this also relieves him of much of his role to advise and monitor the companies.

Why would using multiple banks benefit the companies and the venture capitalist more than using a single bank?

Indicative answer

Using different banks has the advantage that the company can make use of different comparative advantages of banks, which will increase the overall loan amount. Choosing a bank with low funding costs will allow loans to be granted at low costs, but given the risks this imposes on banks for assessing and monitoring these companies with whose business they are potentially not familiar with, limiting the amount of lending they are willing to do. Selecting another bank which is more familiar with their type of business and thus faces lower costs in monitoring them, may be able to advance another loan, even if they face higher funding costs. The added benefit is that both banks will monitor the company to ensure their loans are repaid. This will increase the overall level of monitoring, especially of companies in a situation where they are not yet performing well and the ability to misuse funds out of ignorance or a wrong understanding of how businesses are to be run will be substantial. Given that technology companies are difficult to understand and new companies in general are based very much on business ideas that are not full developed, any such monitoring will be difficult and time consuming; thus having multiple banks sharing the monitoring effort would actually increase the overall monitoring quality, despite some moral hazard between the two monitoring banks relying on each other to monitor. These efforts by banks benefits Georg Malewitch as it allows him to reduce his monitoring efforts and it leads to a faster growth of the companies.

Model(s) used: Sect. 3.2.2, Sect. 6.4, Sect. 6.7

Problem 64

The restaurant Fisk och Krydda, combining local fish dishes with oriental influences, is a well established institution in Malmö where a table needs to be booked weeks or months in advance. To expand the number of tables they can serve, they have rented the premises next to theirs and seek a loan to finance its renovation, the expanded and modernised kitchen facilities to cater for the larger number of guests that will be needed shortly afterwards, as well as the modernisation of the existing facilities, which are expected to be commenced in approximately two years. Their bank is more than willing to provide the loan and offer a loan rate of 4.7% p.a. over a time period of three years, to cover not only the expansion but also the needed enlargement and modernisation of the kitchen. As common with restaurateurs, after closing the owners of local restaurants often sit together for a chat and exchange information while their employees clean and tidy up the premises, getting them ready for the next day. The owner of a small restaurant opposite, Hemlagad, who has been struggling to break even in most years but had times in which his restaurant trended due to the visit of some influencers, remarks that he would not sign on for such a long time. He would only be willing to take out loans separately for each of the works. If banks were insisting on such a long-term loan, he would insist on being able to repay the loans after each work is completed, even if he has to pay more. The owner of Fisk och Krydda observes that he was never offered the option to repay his loan early, not that he would consider it.

Why do the two restaurateurs take such different approaches to financing their companies?

Indicative answer

We first have to note that the two restaurants are in very different circumstances, Fisk och Krydda is performing very well with a long waiting list to reserve a table, it will therefore be a low-risk company. In contrast to that, Hemlagad will be much more risky, with the occasional good time period, but generally a much lower performance. It is therefore that Fisk och Krydda is preferring the lower interest rates enjoyed on long-term loans, while Hemlagad is willing to pay a higher loan rate, but has the ability to withdraw profits if they are realised. It is also that if Hemlagad was required to take a long-term loan, it may want to repay it early in case the restaurant enters one of the time periods in which it is profitable and subsequently can obtain a lower interest rate due to the lower risk. This is not attractive to Fisk och Krydda as the restaurant is performing consistently well, hence there will be no benefits for such an option to repay the loan early as any new loan would be on the same conditions, making any additional costs unattractive. The fact that Fisk och Krydda was not offered such a loan at all suggests that it is not feasible for bank to offer this contract; the small difference, if any, between the restaurant performing well and not so well will be minimal, making the bank offering an early repayment of loans with an early redemption fee unsustainable as no such fee could be agreed on in these circumstances.

Model(s) used: Sect. 6.3, Sect. 6.6

Problem 65

Miklós Orosz has experienced that two of the companies whose loan officer he is, have claimed to be unable to repay their loans. While it surprised him that these companies were supposed to be failing, it certainly fitted into the wider picture of an overall struggling economy and an increasing default rate of companies across the board. Giving these two companies more scrutiny, he found that their supposed inability to repay the loan was engineered by the company owners through the use of sister companies and the payment of excessive salary to the owner-managers. Talking to colleagues, they report the same phenomenon, namely that since the economy started to perform poorly, they were seeing a noticeable increase in such wrong claims of bankruptcy. Despite increasing the time each loan officer spends on investigating each claim, and them making it clear to customers in informal discussions, the number of false claims remains higher than previously and he does not have the capcity to give every case sufficient scrutiny. Over lunch the loan officers agree that the level of dishonesty is ever increasing and this is just a sign of the immoral times they are living in. However, Miklós Orosz disagrees and says it is the same every time the economy performs poorly.

Is Miklós Orosz correct in his assertion that such claims for default always increase in times of poor economic performance?

Indicative answer

If the economy is not performing well the actual defaults by companies will increase, as evidenced here by a generally increasing default rate. This increasing default rate allows other companies to hide their strategic default better as loan officers will have to investigate more genuine cases and despite allocating more time to these audits, this is not sufficient to cover all cases, thus opening up the possibility of a strategic default going undetected. It is therefore that companies take advantage of the increased workload of loan officers auditing the companies defaulting as the increase in time they spend on such audits is not sufficient to retain the same level of scrutiny they could give each case in times with lower genuine default rates.

Model(s) used: Sect. 7.1

Problem 66

Nikola Aleksov owns a joinery and having been able to withstand a time of low order books during a recent deep recession due to a number of bank loans that allowed him to keep paying employees and paying leasing rates on machinery, he now suffers from the burden of high repayments that severely affect his profits while the business and the economy in general are experiencing a recovery. He sets up a new company in another part of his workshop and redirects any inquiries for work he receives to this new company, which has also taken over some of his machines at an advantageous price and some employees have also been given new contracts with his new company. After a while, he declares to his bank that he is not able to service their loans anymore. His bank's reaction was not as he expected, instead of writing off the loan on seeing that his company had clearly not recovered, they made further extensive enquiries and discovered how he had channeled all customer queries to his new company. They refuse to write off the loan and insist on him repaying it from the profits of his new companies, threatening legal action against him if he fails to do so. Very surprised by this move of the bank, Miklós Orosz discusses the situation with other joiners who previously had employed the same mechanism successfully. Adam Miesoczki remarks that he is too late to the game, he should have taken the loans and then during the recession declared bankruptcy, not now that the economy is performing better.

Is Adam Miesoczki right in his assertion that Nikola Aleksov has left it too late to play this trick on banks?

Indicative answer

During a recession many companies will genuinely default and this will make it difficult for banks to follow up all companies that default on their loans, even with more resources committed to it; this would have made it easier to escape detection of this strategic default. Now that the economy is performing better, the genuine defaults will be much lower, making it easier for banks to give each case more scrutiny as there are less cases to investigate, even though they will have scaled back their resources. It is therefore more likely that companies seeking a strategic default are detected by their bank.

Model(s) used: Sect. 7.1

Problem 67

Polarnos is a developing country that has invested significantly in its infrastructure by obtaining bonds from international investors. Having accumulated over 120% of GDP on such bonds, they now face significant costs of servicing these bonds and making any repayments. The government is concerned that the costs of servicing this debt will divert resources from further investments into the development of their economy. Seeing that with the infrastructure for their development now in place and tax income steadily increasing as the economy grows, the government discusses the possibility of simply defaulting on their bonds.

Having asked the central bank to provide advice, what would this advice look like?

Indicative answer

The benefits of defaulting on the bonds is immediately clear in that no payments need to be made to international investors and the funds can instead be invested into the development of the domestic economy, generating further growth. The costs of this move is that Polarnos is likely to be frozen out of the bond market for a considerable period of time. This would not allow them to borrow any funds for their development if domestic funds prove to be insufficient or a loan would be required to pursue started projects in case of an unexpected shortage of funds, for example due to a recession. The government will need to balance these potential costs, weighted by their probability of occurring against the benefits of not repaying the bonds.

Model(s) used: Sect. 7.2

Problem 68

Magnus Oil Corporation plc is a major oil producer in the Chagassian Sea using a number of platforms to exploit extensive oilfields. Their company is set up such that each oilfield is operated by and licensed to its own limited company of which Magnus Oil Corporation plc is the ultimate owner. In August last year the oil platform exploiting oil field 27 caught fire and while no serious injuries occurred, the oil platform itself was destroyed and substantial amounts of oil spilled into the sea, causing widespread pollution. The cost of repairing the incurred environmental damage is estimated at 7-10bn US$. With only an expected 3-4bn US$, Magnus Oil Corporation plc decides to not address the environmental damage, even though the company as a whole could easily afford the costs; however the limited company operating oil field 27 has only 500mn US$ available.

Is the decision of not rectifying the pollution sensible from Magnus Oil Corporation plc's perspective?

Indicative answer

The loss from bankruptcy to the limited company operating oilfield 27 would be the existing resources of 500mn US$ and the oil left in the oilfield, a worst case scenario of 4bn US$. This is significantly less than the costs of addressing the environmental damage of at least 7bn US$. From this perspective, losses to Magnus Oil Corporation plc when allowing their subsidiary to file for bankruptcy would at least 2.5bn US$, making this decision obvious. However, other costs might need to be considered, such as the loss in confidence that Magnus Oil Corporation plc will provide adequate funds for subsidiaries in distress, increasing their finance costs, and it might also reflect on Magnus Oil Corporation plc itself in that their commitment to lenders might be questioned. Further, given their decision to not address the environmental damage, it might be that future licences and concessions are not granted to subsidiaries of Magnus Oil Corporation plc, causing losses of future income. Their reputation might also be damaged with consumer groups, leading to reduced sales of their products. The likely impact of such secondary costs need to be considered as well and only if all these costs are lower then the additional funds required, is it advisable to allow the subsidiary to file fr bankruptcy and not address the pollution caused.

Model(s) used: Sect. 7.2

Problem 69

Alinafe Maseko operates a small tea shop at a popular tourist destination, generating a steady stream of revenue, turning a small profit over the summer months. In response to a series of wildfires in the area her tea shop had to remain closed for most of the summer and even after the area was deemed safe again for tourists to visit, very few visited due to the negative news coverage in the months before. Consequently Alinafe Maseko could not maintain payments on the loan for a new coffee automat and a refurbished shop, filing for bankruptcy. Through personal contacts she has been able to secure the rent on a new tea shop in a different location, but with similar characteristics. The new shop is in need of renovation and modernisation, but her bank declares that they would not be willing to lend to her during the next two or three years due to her previous bankruptcy. Her friend, Orla Coury is surprised that the bank would consider lending to her that soon. In her experience it took her six years to be accepted again for a loan after failing with her business of selling hand-made decorations online. She accepts that it was a different type of business with her profits very much depending on spotting the latest trends before any of the major retailers did. Alinafe Maseko thinks that she might have been lucky by using a bank that is more forgiving.

Is Alinafe Maseko correct to assign the shorter time period until she eligible again for a loan to her bank's more lenient policy?

Indicative answer

The tea shop of Alinafe Maseko generated a steady and reliable income stream, suggesting that the business was low-risk. This gives her little incentives to default strategically as she would forego that steady stream of income, hence she would only be excluded for a short period of time from borrowing. In contrast, Orla Coury's business was much more risky and she would have stronger incentives for a strategic default due to the unpredictability of her business, necessitating a longer period during which she cannot borrow. It is thus not luck or policies between banks that differ, but the difference is driven by the nature of their respective businesses, namely the riskiness of them.

Model(s) used: Sect. 7.3

Problem 70

Kevin Maguire owned a car repair shop employing five mechanics. Having had financial difficulties, despite taking on considerable loans to modernise his equipment, in recent years due to car owners only conducting essential repairs to reduce their costs, he has reduced his costs as much as he could, including not renewing his fire insurance. Unfortunately for him, a fire in a neighbouring factory spread and engulfed his repair shop which was completely destroyed. Having no fire insurance, he did not receive any payments and declared bankruptcy. Undeterred by this misfortune, he sees this as a chance and approaches his bank to rebuild the repair shop, but focussing on electrical bicycles and later electrical cars instead, initially without any employees. He seeks an initial loan of £250,000 to rebuild the burned down repair shop and purchase essential equipment. His loan application is turned down and the reason given is that as he just has declared bankruptcy, the bank will not consider him for a loan until at least 6 years have passed. He believes that this reason is not genuine, but the bank has turned down his application as they do not believe in his new business idea.

Why is Kevin Maguire's assessment of the bank's reasons wrong?

Indicative answer

Focussing purely on the reason for requiring a longer time until a loan can be granted again, his bankruptcy may or may not have been a strategic default. He may have let the fire insurance lapse and hope for damage that would allow him to default on his commitments; a waiting time is enacted to counter any incentives for such behaviour. That the waiting time is as long as indicated by his bank can be attributed to the riskyness of his existing business, but also most likely his proposed new business. With high-risk and low-return companies, the small future profits are an incentive to strategically default as the instant benefits of doing so may well outweigh the future income. It is therefore that the exclusion period is set relatively long.

Model(s) used: Sect. 7.3

Problem 71

As a credit risk manager at Atrius Bank you are monitoring the default rates of the loans the bank has provided. Accounting for various characteristics of companies, you notice that in the recent downturn the fraction of loans not repaid did increase to 1.6%, while during the previous time of economic expansion this fraction was only 0.5%. While you expect that the default would increase during a recession, you are surprised by the large increase. Based on the risk assessment at the time the loan was granted and adjusting for various factor affecting the default rate, you would have expected a default rate of 0.35% during the expansion and 1.15% during the recession. While the actual default rates are all higher, and this difference being statistically significant, you are particularly surprised about the high increase during the recession. Assessing your model, you cannot find any factors you have not considered adequately. Your colleague, in passing, says that he is surprised the discrepancies are not more cyclical.

Is there an explanation for the discrepancies between the actual and predicted default rates and why does your colleague think the cyclicality of this discrepancy should be higher?

Indicative answer

The explanation for the discrepancy is in the rate of strategic defaults. If we assume that the model is making correct predictions for companies being actually in distress, then the difference represents the strategic defaults. At times of economic expansions strategic defaults are less common than during recessions. To explain this there are two effects that need to be considered. Firstly, during economic booms actual defaults are rare, allowing banks to frequently audit companies that are defaulting and thereby identifying many attempts and relatively few such attempts will be successful, giving rise to a low rate of strategic default. In contrast to that, during a recessions many more companies default and even if putting more resources into auditing defaulting companies, there will be more such companies that are not identified as strategically defaulting. This is reflected in the numbers observed. But there is a second effect that counters this cyclicality of strategic defaults; while during an expansion of the economy most companies will be performing well, their outlook for the future are less positive as they will have a reduced performance once the economy enter into a recession. This less positive outlook gives incentives to strategically default. During the recession the future outlook is more positive with an expansion of the economy expected soon and thus the prospects of companies increasing, reducing the incentives for strategic defaults. It is therefore that this second effect counters the first, reducing the change in discrepancies.

Model(s) used: Sect. 7.1, Sect. 7.2

Problem 72

Voltera GmbH is a leading German manufacturer of electrical equipment used in a wide variety of industrial machinery. New markets have opened after the collapse of one of its main competitors and they seek to expand their business. Voltera GmbH has no meaningful experiences in the markets they seek to expand into, being both geographically different to their current main market and the type of machinery which uses their equipment is also different. While they can use some of their own resources to expand their business, they will have to rely on a loan for a substantial part of the investment. Approaching their bank, they have commenced discussion about a loan which is significantly larger than what they required thus far. During the discussion with their loan officer, they had the impression that their bank would support their investment plans. It comes therefore as a complete surprise that the loan offer obtained from the bank will only allow Voltera GmbH to finance some of the expansion. Subsequent negotiations lead to a slight increase in the loan amount offered, but it falls well short of the amount required for their initial plans. Their bank makes it clear that the it is not a question of increasing the loan rate as profits from the interest is not the driver behind this decision.

How can you explain that Voltera GmbH is not offered the full loan amount?

Indicative answer

Voltera GmbH expands into markets they have limited experience in and will therefore be exposed to higher risk than they were in the past. Such risks put into question the ability of the company to repay loans, leading to credit rationing. The bank will want to ensure that the loan is repaid and will therefore not accept a too high leverage of the company. Increasing the interest would increase the amount that is due to be repaid, but this amount is irrelevant if the loan cannot be repaid in full, hence offering a higher loan rate would not induce the bank to grant a larger loan. Even though the bank is willing to support the investment, it will feel that the amount to be repaid must not be too high relative to the investment made to ensure repayment of the loan, thus requiring sufficient equity or other funding sources, to be provided by the company. Of course, any such funding sources must have a lower seniority than the bank loan.

Model(s) used: Sect. 8.1

Problem 73

Contra plc provides material for the building industry for many years. One of their main customers is BYH Ltd., the country's largest provider of prefabricated homes. BYH Ltd. has been loss-making for a long period of time while demand for standardised houses was subdued and individually designed and built houses were much more popular, despite the higher costs. Seeking to avert bankruptcy, it has been reported in the local newspaper that the current owner has approached Contra plc to explore whether they are interested in buying BYH Ltd. Rumours have it that Contra plc is interested in such a purchase, but no formal offer has been made. At the same time, Contra plc has also planned to modernise their existing business by updating their production facilities to comply with upcoming environmental regulations. Given the financial situation of Contra plc, it is obvious that they could not conduct the modernisation and the purchase of BYH Ltd. at the same time. Contra plc. has been in negotiation with their bank on financing the modernisation of their business, but since the reports about them being interested in buying BYH Ltd. have been published, their bank has repeatedly cancelled meetings to finalise the loan and suggested that a smaller loan of approximately half the size would be sufficient to finance the first phase of a modernisation and that once this is completed, an additional loan might be sought.

How can you explain this behaviour of the bank?

Indicative answer

This is a case akin to credit rationing. The bank seeks to prevent Contra plc from purchasing BYH Ltd. by not advancing the loan negotiations, making the purchase impossible, as well as offering a phased loan such that the purchase price for BYH Ltd. is not available. It is likely that the bank sees the purchase of BHY Ltd. as a high risk, given they are close to failing and operating in a market that shows no sign of recovery. The bank thus tries to either not give Contra plc a loan at all or a loan of a size that would not allow them to purchase BHY Ltd. The modernisation of the business can be viewed as a safe investment, which the bank would be willing to finance, but it seeks to prevent the company using the loan given for this purpose to be used for the investment into the much more risky BHY Ltd.

Model(s) used: Sect. 8.2

Problem 74

CallServices Ltd. is a long-established provider of call centers and has contracts with many retailers in the fashion industry to provide services to callers inquiring about their products, dealing with complaints, as well as managing returns and replacements. They are well known for their high level of satisfaction with customers due to employing knowledgable phone operators. The more recent trend to replace phone conversations with online chats has been less successful for the company and customer satisfaction has become a concern. In order to overcome this problem in dealing with customers, CallServices Ltd. has developed a plan to make more use of artificial intelligence and use chat robots more widely. They have observed that other companies which have pioneered this technology have suffered significant loss in customer satisfaction and have lost very profitable contracts as a consequence. CallServices Ltd. is convinced, however, that using the expertise of their call center staff they can develop a system that exceeds the performance of their call centers. Approaching banks about financing their investment in developing the requisite software, CallServices Ltd. get offered loans that fall short of their requirements. The loans offered would allow them to invest into the training of their existing staff and expanding their offering in the more traditional call center services, but developing the artificial intelligence would not be possible with the loans offered.

Why do banks only offer loans that are insufficient to make the investment into the new technology?

Indicative answer

Banks will view the risks of the new technology as being high, probably too high and will not support their investment. Instead they seek to steer the company towards the more established line of business they are currently successful in and which can be seen as low-risk. As they will not be able to direct the company how to conduct their investment, they offer loans that are too small to make the new technology viable. Such credit rationing ensures CallServices Ltd. maintain low risks.

Model(s) used: Sect. 8.2

Problem 75

During a meeting with fellow Chief Financial Officers at a conference, Pauline Harris shares a recent encounter with one of the banks her company uses. She reports that her company enquired about a loan for \$100m and was quoted a preliminary loan rate of 10.75% p.a., which she complained was rather high. In response to her complaining about a rather high loan rate, the loan officer at her bank told her that he could offer her a loan of \$150m for 10.25%. Pauline Harris looks at the people she is talking to and sees their puzzled faces. She continues by saying that she looked equally confused, but that it was luckily a phone conversation, so her surprise was not seen by the loan officer. Pauline remarks that somehow banks have gone crazy if they offer a larger loan at lower rates.

Is there an explanation for the offer of the bank?

Indicative answer

It must clearly be optimal for the bank to charge a lower loan for a larger loan, despite the higher risk of non-repayment due to the higher leverage of the company. The bank is concerned about the expected repayment of the loan, including interest. A larger loan is less likely to be repaid in full as the outcome of the investment is less likely to cover the required repayment.

The same expected repayment of a loan can now be obtained if the bank provides a larger loan at a lower loan rate. The lower loan rate will reduce the total repayments required; if the bank were to increase the loan amount, this would then lead to the same repayment requirements. Hence banks make the same profits from a smaller loan with high loan rates and a larger loan with lower loan rates.

Model(s) used: Sect. 8.1

Problem 76

Bank of Hampton operates a lucrative business in providing student loans on a commercial basis. They consider all students enrolled at Hampton University for a loan that would cover their tuition fees and reasonable living expenses for the duration of their degree. Such loans are then repaid with interest after graduation over either 15 or 25 years. Students are interviewed when applying for such a loan and based on the interview, together with their university application and other supporting documents, an offer of a loan may then be made. Generally students are offered a loan without having to provide any guarantees by parents, but some students and their parents choose to do so and are offered the same loan, although at a lower loan rate. Based on the information the bank has, there is no difference in the risk assessment between students that provide a guarantee through their parents or other relatives and those which do not. However, repayment rates of those providing guarantees are significantly higher. The bank attributes this observation to the higher effort students put in after graduation to avoid having to get their parents involved in the repayment of their student loan.

Is there an alternative explanation?

Indicative answer

Students and their relatives will know better the risks of repaying the loan, for example the desired career in well-paid jobs or in jobs that are less well paid or face higher unemployment. It will be difficult for banks to distinguish between students on that basis as it is not difficult to pretend to seek well-paid employment only to obtain the loan in the first place. It is now that students who are certain that they will be able to repay their loan out of their own employment, may want to obtain a guarantee from relatives to reduce the loan rate and hence the repayments necessary. The risk of relatives having to make payments will very small for such students and hence the lower loan rate will be beneficial. For students seeking less well-paying employment, the ability to repay the loan will be lower and a guarantee by relatives would be more likely be called upon. This makes the provision of a guarantee less profitable, despite the savings due to the lower loan rate. Hence we can interpret guarantees as a collateral.

Model(s) used: Sect. 9.2.1

Problem 77

Alois Schicklhofer has set up many shops in Linz over the years, all tried new and untested concepts or products with a thus far limited market appeal. While some of these shops were successful and he sold them once established, usually to larger chains, many were not successful and they ended with his bankruptcy. Despite this mixed track record, he has been able to secure loans to set up a new shop in many cases, although always needed to let some time pass, 'to calm the banks' nerves', as he calls it. Meeting with Alois Schicklhofer at a shop opening, Hermann Hermann, having just started his graduate training programme at Austria Bank, predicts that the time he has to wait to obtain a new loan will be longer if he fails during a recession compared to times of economic expansion. To Hermann Hermann's surprise, Alois Schicklhofer says that he has not noticed any difference.

How can you explain this experience of Alois Schicklhofer?

Indicative answer

The time a borrower is excluded from borrowing after a default should be higher if the risks of the company are higher, and the risks are typically higher during a recession than during an economic expansion. This is to reduce the incentives for strategic default as with higher risks the future benefits from making loan payments are are usually lower, and the longer exclusion period makes a strategic default more costly. This would reflect Hermann Hermann's assertion. However, during a recession the future prospects of the company are usually better than their current situation, while during an economic expansion the future prospects are usually more negative due to the expected future recession. This suggests that the incentives for strategic default in a recession are lower than in an economic boom, counteracting the first effect; therefore the increase in the time during a recession until a new loan will be granted would reduce. The experience of Alois Schicklhofer suggests that these two effects are approximately equally strong, and cancelling each other out.

Model(s) used: Sect. 7.2, Sect. 7.3

Problem 78

The annual banquet of the Association of Bankers is always well attended by dignitaries and selected business men. As is custom, the mayor delivered a speech standing at the front of the banquet hall in full regalia signifying his office, praising the contribution the banks have made to the businesses in the city and how this had positive effects on the community. The main purpose of businessmen attending the banquet, apart from the food, are the networking opportunities that emerge during and after the dinner. Harvey Simpson is a local entrepreneur who has recently expanded his facilities in town and created additional employment opportunities. However, he was not intending to make this expansion and sought originally to invest into research to develop new manufacturing methods in the glass industry, for which he currently provides machinery. He laments to the Mayor, who could not escape his clutch, that banks refused to provide him with a loan for this innovative project, instead of the £10m this would have required, they only granted £5m, knowing well that he could not afford the contribute the shortfall and commencing the research with only half the funds needed would not be profitable for him. He then had to settle for second best and expand his business. Closing his complaint to the mayor he mentions that the bankers had told him that had he needed £20m for his research they might have approved it, and he was sure they were joking. The mayor being forced into replying says that unfortunately banks will not provide too large loans in some instances as they deem the risks too high and therefore cut down the amount they are able to offer.

Does the mayor's response explain the situation Harvey Simpson has found himself in?

Indicative answer

The situation Harvey Simpson has experience is one of credit rationing. The mayor explains this with the risk of the research project being too high and therefore they reduce the loan amount to reduce their risk exposure. This explanation does not fully align with the experience Harvey Weinstein had. Firstly, he had a choice between two possible investments, one being risky - the research project - and the other being less risky - the expansion, rather than a single project which due to the bank's decision was reduced in scale. In addition, he was told that an even larger loan would have been approved, which would not happen if the aim of the banks was primarily to reduce risks. Instead, it suggests that the banks saw the research project as a risky investment and wanted to steer him towards the more safe expansion of his business. A larger loan, with the associated returns to the company would have made the risky project sufficiently profitable for banks, but this was not feasible for Harvey Simpson.

Model(s) used: Sect. 8.1, Sect. 8.2

Problem 79

Nonna SpA manufactures components to be used in engines of different kinds. With their business being very cyclical, they seek to use the currently emerging recession to modernise their machinery and put themselves into a strong position once the economic conditions improve. The rationale is that in the current climate not many companies are investing, so the machines to be bought should be available at a discount and once the economy improves they would have all new machines in place to take advantage of the rising demand. Nonna SpA operates in a competitive market, where in particular manufacturers in the Far East put pressure on profits margins and market share, having made banks more cautious in their credit assessment, but loans have usually been granted by their banks. When negotiating with their bank, they made it clear to the CEO Gasparo Nonna that a loan would be approved, but it quickly transpired that rather than the amount sought, €25m, the bank would only provide €15m, which would mean that not all parts of their business could be modernised. Gasparo Nonna cannot convince his bank to increase the loan amount, even when offering to pay a higher loan rate.

How can the problems of Nonna SpA obtaining the full loan amount be explained?

Indicative answer

Nonna SpA experience credit rationing, but this credit rationing is not induced by a high loan demand and high risk as the modernisation of the business can be seen as relatively low risk. There is also no evidence that the company might pursue a more risky strategy and the bank limits the loan amount in order yo induce Nanna SpA to choose the low-risk investment. The credit rationing here is driven by the possibility of strategic default. The bank does not want to hand the company too many resources as that would make it attractive to strategically default by not repaying the loan, even though this was possible. Evidence for this to be a potential problem is the timing of the loan request: the prospects for the company in the nearer future are not good given the beginning recession and the business being very cyclical. This can be combined with the risks that is inherent to companies during a recession, which might further provide incentives to strategically default.

Model(s) used: Sect. 8.3

Problem 80

Wertmann GmbH and Hoffmann & Lange KG are companies occupying adjacent properties in an industrial estate and the owners of both companies are not only friends for a long time, but Horst Wertmann's daughter is engaged with Lars Lange's son. Although both companies are located next to each other, their businesses could not be more different. Wertmann GmbH develops software for research divisions in companies working to predict consumer behaviour. Their business depends very much on their latest ideas and how well they work, in addition to the uncertainties about what type of tools are currently in demand. Hoffmann & Lange KG, on the other hand, is a producer of specialist chemical products for which he has long-term contracts, providing the company with a steady and predictable market. Both approach their respective banks for a loan, in Hoffmann & Lange KG's case for a replacement of their ageing laboratories used in quality control and for Wertmann GmbH to upgrade their computers to the latest specification. The loan for Hoffmann & Lange KG is approved without much delay, while that of Wertmann KG is finally approved, but instead of the requested €2m, only €1.25m are offered. After this decision, Horst Wertmann laments that banks are really biased against technology companies, while traditional brick-and-mortar companies are looked at much more favourably.

Is the reason for the different decisions that banks are preferring one industry over another?

Indicative answer

The differences in the loan decisions have their origins in the types of the two companies, but this is not about the respective industries they represent, but the risks. Hoffmann & Lange KG is a low-risk company due to their long-term contracts and hence there is very little incentive for the company to strategically default. However, Wertmann GmbH operates in a very volatile markets and faces much higher risks. This higher risk makes it potentially more attractive to strategically default. In order to reduce the risk of strategic default, the bank limits the loan amount as this firstly reduces the benefits of strategic default as the amount not repaid will be lower and secondly it also limits the resources within the company that could be retained.

Model(s) used: Sect. 8.3

Problem 81

Stavros Optiki EPE manufactures high-quality lenses for use in microscopes and high-end personal telescopes. The company has suffered from the improvement of lenses produced in countries with lower labour costs and for now manages to remain in the market thanks to their ability to meet specific demands by manufacturers of the end product in a very timely manner. In order to retain their three largest clients, Stavros Optiki EPE needs to invest into new machines that allow them to produce a wider range of lenses without having to dismantle parts of the machines that shape the lenses. In order to meet the anticipated demand, he seeks to purchase two machines from Japan at a cost of ¥250m each. The bank is supportive of this investment, but he is only approved for a loan to purchase one machine by being given a loan of €1.5m as the bank assesses the risks of Stavros Optiki EPE as being too high.

Will reducing the loan amount be effective in reducing the risks to the bank?

Indicative answer

The reduction in the loan amount is due to credit rationing. The risks of Stavros Optiki EPE are substantial as the investment is conducted to retain some of the most important clients, suggesting that they might order their lenses elsewhere in the future, putting the future of the company at risk. Seeing a bleak future ahead, there are strong incentives for Stavros Optiki EPE to strategically default. The banks seek to limit this risk of strategic default by not allowing them to make a large investment, which will reduce the assets that could be retained by Stavros Optiki EPE and also reduces the benefits from not repaying the loan as the loan is smaller. Whether this approach is successful in this case is questionable, however, as the lack of a second machine might increase the risks for the future of the company, given that they cannot serve the demand of all their important customers equally well. This increased risk will increase the incentives for strategic default, reducing the positive effect of the credit rationing.

Model(s) used: Sect. 7.2, Sect. 8.3

Problem 82

In order to encourage investment and promote economic growth, the government of Solano has opened up the banking market to foreign banks as well as granted licences to new domestically founded banks. It is generally agreed that this move has increased competition between banks and has brought down the loan rates companies have to pay. In an act of self-congratulation the finance minister praises the achievements of his administration at an event celebrating the fifth year since the relevant laws were enacted. He points out that loan costs have reduced by about 2% p.a. and his economic advisers have estimated that this added about 0.5% economic growth in each of the past 4 years for which data are available. Taking questions from journalists after his remarks, Alketa Shala asks how he can explain that since the liberalisation of the banking market companies complain that often they cannot get a loan of the size they seek, but banks will offer them only smaller loan than they would need to obtain the full benefits of their investment; no such problems were reported prior to the liberalisation, although there were much more frequent complains about the loan costs.

Assuming the finance minister were to answer honestly, what should his reply be?

Indicative answer

With the increased competition between banks, the loan rate has reduced, reducing the profits banks can make from providing loans, which is positive for companies and promites investment. However, as with all measures, there is a downside and in some cases, the small profits now make in a competitive market does not allow them to absorb losses from companies defaulting on their loans. If companies take on large loans and do not have the ability to absorb much of potential losses themselves, for example if they are highly leveraged, then the bank will make losses from these loans. With the lower profit margin due to the lower loan rates, they cannot easily cover these losses and avoid becoming loss-making themselves. It is for this reason that banks may not be willing to give large loan to companies and restrict the amount they lend to reduce the potential losses they can make. It is thus that there is a downside to the liberalisation of the banking sector, but the evidence suggests that the positive aspects dominate.

Model(s) used: Sect. 8.4

Problem 83

Vuk Bjelica owns a chain of fastfood restaurants in all the main cities of Gunung. Having had great success in taking market share from his main international competitors, he has expanded quickly and opens new restaurants at the rate of one or two per month. The substantial investment required to fit out each restaurant is mostly financed through bank loans that have been granted easily given the success he had. However, recently his growth has slowed and he had to close some restaurants as the footfall reduced after an initially high turnover; overall he sees more opportunities for growth and remains optimistic about the future of his business. While he obtains loans easily thus far, he bemoans the high costs his bank charges him and attributes this to the lack of competition between the three incumbent banks in Gunung. Therefore he approaches a bank in the neighbouring country of Dharatan, who has a much more competitive banking system while sharing the same currency. The reaction to his loan application is also positive with a loan rate offered that is significantly lower than his bank is willing to quote. However, they are not willing to provide a loan necessary for the opening of ten more restaurants, approving only funds needed for six; in addition this comes with the stipulation that Vuk Bjelica has to retain more earnings and reduce the dividend he pays himself. They indicate that if his own funds in the company increases, they might consider further loans in the future.

Why is Vuk Bjelica only offered a loan to refurbish six further restaurants by the bank in Dharatan, while his bank in Gunung offers the full amount?

Indicative answer

The key here is that the bank in Dharatan rations the loan as they see the high leverage of Vuk Bjelica's company as being too risky. They do not necessarily have a different assessment of the risk from the bank in Gunung, but instead the reason is that the banking system in Dharatan is more competitive. This higher level of competition reduces the profits banks make, as evidenced by the lower loan rate offered, and limits there ability to absorb any losses from loan defaults. That Vuk Bjelica's company is not risk-free is evidenced by the need to close some restaurants, suggesting that the initial expansion will now become more difficult and a default on loans is not impossible. The bank in Dharatan wants to limit the losses they have to bear and increasing the equity allows the company to absorb some of the losses first, making the loan less risky and allowing for larger loans in the future.

Model(s) used: Sect. 8.4

Problem 84

Unavu Pvt Ltd is a food company supplying ready-meals to canteens and schools. To finance a new packaging facility, six years ago they had taken out a loan of INR200m at a loan rate of 11.4% p.a. In the last six years the banking market in adjacent regions has seen the opening of branches by several national banks and companies now have the choice between five national banks, however in the region Unavu Pvt Ltd operates in only a single local bank is available. Poor transport connections within the region and to neighbouring regions limit the ability to use banks there. As a result of the competition between banks, loan rates in neighbouring regions have reduced and Unavu Pvt Ltd seeks to take advantage of the new lower loan rates, believing that it should pay only 8% p.a. if they were to take out a similar loan now. Although they have to pay a fee of 1.5% of the outstanding amount to repay their loan before its maturity in four year's time, this would be cost effective. Their existing banks is willing to offer them a new loan at 10% p.a., but without the ability to repay the loan before maturity, while a bank in the neighbouring region offers a loan rate of 9% p.a. with the ability to repay the loan at any time without a penalty charge. However, this loan offer is only for INR120m, well short of the amount required to replace the existing loan. Returning home and contemplating these offers, the owner of Unavu Pvt Ltd fails to understand why the bank in the other region only offers him a smaller loan, but requires a higher loan rate than expected, while his bank offers him a lower loan rate than he previously had. He does not see that his risk has changed or that the economic conditions overall are different.

Can you explain the situation Unavu Pvt Ltd finds itself in?

Indicative answer

There are two elements that require attention, the first the credit rationing the company faces in the other region and the issue of the loan rates. Looking at the credit rationing aspect, the banking system in the other region is more competitive and this will have induced the credit rationing. The lower loan rates in that region will be evidence for banks being less profitable and thus not so easily able to absorb losses, making them more cautious when providing loans; this manifests itself in offering only a smaller loan such that the company itself could shoulder a larger part of any potential losses and hence reduce the risk to the bank. The original bank of Unavu Pvt Ltd does not face competition and can therefore charge a higher loan rate, giving it a higher capacity to absorb losses from any defaults and therefore doe snot need to ration the loan amount. The interest rates can be explained bya combination of competition and the possibility of early redemption. The current loan contract allows Unavu Pvt Ltd to repay the loan early for a small fee and their current bank offers them a new loan contract without this ability, which will reduce the interest they will charge as they do not face any adverse selection by the company repaying early to secure better loan terms like in this current case. This explains the reduction of the loan rate at their current bank. The fact that the loan rate at the bank in the other region is higher than expected is due to the fact that it allows the company to repay their loan at any time without an early redemption charge. This exposed the bank to substantial adverse selection as Unavu Pvt Ltd could accept any better loan offer at no cost, which will increase the loan rate they are charged.

Model(s) used: Sect. 6.6, Sect. 8.4

Problem 85

Jay Corston has founded his own plumbing business, JC Plumbing Ltd. and to be able to purchase the required equipment and a van to start his business, seeks a loan from a bank. The bank is positive about providing him with a loan, offering him a business loan for five year at a loan rate of 8.75% p.a. His wife thinks that the loan rate is rather high and compares it to the loan rates of 4.5% p.a. that are typically charged for mortgages. As they are currently living in a house they have inherited mortgage-free from her aunt, she suggests to obtain a mortgage for the business instead of the business loan as that would be much cheaper.

Is Jay Corston's wife correct to say that the mortgage is cheaper than the business loan?

Indicative answer

The mortgage is a loan where their private home acts as a collateral for the loan. If the business fails and the loan cannot repaid from the business itself, the bank would obtain the house, which Jay Corston and his wife would lose. As many new businesses fail, there is a substantial risk of the company failing and the collateral being lost; this would increase the costs of the loan, not through a higher loan rate, but the potential loss of the home. While a detailed analysis of the risk needs to be conducted for a proper comparison, the loan rate here is not only costs of the loan.

Model(s) used: Sect. 9.1.1

Problem 86

A new entrant to the banking market prices its business loans aggressively by undercutting the loan rates of the market incumbent by at least 0.5% p.a., while remaining just about profitable overall. Charging a typical loan rate of 8% p.a. on unsecured business loans causes the bank a loss, while charging 5% p.a. on a typical fully secured loan is profitable.

How do you explain the fact that secured loans are profitable and unsecured loans are not profitable, despite having a higher loan rate?

Indicative answer

The loan rate for unsecured loans is higher than for secured loans as the bank will receive no payments in the case the companies fail to repay their loans, this gives the bank lower repayments overall, despite the higher loan rate. The bank is making profits from secured loans as the repayments arising from the collateral more than offsets the lower loan rate. This suggests that the bank should charge a higher loan rate on unsecured loans and lower is loan rate on secured loans.

Model(s) used: Sect. 9.1.1

Problem 87

Foxton Housebuilders Ltd. is a small company focussing on the construction and renovation of environmentally friendly houses in the centre of local towns. Having successfully grown the business in the last few years, its owner, Peter Foxton, seeks to expand its business to include the conversion of former industrial sites into domestic accommodation. He sees this expansion as the next logical step in the development of his company. His bank, however, views his plans as an expansion into a different part of the building sector and is much more critical about his ability to compete with companies in this sector of the market. After long discussions they agree to fund his expansion, but require a loan rate that is 1.5% p.a. above what he recently agreed for a loan used in the development of houses on the outskirts of the same town. Taking this offer to consider it in detail, Peter Foxton believes that the bank is overcharging him and looks for a way to reduce the costs of the loan.

How can he reduce the overall costs of his loan?

Indicative answer

Peter Foxton believes the expansion of his business to be lower risk than the bank, who sees it as a entering a new section of the market rather than merely a different type of housing. It is therefore that Peter Foxton could offer collateral and thereby reduce the loan rate. While this would increase his costs due to the possibility of losing the collateral, these costs increases are less than the reduction in the loan rate due to the fact that he believes the probability of nfailure to be lower than what the bank assumes.

Model(s) used: Sect. 9.1.2

Problem 88

Arda Güner has responsibility for small business at the Alatya branch of Salem Bank, which includes the agreement of loans up to TRY10m. Having been in his role for 2 years, head office has seen a significant increase in unsecured loans from about 23% to now 70% of loans he approved, while at other comparable branches the fraction of such loans has remained constant in the region of 20-25%. In his justification, Arda Güner reports that he usually offers an unsecured loan along a secured loan with a lower loan rate, as has been practice at the bank and is followed in all branches. It was then up to the companies to choose the loan that is most suitable to their needs, again in line with bank policy.

How can you explain the observation that most companies chose the unsecured loan over the secured loan?

Indicative answer

If Arda Güner's assessment of the risks of the companies is such that he assesses the risk as being lower than the company itself, then the conditions for the secured loan will not be sufficiently attractive for companies to demand such a loan. This is because the low risk assessment of Arda Güner will firstly make the loan rate lower than what companies expect and then the reduction in the loan rate when providing collateral will be small too, reflecting the low risk, while companies see higher risks. Thus they do not wish to put their collateral at risk as the lower loan rate doe snot fully compensate them for this risk as they assess it, and therefore will demand the unsecured loan. It is thus that Arda Güner assesses risk as lower as companies themselves that drives this observation.

Model(s) used: Sect. 9.1.2

Problem 89

In an online discussion forum for small businesses two opposing views on loan conditions offered by banks emerge. One view can be summarises as 'Banks offer secured and unsecured loans, but whichever you choose they all cost the same in the end' and other view is that 'Secured loans are always cheaper'.

What are the different premises underlying these two statements?

Indicative answer

Both statements probably assume that banks are equally competitive when offering secured and unsecured loans, but the first statement that loan costs are overall the same suggest that the reduction in loan costs for secured loans is exactly offset by the potential loss of the collateral. This will be the case as long as the bank and the company agree on the risks of the company. However, if the company assesses their own risks as being lower than the bank, then the second statement applies. the bank offering unsecured loans will charge a high loan rate, but this will reduce significantly with collateral as the bank reduces the high risk. At the same time, the company does not see an equivalent increase in the risk of losing the collateral as they believe the risk to be lower, making the provision of collateral more attractive. Thus the first statement assumes that banks and companies agree on the risks the company faces, while the seconf statement assumes that banks will assess the company as being more risky than the company assesses itself.

Model(s) used: Sect. 9.1.1, Sect. 9.1.2

Problem 90

Maryna Kovalenkova owns and manages Pobutova Elektronika TOV, providing electronic gadgets ranging from hand-held fans to sophisticated drones. Due to an upcoming major football tournament, she has identified a significant gap in the local market to sell minifridges combined with integrated beer dispensers. Her market research indicates a large potential in the short run for such devices and she seeks a loan to produce these in larger quantities. In order to increase her profits from this short-lived opportunity, she accepts a mortgage on her private home and secures a loan at a low interest rate. When providing her with the loan, her bank remarks that they really struggle to understand the gadget market and the opportunities therein, so cannot really assess objectively the details of her proposal. Maryna Kovalenkova's friends uniformely question why she would put her private home at risk for this one product and say she has clearly become a bit too involved in the business.

What is Maryna Kovalenkova's rationale for offering her home as collateral for this loan?

Indicative answer

The bank admits that it does not has the ability to assess the risks of the companies operating in the gadget market, hence they cannot distinguish between companies, or investment ideas, that are low-risk or high-risk, while Pobutova Elektronika TOV is confident about their risk assessment. Clearly Maryna Kovalenkova believes that the investment is low risk and for this reason is willing to provide collateral in exchange for a lower loan rate, which will increase her profits. As she assesses the risk as low and chooses to provide collateral, knows it to be of low risk and will therefore offer an even lower loan rate.

Model(s) used: Sect. 9.2.1

Problem 91

The national Chamber of Commerce conducts a bi-annual survey of business conditions and this includes a section about access to bank loans. It is a consistent complaint in the survey over many years that companies in some well-established industries are offered only loans at a relatively high costs and no offers are made, or are only made when pressured, of accepting collateral; in those cases where an offer is forthcoming, it commonly seems to be not very competitive and increases the costs to the company. Only in some cases are the conditions with and without collateral similarly attractive, but that seems to be limited to cases where the collateral consists of government securities, or precious and non-precious metals. On the other hand, other industries, such as newly emerging industries, or companies offering highly innovative solutions, frequently obtain attractive offers that would require collateral, except that companies usually do not hold many assets that can be used as collateral.

The Camber of Commerce seeks to find an explanation for these observations. What would this report show?

Indicative answer

There are a number of issues to consider. Firstly, the provision of collateral is only beneficial to the company if there is a difference between the risk assessment of the bank and the company's assessment of their own risk. If the company assesses itself to be of lower risk than the bank, the provision of collateral would be beneficial, otherwise there would be no difference in the overall costs. In the case of the well-established companies it can reasonably be assumed that they are well-understood by banks with information being widely available and hence where is unlikely to be much difference in the risk assessments of the banks and the company itself. Hence there is no asymmetric information between banks and companies, making the provision of collateral not beneficial. This inference assumes that the value of the collateral to the company and the bank are identical, as they will be in the case of securities and other commodities that are easily marketable as reflected in the results. If the value of the collateral is higher to the company than the bank, as is likely to be the case in most other cases, the reduction of the loan rate when providing collateral does not fully compensate the company for the provision of loans and hence collateral is not attractive. For companies that operate in newly emerging industries or are entering new grounds, the banks will have limited information on the companies and hence be less able to assess risks, leading to asymmetric information between banks and companies. There collateral would be beneficial as it could be used to signal the qualities of the company to the bank. A problem with many such comapnies is, however, that they often do nto have any collateral that would be acceptable to banks and therefore have to rely on the much more costly and less desirable unsecured loan.

Model(s) used: Sect. 9.1.1, Sect. 9.1.2, Sect. 9.2.1

Problem 92

As a manager with Alara Bank you have frequent meetings with customers that have taken out loans and you meet a variety of senior managers at companies of all sizes. Reflecting on another hectic day, you discuss your experience with a colleague over a few drinks. Listening to your colleague you hear him talk about that it is the companies that are facing difficult times that seem to be most relaxed about how things will turn out, rarely showing much urgence to address upcoming issues, while those whose companies are doing well and show no sign of being seriously affected by events, are always on top of even the smallest issues. Sighing, he concludes that he has found no remedy against such disparity in behaviour.

Can you suggest to your friend what might be done?

Indicative answer

The problem is that the benefits of addressing issues in a company, that is exerting effort, might be higher for companies facing high risks than those facing lower risks, it is not cost-effective. The nevertheless low chances of success after the intervention leads to a situation in which the costs of exerting effort outweighs the chances of this effort making a meaningful difference. This will be the case for those companies facing difficulties mentioned here. This can be addressed by increasing the cost of failure, for example by requiring collateral for any loan. The loss of collateral is an additional cost to the company if it fails and it will thus provide incentives to increase the effort in addressing the difficulties the company faces.

Model(s) used: Sect. 9.2.2

Problem 93

Over many years, managers at South Suny Bank have got to know their customer Larkhill Pharmaceuticals Ltd. well. The owners of the bsuiness have always been good managers, but at times preferred the golf course to the board room. They were, however, always fully engaged with more serious problems, only smaller ones were frequently ignored or delegated to address. While until recently they had rented their production site and had very few assets as most facilities were leased, they have now found a new investor that enabled them to acquire the property they were renting. Looking at expanding their business, they have asked for a loan to pay for the construction of a second facility on their site. This loan was granted without question and Larkhill Pharmaceuticals Ltd. provided their land as collateral for this loan to reduce the loan rate. It now seems that since this loan was granted, the management seems to be much more focussed on their business, trips to the golf course have become rare, and they are always fully engaged with even minor problems.

How can you explain this change in the behaviour of the management?

Indicative answer

The new loan of Larkhill Pharmaceuticals Ltd. was secured with the land they own, thus they have provided collateral for their loan. This has increased the costs of failure, the loss of their land. It is for this reason that management has increased their effort levels to avoid this loss, which previously was not present as they did not provide any collateral.

Model(s) used: Sect. 9.2.2

Problem 94

Terme Moreno SpA operates nine spa and wellness hotels across Italy. In an expansion drive a few years ago it had a acquired another 6 properties to build new hotels, but these projects have been put on hold due to a deep and prolonged recession that has in particular affected the luxury market in which Terme Moreno SpA is operating in. Currently these properties are surplus to requirements, but have been retained for future development. The hotels are at the moment operating well below capacity and the immediate future of Terme Moreno SpA does not suggest improved business. In order to position itself better in the market, they seek to conduct a programme of wide-ranging updates of their existing hotels. Their bank agrees to financing these investments in principle, but in order to grant the loan seek collateral in form of the undeveloped properties. In addition, the bank requires Terme Moreno SpA to agree to them using their property as collateral in their own financing of this loan. The bank has hinted that without that agreement, the loan conditions would be significantly more onerous for Terme Moreno SpA, if they would be able to obtain a loan at all.

In addition to obtaining the loan in the first place, why would Terme Moreno SpA agree to such an arrangement?

Indicative answer

Given the current economic conditions, the loan is assessed by the bank to be very risky, and the same assessment can be expected from other banks. By allowing rehypothecation, the collateral becomes more valuable to the bank. They can use the collateral to obtain funding themselves, reducing their costs and this in turn allows them to offer better loan conditions to Terme Moreno SpA, making such an arrangement attractive. It also has to be taken into account that the properties used as collateral are held in reserve and currently do not contribute to the company's profits; thus losing them if the bank were to fail in their obligations would not immediately affect the prospects of Terme Moreno SpA, although future expansion plans if the economy performs better again might be jeopardized. Nevertheless, the benefits of better loan conditions combined with the low risk of losing an unproductive asset might make this arrangement attractive to Terme Moreno SpA.

Model(s) used: Sect. 9.3

Problem 95

Mettli AG is a Swiss pharmaceutical company that is best known for developing drugs for rare diseases using the latest advancements in science. They had some widely publicised success in recent years, but also a much larger number of failures which is less widely known. In addition to their significant research into innovative drugs, requiring substantial investment, they also produce widely-used drugs which are sold in pharmacies without prescriptions, providing a stable income. Having mostly financed themselves through private equity investments until recently, they now seek a loan for the general financing of working capital for the company as they seek to expand sales of their widely-used drugs into more markets that have recently been opened and where few competitors exist. Having approached a number of banks, they have been disappointed at the response they have received. All banks were only willing to provide loans well below the amount sought; while this would allow them to expand into some markets, it would fall short of their ambitions. It is only once they revealed that they would be willing to use their future income from these drugs as collateral, that banks were willing to provide loans of the size required.

How can you explain this change in loans offers by banks?

Indicative answer

Initially, Mettli AG has been subject to credit rationing, which upon providing collateral has disappeared. Credit rationing emerged as the banks were not convinced that the loan would be used for the low-risk expansion of their business in widely-used drugs, but thought that it might be used to finance the much more risky development of new drugs. By limiting the loan amount banks sought to prevent Mettli AG to make the risky large investments into research using their loan. Once the collateral was pledged, it became apparent to them that the low-risk expansion would be financed; collateral is usually only pledged if the risks are low as not to lose the collateral. This reduced the risk of the loans from the bank's perspective and credit rationing disappeared with this additional information, Mettli AG was able to secure the full loan.

Model(s) used: Sect. 8.2, Sect. 9.2.1

Problem 96

Johan Rasmussen has been repeatedly turned down for a loan at the company he leads, Rasmussen Metals. It was only after he found a specialist lender which focussed on companies in mining non-precious metals and related industries, that he was able to secure a loan to modernise his business with the latest technology. In order to obtain the loan, he had to agree to use his stored metals as collateral and that the lender could rehypothecate this collateral. Through trade publications he has become aware that it has become a well-known problem for companies like his to obtain loans, even though they are highly profitable and can easily use their extensive holdings of metals as collateral. The same publications also state that companies larger than him do not seem to face the same constraints in financing their businesses, even though their risk might be larger due to exposure in politically unstable countries. A brief survey suggested that of larger companies only 5% of respondents had to allow rehypothecation, while for mid-sized companies this rose to 54% and small companies were often not able to gain loans at all, even when rehypothecation was offered.

How can you explain these results?

Indicative answer

Rehypothecation is only feasible if the loan is sufficiently large, which is more likely the larger the company is as commonly the loans demanded will be larger. This would preclude small companies from accessing such loans. On the other hand, loans would be feasible for large loans even when not allowing rehypothecation, thus allowing larger companies to provide collateral only.

Model(s) used: Sect. 9.3

Problem 97

'Companies we don't know well are free to decide whether they provide collateral or not. Good companies are happy to provide collateral for their loans and those who don't want to, are pressured to provide at least some, even if they resist.' This was said by the board member for corporate lending at Gundana Bank to freshly recruited graduates at a training course covering the principles of corporate lending.

Why does Gundana Bank follow this, rather crudely expressed, principle?

Indicative answer

If Gundana Bank does not know the company well, they will face asymmetric information about their risks and hence the willing provision of collateral can allow them to distinguish between companies that are low-risk and hence provide collateral willingly to reduce the loan rate, and those that are high-risk and will be reluctant to do so. With this distinction, they can now address a moral hazard situation in exerting effort. Companies providing colalteral face an additional costs when failing, the loss of collateral, and will therefore exert additional effort to reduce the risk of the company, which is in the interest of the bank. Thus those companies not volunteering collateral, and thus identified as high risk, would be required to put up some collateral to increase their effort to ensure the loan is repaid.

Model(s) used: Sect. 9.2.1, Sect. 9.2.2

Problem 98

Stimata plc is a major global retailer operating stores under various brand names, including fashion stores, homeware stores, and also some department stores. It has been a long-lasting practice that they finance some of their stocks through bank loans and sometimes provide collateral in the form of the amounts owed to them by credit card companies. During the previous negotiation for a new loan their main bank, Doren Bank, has suggested that in the future they are allowed to use their credit card receipts as collateral for their own use. Stamata plc signed a general agreement to this as the bank re-assured them that this would be to their benefit. In the current negotiation for a loan to purchase stock for the busy Christmas period, Stimata is surprised to learn about the conditions the bank offers. While in comparable circumstances previously they had offered a loan rate of 8.2% p.a. for an unsecured loan and 5.3% p.a. for a secured loan with 70% of the loan secured, they now offer 8.9% p.a. and 5% p.a. with 85% of the loan secured, respectively.

How can you explain the changes to the loan rates offered to Stimata plc?

Indicative answer

Allowing the bank to re-use the collateral in their own borrowing is knows as rehypothecation. This rehypothecation increases the value of collateral to the bank as it can be used as collateral for their own borrowing. While usually the collateral is worth less to the bank than the companies providing it, this additional use of the collateral will increase its value to the bank, the value of λ in chapter 9.2.1 will increase. This will in turn mean that it is more beneficial for the bank to obtain collateral, hence the lower loan rate for secured loans. As there is a higher benefit for banks if collateral is provided, they seek to provide additional incentives for companies to provide such collateral, increasing loan rates for unsecured loans. From the model in chapter 9.2.1 this can be seen by the the equilibrium point H in figure 9.1 increasing due to the higher slope and with it the isoprofit curve of the company, starting at H will cross the isoprofit curve at a point L this requires a higher collateral and a lower loan rate.

Model(s) used: Chs. 9.2.1, Sect. 9.3

Problem 99

Lydia Urban is considering the loan application by GameDev Ltd., a company purchasing the rights to poorly implemented video games appealing to niche markets which they then develop further so they appeal to a wider market. The company has approached National Midlands Bank, Lydia Urban's employer, for a loan to generally finance their operations. During discussions, Lydia Urban has learnt that the two owners of GameDev Ltd. have ambitions to develop their own games rather than improving existing ones. She sees such an approach as much more risky than the further improvement of existing games and her analysis suggests that the bank would not want to support such a risky investment. She has thought about ways to ensure the company owners do not use the loan to fund their ambitions to develop new games and instead focus on their currently successful business. The size of the loan cannot be reduced as that would jeopardise the current business and the company does not own any assets of note that the bank could take as collateral.

Despite her concerns, are there ways that Lydia Urban can structure the loan to ensure it is not too risky for the bank?

Indicative answer

A possibility would be a debt covenant. Lydia Urban could require the company to invest a minimum amount into their current business of improving existing games and thus limit the exposure to the risk of the owners developing their own games. This would ensure that the risks of the loans are such that it can be granted by the bank, but it nevertheless gives the owners some freedom to commit some resources to their ambitions, if they desire to do so.

Model(s) used: Sect. 9.4

Problem 100

Kiyoshi Satakura and Chia-hao Tsai both own a small company that share the same building offering office space to small companies, together with joint kitchen and social facilities. Meeting while having a coffee break, they start talking about the difficulties when dealing with banks. Kiyoshi Satakura finds them a limit on his ability to be innovative, nearly everything he thinks has the potential for generating high profits, they put a limit on. Therefore he cannot develop his ideas fast enough as he has to spend most of his time on well-trodden paths and can only devote some of the funds and time on new ideas. Chia-hao Tsai's experience is quite different. His bank encourages him to explore new ideas and is not satisfied with his approach of pursuing safe, if low-yielding, projects. Only half jokingly they agree that they probably should swap banks.

Would swapping banks solve their problem of one company being hindered in developing innovations, while the other being pushed towards developing them?

Indicative answer

In both cases, banks impose covenants on the companies to pursue a combination of risky and safe investments. This ensures that in the case of Kiyoshi Satakura the overall risks are not too high and the bank can generate sufficient profits, while in the case of Chia-hao Tsai the banks wants him to take on more risks such that he can generate sufficient returns to repay the loan, which with his low-risk strategy cannot be ensured. It is therefore that swapping banks is unlikely to change the situation they are in as the different treatments they receive is not the result of different risk assessments by these banks or different willingness to take risks, but it is the way they operate their respective companies that solicits opposite demands from the two banks.

Model(s) used: Sect. 9.4

Problem 101

To support banks in an extraordinarily deep recession that hit the economy of Vonuta due to a collapse of the price in non-ferrous metals as well as beef, the two main products that are produced and also exported, the Reserve Bank of Vonuta has administered a loan guarantee scheme on behalf of the government. Banks were able to purchase guarantees at a low cost to cover any losses from loans they have provided. While this programme was intended to support the banks so they continue to lend to companies, it had the side effect that banks in some regions face deposit withdrawals as a result of high unemployment, but were able to generate liquidity by selling loans to other banks who were less affected by such deposit withdrawals. This has led to a liquid secondary market in loans between banks. With the economy recovering, the government decides to wind down its loan guarantee scheme, even though the recession is still persistent in some parts of the country and banks face the occasional withdrawal of deposits as a consequence. The governor of the Reserve Bank of Vonuta warns the government to not yet abandon the guarantee scheme.

Why would the governor issue this warning?

Indicative answer

The guarantee scheme is instrumental in enuring a liquid secondary market for loans and thus allowing banks facing deposit withdrawals to generate liquidity from the sale of loans. Bank sought to insure loans with high risk and these were removed from the pool of loans traded, improving the overall quality of the loans in the secondary market and thereby reducing adverse selection costs. With adverse selection reduced not only did the banks receive a higher price for their loans, improving their liquidity position further, but it also attracts more purchasers and the market will not stop functioning due to too high adverse selection between the selling and purchasing bank. With the withdrawal of the guarantee scheme this will change and there is a danger the secondary market might collapse, leaving bank facing deposit withdrawals without the ability to obtain liquidity, unless the Reserve Bank of Vonuta would provide this.

Model(s) used: Sect. 9.5

Problem 102

The government has operated a guarantee scheme for bank loans for many years. A recent audit exposed the costs of these guarantees to be approximately US$1.46bn p.a. In order to reduce the budget deficit, it had initially been decided to abolish the scheme altogether, but on intervention by the central bank and a wide range of business representatives, it will now be maintained. However, it has been decided that the guarantee needs to cover its costs and the fees payable by banks to obtain such guarantees have increased accordingly. Consequently, the amount of loans guaranteed fell from approximately US$120bn to just below US$17bn. On the second anniversary of this change, the editor of the Financial Gazette & News makes the increased fees charged to banks responsible for the more widespread need of the central bank to intervene in the banking sector and provide liquidity support.

How does he explain the connection between the increase in the fee for loan guarantees and the need for central bank interventions in the banking market?

Indicative answer

The increase in the fee for government guarantees of loans makes the use of such guarantees not profitable for banks who subsequently do not seek such guarantees, as evidenced by the strong fall in its uptake. This will have led to banks facing deposit withdrawals obtaining lower prices when seeking liquidity through the sale of loans; this is the consequence of more high-risk loans being offered in the market and therefore the overall price to fall and the market even to collapse as adverse selection was too high. Thus, banks are less able to obtain liquidity in the secondary market for loans from other banks and therefore will have to rely on the liquidity provision of the central bank.

Model(s) used: Sect. 9.5

Problem 103

Helmut Hollinger has been made redundant and faces financial difficulties. In order to save costs, he changed his mobile phone provider and signed a new contract at a lower cost than the contract he was previously on. As part of the contract he can opt-in for the mobile phone provider to inform a non-profit organisation called CreditCheck, jointly overseen by banks and consumer finance companies, whether he maintains a clear track record of making payments on his contract. As there are no repercussions for not opting-in, his friends tell him that he was silly to do so as now he will find it much more difficult to obtain any such contract or a loan in the future if he misses any of his payments; they will just write him off as a bad risk.

Was Helmut Hollinger right to sign the opt-in about sharing information on his payment history?

Indicative answer

In his current situation as being in financial difficulties it is reasonable to say that Helmut Hollinger's risk of defaulting on his payments is high. By making regular payments and this being disclosed to other lenders, he can improve his standing and will benefit from better conditions in the future, he will build up a credit record; this will be positive. This benefit needs to be balanced against the possibility that he is not being able to make payments as required and thus being more fully identified as not being creditworthy, which is likely given his financial circumstances; this will effectively shut him out of the credit market. Not disclosing his track record in making payments will not improve his credit standing and he will continue to be assessed as high-risk, even if he can make all payments as requested. It is clear that in this case the potential gain in credit rating outweighs the costs of confirming his low status.

Model(s) used: Sect. 10.1

Problem 104

MicroComp Ltd. is a longstanding company providing calculators and other hand-held scientific devices allowing engineers to make calculations in the field. This company enquires about a loan at Torres Bank, who have no knowledge about the company or the type of market it is active in. They know that the company previously held bank loans as this is available from the sparse information they have provided. Before making a full analysis of the company and its risk, they seek information from Credit Collect, a credit reference agency that all banks cooperate with. On seeking information about MicroComp Ltd., they obtain a blank return, suggesting that no information is held. After receiving this blank return, the branch manager who had been approached, calls in a junior employee and tells him that because there is a blank return, he should assess the company fully and request the usual additional information. The junior employee is confused as just a few days prior in a similar situation he was told to refuse an application in the early stages, despite information being found on a loan having been obtained recently.

Why is the junior employee told to assess MicroComp Ltd. fully?

Indicative answer

With MicroComp Ltd. having had bank loans in the past and no information available from the credit reference agency suggests that they did not consent to information being shared. In contrast to that, the previous company did agree to sharing information, even though it was too early to find any meaningful entries. It is that low-risk companies typically do not agree to sharing information with credit reference agencies, such as Credit Collect, while high-risk companies are happy to do so. It is therefore that the branch manager sees the refusal by MicroComp Ltd. to share information as a positive signal about their quality, while he saw the willingness to share information in the previous case was seen as a negative signal about the risks of the company.

Model(s) used: Sect. 10.1

Problem 105

Merkot Avtaha BM develops and sells security systems for private houses and small companies. Being very successful in their home market and having gained a leading position, they now seek to expand their business to other countries. To this effect they seek to build capacity by establishing and staffing subsidiaries and developing local marketing strategies, planning to offer their products and services in 2-3 years time. To finance this first step in their expansion, they approach a number of banks and after having agreed with one bank a partial financing of investment, they find that on learning this fact other banks turning much more reluctant to discuss specific loan terms and seem to drag out the negotiations. This is nothing which they experienced before when discussing loans for exploring the feasibility of new products and services, where they always have played their cards close to their chests. In confidence, a former employee of theirs, now working for one of the banks they have approached, tells Merkot Avtaha BM that they should not have said they had found partial funding with another bank.

How could have this disclosure reduce their chances of securing funding for the entire investment?

Indicative answer

We can interpret the capacity building as an investment that yields significant private benefits to Merkot Avtaha BM, namely their ability to sell their products and services in new markets. Their exploration of these markets and establishing a presence will not yield much direct benefits that will allow a repayment of the loan, but will be beneficial to them only in the future once they enter these markets. While Merkot Avtaha BM will have an ability to repay loans from its existing operations, banks will be concerned about the risk to their loans as they are ’second in line’ as they agreed the loan later than the first loan. As long as banks did not know where they would be standing in the priority list of loans, like with the non-disclosure in previous negotiations, they would offer a loan that would take both possibilities into account. Now with increased risks as they know they are obtaining the more risky element of the loan.

Model(s) used: Sect. 10.2

Problem 106

Rozbiork Sp. z.o.o. is a demolition company focussing on the demolition of individual buildings seeking a loan from its bank to replace ageing machinery. In a recent review meeting with its bank it had also explored the possibility of a much larger loan to explore a possible expansion of the business into large-scale demolitions of entire housing estates and company complexes. When entering negotiations with their banks for the replacement of machinery, their banks asks them to categorically confirm whether or not they are negotiating with another bank about obtaining a loan. They had never experienced such a request before.

How would the bank justify their demand to be told about Rozbiork Sp. z.o.o. being in discussion with other banks about a loan?

Indicative answer

The bank wants to know whether another bank might provide a loan that would allow Rozbiork Sp. z.o.o. the ability to pursue the discussed expansion of the business. This would only be much risker, but as it is an exploration has mainly private benefits to the company that does not directly support the repayment of the loan. If the Rozbiork Sp. z.o.o. is in negotiation with another bank, their bank might only get the more risky second loan. For this reason they want to know their position. If they are negotiating with another bank, the bank might not be willing to grant the loan at all.

Model(s) used: Sect. 10.2

Problem 107

Discussing new rules by the financial regulator that requires banks to share information about the companies they provide loans to, two business owners are disagreeing about these rules. Hamish McCourt says he cannot care less if his bank shares information about his company or not, he says in the end it will all balance out. In contrast, Kieran Short is concerned about the sharing of information and says that this will reduce competition between banks and loan rates will go up.

Whose position is more justified?

Indicative answer

Both are correct in a way. Hamish McCourt is correct that as long as banks are competitive, the provision of information will not make a difference to companies overall. While with information sharing between banks, competition will be consistent over time, without such information sharing banks will compete more to obtain a customer in the first place, lowering loan rates, and then seek to exploit their informational advantage afterwards, increasing loan rates; overall the loan rate is the same. What Kieran Short is concerned about is the lack of competition to attract customers in the first instance and he might lose the low initial loan rate as banks will have less incentives to compete for new customers as there is less informational advantage to be gained. Hence, if Lieran Short is concerned about the initial loan rate increasing, he is correct, but he will benefir from lower loan rates after that.

Model(s) used: Sect. 10.3

Problem 108

An investigation by the Competition Authority has found that loan rates offered by banks to their customers are in most cases not competitive and banks making higher profits than is justified. On analysing the information available, they conclude that banks are abusing their informational advantage to generate high profits from existing customers and therefore suggest to require banks to share information about their customers. Banks refute the allegations of making excess profits and point out that the profits they make overall are not excessive, a finding which was supported by the investigation of the Competition Authority; however, their response implies that they are merely concerned about the loan rates charged to existing customers and that the informational advantage makes it more difficult for companies to obtain loans from another bank.

Will the proposed measure of sharing information between banks benefit companies?

Indicative answer

The overall effect of this measure will be nil. Evidence from the banks, not disputed by the Competition Authority, suggests that banks overall are competitive. While banks enjoy an informational advantage and charge higher loan rates than full competition would imply, they use these higher loan rates to recover any losses they made by offering very low loan rates to attract new customers. It is thus that overall companies would be as well off as before, competition would move from attracting customers to existing customers. The overall loan costs to customers will remain unchanged.

Model(s) used: Sect. 10.3

Problem 109

'Using credit reference agencies is solely for the benefits of banks, why else would they insist on everyone allowing them to do so?'

Is is statement correct?

Indicative answer

If banks are competitive, the overall loan costs to companies do not change, whether information is exchanged between banks or not. What might change is how competition affects loan rates, with sharing information, loan rates are more consistent over time, while without the exchange of information through credit reference agencies competition for new cistomers will be more fierce and introductory loan rates lower than later loan rates where initial losses are recovered. The profits of banks are also remaining the same overall and hence the claim is not justified. However, companies with different levels of risk might have different preferences for the preferences of information disclosure, more risky companies generally preferring the disclosure of information, while less risky companies prefer banks to not disclose this information. While this will affect the profitability of individual loans to banks, the profits of banks across the portfolio of loans remains unaffected. Where information disclosure might have a positive effect on banks is when it comes to financing investments that are more beneficial to the company than the bank due to private benefits being generated to the company. If such investments require loans from multiple banks, the company could exploit the lack of knowledge a bank has about other loans; if this information is shared, then a larger loan might not be forthcoming if the bank deems the risk too high. It is then that the sharing of information is in the interest of the bank as it will not provide such a loan, but detrimental to the company who misses out on this investment.

Model(s) used: Sect. 10.1, Sect. 10.2, Sect. 10.3

Problem 110

Clemens Plumbing Ltd. operates regionally, having employed 27 plumbers and offering the whole spectrum of plumbing services from small repairs to working on newly-built houses. Over the years their bank has become very familiar with his business and while Clemens Meyer, the owner of Clemens Plumbing Ltd., does not always see eye-to-eye with his bank manager and had to take out a loan at another bank offering worse conditions, in most cases his bank was able to offer loans at good conditions. Clemens Meyer certainly has the feeling that other banks do not really understand his business as it can be highly cyclical with fierce competition making generating profits a challenge on every contract. His bank has now approached him to inform him of a requirement that they offer to put all information they hold on his company onto a secure database, which can be accessed by all banks.

Should Clemens Meyer accept this offer?

Indicative answer

Clemens Plumbing Ltd. is not very profitable and seems to be exposed to significant risks, it may therefore not be in his interest to agree to this open banking initiative. Unless their current bank is not very good at assessing their risks and other banks are much better, there is no benefit for Clemens Plumbing Ltd. from allowing his bank to share their information. With other banks learning more about the high risk of Clemens Plumbing Ltd., its chances of obtaining a loan from another bank are reduced and competition to provide him with a loan is reduced, allowing their bank to charge higher loan rates.

Model(s) used: Sect. 10.1, Chap. 12

Problem 111

Yasin Torki has set up Torki Jewellery, a shop that designs and sells jewellery in his shop as well as online. When applying for a business development loan offered by a local bank specialising in supporting local shops to fit out the shop, he is asked whether the bank is allowed to share basic information with a credit reference agency, such as the fact he has a loan and whether he makes payments on time, as well as sharing information in an open banking agreement. His bank makes it clear that his decision will not affect their decision whether to grant a loan, so he is free to agree to both, either, or none. Not understanding the implications of making such a decision, he seeks advice.

What would you advise Yasin Torki?

Indicative answer

Torki Jewellery is a new business and it can be reasonably inferred that as most new retail businesses, whether they are operating physical shops or online, the risks will be considerable and the profits are usually low. On this basis there is unlikely to be much benefit in open banking. The bank Torki Jewellery uses specialises in local shops, so will most likely have a good expertise in assessing risks that is not bettered by other banks. In this case sharing information will provide no benefit but might limit competition if the high risk of the business is revealed to other banks. However, Torki Jewellery should agree to providing information to credit reference agencies. Information that they repay their loan can only be seen positive by other banks and will therefore lead to a lowering of the risk these banks associate with Torki Jewellery, which is beneficial and will force his bank to offer him competitive loan rates.

Model(s) used: Chap. 12

Problem 112

In order to increase competition between banks and reduce their ability to exploit any informational advantages, the Association of Industry, a lobby group of larger industrial companies, launches a campaign to make open banking compulsory for all businesses rather than an for each business to opt in or opt out. They seek support for their campaign from other groups of businesses, including the Founders' Guild, representing mostly young companies in the technology sector.

Should the Founders' Guild support the efforts of the Association of Industry?

> **Indicative answer**
>
> The Founders' Guild will mainly represent small new companies, which, although not inevitably but in most cases, will be not very profitable yet and be classified as highly risky. As such their members will unlikely benefit from open banking, which is benefits those that are low-risk and profitable, such as those companies that the Association of Industry is most likely to represent. Sharing information about high-risk companies will only re-enforce their status as such and therefore reduce competition between banks for their custom. It is therefore that the Founders' Guild should not join the efforts of the Association of Industry.
>
> **Model(s) used**: Chap. 12

Problem 113

In the financial press it has been reported that Reto Bank AG requires a recapitalisation as it made large losses due to guarantees it had provided for securitised loans. Ueli Zuger is in the process of applying for a loan at Reto Bank for his company and concerned about the fact that his loan might be sold. His rationale is that because the bank clearly sells off loans, they must a charge a higher loan rate than other banks not selling off loans, as they need to satisfy the demand for yield of those purchasing the loans.

Is his assessment of the impact of securitisation correct?

> **Indicative answer**
>
> The impact will be the opposite, selling off these loans to investors will reduce the loan rate of loans or keep it unchanged. The reason is that the interest payable on the securitised loan gives an indication of the risks the loans pose, something which depositors cannot determine without incurring additional costs. These costs savings will be applied either to benefit the purchasers by offering them an interest rate on the securitised loans that exceeds the deposit rate, borrowers benefit from a lower loan rate, or a combination of these. Thus Ueli Zuger's concerns are unfounded and he should support Reto Bank AG in securitising loans.
>
> **Model(s) used**: Chap. 13

Problem 114

'The thing is, a bank is like a drug dealer: once they have you hooked, they milk you forever.' This comment was made by an activist protesting against the high profits banks have been found to make off loyal customers.

While a crude comparison, is there some truth in this statement?

Indicative answer

Banks will obtain information on their customers which other banks will not hold. While a bank had costs to acquire this information, once it holds the information it has an advantage over other banks which do not have this information. Banks can exploit this by offering non-competitive prices to their customers in the knowledge that due to the additional costs other banks face, they will not receive a better offer. Thus, banks are able to generate excess profits of existing customers, which the protester referred to. However, banks will compete to attract such customers in the first instance and knowing they will be able to extract excess profits in the future, they will offer low introductory offers. It is thus that customers benefit in the initial phase a s anew customer from better than average conditions, which are then recovered later. Thus, customers are overall not worse off.

Model(s) used: Sect. 11.1.1

Problem 115

Jaroslav Svoboda complains that banks punish successful companies with high loan rates and companies that fail, obtain lower loan rates. He bases his assertion on looking at the loan rates he, and other successful business he is familiar with, pay and comparing them with those paid by his acquaintances that have failed with their businesses. He calculates that unsuccessful business paid approximately 5.4% p.a. on their loans, but those thriving pay 6.2% p.a.

Is Jaroslav Svoboda's complaint justified?

Indicative answer

Banks compete to attract companies and they will do so by offering a low initial loan rate. Once a bank has acquired sufficient information about a company, they will have an informational advantage and will exploit this by charging a higher loan, recovering the losses from their initially low loan rate. It is now that companies who are failing, will never reach that second stage of the bank being able to recover their initial losses; this will make it look like banks offer a lower loan rate to business that fail than to those that succeed. However, there is some degree of truth in Jaroslav Svoboda's complaint in that banks will anticipate that some business will fail and thus banks can never recover these costs. This will lead to initial loan rates to be not as low as they would otherwise be. Hence, successful business pay some of the price of failing business being present in the market.

Model(s) used: Sect. 11.1.1

Problem 116

Omondi Kimani owns a number of convenience shops in Karugatu, while his brother Atieno owns three petrol stations with associated shops. Despite being to an extent competitors, they have maintained a very good relationship on a personal as well as business level. At a family meeting Omondi Kimani complains that his bank seems to increase his loan rate every time a loan is up for renewal, in the last five years it has increased from 11.2% p.a. to 11.9% p.a., without any material changes in his business or the economy. Atieno Kimani laughs and says, 'That's what you get if you are discussing all the details with your bank. I keep mine at a distance and have paid 12.3% p.a. five years ago, and now it is 12.5% p.a.'

How can these differences be explained?

Indicative answer

Omondi Kimani has a close relationship with his bank and will therefore have build up substantial information over time about the business. This gives the bank an informational advantage that increases over its competitors with time and they can exploit this informational advantage by offering less and less competitive loan rates. In contrast to that, Atieno Kimani does not have a close relationship with his bank and therefore his bank cannot accumulate much information, resulting in a small increase of information for the bank, who will thus not increase its informational advantage over other banks and can therefore not raise the loan rate much. However, the less precise information his bank holds, leads to him paying a higher loan rate.

Model(s) used: Sect. 11.1.2

Problem 117

Looking back through past loan agreements, Rafael Noval observes that over time loans for his company have become ever more expensive. Having set up his small company offering swimming tuition in private pools around holiday homes in southern Spain, he was offered an attractive loan rate of 6.5%, which then on renewal only 2 years later increased to 7.5% and then every year increased by 0.25% afterwards, without the general interest level being increasing during that time period. He believes that his now well established business would be much safer for banks than it was when he founded it. Looking around for alternative loans, he observes that no other bank would offer him a better loan rate. However, his friend Maya Fernandez has just set up a new business looking after gardens of holiday homes and was able to secure a loan at a loan rate of 6.75%, despite having no meaningful gardening or business experience.

How do you explain this observation?

Indicative answer

Banks build up information on the quality of companies seeking loans over time by collecting information during the ongoing relationship. This allows them to gain an informational advantage that can be exploited by not offering competitive loan rates, knowing that the lack of information by competitors does not allow them to offer better loan conditions. Banks compete to attract companies to take out the initial loan, explaining the very low initial loan rate offered to both companies. They will then seek to recover these costs through non-competitive loan rates in future loans. Switching banks is not necessarily a solution for companies in this situation; in principle banks would compete to induce a switch of a company towards them by offering attractive loan rates. However, companies that are willing to switch to another bank for a better loan rate, are likely to do so again for the next loan and the bank is not able to recover the costs of the initially low loan rate. Hence this competition between banks for new customers only works for new companies.

Model(s) used: Sect. 11.1.2

Problem 118

A code of conduct has been brought in to reduce the impact on practices that limit competition between banks. A specific concern had been how banks make it difficult for customers to change their banking relationship by closing accounts immediately if a business seeks accounts elsewhere and withdrawing credit lines instantly with any outstanding balances to be repaid within a working day. The new code of conduct now requires banks to maintain the account for at least three months and forward any payments received to the new account of the business and require the repayment of any used credit lines in no less than 10 working days. It is hoped that the resulting increase in competition will be beneficial to businesses.

Will business all welcome the new code of conduct?

Indicative answer

The code of conduct will certainly reduce the costs of business as changing banks becomes less onerous in that they can receive monies in the old account for a while, not having to inform all of their customers immediately and relying on them using the new account, and have time to arrange credit lines or other loans with their new banks to repay any outstanding loans with their old bank. However, this reduction in the costs of changing banks may increase the loan costs. This is because the lower costs of changing banks may induce more high-risk businesses to change banks in search for new loans. This will increase the risks of companies in the market for new banking relationships, necessitating an increase in the loan rate. If the loan rate when changing banks is increased, the loan rate for those not changing banks can also be increased as they will find less attractive loan rates being offered by other banks.

Model(s) used: Sect. 11.1.3

Problem 119

Increasingly complex compliance rules make it more and more difficult for individuals and businesses to open accounts and obtain loans with banks. Banks have to go through a lengthy process to be satisfied about the identity of all persons having access to accounts and for businesses have also to make sure they are no involved in any illicit activities as well as having systems in place ro ensure they make and receive payments that are legal. Ensuring banks follow all rules has made the process of changing banking relationships more and more time consuming and costly for businesses. In an attempt to avoid even more onerous compliance rules being put into place, banks have been pointing out that these costs to business and banks will reduce competition as businesses will find it nearly impossible to change banks. Supporters of stricter compliance rules point out that this seems not to be a problem as loan rates in recent years have come down, despite rules having been tightened in recent years.

How could the bank argue that tightening rules further will be detrimental to competition?

Indicative answer

Thus far the increasing costs of changing banks has led to a reduction of loan rates as high-risk business did not find it worth to change banks and hence the average credit quality of business seeking a new bank was increasing. There will, however, be a point where these businesses have all been crowded out of the market and it is then that the increasing costs affect only low-risk businesses. The increasing costs to businesses of providing all the evidence needed would increase the market power of banks and they would be able to exploit this by increasing loan rates. Business could not react to such increases by changing to another bank as the costs of this change will outweigh the savings from a lower loan rate.

Model(s) used: Sect. 11.1.3

Problem 120

Dara Som owns, with some family members, Som's Pleasure Travel Co., Ltd., a company organising and conducting tourist tours of the main archeological sites in Cambodia. Having relied on short-term loans in the past, mainly to finance the purchase of second-hand minibuses, Dara Som found that loan rates tended to increase significantly when seeking to extend them without being able to obtain a better rate at other banks. The last loan was initially provided at a loan rate of 12.75% p.a., which then increased to 15.5% p.a., even though the company performed better than expected. She has now agreed a new loan with another bank that she says gives the company more financial stability by agreeing a long-term loan at an initial loan rate of 16% p.a., which will reduce in the future to 11.5% p.a. if the company meets certain targets and will otherwise increase to 18% p.a. She is heavily criticised by her uncle, a minority owner of the company, but influential in her family. He says that this loan is worse than what they had before, because now they pay even more start with and what happens afterwards is not really clear, they might pay the same as before or less. Dara Som argues that the overall costs of the loan are the same, but it gives the company a more stable profit.

Is Dara Som right in her assertion that the new loan is not more expensive than the loan the company had previously?

Indicative answer

Assuming that banks are competitive, the overall costs will be the same. The higher costs in the first phase are offset against the potentially lower costs in the long run. The long-term contract allows banks to spread the profits they generate from the loans over the entire time period as they know Som's Pleasure Travel Co., Ltd. will not change banks, while previously they might have changed banks, so banks sought to attract them and then once they had gathered the information would exploit their informational advantage and increase the loan rate. With a long-term contract this is not necessary and they can charge loan rates that are consistent with the risks the company faces.

Model(s) used: Sect. 11.1.4

Problem 121

The company of Santiago Ruiz has received an offer to renew its loans at a rate of 10.6% p.a. after a few years of successful expansion and generating consistent profits. He is surprised that his loan rate has actually increased from 8.8% p.a., even though he believes the company is in much better shape now than it used to be. Seeking advice from a business consultant Santiago Ruiz knows socially, he learns of another company who used to be similar to his company but now is in a much worse position and their loan rate has increased from 10% p.a. to also 10.6% p.a. Ordering another round of drinks, he resigns to the increase in loan rates by remarking that banks just do whatever they do.

Is there a reason for these two changes of loan rates to be so different?

Indicative answer

Santiago Ruiz's company sees an increase in his loan rate as now the bank knows, through their work with him, that his company is low risk, but this will not be known to other banks. If he were to change banks and the take up the offer of another bank, this bank would believe him to be a high-risk company as these are the types of companies changing banks. The current bank knows this and can charge a higher loan rate as the loan rate offered by other banks will be based on their assumption of a high-risk borrower. The other company that was mentioned is actually high-risk, but they might have a long-term contract with their bank and thus did not receive such an attractive initial loan rate, as evidenced by the higher loan rate this company had to pay. The loan rate of 10.6% reflects the true risks of that company, while for Santiago Ruiz's company it is a loan rate that allows the bank to recover the losses or increase the low profits made from the low initial loan rate.

Model(s) used: Sect. 11.1.4

Problem 122

Banks were required to facilitate individual customers changing their bank by automatically informing all companies using direct debits to obtain payment for services, provide the new bank with information about any standing orders a customer might have, and provide information on any other existing financial arrangements such as credit cards, overdrafts, and account packages that may include insurance arrangements. On opening an account the new bank was required to process all the available information and through an interview with the new customer establish his or her identity, make extensive checks about any association with criminal activities, including the evaluation of social media, and gain a full and detailed understanding of the financial position of their new customer as well as his or her familiarity with managing financial matters. A new government in its desire to deregulate the economy and lower the costs of loans through increased competition, has abolished all but the most basic checks on the identity of new customers. Consumer groups had warned that abolishing these rules would reduce the competitiveness of the banking market, while banks welcomed the reduction in costs. After the implementation of these changes, loan rates have barely changed.

How come that competition between banks has not reduced loan rates?

Indicative answer

We have two effects at work here, one is the increase in costs to customers switching banks as now they have to perform all the tasks that their original bank did for themselves. The second effect is the reduction in costs of banks acquiring new customers as the requirements are now much lower. The latter effect should increase competition and hence reduce loan rates. The reason is that the costs of banks to obtain a new customer is reduced and loan rates can now be more attractive to attract new customers. It must clearly be that this effect is offset by the first effect. The increase in costs to switch banks makes customers less willing to do so, giving banks additional market power and thus loan rates will increase; the size of this increase must be approximately the same as the reduction from lower bank costs. The costs for customers must be substantial such that only low-risk customers switch banks to benefit from a lower loan rate at another bank as otherwise the loan rate would decrease in this instance as well.

Model(s) used: Sect. 11.1.1, Sect. 11.1.3

Problem 123

Grumpy old men and inexperienced young hipsters are in Rimantas Navickas' list of most difficult to deal with and engage constructively with to establish lasting business relationships. He finds either group of managers to be not interested in engaging constructively with his bank to develop mutual trust and allow the bank to learn their strengths and weaknesses to allow him to provide meaningful advice. It is the middle-aged group that is most amenable to such an approach. Discussing with his manager the reason for this, he only receives a 'it has always been like that' as an answer.

What could be the reason for this observation?

Indicative answer

We can reasonably assume that young and inexperienced managers rarely have high skills to manage a company, while for older managers this should be common, given they have retained their jobs for such a long time. In both cases there is not much benefit engaging in relationship banking as the bank will not learn much more about the qualities of these managers, the young being mostly low-skilled and the old being mostly high-skilled. Thus the loan conditions of the bank on learning more about these managers and the companies they are leading will not materially change. It is only that banks have higher costs to obtain this information, which will be reflected in a higher loan rate without discernable benefits. Middle-aged managers, however, will be a mix of high-skilled and low-skilled managers, some having learnt from their early years, other not having made much progress. Here the benefits can be substantial as being known to have high skills will lower the loan rate, outweighing the effect the increased costs of the bank will have. As long as managers are uncertain of their own type, they will be engaging in relationship banking and, on average, benefit from the lower uncertainty banks have about their type.

Model(s) used: Sect. 11.2.1

Problem 124

A report on banking practices of companies also touches on the aspect of relationship banking. It outlines that family-run firms are usually having long-established relationships with their banks, while companies of similar size and characteristics that are run by professional managers are much more often foregoing lasting relationships with banks and seeking the best conditions for each loan in the market.

Before its publication, it seeks to establish reason for this observation and asks you to write a brief paragraph explaining it.

What would you write?

Indicative answer

Family-run business recruit senior managers, as the name suggests, from members of the family owning the company. The main criterion for being installed in a senior position will be being part of the family, with competence often being a secondary criterion. Of course, there will be many very able managers in this group, but also many less able managers, who would normally not have been appointed to such a position. It is of benefit in this case to establish a relationship with a bank and for the bank to learn the qualities of the management; this reduces the uncertainty of the bank about the risks the company faces and will therefore allow it to provide loans at more favourable conditions if the management is capable. On the other hand, if a company hires a professional manager, it is reasonable to assume that the main criterion will be the competence of the manager and the best manager will be appointed. It is thus expected that the skills of a manager appointed this way to be competent. There is therefore not much for the bank to learn about the qualities of the manager and the costs of acquiring this information in relationship banking will outweigh the benefits to the company. It is therefore that such companies are much more likely to forego relationship banking in favour of transaction banking.

Model(s) used: Sect. 11.2.1

Problem 125

A credit analyst reveals his easy test to establish if a company is creditworthy at all, before conducting a more detailed analysis of the risks of companies that have passed his test. He looks at the history of bank lending of the company; if he sees that they have switched banks frequently in the last few years, he classifies them as not being not creditworthy.

Why does a frequent change of bank lenders indicate that a company might not be creditworthy?

Indicative answer

Banks will learn over time more about the risks of the companies they lend to, relationship banking, and this additional information might induce them to not extend loans to companies they see as too high risk for the loan rates they usually charge. Banks might be reluctant to increase the loan rate significantly for higher-risk borrowers as this might be seen as the bank willing to take on high risks, which depositors might prefer them not to take, or they might face capital constraints. Such a company will then have to seek another bank to provide them with a loan and the same process begins again; the new bank might even have inferred the company to be of higher risk, but then on learning its true riskiness, it might be higher than anticipated and as before the loan is yet again not extended and the company has to seek another bank. Thus frequent changes of the bank lender either indicate a high risk or that the risk of a company is increasing over time. It is thus that after a number of such changes, many banks would classify such companies at not longer creditworthy. In that case, a detailed risk analysis is not cost-effective as the costs of the analysis cannot be recovered from a loan that will not be granted.

Model(s) used: Sect. 11.2.2

Problem 126

Increasing competition has brought Vargas plc into significant financial difficulties, which is not yet widely known in the market as the threshold for disclosure to the market has not been reached yet. It is, however, apparent to their house bank, Global Trust Bank. Their current loan arrangement with their bank stipulates that they are given a loan for five years at a rate of 6.8% p.a., but either Global Trust Bank or Vargas plc can terminate the agreement with 3 months notice; Global Trust Bank has done exactly that. They are, however, willing to extend a new loan at 8.5% for a duration of three months. The management at Vargas plc is upset about this step by the bank and see it as pure profiteering by the bank.

How can you explain this decision by Global Trust Bank?

Indicative answer

Global Trust Bank knows the financial difficulties Vargas plc is in, hence they know that the risks of the company are high. Knowing these high risks, the loan is no longer profitable and they exercise their right to call in the loan. However, the company is still creditworthy, although this requires a higher loan rate. If Vargas plc were to approach another bank, they would infer from the fact that they seek another bank that Vargas plc is high-risk and therefore charge a higher loan rate. Thus the Global Trust Bank and other bank would have comparable information and for this reason, Global Trust Bank is offering them another loan at the now prevalent market conditions. This call-in of the loan is only possible because of the privileged information Global Trust Bank has access to, arising from their existing lending relationship with Vargas plc. Without this knowledge, they would not seek the repayment of the loan.

Model(s) used: Sect. 11.2.2

Problem 127

Flannigan Ltd. is a major chain of car repair workshops all across the midwest USA. It has been hugely successful for a long period of time, but its fortunes have turned after concerns about the quality of their repairs became public and they were found to have sourced counterfeit replacement parts, even though it is widely acknowledged that this was done inadvertently. With revenue reducing by over a third in the three months period following these revelations, Flannigan Ltd. struggles to service the loans that underpinned much of the purchases of equipments used in their repair shops. Their bank, Midwest Old State Bank, having financed their operations for over ten years, is no longer willing to extend the loans at the current conditions and asks for their immediate repayment or to re-negotiate its terms. This move is welcomed by the newly appointed management of Flannigan Ltd., which has replaced Jason Flannigan, who stepped down in light of the difficulties of the company. Acknowledging and shortly afterwards making public the financial difficulties, the new managers at Flannigan Ltd. refuse to negotiate new loan terms exclusively with Midwest Old State Bank and avoid their financial difficulties become more widely known, but instead they contact a range of banks to obtain the best loan conditions. Jason Flannigan is overwhelmed by these developments and does not understand why Midwest Old State Bank would not extend the loans at the current loan rates as they have always done and he understands even less why the new management seeks to break off the long-standing relationship with Midwest Old State Bank.

What could reasons for these changes be?

Indicative answer

The risks of Flannigan Ltd. have increased considerably and Midwest Old State Bank will have become aware of that. The risks have become so high that the currently agreed loan rate is not longer profitable for Midwest Old State Bank and they therefore seek the repayment of the loan, but might be willing to re-negotiate a higher loan rate, taking these higher risks into account. Their approach of other banks will increase the costs of the new loan, as Midwest Old State Bank will face less competition if the financial difficulties of Flannigan Ltd. are known and thus other banks will also demand higher loan rates. While it would be detrimental to the loan rate, the new management sees benefits from terminating the relationship with Midwest Old State Bank and seeking loans from the bank offering the best terms, transaction banking. The costs of these new banks in acquiring additional information will be lower and they believe that this will reduce the overall loan costs. This might be driven by the believe that them, having been appointed by the owner-manager as professional managers will leave little doubt about their ability and thus will re-assure banks of the risks they are taking, something they could not be so sure with the previous manager, Jason Flannigan.

Model(s) used: Sect. 11.2.2, Sect. 11.2.2

Problem 128

AILogic Ltd. has been developing tools that help developers improve the performance of artificial intelligence applications. They have frequently relied on short-term loans to overcome cash shortages that arose if they needed to pay their developers before payments from their customers were obtained. Seeking to keep costs down, AILogic Ltd. has always scoured the market for the best conditions at the time and taken the most favourable loan, regardless who did offer it. Since they required a loan last two years ago, the banking market has changed through the entry of a number of new banks, some newly founded and some backed by banks in other countries. Seeking offers for loans again, they observe that most banks refuse to provide a quote and state that they are only interested in long-term business relationships with companies and do not provide ad hoc loans.

What caused this change in the ability of AILogic Ltd. to obtain a loan by seeking out the best conditions?

Indicative answer

The new entrants to the banking market will have increased competition between banks, making it more difficult for banks to generate profits from transaction banking. Banks will therefore have shifted their focus towards relationship banking in markets where significant informational gains can be expected over time. It is likely that this is the case for a business like AILogic Ltd., where public information will be sparse and an understanding of the business within banks will be limited. Hence banks will focus their resources on companies that will stay with them for longer periods of time, and the indication from the past behaviour of AILogic Ltd. is that they will not commit to building such a relationship, hence they are turned down for a loan.

Model(s) used: Sect. 11.3.1

Problem 129

Rossmann Hydro Ltd. is in financial difficulties arising from large compensation costs after a hydroelectric dam they operate has caused damage to surrounding properties due to an increasing water table that required costly mitigation measures to avoid future damage. The company is financed to a large extent by loans granted by a consortium of banks, insurance companies and pension funds. To allow Rossmann Hydro Ltd. implementing the mitigation measures, additional loans are required and knowing that the exposure of the existing lenders to their company is already high, they approached a variety of banks, who all declined a loan. When approaching their existing lenders, lengthy negotiations finally resulted in a loan being agreed, although its size was less than what was required, making the implementation of mitigation measures only possible if stretched over a longer time period.

Why would existing lenders provide a smaller than needed loan and new lenders are refusing to provide loans at all?

Indicative answer

If Rossmann Hydro Ltd. were to fail, the existing lenders would make significant losses and not providing additional funding would make this scenario much more likely. If they were to provide the loan, but limiting their overall exposure by not granting the full amount requested, the existing lenders would have a reasonable chance that Rossmann Hydro Ltd. would be able to recover from its difficult position and all loans are repaid. New lenders do not have to consider their existing exposure and the risks involved were too large for them to consider lending to Rossmann Hydro Ltd.

Model(s) used: Sect. 11.2.3

Problem 130

Farkas plc is a leading Hungarian supermarket chain, which for the past 20 years has used Csernai Bank for all its banking transactions, from cash handling, processing card payments, account services, to providing loans to finance their company.

They are currently undergoing a restructuring of their business, which has become necessary after competition from budget supermarkets had reduced their profits over the years and left them with high interest payments from ever larger loans that have been used to invest into the business. In the midst of their restructuring, the central bank announces that Csernai Bank has been put into administration due to excessive losses on mortages given over a decade ago. While all stocks listed on the local stock exchange show losses after this announcement, Farkas plc shows losses far in excess of comparable companies.

These large losses in the value of their stock comes as a surprise to the senior management of Farkas plc. How could you explain this development?

Indicative answer

Farkas plc will likely by affected in two ways. Firstly, the accumulated information on its company that Csernai Bank holds will be lost with its demise, or at least severely diminished as its loan officers and other decision-makers will be employed by different banks in the future. This loss of information on Farkas plc is most likely to result in higher loan rates in the future as banks first need to assess their risks and collect information. This is exacerbated by the company being in a restructuring process. It is usually banks already having an exposure in a company facing financial difficulties that will continue to provide loans in order to increase their chances of having existing loans repaid. With Csernai Bank being in that position and if it were to be liquidated, no lender with such an interest in Farkas plc exists, making it less that sufficient financial resources for the restructuring are available from new banks. The higher loan costs will reduce future profits, having a negative impact on the stock price and the less likely completion of their restructuring process will put the survival of Farkas plc even more at risk, also negatively affecting the stock price.

Model(s) used: Sect. 11.1.2, Sect. 11.2.3

Problem 131

Water & Fun Ltd. operates two water parks in the countryside. The availability of cheap flights to warmer holiday destinations has led to a reduction in footfall in recent years. To stem this loss of revenue, Water & Fun Ltd. have invested heavily into their water parks and installed ever more sophisticated water slides, wave machines, and much more. This was mostly financed through loans, but they are now at a point where after a few weeks of cold and rainy weather, they will not be able to make payments on their loans. The owners of Water & Fun Ltd., Peter and Harriet Pentos, are, however, convinced that their latest idea to provide heated water for many of the attractions will make the water park attractive again to customers, even if the weather is not favourable. After their bank had turned them down initially, they have finally been successful in convincing their bank to provide a loan. However, the loan is much smaller than they had envisioned and would only allow them to equip some attractions with warm water. At the same time the bank has made it a condition that the current loans, whose terms are fixed for another three years are adjusted to account for the high risks that Water & Fun Ltd. now poses to them. Alternatively, they said they are happy for them to seek another lender.

Why would the bank grant a (small) loan and then seek to renegotiate the terms of the existing loans?

Indicative answer

The advancement of the new loan can be seen as evergreening as in effect Water & Fun Ltd. is bankrupt, their bank seek to reduce their losses by keeping the water park going for a few more years until at least some of the existing loans can be repaid. The renegotiating of the existing loans can be seen as an adjustment to reflect the current risk of the company as the current terms of the loans are not covering these risks. The bank might have the hope that another bank steps in and provides a loan that allows them to obtain instant repayment. The bank seems to employ a carrot (evergreening loan) and stick (encouraging them to find another lender) approach, seeking to maximize the repayments from the loan.

Model(s) used: Sect. 11.2.2, Sect. 11.2.3

Problem 132

Ingólfsson Framkvæmdir ehf is a construction company that faces financial difficulties after a publicly funded housebuilding programme is wound down. They owe their bank ISK500m and to stay afloat request an additional loan of ISK250m, which they think will carry them over the current slump in construction until the demand normalises itself again. The bank refuses their request. The management of Ingólfsson Framkvæmdir ehf points out that it was seven years ago when they owed ISK800m, that the same bank granted them a loan of ISK300m, so much more was at stake for the bank and no other bank would consider a loan. They argue that the situation back then was similar in that a sharp recession had caused demand for construction to plummet. The bank, however, steadfastly refuses to advance another loan. The management attributes the bank's refusal to them losing faith in the ability of the management to turn the company around again.

Is there another reason for these different decisions of the bank?

Indicative answer

The decision of the bank seven years ago to provide Ingólfsson Framkvæmdir ehf with a loan can be interpreted as evergreening as no other bank was willing provide a loan; the size of the loan, was less than 40% of the outstanding loan and the bank granted this loan to avoid default on the much larger existing loan of ISK800m, hoping that the additional loan would allow the management to turn around the company. This time, while the absolute amounts of loans involved are smaller, the new loan would be 50% of the outstanding loan, so be relatively larger. It is here that the size of the loan required this time is too large for the bank to engage in evergreening, the potential loss from the additional loan would outweigh the loss on the existing loan. It is therefore that the now required loan is not paid and not because they assess the ability of the management or the prospects of the company materially different.

Model(s) used: Sect. 11.2.3

Problem 133

The conglomerate Sengupta Ltd. operates a number of production facilities in the developing country of Tanatora, financing its operation through local banks. The banking system in Tanatora is not very robust with periodic bank panics and lending freezes in response. Its new Chief Executive has joined from Arendal plc, a comparable conglomerate in Europe. On taking up his role and familiarising himself with the details of Sengupta Ltd.'s operations and practices, he is surprised to learn that the company regularly deals with and maintains close relationships with six banks. At Arendal plc he was used to having to deal with only three banks. One of his first questions is therefore, whether the relationships with six banks should be reduced.

How would the Chief Financial Officer argue to maintain the status quo?

Indicative answer

The banking system of Tanatora is less stable than that in Europe, as evidenced by bank panics and lending freezes. This may lead to a situation where Sengupta Ltd. cannot obtain a loan from a bank if it needs one, resulting in lost investment opportunities. Such a situation is much less likely to occur in Europe. It is therefore that Sengupta Ltd. maintains more relationships than they would need in a more stable banking system, allowing them to fall back on another bank not applying a lending freeze. Given the high probability of a single bank applying lending freezes, it is optimal retain a larger number of relationships to avoid the more costly loan from an unknown bank.

Model(s) used: Sect. 11.2.4

Problem 134

As a trial supported by the banking regulator, banks operating in the federal state of Parman are trialling the mandatory sharing of information about business customers across banks. As part of the trial, all banks share all information they hold on a company with a database to which other banks have access; the information provided includes all loans a company has, its transactions in accounts, notes from meetings with the company, internal documents and analyses of the bank, as well as information shared by the company. The evaluation of the trial looks at many of the practical and technological problems with the sharing of information, but also seeks feedback from companies.

Focussing on the relationship with banks, how would you expect companies to respond?

Indicative answer

The feedback by companies will be mixed, with low-risk companies welcoming open banking, while high-risk companies will see it much more critically. Open banking favours low-risk companies as their status becomes more apparent to other banks and will thus lower their loan rate as competition between banks for their business increases. On the other hand, high-risk companies will see the sharing of their negative information more critically as their status is high-risk companies is much more easily confirmed and they would prefer to retain some ambiguity about their risks to obtain a better loan rate. However, the provision of information will also make switching banks easier as companies do not need to provide that much information, saving time and effort. If the costs of switching become very low, this might actually increase the loan rate for ;low-risk companies, who will see a downside to the benefits of open banking. The low costs make it feasible also for high-risk companies to switch banks, increasing the loan rates banks other than their relationship bank offers and consequently allowing their own bank to charge them higher loan rates.

Model(s) used: Sect. 11.1.3, Chap. 13

Problem 135

The owner of a large chain of coffee shops, Raffaello Pizzibaldi, finances his shops through two different banks. The nature of his business requires the location of each shop to be considered carefully and while he has an instinctive feeling whether a location is right, discussing this with his banks is difficult as they often request market studies and demographic analyses, which he never uses. Banks find it difficult to make decisions on financing a new shop or the renovation of an existing shop based on his instincts, resulting in lengthy meetings and discussions, which surely are as exhausting for his bankers than they are for him. On several occasions both banks refused a loan, doubting his analysis, which Raffaello Pizzibaldi believes has lost him quite some money. In contrast to this, the owners of a number of restaurants that are located next to his coffee shops in several locations, a private equity firm, has relationships with seven banks and among these seven banks there is always one who agrees to provide the finance sought, even though they get often turned down by at least on of their banks. He attributes this difference in attracting funding to their very formal approach to making decisions, based on detailed market research by outside consultants and similar documents.

Should Raffaello Pizzibaldi increase the number of banks he is dealing with, like the restaurant owners?

Indicative answer

The way Raffaello Pizzibaldi conducts his business is very informal and for banks to assess his 'gut feeling' is very difficult, hence the lengthy discussions. Such discussions are costly for the bank as they require a substantial amount of time, which banks will have to recover through the loan rate, making loans more costly. If he were to deal with more banks, each bank would incur these costs, but their share of the loans would reduce, increasing the loan rate further. While having more banks would increase the chances of obtaining a loan as banks might differ in their assessment, these aspects have to be weighed up . It would therefore most likely not be optimal to increase the number of bank Raffaello Pizzibaldi deals with. The restaurant owner have a very different approach to their decision-making and provide structured documents to their banks, making the costs to banks of reaching a decision much lower. Thus they can easily use more banks without increasing loan costs too much and benefit from the higher chance of a loan being provided.

Model(s) used: Sect. 11.2.4

Problem 136

A report to government on the competitiveness of the economy highlights that a significant fraction of companies and individuals use the same bank over long time periods, typically many years, a degree of loyalty that is much less common in other industries. It is suggested that the lack of competition between banks is harming the economy overall and keeps loan rates artificially high. In response, the government seeks to introduce measures to increase competition in the banking sector, from encouraging new entrants to reducing regulatory constraints. While most economists support the measures to increase competition between banks, some dissenting economists assert that such measures would not only fail to address the problem, but actually make the situation worse.

How would dissenting economists argue their case?

Indicative answer

If competition between banks were to increase, banks would ordinarily make less profits. They will, however, seek to find sources of profits and this source can come from having an informational advantage over other bank. Such an informational advantage can be obtained through relationship banking by investing into gathering information on customers and offering them tailored products that meet their needs better, but also exploit the fact that because other banks do not hold this information and can thus compete less. The increase in competition will make relationship more widespread and most likely more companies and individuals will be captured. With increased competition relationship banking will be extended to companies and individuals about who there is less uncertainty.

Model(s) used: Sect. 11.3.1

Problem 137

The advent of internet banking has made it easy to access bank services at banks that are not even operating locally. With more and more banks extending such online services to companies seeking loans, competition between banks has increased significantly. At the start of the process many bankers saw this development critically, not because of reducing profits for banks, but they in particular bemoaned that this would bring the end to traditional relationship banking. However, these concerns were unfounded. There is no evidence that relationship banking has become less important, although the nature of such relationships has changed with online interactions between banks and their customers becoming more and more important; overall it seems to play an as important role as ever.

Why have the concerns of the bankers on the demise of relationship banking not materialised?

Indicative answer

Competition has two competing effects on relationship banking. On the one hand there are reduced profits from competing banks offering better conditions than before and forcing each bank to improve their offerings. These reduced profits have reduced the returns on relationship banking and will therefore have reduced the relevance of relationship banking for banks, leading to its reduction. There is, however, a second effect and that is that the informational advantage that relationship banking gives a bank cannot be eroded through competition as other banks do not have this information. It is therefore that in order to maintain profits, banks will seek to rely more on this informational advantage and relationship banking becomes more important as a source of profits and will be extended. It seems now that these two effects have approximately offset each other and relationship banking has maintained its status.

Model(s) used: Sect. 11.3.1, Sect. 11.3.2

Problem 138

After a prolonged period of economic growth, the small country of Matara, acting as a regional trading hub due to its location at a major shipping route, has become attractive to banks seeking to provide services to the companies operating in Matara and other countries nearby. The banking sector, not many years ago described as uncompetitive and sluggish, has become highly competitive and innovative with the advent of major foreign banks. Many, although not all, of the traditional traders located in Matara welcome the increased prosperity and appreciate the lower funding costs due to the competition between banks. However, at the same time they miss the close relationship they had with their banks, who would know their business well. Now traders need to explain even the basics of their business to banks if need a loan.

How can this development be explained?

Indicative answer

Relationship banking in Matara has reduced due to the increased competition. More competition between banks has reduced loan rates and hence profits of banks. These lowered profits reduced the return from relationship banking, where consequently they invested less into relationship banking and consequently less companies were involved, leading to banks not routinely seeking and retaining information that is reused in the future; instead traders have to explain their business to the bank every time they require a loan.

Model(s) used: Sect. 11.3.2

Problem 139

In order to promote economic growth during a recession, the government decides to offer guarantees to banks selling their loans to investors outside of the financial sector; these guarantees are offered at below market prices. The government is disappointed that banks have hardly taken up the offer and the amount of loans sold has actually reduced compared to periods before the guarantee was introduced.

How can you explain this observation?

Indicative answer

The loan guarantee the government offers is not taken up as the price they request, the market price for such a guarantee is too high, giving the bank no benefit from this scheme of the government. The securitisation itself has reduced as the risks of the companies are most likely have increased due to the recession the country is in. In this case the credit enhancement offered by the bank, the guarantee the bank offers to purchasers of the loans, has to increase. Given that bank have limited equity to cover these guarantees, the amount that can be guaranteed will reduced, reducing the amount of loans that can be securitised.

Model(s) used: Sect. 9.5, Chap. 13

Problem 140

After reforms giving banks full freedom to decide on who to provide loans to, rather than having to meet minimum quotas for certain industries, and allowing banks to operate freely nationwide, loan rates have considerably reduced and lending has been expanded to the point where for many banks capital requirements become a binding constraint on their ability to provide additional loans. Banks are now competing much more openly for customers and seeking minimal information from potential borrowers to make a decision, also not giving more detailed consideration to long-standing customers. At the same time, customers would prefer their banks to understand their business better and have increased the number of banks they are sharing their information with. Eszter Nagy, as owner of Nagy Ipar Kft., is one of those who now uses four banks rather than only two before the reforms. She says that she does so as a result of banks having ever less interest in obtaining detailed information.

Is her rationale correct?

Indicative answer

The reforms have increased competition between banks which is evidenced by the reduced loan rates; this higher competition seems to have reduced the investment by banks into relationship banking. The reason is that the better conditions from other banks does not so easily allow a bank to recover the costs of collecting information about companies, reducing their investment into this process. This effect is stronger than the desire to maintain their profitability through informational advantages over their competitors. However, this is not the reason for customers such as Nagy Ipar Kft. seeking relationships with more banks than before. The reason can be found in the observation that lending has increased considerably and banks might be unable to provide a loan to a customers because it has met its capital constraint. To hedge against the risk of not being able to obtain a loan for this reason, companies seek more relationships such that at least one of their banks does not face a lending constraint.

Model(s) used: Sect. 11.2.4, Sect. 11.3.1, Sect. 11.3.2

Problem 141

Valerion Konstantinou has approached a bank to seek a loan for his new business venture of renting out office space in a picturesque market town to attract mobile workers seeking to work in this area popular with tourists. However, he is told that after he has failed with his previous business of renting out luxury apartments in the area two years ago, the bank is not willing to consider his loan application for another five years. He is surprised by this decision and points out that a friend of his, Agnes Kartousian, was provided with a loan after only two years. Her line of business was to offer tours in the local area and this did fail with the arrival of larger tour companies; she then opened a tourist shop in a prime location.

How would the bank explain to Valerion Konstantinou that he has to wait longer for a loan to be approved?

Indicative answer

The longer waiting time for Valerion Konstantinou can be explained by the assessment of the risks of his businesses compared to that of Agnes Kartousian. If the bank assesses his risk as being higher than that of Agnes Kartousian, then he would be excluded for a longer period of time. This is reasonable as Agnes Kartousian's business is ina prime location in a tourist area and therefore should do well, while Valerion Konstantinou's business ideas seem to be less well established business models.

Model(s) used: Sect. 7.3

Problem 142

Aegon Health Monitors Ltd. develops wearable devices that can monitor various health conditions, such as heart monitors or diabetes monitors. They now seek to expand their business into the provision of apps that can be used in connection with smartwatches rather than requiring specific devices. For this purpose they set up a subsidiary company, Aegon Health Apps Ltd. and it is this company that seeks a loan for the development of the first six such apps, amounting to £15m. The bank is only willing to provide a loan of £6m, which would allow for three apps to be developed. Offering the bank to pay a premium loan rate if they were able to obtain the full loan amount is refused by the bank, who suggests to show that their app work and have a market before committing to the development further apps.

Is the bank refusing the loan because they assess the risks of these apps not being success being too high?

Indicative answer

The decision of the bank to ration credit is not the result of the bank assessing the risks of being too high, then no loan would have been granted, but arises out of concerns of a strategic default. Having founded a separate company makes any default of the company independent of that of the main company and hence might provide an incentive for strategic default. By limiting the loan amount they can obtain, the benefits of a strategic default are reduced and if counted against the costs of having more difficulties in the parent company to obtain loans for future investments, will not be attractive. It is thus not the risk of the app not being successful that drives credit rationing, but the risk of strategic default by the company.

Model(s) used: Sect. 8.3

Problem 143

At a seminar for company owners seeking to advance their knowledge in the possibilities of seeking finance for their investments, organised by the local chamber of commerce, the presenter claims that when providing collateral, the company does not benefit, it is only the bank who will rarely make a loss.

Is this statement of the presenter correct?

Indicative answer

If taking into account the possibility of the loss of the collateral, the lower loan rate is exactly offset against the risks of losing the collateral, leaving the company indifferent about the provision of collateral. However, the bank is also not better off, as they are similarly compensated. Of course, if the company does not fail, then they are better off as the loan rate is lower and the profits presented higher, similarly the profits for the bank are lower but so are the capital requirements.

Model(s) used: Sect. 9.1.1

Problem 144

Hanslick Bank AG considers its lending policy and it is suggested that they should expand their lending towards smaller, family-owned companies, which so far they have ignored in favour of large industrial companies. Concerns are raised about the lack of transparency of such companies and the tendency of company owners to treat company funds as their own funds. Voices are also raised about such companies over-borrowing and then using excess funds unproductively.

What measures could Hanslick Bank AG take to reduce the risks associated with the provision of loans to family-owned companies?

Indicative answer

The bank could prevent over-borrowing and thereby reduce the risk of company funds being misused by requiring the disclosure of existing loans and other current loan applications. This would reduce the amount of borrowing these companies can obtain, or at least allow Hanslick Bank AG to assess the provision of loans in this light. This will allow Hanslick Bank AG to assess the risk of loans, the incentives of these companies to increase their risk-taking if loans are improved, and the risk of the company owners misappropriating funds.

Model(s) used: Sect. 10.2

Problem 145

On retirement, Adele Overeem reflects on how banking has changed over the forty years she has been in this business. While it was common for customers to stay loyal to their bank, often the bank their parents had been banking with, even if they did not always offer the best conditions, this sense of loyalty has mostly gone. Customers now much more readily seek out the beast deals wherever they can be found. While this has been observed across the board with all customers, but it was particularly pronounced with private customers, who were providing small profit margins from the start and now are barely generating any profits. Together with this trend, Adele Overeem did notice a distinct lack of interest by branch staff but also those in senior positions. She puts these developments down to the increased competition between banks. While similar tendencies are observable in the corporate market with its much higher profit margins, they are much less pronounced.

Is this assessment correct?

Indicative answer

The increased competition between has eroded the profit margin for banks and they therefore find it more and more difficult to engage in relationship banking as this is time-intensive and costly, hence banks making less of an investment as returns are low given that customers switch banks easily. This is especially the case in the retail business with its low profit margins and limited benefits from acquiring additional information on borrowers. With customers less willing to accept non-competitive conditions, competition will have increased even more here than in other areas, such as corporate lending, where this tendency is less pronounced and information acquisition yield a higher benefit to banks; thus here banks continue to invest into relationship banking.

Model(s) used: Sect. 11.3.2

Part III
Deposit and savings accounts

Problem 146

Garabito is dominated by two banks, which share the market for loans as well as deposits about equally and their characteristics are very similar. An economic crisis, brought on by the fall in the global market price for agricultural products, has increased the losses from loans to both banks. One bank, First Garabito Bank, is facing a bank run as depositors fear the safety of their deposits in light of the losses the bank has accumulated on its loans. The other bank, National Garabito Bank, does not experience a bank run. Experts at the central bank are unable to explain this observation as they can see no difference between the banks, losses are similar in both banks and even the characteristics of depositors are nearly identical.

Can you offer an explanation?

Indicative answer

Depositors will withdraw their deposits if they believe they are not safe, that is by retaining them in the bank they will make a loss due to the losses of the bank from loans and the withdrawal of other depositors, reducing the cash reserve and increasing the losses of the bank through the forced sale of asset below their value. Future withdrawals of deposits cannot be observed but expectations must be formed. These expectations might differ between the two banks and can be crucial in a bank run being instigated. If the losses of banks are small, the banks will always be able to meet the demand of depositors by selling assets, even if they all withdraw; similarly if the losses are sufficiently high, losses will be too high to be able to meet the demands of all depositors, even if no deposits are withdrawn. In these cases a bank run would not (would) occur. There is an intermediate range of losses, however, where remaining depositors face a loss only if a sufficiently large number of depositors withdraws as in this case the accumulation of losses from loans and the sale of assets are large enough. If only few depositors were to withdraw, there are no losses for remaining depositors. In the case of Garabito, it seems that the expectations at First Garabito Bank are such that a large fraction of deposits will be withdrawn, while at National Garabito Bank this expectation is low and no bank run occurs. With expectations becoming self-fulfilling, and involving n^{th}-level reasoning about the behaviour of other depositors, minute differences between depositors might cause such different outcomes.

Model(s) used: Sect. 15.1.2

Problem 147

The banking system of Badenia is under significant stress. After the collapse of a large regional bank, depositors have been concerned about their bank failing and have been withdrawing deposits in large quantities, demanding cash or transferring their deposits overseas. Thus far the central bank has provided liquidity assistance to the banks affected, but the deposit withdrawals have not subsided despite assurances to the public that other banks are not affected in the same way as the regional bank and are safe. Prior to the recent events, the banks in Badenia were renowned for their conservative lending policy and have been criticised often for not taking sufficient risks. Foreign banks, hedge funds, insurance companies and pension funds observe the events in Badenia and see a good opportunity to purchase high-quality loans these banks have provided at a discount. The widespread interest in these loans makes discounts to their true value small, limiting the profits of these foreign buyers. While initially the purchase of loans by foreigners is seen negatively, once the discussion about these purchases becomes more widespread, deposit withdrawals stop as suddenly as they began.

Politicians explain this development with the desire of the population to prevent a foreign takeover of their banks. Are they correct?

Indicative answer

The relatively high prices foreign buyers pay for the assets of banks, the loans, results in banks being able to generate cash easily, allowing them to repay deposits that are withdrawn without negatively affecting the claims of deposits retained with banks. This increases how much withdrawals are needed before remaining depositors make a loss, changing the overall expectations of depositors. If their expectations about deposit withdrawals falls below the critical threshold, the bank run stops and the banking system will stabilise. It is therefore not the patriotism of depositors that stopped the bank run, but the increased liquidity of assets increasing the threshold for expectations of banks runs, which was not exceeded any more.

Model(s) used: Sect. 15.1.1

Problem 148

Northern Bank is known to provide loans to low-income households and newly established businesses, in line with its mission as a mutual bank to provide support for individuals and companies who find it difficult to access banking services and loans elsewhere. It also prides itself for offering deposit rates that are significantly higher than its more traditional competitors. Despite offering higher deposit rates, Northern Bank struggles to attract the amount of deposits required to sustain its lending.

Why does the higher deposit rate make Northern Bank not more attractive to depositors?

Indicative answer

The risks Northern Bank takes is higher than that of other banks as they focus on loans that are less likely to be repaid due to the nature of their borrowers. This risk the bank takes, which will jeopardise their ability to repay deposits, has to be reflected in the deposit rate they offer. The struggle to attract deposits suggests that the offered deposit rate, while higher than that of other banks, is not sufficient to compensate fully for the risks involved.

Model(s) used: Sect. 14.1

Problem 149

The companies obtaining loans from Oppermann Bank are known to be innovative, but unpredictable in their ability to repay loans. At times, companies turn out to be very successful and pose no meaningful credit risk, while at other times they severely struggle to maintain the payments on their loans. Oppermann Bank offers its depositors a deposit rate of only 2% p.a., but promises them a bonus if the bank is performing particularly well. In contrast to that, Targin Bank offers a higher deposit rate of 3.5% p.a., with comparable bonus arrangements. The borrowers of Targin Bank are all well known to the bank and they can well evaluate their credit risk. Despite this, the deposits of Targin Bank are not recommended for depositors seeking safety, while deposits at Oppermann Bank are.

How can you explain these recommendations?

Indicative answer

The uncertainty at Oppermann Bank is such that the bank and depositors find it difficult to assess whether the loans provided are low-risk or high-risk. To account for this, Oppermann Bank offers a low deposit rate that they can be sure to repay in the worst-case scenario and then offer the bonus if they obtain higher repayments, thus deposits are agreed to be paid the stated interest and deemed safe; this is optimal as the difference between times where loan risks are high and low are substantial. In contrast to that, Targin bank offers a deposit rate that they might not be able to repay, hence the deposits are risky. As the bank knows the credit risk of their borrowers well, there is little uncertainty about the risks involved. In this case, the risks to depositors are known and they are adequately compensated for this risk, willing to take the risky deposits.

Model(s) used: Sect. 14.2

Problem 150

You observe that in times of high uncertainty, such as recessions and major technological innovations, deposit rates offered by banks are low once adjusted for risks, but depositors rarely make losses. In contrast to that, during stable times with predictable risks, deposit rates are higher, again once adjusted for risk, but also some banks failed to meet their obligations. You are puzzled that deposits are safer in times of economic change than in more stable times.

How can you explain this observation?

Indicative answer

If the uncertainty about the prospects of companies is high, banks will find it difficult to assess the credit risk associated with loans and these prospects will differ widely between companies. This makes it optimal for banks to offer safe deposits in that they provide terms they are certain to be able to meet, requiring a low deposit rate aligned with loans being high-risk. In calmer times, the return on loans will be much more predictable and banks will be more aggressive in their offers, promising higher returns; however, on some occasions, higher default rates on loans do not allow the banks to make the full payment they promised.

Model(s) used: Sect. 14.2

Problem 151

For a long time, Foreman Bank has offered basic bank accounts only, keeping its costs down; for the same reason they have also not joined the deposit insurance scheme offered by a regulator for a fee. Their accounts offered only basic payments between accounts and the use of the bank's own cash machines. In order to expand their market, they consider offering more services to their customers, such as travel money, access to cash machines worldwide, preferential interest rates in loans for existing account holders. While these additional services are costly, they hope customers find them attractive and they can lower the deposit rate to retain their profitability. The management consultants hired to assess these plans, agree that the costs of the services could roughly be offset by lower deposit rates, but they do not expect an increase in profitability from this measure alone.

What can the management consultants suggest to increase the profitability of Foreman Bank?

Indicative answer

The management consultants could suggest that Foreman Bank joins the deposit insurance scheme. While this will incur additional costs, the risks to depositors would reduce, allowing Foreman Bank to lower the deposit rate even further, recovering these costs. However, even more, by eliminating the risk to depositors, they can be assured to benefit fully from the added services, rather than only in case the abnk does not fail. This will further increase the benefits to the added services to depositors, allowing the bank to lower deposit rates even further and generate additional profits.

Model(s) used: Sect. 14.3

Problem 152

Abdo Saleh compares banks to open an account with and deposit his savings. He is surprised to see that the largest banks offer the lowest deposit rates, while smaller banks often offer better conditions. In his view it is obvious to choose the bank that offers the highest deposit rate, as long as it gives him an acceptable level of general service. His friend advises him that the different deposit rates might be related to different risks banks take, and hence if the deposit rate is high, this would probably imply that the bank is also more risky. While he sees this point, he is still baffled that large banks pay the lowest deposit rates.

How can his friend explain this finding?

Indicative answer

Banks taking lower risks will be more attractive to depositors, given the same deposit rate. Therefore, banks providing high-risk loans will have to increase the deposit rate to remain attractive to depositors. However, unless they can increase the loan rate to the same extent to compensate for these higher costs, they will reduce their profits. Thus high-risk banks will have to trade off increasing deposit rates and thus lowering profits, against the market share, increasing profits. This trade-off is such that high-risk banks concentrate on those depositors that value their services most, while low-risk banks seek a larger market share and appeal to a wider range of depositors.

Model(s) used: Sect. 14.4

Problem 153

The mountainous country of Naril is segmented into three regions, all separated by high mountain ranges and connected only through poorly maintained roads. The economy is developing separately in each of the three regions, with their own foci on agriculture, tourism, and technology, respectively. While there is only one bank that operates in all three regions, called Naril Bank, each region has their own small number of banks that only operate locally. The policy of Naril Bank is to grant loans only to companies that are well-established and whose business is financially sound. The policies of the local banks vary, however; those in Prasala, whose economy is mostly driven by agriculture, are only willing to provide loans to companies that are very safe and can provide collateral. This is in contrast to banks in Merkano, whose technology firms are highly innovative and thus banks are taking significantly higher risks when providing loans. The tourism sector in Serkano is well established, but subject to the usual seasonal fluctuations as well as changing international travel patterns, which is reflected in the loans banks provide. You observe that in Prasala the banking market is dominated by local banks, while Serkano sees Nasril Bank and local banks competing, and in Merkano local banks only play a minor role in the banking market. As the newly appointed Head of Strategy at Nasril Bank you are struggling to explain the different fortunes Nasril Bank has in each of the region.

Despite following the same strategy in each of the three regions, what is the reason for the different market position of Nasril Bank?

Indicative answer

We can identify Nasril Bank as having low risk, local banks in Merkano as high risk, Serkano as intermediate risk and Prasala as very low risk. It follows from that the high risk of local banks in Merkano makes them much less attractive for depositors than the safer Nasril Bank; with few deposits attracted, they will not be able to lend a large amount and the market will be dominated by Nasril Bank. In Serkano the risks of Nasril Bank and the local banks are roughly comparable and hence they are similarly attractive, resulting in them both attracting depositors and hence being able to lend. The situation in Merkano is the opposite to that in Prasala, here the local banks are safer and will therefore be more attractive to depositors.

Model(s) used: Sect. 14.4

Problem 154

The economy of Tanastin has very quickly developed from an agricultural society to the development of cutting-edge software solutions thanks to its well-funded education system. The very nature of the industry dominating Tanastin is that companies are mostly small and failing frequently, while new companies are set up to explore new ideas. Banks are playing an important role in financing these companies, but they are small and not attractive to depositors given the risks these banks have to take. Each bank seems to operate in a small niche market and attract a specific type of customer, some cater for the needs to young customers, others for the older generation, but much of the market is served not at all or poorly. The government establishes a deposit insurance scheme which is available to banks for a premium reflecting their risk. The government had expected that providing deposit insurance would increase competition between banks, but the situation remained unchanged with deposit insurance not being taken up by banks.

Why is the deposit insurance a failure and how would its success have increased competition?

Indicative answer

Deposit insurance would have reduced the risks to depositors; this would have made it more attractive to depositors, even if the services provided do not appeal to them that well. The possibility to earn interest on deposits at a low or no risk would have outweighed the costs from not offering appealing account services. This would have lead to multiple banks competing for all depositors and not only a few depositors in niche markets. This deposit insurance is not taken up because the benefits to depositors from the accounts are not sufficiently large such that banks can recover the costs of the deposit insurance. This might be the result of only catering to niche markets and the situation might change if banks start to offer services that appeal more widely.

Model(s) used: Sect. 14.3, Sect. 14.4

Problem 155

Rural & Agricultural Bank is in competition with Morgan Bank, but their business models are very much different. While Rural & Agricultural Bank has long-established relationships with their borrowers and therefore knows them very well, some borrowers being more risky than others, their overall lending policy can only be described as conservative and safe. Morgan Bank, on the other hand, finances newly formed and innovative companies it knows relatively little about; consequently this bank is regarded taking high and at times unpredictable risks. Having such a reputation, Morgan Bank has never gained significant market share and Rural & Agricultural Bank dominates the market. Seeing the value of the funding that Morgan Bank provides, the banking regulator suggests to them that they take up their offer of a deposit insurance. A similar offer had been made to Rural & Agricultural Bank, who turned it down. Morgan Bank is initially reluctant to take up the offer as the premium payable would be substantial. It is only after the regulator initiates another, unlinked initiative to introduce minimum standards for deposit account services, that Morgan Bank agrees. Once Morgan Bank had improved the account services and taken up the deposit insurance, their market share grew quickly at the cost of the market share of Rural & Agricultural Bank. Rural & Agricultural Bank does not have to make adjustments to its account services as it already complies with the minimum requirements and despite the loss in market share does not consider taking up the deposit insurance.

How can you explain these changes observed?

Indicative answer

There are a number of developments that lead to the final result. Firstly, Morgan Bank only takes up the deposit insurance once it had to improve the quality of its account services such that it was worth more to its depositors. This increased value, accompanied with the high risk of Morgan Bank, makes the purchase of deposit insurance beneficial as this would increase these benefits to depositors more and allow the bank to reduce its deposit rates, increasing profits despite paying for deposit insurance. The benefits to the accounts held at Rural & Agricultural Bank were already high, but this did not trigger the purchase of deposit insurance as this bank has lower risks, making the benefits of its purchase smaller and in this case clearly not outweighing the costs of its purchase. This might also be reinformed by the fact that as the companies are they are lending to are well known and hence risks are well established and hence will offer safe deposits based on the highest possible risk, while Morgan Bank has less knowledge about their borrowers and will offer risky deposits. The result is that from a depositor's perspective, Morgan Bank has become low-risk, similar to Rural & Agricultural Bank. This will make both banks similarly attractive to depositors and they will compete with each other; previously the high risks of Morgan Bank made it not attractive to depositors and they were only active in small markets for depositors whose exact needs they meet. As deposits are required to lend, this effect in the deposit market translates into the loan market as well.

Model(s) used: Sect. 14.2, Sect. 14.3, Sect. 14.4

Problem 156

Mid-morning Banca Loranta SpA sees a sudden surge in demand for their internet banking through apps and their website. It is not only that a larger number of customers than usual are logging in, they are transferring most of their funds to other banks; their branches and cash machines also see a higher than usual demand for cash withdrawals. Alerted to this development, the senior management of Banca Loranta SpA convenes an emergency meeting to discuss these developments. Everyone is baffled by the events and can see no reason why customers would withdraw their deposits. It is only after a while that the personal assistant of one of the managers shows them a message widely circulating on social media that is not much more than a headline and reads 'Loranta wants loans from other banks'. Confused the assembled managers look at each other and remark that it is normal to get interbank loans and they do not see the relevance of the post, especially as comments right under the post said 'Banks do this all the time, so what, it's normal', and the original poster then said 'Oh, in that case, all is fine.'. The last comment received many thousands of upvotes.

How would the assistant explain that this post is instrumental in explaining the withdrawal of deposits?

Indicative answer

The social media post indicates that some depositors had concerns about the financial situation of Banca Loranta SpA as they probably have interpreted that obtaining loans from other banks points towards financial distress. While the comment makes it clear that this is not the case, it could have lead some depositors to believe that other depositors will withdraw their funds and this would make it rational for them to withdraw their deposits, too and a bank run emerges. It is clear this is bank run is not based on actual information, not even on inaccurate information, as the comments have been widely seen and acknowledged. It is merely the expectations of the reaction of others to the social media post that makes customers withdraw their deposits.

Model(s) used: Sect. 15.1.1

Problem 157

After a long and deep recession, Lurberdea is on the path to recovery, and seeks to rebuild its economy. Aside from rebuilding the industrial base that has suffered multiple bankruptcies and loss of expertise due to emigration, its financial sector has also been affected with the failure of many banks. At the central bank a working group has been assembled to look into the causes of some banks failing while others have survived, even if facing capital shortages at this stage, which makes any lending on a larger scale impossible. Collecting basic data for a first rough analysis, the following observations are noted: All banks faced significant reductions in deposits as customers sought to make ends meet and some less affected transferred their funds abroad. It was banks that were generally regarded as providing the safest loans that survived, while those providing more risky loans were struggling to meet the demands of depositors to withdraw. Interestingly, some banks that were providing loans of intermediate risk were failing due to a sudden increase in deposit withdrawals, while other banks managed to survive and did not face exceptionally high deposit withdrawals. There seems to be no discernable difference between banks in this category.

How can you explain these very preliminary findings?

Indicative answer

Low-risk banks will have loans that are highly valued and hence they can sell them at high prices, generating sufficient liquidity to repay depositors, while maintaining sufficient funds to fully repay those that do not withdraw their funds; thus these banks do not see a bank run and do not fail. Risky banks will not be able to sell their loans at high prices and thus will not be able to generate sufficient liquidity to pay off all depositors that are withdrawing and thus fail. In the intermediate-risk range, banks would be able to repay all depositors withdrawing as the funds they can generate from selling loans are sufficient and if no more depositors were to withdraw, those remaining could also be repaid; however if more depositors were to withdraw this would not be possible. It is thus a coordination problem, if depositors think others will withdraw they will withdraw too and a bank run emerges causing the bank to fail, other wise no bank run occurs and the bank does not fail. Thus some banks survived as they coordination worked in that depositors were not withdrawing more funds, while for other banks the coordination resulted in them withdrawing and the bank failing.

Model(s) used: Sect. 15.1.2

Problem 158

With weak supervision of banks, the trust of depositors in their viability is low. It is therefore not uncommon to see that bank runs occur due to unfounded rumours or simple herd mentality of depositors at a bank, although they are usually isolated events that affect a single bank only. Over time you observe that some banks react quickly to any rumours emerging and generate additional liquidity even if a bank run is not certain to occur; these banks generally survive the developing bank run. Other banks, however, do not seek to obtain additional liquidity until they experience the bank run; these bank subsequently fail.

Is it correct to attribute the failure of banks to their unwillingness to react promptly to rumours and generate liquidity?

Indicative answer

Those bank that ultimately fail, would also fail if they were to raise liquidity promptly. The observed correlation between the prompt reaction to a potential bank run and the failure of the bank in a bank run has its origin in the ability to withstand a liquidity shock in any case. Banks whose asset values are sufficiently high such that they can survive the deposit withdrawal will find it beneficial to preempt any bank run and generate liquidity by selling assets. The limited liability of banks makes this approach not beneficial for banks that would not be able to survive a bank run; hence these banks would not incur losses by selling assets to preempt such a bank run as there are no benefits for them, given they will fail if it materialises. Hence, we see only banks that would survive take preemptive action to protect their future profits, while those banks that would fail anyway, do not see benefits from doing so. Hence the root origin is that banks who fail, would fail if a bank run occurs and then not be able to sell their assets, and banks that survive would also be able to sell their assets during a bank run and survive.

Model(s) used: Sect. 15.1.3

Problem 159

Berisha Bank sees first signs of an emerging bank run with rumours about their liquidity and long-term viability spreading and first enquiries to move deposits to other banks. To ensure they can meet the anticipated liquidity needs from deposit withdrawals, they seek to liquidate some assets they hold, but find it impossible to agree a price with potential buyers. This is very much in contrast to similar times in the past, where they quickly agreed a price and thus averted to fail. Berisha Bank attributes their inability to agree a price with buyers as those buyer's attempt to force Berisha Bank to fail such that they could purchase the assets in their liquidation at a lower price.

Why would potential buyers not purchase assets now when in the past they did under similar circumstances?

Indicative answer

The probability of a bank run could be higher than in previous times. This would imply that buyers indeed see greater benefits in waiting for the bank to fail and then purchasing the assets at a lower price; the higher chances of a bank run occurring makes it more likely that they can obtain the assets at a lower price later rather then remaining empty-handed. If the probability of a bank run occurring in the past was seen as less likely, purchasers would have found it less attractive to wait as the assets would not have been offered in case no bank run occurs, which was more likely.

Model(s) used: Sect. 15.1.3

Problem 160

During the recent recession, Tonic Bank Corp. has experienced increased default rates on loans they have given. Although the default rates are still regarded as low and the regulator assesses the bank as being sound, some depositors have started to withdraw their funds to other banks. While Tonic Bank Corp. is convinced these withdrawals can easily be covered by their existing liquidity reserves and if needed the sale of some assets, there is some fear that withdrawals might spread and a bank run could emerge if fear grips depositors. To reassure depositors, Tonic Bank Corp. decide to increase their liquidity by selling some of the more risky loans to institutional investors. To their surprise, they find it difficult to agree a price on these loans with investors, who let it be known that they assess the possibility of a bank run occurring as substantial.

Why can the sale of loans not easily be agreed?

Indicative answer

The increased risks that Tonic Bank Corp. is exposed to from the higher default rates, has opened up the possibility that a bank run can occur if depositors coordinate, thus no bank run might occur if depositors expect no bank run to occur, but it will occur if it is expected. It is this high risk of a bank run occurring that will make institutional investors reluctant to purchase the loans as they could obtain them at a lower price once the bank run is emerging and the bank is forced to sell assets. For this reason purchasers of the loan prefer to wait and do not obtain the loans now.

Model(s) used: Sect. 15.1.2, Sect. 15.1.3

Problem 161

Through friends at his bank, Ratomir Predić has received reliable information that his bank is struggling to obtain additional funding after their largest two depositors suddenly withdrew all their funding. Despite obtaining this information, he does not rush to withdraw his deposits, but tells you that he will let them earn interest a few more weeks as other banks offer lower deposit rates. You think that this is way too risky and suggest to him to take the money out instantly.

What would Ratomir Predić reply to your advice?

Indicative answer

The information Ratomir Predić has obtained is not widely available and he can reasonably assume that this will only trickle through to the market slowly. The bank will therefore not face large deposit withdrawals instantly and hence be able to repay deposits for a while. This approach might be risky is information might be revealed faster than expected, but this will have to be balanced against the additional interest Ratomir Predić earns during that time. In his calculation, this additional interest outweighs the risks of the bank failing.

Model(s) used: Sect. 15.2.1

Problem 162

Haravayin Bank OJSC has severed its relationship with the most important deposit broker and has therefore suffered a large outflow of deposits, which it struggles to replace. There is serious concern within Haravayin Bank OJSC that without replacing the lost deposits, it will not be able to honour the upcoming wage payments its mainly corporate customers make at the end of the month. So far the information about the precarious situation at Haravayin Bank OJSC has not spread widely and those few customers that know are not withdrawing additional funds in significant amounts. The situation at Arevelyan Bank OJSC a few years back was very different, their depositors learning of the liquidity shortage started to withdraw larger amounts very quickly.

Why is the situation in Haravayin Bank OJSC and Arevelyan Bank OJSC so different?

Indicative answer

In the case of Haravayin Bank OJSC the information about the liquidity shortage is spreading only very slowly and hence they balance the additional interest they can earn on the deposits against the low risk of the bank failing before they withdraw their funds; this leads them to retain deposits for considerable periods of time. The fast withdrawals of deposits at Arevelyan Bank OJSC in the past suggests that depositors thought that the information would spread more quickly; consequently they fear more withdrawals faster and will themselves withdraw deposits sooner as not to expose them to too high risks of loosing their deposits.

Model(s) used: Sect. 15.2.1

Problem 163

It has been disclosed that some of the largest hedge funds have withdrawn from using Shin Bank plc as the bank used to deposit any temporary excess funds. Prior to this information being publicly revealed, Shin Bank plc noticed a slow trickle of deposits being withdrawn from customers who somehow seemed to have become aware of this information, but as the disclosure of their loss of the hedge funds as customers was disclosed, they were also able to disclose that a number of oil companies have agreed to deposit their funds at Shin Bank plc, although the amount they pledged was lower than the deposits lost from hedge funds. The withdrawal of deposits stopped completely at that time.

How can you explain the initial slow withdrawal of deposits prior to the public disclosure and its stopping afterwards?

Indicative answer

The initial withdrawal of deposits at Shin Bank plc were the result of the information some depositors had and they feared that this information would spread, causing withdrawals in the future. As the information was not widely available, they did not expect deposits to be withdrawn quickly and hence were in no rush to do so themselves. After the disclosure the information was available, but with the additional information that the lost deposits are replaced at least partially, depositors were reassured that the bank would not face a liquidity shortage and thus a bank run would not be rational anymore, stopping these withdrawals and those newly informed about the situation at Shin Bank plc see no need to withdraw their deposits.

Model(s) used: Sect. 15.1.1, Sect. 15.2.1

Problem 164

In its latest financial stability report, the Moravian Central Bank warns of an increased risk to the banking system from bank runs. They argue that while the market consensus is that the overall risks of banks have not increased, despite an increasing fraction of market commentators mention an increased downside risk in the loans that have been provided by banks in recent years. There is a smaller fraction of market analysts, however, that believe that the risks are overstated and the economy is in good health.

With these assessments, how can the risks of a bank run increase as claimed by the Moravian Central Bank?

Indicative answer

If the view of market commentators are reflected in the views of depositors, then those depositors that see an increased downside risk will be offset by those having a more positive outlook, leaving the overall assessment in the market unchanged. For bank runs to become more likely, it is necessary that more depositors take a sufficiently negative view than before and thus seek to withdraw their deposits. These more negative outlooks will be only slightly negative, but sufficient for these depositors to be withdrawing funds. These more negative outlooks will have to be compensated by other depositors having more positive outlooks on the risk of loans; these positive outlooks will have to be shared by fewer depositors than the negative assessments, but they need to be more positive than those being negative such that the fewer positive views are offset by the more frequent negative views.

Model(s) used: Sect. 15.2.2

Problem 165

Grotius Bank is experiencing a slow withdrawal of deposits. It seems however, that depositors are hesitant to withdraw. While some depositors mention the increased risks that they believe Grotius Bank faces, this view is only spreading slowly and not shared by all. Even those that share this view are in no rush to transfer their deposits, while others with a different assessment of the bank's risk do not withdraw funds at all. This changes once they realise that the withdrawals of depositors are not subsiding but continuing at a slow and steady pace; once they realise this, they withdraw their deposits quickly, even though they believe the bank to be sound.

Why does Grotius Bank experience an initially slow bank run which then suddenly accelerates?

Indicative answer

Initially only those depositors which had information suggesting the bank was in financial difficulties would withdraw their funds as other depositors saw no reason to do so. As this information seems to have spread slowly only, these depositors did not withdraw their funds immediately but thought it was safe to benefit from earning interest on their before withdrawing them in time before the bank will have used up their liquidity reserves. Those depositors not sharing the negative views on Grotius Bank then still withdraw their funds once they realise that the withdrawals will be substantial and the bank will eventually fail. This is not based on the information they have about the bank but their inference on the withdrawals by other depositors.

Model(s) used: Sect. 15.1.1, Sect. 15.2.1, Sect. 15.2.2

Problem 166

Due to unfounded rumours about the risks to deposits at banks in Jórvik, the central bank advises banks to increase their deposit rates to improve the trust of depositors and avert bank runs. While many banks follow the advice of the central bank, Jórvik Första Bank keeps their deposit rates unchanged as it is widely seen as the safest of banks in Jórvik and does not see the need for such a measure; instead it is providing detailed information on the risks of loans it has provided. It is subsequently that only Jórvik Första Bank expriences a bank run, while all the other, more risky, banks did not face bank runs. While Jórvik Första Bank puts this down to bad luck, the central bank argues that not heeding their advice was the main cause of them experiencing a bank run.

Is the central bank right in their assertion that not increasing the deposit rate is the cause for the bank run at Jórvik Första Bank?

Indicative answer

Increasing the deposit rate could have reduced the risk of a bank run for Jórvik Första Bank as withdrawing deposits would have become less attractive due to the higher deposit rate. However, providing information on the risks has the same effect. The information provided reduces the uncertainty about the future risks of the bank and thus depositors will be re-assured of the low risks of Jórvik Första Bank, making the withdrawal of deposits less attractive. That a bank run occurred despite these measures taken by Jórvik Första Bank could be down to a more negative than expected assessment of the bank's risks. This could have happened with a higher deposit rate as much as with the increased transparency.

Model(s) used: Sect. 15.2.3

Problem 167

After a strategy review, Volhynia Bank decides to reduce the risks of its loan portfolio, allowing it to reduce its deposit rate; their analysis suggests that this would increase their profits as they can exploit the risk-return relationship. However, they are warned that they might not be able to realise the reduction in the deposit rate if they want to avoid a bank run.

Why might this be the case?

Indicative answer

The risks of Volhynia Bank are reduced, so in principle they should be able to reduce the deposit rate as the risks to deposits are also reduced. However, this reduced deposit rate also makes it less costly to withdraw deposits as the lost interest is lower. With some uncertainty about the risks of the bank, as is natural, this might make some depositors with negative information to withdraw deposits and other depositors knowing that this might happen would withdraw their deposits to prevent them making even larger losses from retaining their deposits. The low deposit rate then gives little incentive to not make this step, increasing the risk of a bank run.

Model(s) used: Sect. 15.2.3

Problem 168

All banks in Viguera were subject to a bank run that could only be stopped with the intervention of the central bank. The trigger for this bank run is assumed to be the information that bank loans were more risky than expected due to a downturn in the economy as a whole; this increase in risks was higher than anticipated. The government, however, blames the media for reporting overtly negatively about the risks of banks and not giving sufficient prominence that they had provided a guarantee to banks for the first 20% of any loan losses.

Is the government correct to assert that media pointing out the government guarantee more prominently could have prevented a bank run?

Indicative answer

The government guarantee might have actually been the reason for the bank run to occur. The guarantee reduces the incentives for the bank to manage risks and hence risks might have increased as a consequence, more than offsetting the benefits of the guarantee that reduces risks to depositors from the higher repayments that can be made. Hence, it is not the media coverage that is ultimately responsible for the bank run, but the provision of guarantee might have caused it and if it did not cause it, it probably would not have reduced the likelihood of a bank run.

Model(s) used: Sect. 15.2.4

Problem 169

Having been a significant provider of loans to companies in the shipping industry, Trapeza Rovas A.E. had to increase their write-offs for loans significantly after prices for shipping containers had plummeted. Many of the loans that Trapeza Rovas A.E. has provided are now categorised as high-risk and the banking regulator is concerned for the viability of the bank, even though the regulator notices that they are working well with the companies to avoid loan defaults. The fear is that with the information becoming public, Trapeza Rovas A.E. might face a bank run as depositors are not willing to accept such high risks. In coordination with the government and central bank, the regulator seeks to offer guarantees for much of the loans to shipping companies and has secured funding of €25bn to support outstanding loans of €134bn. Trapeza Rovas A.E. does not think it needs such a guarantee, but tells the regulator that if they provide one, it should cover the full amount of the outstanding loans, otherwise it will not be effective in preventing a bank run. With the guarantee not being increased after discussions, Trapeza Rovas A.E. rejects the offer, even though no premium would be required.

Why does Trapeza Rovas A.E. refuse the low guarentee and pressed for a larger one?

Indicative answer

The guarantee is covering only a small fraction of the outstanding loans and as such its provision might actually increase the risks that Trapeza Rovas A.E. is taking, or at least that could be the inference of depositors. The guarantee reduces the losses to Trapeza Rovas A.E. and this will reduce their incentives to work with shipping companies to maintain loan payments, increasing risks. With such risks correctly anticipated by depositors, the guarantee might trigger a bank run as the lower effort by the bank would not be compensated by the small guarantee. Only once the guarantee is sufficiently high, will the increased payments from the guarantee outweigh the higher risks from less monitoring effort. It is thus that only a high guarantee would reduce the overall risks to depositors and reduce the threat of a bank run.

Model(s) used: Sect. 15.2.4

Problem 170

Waldon Bank plc. seeks government support to avert a possible bank run. Recent losses on loans have raised doubts about the safety of deposits with regulators and once this information becomes public, they believe a bank run is possible. The bank believes that a guarantee for loans of approximately 20% of the whole loan portfolio would compensate for the increased risks and allow them to maintain their low deposit rate and thus retain profitability.

Should Waldon Bank plc. proceed to apply for such a guarantee and/or are other measures more likely to avert a bank run?

Indicative answer

If applying for a small guarantee, Waldon Bank plc. would have strong incentives to reduce the monitoring of loans and this would increase the risks, potentially more than offsetting the benefits of the guarantee from the depositor's perspective. Applying for a guarantee that covers a larger proportion of potential losses would be needed to reduce the risks to depositors; while this reduces monitoring efforts of the bank even more, the guarantee more than compensates for this effect. Another risk for the possibility of a bank run is the low deposit rate, which makes the early withdrawal of deposits attractive as not much interest is lost when doing so. Increasing the deposit rate would help to avert a bank run, although this comes at the cost of lower profits to Walden Bank plc.

Model(s) used: Sect. 15.2.3, Sect. 15.2.4

Problem 171

After several bank runs in neighbouring countries, the banking association suggests to its members that they make the withdrawal of deposits less attractive. An initial proposal to increase deposit rates throughout were rejected by banks as this would reduce their profits too much. However, banks suggest that they will maintain the overall payments on deposits, but will differentiate more between different deposits.

How could banks structure they deposit rates such that the likelihood of bank runs is reduced while maintaining their profitability?

Indicative answer

The banks could lower the deposit rate on deposits in general, but then offer a bonus for all those deposits that are retained for a longer time period. This would give an incentive to depositors to not withdraw their funds as they would only earn low interest, while maintaining the deposit for a longer period of time would give depositors a higher return.

Model(s) used: Sect. 15.3

Problem 172

The banks in Nekor are not competitive and charge high loan rates while offering low deposit rates; however, unlike some of their neighbouring countries, the few banks that operate in Nekor are regarded as being safe and well-managed, thus attracting some deposits from these countries. In order to increase the attractiveness of their banks to increase foreign deposits, the government introduces measures to increase competition between banks. The aim is to raise deposit rates and through more competition increase lending to domestic companies, accelerating economic growth. After measures have been implemented, deposit rates indeed increase and lending increases slightly, but the increase in foreign deposits does not only not materialise, they have reduced. The government is puzzled why foreign deposits are reducing rather than increasing, despite the higher deposit rates.

How can you explain this result?

Indicative answer

The competition has not only increased deposit rates, but the reduced profit margins will also have increased the amount of deposits that are lent out, lowering the amount of cash reserves. As the amount of cash reserves are reduced, banks are less resilient against bank runs as smaller withdrawals will cause banks to use up their liquidity reserves. Thus the risk of a bank run and losses to depositors has increased, more than offsetting the benefits of higher deposit rates for foreign depositors, who subsequently withdraw them.

Model(s) used: Sect. 15.4

Problem 173

A trade agreement between Buyeo and Lazica does not only envisage the reduction of tariffs on goods but also the liberalisation of services, including the banking sector; both countries allow each other's banks to operate freely in their own country. In both countries banks have warned against this liberalisation of their respective markets without additional safeguards as it would increase the costs to consumers. These concerns have been ignored as an attempt by banks to retain their profits by limiting competition.

Was it correct to dismiss the concerns of banks as being driven by their desire to maintain profits?

Indicative answer

The opening of the banking market will increase profits and in this sense banks will be concerned about their profits, however, the lower profits of banks will lead to them seeking to compensate by increasing their lending. This will lead to less cash reserves being held and this banks will be less able to accommodate the unexpected withdrawal of deposits, making them more vulnerable to bank runs. This is the additional risk that banks were referring to. Whether the decision to dismiss these concerns and hence the risk of bank runs was correct will depend on the benefits of increased lending and lower loan rates as well as higher deposit rates and the costs from a higher likelihood of bank runs. If the benefits overall outweigh the costs, the decision was correct, otherwise remedies might have to be taken to reduce the risk of bank runs.

Model(s) used: Sect. 15.4

Problem 174

You observe that banks offer demand deposits, deposits that can be withdrawn at any time, at lower rates than term deposits, which require depositors to give three to six months notice of withdrawing them. The difference between the deposit rates are substantial and you do not feel that they can be fully explained by depositors of term deposits giving up the ability to access them for cash immediately. You also notice a curiosity in that banks with lower cash reserves pay lower deposit rates on demand deposits and higher deposit rates on term deposits than banks with higher cash reserves. You find this peculiar as you would expect that banks with less cash reserves are paying higher deposit rates to ensure they are not withdrawn easily.

How can you explain this observation?

Indicative answer

Banks offering a higher deposit rate on demand deposits require larger funds if deposits are withdrawn and therefore have to hold higher cash reserves. These higher cash reserves limit the amount of loans that can be provided and therefore the profits the bank can make, allowing them to pay less interest on term deposits. It is therefore that to avoid bank runs, paying a higher deposit rate on demand deposits banks hold higher cash reserves, allowing them to pay lower interest on term deposits. Another effect is that a higher deposit rate on demand deposits makes their withdrawal costly to depositors and they will therefore be more reluctant to make such withdrawals, protecting the lower cash reserves held.

Model(s) used: Sect. 15.3

Problem 175

It has been observed that with increasing wealth, deposits at banks in Funan have steadily increased, not least as there is no bond and stock market available for investment. While banks have traditionally been very conservative in their lending policies to limit the risk of loan defaults, this caution has become less and less dominant as banks sought to invest the deposits they are holding and had to provide loans to more risky companies. This, however, has increased economic growth, but has also resulted in some economists questioning the stability of the banking system. As a consequence of such concerns, the government has reassured depositors that it backs deposits held at all domestic banks; however, significant doubts remain about the ability of the government to make these payments if required. This intervention of the government did affect deposit rates. Short-term deposits that could be withdrawn at any time saw lower deposit rates, while those of long-term deposits that could only be withdrawn with a notice of three months and longer, were increasing. The government attributes the lowering of the short-term deposit rate to the provision of the government guarantee of deposits, however this does not explain the increase in deposit rates for long-term deposits that were also covered by the guarantee.

How can these changes of the deposit rate be explained?

Indicative answer

In principle the deposit rates should fall in response to the government guarantee, but as the market is skeptical bout the ability of the government to meet its obligations, the impact of this guarantee will be minimal. The announcement by the government, however, might have sent a signal about the risks that banks are taking and thus the perception might be that risks are higher than what they were assessed to be before this announcement. This would have led banks to reduce the deposit rate on short-term deposits so that banks are perceived to be able to meet any withdrawals and do not need to hold larger cash reserves. The lower cash reserves allow banks to invest into more loans, allowing them to increase their profits, which can then be used to increase deposit rates on long-term deposits. The perceived higher risk of banks made this move necessary as the higher risks left less funds to repay short-term deposits, necessitating the reduction of the deposit rate to reduce the risk of the bank not being able to meet its obligations from withdrawn short-term deposits.

Model(s) used: Sect. 14.1, Sect. 15.4

Problem 176

Parthia & Co. Bank faces a temporary liquidity shortage due to one of its major customers making a large transfer to another bank to pay an outstanding bill. Knowing that soon the same customer, as well as other customers, will obtain payments on bills they have issued, they seek to obtain an interbank loan to ensure their liquidity reserves are sufficient to cover the fluctuations of payments from smaller customers. Seeking an interbank loan of £400m, they are not successful in agreeing terms that are beneficial to them. It is only once they are dividing the loan up into four loans of £100m each, that they can agree interbank loans with four different banks.

Why could Parthia & Co. Bank not secure a single interbank loan of £400m?

Indicative answer

In order for an interbank loan to be agreed between banks it is necessary that the size of the loan is not too big. In particular, the excess liquidity of the bank providing this loan must be higher than the interbank loan sought. As no loan terms could be agreed with another bank for the full amount of the liquidity shortage, it is reasonable to infer that none of the other banks will have excess liquidity of this amount. At least some banks have smaller excess liquidity of at least £100m and that is how Parthia & Co. Bank could secure its four loans for this amount.

Model(s) used: Sect. 16.1

Problem 177

Seeking quotes from various banks to provide loans in the interbank market, you observe that the loan rates banks are willing to accept differ between banks. You attribute this differences in loan rates between banks to the intransparency of the interbank market where loan rates are not published centrally, but agreed bilaterally between banks directly and resulting agreements not published. This, in your view limits competition between banks.

Would a more transparent market with loan rates being publicly available, ensure loan rates in the interbank market are more homogeneous?

Indicative answer

The loan rates at which banks are willing to borrow depend mainly on two parameters, the preferences for liquidity and the liquidity shortage of a bank. Hence, loan rates at which banks are willing to borrow at will differ. Even if we neglect the case of bank having different preferences for liquidity, they will reasonably have different liquidity shortages and thus different reservation loan rates they are willing to accept. A transparent market with loan rates being published would not affect this circumstance.

Model(s) used: Sect. 16.1

Problem 178

The interbank loan rate in Valychia has steadily increased in recent years. This increase is not matched by any observed change in the characteristics of loans provided by banks or the conditions they offer for loans. Market commentators widely agree that the higher interbank loan rate is the result of increasing risks in the banking system and banks, having inside knowledge of the market, will be aware of these risks, resulting in the observed increase in interbank loan rates. Szymon Brzezinski is known for often taking an opposite view on a wide range of issues in the banking market and he has been accused of doing so merely to attract publicity. He takes the view that the increase in interbank loan rates is not an indication of higher bank risks.

What would be his explanation for the increase in the interbank loan?

Indicative answer

The interbank loan rate, on the one hand, is affected by the demand for interbank loans, as determined through the withdrawal rate of deposits from banks, which can lead to liquidity shortages. Hence, a higher loan rate could indicate that deposit movements between banks have become more volatile with depositors moving their funds more frequently between banks. On the other hand, the interbank loan rate is also affected by the availability of cash reserves; lower cash reserves indicate that banks will require more interbank loans to avoid a liquidity shortage while at the same time other banks will have less cash reserves they can lend out. Both factors will increase the interbank loan rate. It is therefore not that necessarily bank take higher risks that is reflected in higher interbank loan rates, it could be an indication of higher demand for interbank lending due to more volitile deposit movements and smaller cash reserves being held by banks.

Model(s) used: Sect. 16.2

Problem 179

Depositors with banks in Colonia are mostly retaining their deposits with the same bank, using deposit balances mainly to make and receive payments; they are not very sensitive to the deposit rates offered or the quality of services that banks provide, rarely moving their deposits to another bank offering better conditions. This is very much in contrast to depositors in Aken, who are more than willing to move deposits to banks that offer them better conditions; consequently banks in Aken regularly observe large amounts of deposits moved between banks. Both banking systems are deemed to be safe as banks manage any liquidity shortages between themselves efficiently.

How would you expect the interbank loan rate to differ between Colonia and Aken?

Indicative answer

The expected withdrawal rate of deposits in Colonia will be low as depositors rarely move funds across banks, it is therefore that the demand for interbank loans will be low and therefore interbank loans rates will be low. In contrast to that, demand in the interbank loan market of Aken will be high due to depositors moving their entire funds between banks frequently. This will result in higher and more frequent cash shortages by some banks and thus demand for interbank loans will be high, resulting in a much higher interbank loan rate than in Colonia. This difference in the interbank loan rates is the result of the different demands of banks for cash reserves, not a sign for the risk of the banking system.

Model(s) used: Sect. 16.2

Problem 180

’Rather than using deposit insurance to prevent bank runs, we should develop the interbank market and the threat of bank runs disappears.’

Has this statement merit?

Indicative answer

Interbank markets are beneficial if there are cash shortages and excess cash holdings within the banking system; banks with cash shortages can borrow from banks with excess cash. This, however, requires that these excess cash positions and cash shortages are balanced, which will be the case if depositors move their funds between banks. However, if funds are removed from the banking sector, for example through increased cash holding by depositors, investment into other assets, or transfer of funds abroad, the cash shortage of those banks losing deposits are not accompanied by other banks having excess cash and banks cannot obtain sufficient funds, making a bank run possible even in the presence of an interbank market. Thus, interbank markets only prevent bank runs if the deposits remain within the banking system, in any other cases it is ineffective to prevent bank runs.

Model(s) used: Sect. 15.1.1, Sect. 16.2

Problem 181

Sogram Bank faces an unexpected outflow of deposits due to the relocation of a customer with significant cash holdings, much of which was held as deposits at Sogram Bank. The total loss of deposits is $400m, exceeding its cash reserves of $250m. In order to ensure that Sogram Bank does not fail due to this deposit withdrawal, the three other banks in Sogram offer interbank loans with a total value of $450m. Only days after these arrangements have been finalised, a military coup in Sogram leads to many depositors transferring their deposits overseas, leading to deposit withdrawals of $200m for each bank, exceeding their cash reserves by $90m. As a result of these withdrawals, all banks but Sogram Bank fail. Not without glee does the newly appointed finance minister announce the failure of all four banks and accusing three of them of recklessly supporting another bank that was already failing over and above what was needed by depleting their own safety net and closes his remarks with the comment that it serves them right.

Is the finance minister right to say that the three banks providing interbank loans to Sogram Bank were reckless?

Indicative answer

The finance minister is correct that without the support for Sogram Bank exceeding their immediate cash demands, the other banks would have survived as they have started out with sufficient cash reserves of $260m. They gave interbank loans of $150m each, leaving them with $ 110m; had they given just sufficient amounts of interbank loans to ensure Sogram Bank did not fail, they would have provided interbank loans of $50 each, leaving them with $210m cash reserves, sufficient to survive the deposit withdrawal of $200m. Sogram Bank had cash reserves of $250m and the interbank loans totalling $450m brings their cash reserves to $250m, enough to survive the common liquidity shock. However, it was rational for the three banks to provide larger loans as that would ensure that Sogram bank could survive other liquidity shocks. Unfortunately the size of the experienced liquidity shock was such that the other banks failed and Sogram Bank managed to survive. It was therefor not reckless to provide these loans, but was done to ensure that the interbank loans could be repaid in case of another liquidity shock.

Model(s) used: Sect. 16.3

Problem 182

In Thassalia banking crises have become a rare occurrence due to strict regulations of the banking sector introduced a few years ago. However, since the regulation has become much more stringent and banking crises have become much less common, any individual bank facing a temporary liquidity shortage finds it much more difficult than before to obtain funding from other banks unaffected from liquidity squeezes, even for smaller liquidity shortfalls. The central bank suggests that this development shows that the banking market is not functioning properly and it needs to intervene more often than before these regulations were introduced.

Is this a fair assessment of the banking market by the central bank?

Indicative answer

The market for interbank loans is failing in the sense that banks are providing support to banks only for smaller liquidity shocks than would be socially optimal due to the small probability of a banking crisis emerging. Providing interbank loans for smaller liquidity shocks a bank faces is not profitable as the size of the loan is sufficient small to not affect the probability of surviving a subsequent banking crisis significantly to compensate for the potential loss of this loan. It is therefore that such smaller interbank loans are not forthcoming from banks and the central bank needs to intervene in order to provide liquidity to the bank facing the liquidity shortage.

Model(s) used: Sect. 16.3

Problem 183

Banks in Forusha are well regulated and the credit risk they are allowed to take is highly restricted; this very much in contrast to banks in Burandu whose banking regulation is minimal, but benefits from well qualified managers in all banks. While the banking systems in both countries are seen as being safe, banks in Forusha struggle to cover liquidity shortfalls from deposit transfers between banks in the interbank market, they more often sell assets in the open market. In contrast to that, the much more heterogeneous banks in Burandu can in most instances meet their liquidity needs through interbank loans. Regulators in both countries are surprised as they would have expected the safety of banks in Forusha would make interbank loans more attractive than in Burandu, where some banks are more safe than others due to the different lending strategies they pursue.

How can you explain the seemingly surprising results seen here?

Indicative answer

The banks in Forusha are tightly regulated and as such not only very safe, but also very similar to each other. This implies that all the risks banks are taking will be very similar, making adverse selection between banks nearly absent. This implies that banks can sell their assets at a low discount, making this way to raise additional liquidity more attractive than relying on interbank loans, which will also give a profit to the bank providing such a loan. In Burusha, however, banks are very different and hence adverse selection between banks not knowing their risks, requiring a larger discount when selling assets and hence interbank loans become more attractive.

Model(s) used: Sect. 16.4

Problem 184

Reacting to banking crises in neighbouring countries, the government of Ruthenia decides to introduce a deposit insurance scheme to promote economic growth through building more trust in the banking system. Banks are required to pay a premium of 0.4% of their average deposits for the previous three years towards financing the deposit insurance, which will be government-backed, but operated privately through a designated company. The premium of 0.4% has been determined by actuaries on the basis of past risks banks have taken when giving loans as well as the leverage of banks. After five years operating the deposit insurance scheme, it is audited and the actuaries involved in assessing the adequacy of the premium charged, report that the risks banks take have increased and therefore a premium of 0.55% of deposits would be more adequate. The central bank as the relevant banking regulator objects to this increase in the deposit insurance premium by claiming that in the next audit the actuaries will return and demand an even higher premium and therefore suggest that the premium should be increased even more.

Is the central bank right in their demand?

Indicative answer

On the one hand they are right, the premium most likely will increase after the next audit, but this will be the case for any premium that has been fixed in this way; it does not provide a long-term solution. Banks facing a fixed deposit insurance premium have an incentive to recover these costs by providing loans which yield a higher return; such higher returns are only possible if the risks are increased, necessitating a higher deposit insurance premium. Alternatively they might seek to provide more loans, increasing their leverage, and that way increase the risk of bank failure. Hence the risks will increase with a higher deposit insurance premium, necessitating an ever higher premium, entering a vicious cycle. For a long-term solution, the deposit insurance premium must be tailored to the risks the bank is taking.

Model(s) used: Sect. 18.1.1

Problem 185

Lodomia has a banking system that caters on the one hand to its domestic population, but it is also a major off-shore centre seeking to attract wealthy individuals. While all banks are serving both types of customers, they are by law required to provide banking services to any legal resident demanding it, they have different degrees of reliance on one or the other market. To improve the trust in the banking system by local residents and foreign residents alike, the government of Lodomia has decided to introduce deposit insurance for all banks. This decision was driven by a number of bank failures in neighbouring countries that lead to an increased anxiety in Lodomia about the stability of their banks. During the consultation with banks about the introduction of the deposit insurance scheme, banks were generally opposed and urged the government to include only retail deposits of domestic depositors..

Why are banks opposed to the introduction of deposit insurance, even if provided for free?

Indicative answer

Deposit insurance increases competition between banks as with deposit insurance deposits become more valuable due to the lack of default risk and hence relative to the value of other services, deposit rates become more important for depositors. This will increase competition between banks for deposits, resulting in higher deposit rates that reduce bank profits. It is therefore that banks will seek to limit the amount of deposits that are covered as much as possible to limit the increase in competition between banks.

Model(s) used: Sect. 18.2.1

Problem 186

A recent recession saw an increase in the risk of loans overall, which was mainly due to previously low-risk companies becoming high-risk, while high-risk companies were much less affected. The higher risks of banks caused some depositors to switch their funds to other banks or to invest into other assets, causing more frequent liquidity shortages and excess liquidity in banks. While prior to the recession the interbank market was active and banks could easily cover any liquidity shortages there, this has become a less active market now. It is mainly high-risk banks that obtain loans to cover liquidity shortages while banks regarded as low-risk liquidate some assets to raise additional funds where needed.

Why do low-risk banks do not obtain interbank loans during the recession?

Indicative answer

During the recession the number of banks being classified as high-risk will have increased due to companies changing their type, thus the probability of a bank being low-risk has decreased during the recession. This smaller number of low-risk banks increases the interbank loan rate as these interbank loans might not be repaid and this makes the sale of loans attractive to banks that can achieve a high price, the low-risk banks. Hence, low-risk banks will no longer demand interbank loans and the market will be dominated by the demand of high-risk banks paying a high loan rate.

Model(s) used: Sect. 16.4

Problem 187

Vosgau Bank AG and Raiffeisenbank Vosgau eG are local banks in a region where the collapse of the largest local employer will lead to many more bankruptcies of companies and also individuals will struggle to repay their loans and mortgages, together with falling house prices. While projections on the impact of the collapse on the local economy have not yet been made and the general public only slowly appreciates the impact this event will have on banks, observers notice that Vosgau Bank AG is now borrowing from Raiffeisenbank Vosgau eG in the interbank loan market, obtaining coverage for some liquidity shortages, while previously they were not lending to each other. Vosgau Bank AG soon starts to experience a slow withdrawal of deposits, while Raiffeisenbank Vosgau eG sees no sustained outflow of deposits beyond the usual movements of deposits as funds get spent and salaries are paid.

How do you explain the commencement of interbank lending from Raiffeisenbank Vosgau eG to Vosgau Bank AG?

Indicative answer

Vosgau Bank AG sees a slow withdrawal of deposits, which suggests that depositors receive negative information about Vosgau Bank AG and this information is acted on with some delay as it is not yet that widely spread. No such deposit withdrawals are seen at Raiffeisenbank Vosgau eG, suggesting that no negative information has been received. This implies now that there are sufficient differences in the risks between these two banks that makes it attractive for Vosgau Bank AG to obtain an interbank loan from Raiffeisenbank Vosgau eG rather than liquidate some assets to cover liquidity shortages. Previously the two banks were having too similar risk profiles and it was therefore more attractive for Vosgau bank AG to sell assets than obtain an interbank loan.

Model(s) used: Sect. 15.2.1, Sect. 16.4

Problem 188

Banca del Norte SpA experiences an unexpected high outflow of deposits for reasons they have not been able ascertain. In order to ensure their liquidity is sufficient to meet the demands of continuing their operations, they seek interbank loans from other banks, but are not able to secure such a loan. It is therefore that they approach the central bank for an emergency loan, which is provided. After providing the loan, the central bank convenes a meeting of all banks and chastises them for not providing interbank loans to Banca del Norte SpA as it gives a poor impression to the general public that Banca del Norte SpA had to rely on the central bank to intervene.

How will the banks justify their refusal to provide interbank loans to Banca del Norte SpA while the central bank saw it as beneficial?

Indicative answer

The liquidity shock experiences by Banca del Norte SpA was substantial and providing such large interbank loans exposes them to substantial risks if Banca del Norte SpA was facing further deposit withdrawals and would thus not be able to repay this loan, in addition, the reduction in their own liquidity reserve will increase the risks they face from being subjected to deposit withdrawals. It is for this reason that banks did not provide the loans. The central bank has not to concern itself with these risks but can purely act in the best interest of the banking system as a whole and provide the loan. The fact that they did, suggests that the central bank views the risks of further deposit withdrawals as low and hence it was able to step in where banks would not find it beneficial.

Model(s) used: Sect. 16.3

Problem 189

Banka Anadolu A.Ş. is well known for its knowledge about companies in the technology and gaming sector. Many companies approach Banka Anadolu A.Ş. to obtain a loan, which other banks are usually refusing to give as they cannot assess their business plans properly. However, limits on the funds they have available does not allow them to provide loans to all the companies they assess as being creditworthy. With a requirement to hold 5% of their deposits as liquidity reserve, they seem to have exhausted their ability to provide additional loans, while other banks struggle to find enough creditworthy borrowers. In confidence a regulator tells them that while they have to hold the liquidity reserve, there is nothing to stop them from making better use of that reserve.

What was the regulator referring to?

Indicative answer

The liquidity reserve could be used as collateral for an interbank loan, which is not classified as a deposit and thus could be lent out fully. The proceeds of these loans could then again be used as collateral to obtain additional interbank loans, and so on. This way, Banka Anadolu A.Ş. can expand their lending and other banks should be willing to provide interbank loans to them as they do no have sufficient lending opportunities themselves.

Model(s) used: Sect. 16.5

Problem 190

Sauter Bank has attracted large deposits through a broker from a hedge fund which has agreed to provide these funds for at least twelve months. The bank plans to use these new deposits providing short-term loans of three to six months benefitting businesses that are having temporary cash-flow problems. Given the size of the deposit obtained, the bank is not able to provide loans of that amount instantly and purchases short-term government bonds in the first instance to earn some interest on the unused funds. They plan to sell the government bonds over the next few weeks as they provide loans to businesses.

The bank treasurer proposes a better way of providing these loans, what would that be?

Indicative answer

Sauter Bank could agree a repurchase agreement with another bank for the government bond they have invested in. This would give them a higher price for the bond than an outright sale and thus allow them to provide larger loans, generating more profits. With the repurchase date set at the time of the brokered deposit might be withdrawn, the bank can be assured to have the liquidity required to repay these deposits.

Model(s) used: Sect. 17.1

Problem 191

Bank Seranagan is aware that some of their larger customers may withdraw deposits, but discussions with them about retaining these have not yet been concluded and the time when they plan to withdraw deposits, if at all, remains uncertain. As a measure to ensure sufficient liquidity in case these deposits are withdrawn, Bank Seranagan has chosen to retain more cash reserves than they usually hold. The treasurer of Bank Seranagan wants to invest the excess liquidity into short-term treasury bills, which they can sell at any time to generate cash reserves if needed. Concerned about the low return on treasury bills, the chief executive of Bank Seranagan suggests to engage in a repurchase agreement instead as that is more beneficial.

Do you agree that a repurchase agreement is preferable to purchasing treasury bills?

Indicative answer

Unless repurchase agreements have a time to maturity of one day, they might not be suitable in these circumstances. While they might be useful as a store for additional liquidity, the fixed time to maturity of repurchase agreements do not make them suitable in cases where it is uncertain when liquidity will be required again; Bank Seranagan may be exposed to liquidity risk if deposits are withdrawn before the repurchase agreement has reached maturity. Thus, unless repurchase agreements have a maturity of a single day or at most the minimum notice period the bank will obtain before deposits are withdrawn, the purchase of treasury bills would be more appropriate.

Model(s) used: Sect. 17.1

Problem 192

The International Bank of Nortinga has for years relied on repurchase agreements to finance their loans. Having to comply with complex rules about liquidity requirements, they have found that purchasing government securities can be part of the required liquidity and the use of repurchase agreements involving these securities does not affect their status as liquidity reserve, provided the maturity of such repurchase agreements is not exceeding one week. This arrangement has been working for years without problems and the International Bank of Nortinga relies to a significant degree on these repurchase agreements being extended, which has never been in doubt. However, one of the main providers of repurchase agreements has now declared that they will not extend the current arrangement as their business focus has changed.

Will International Bank of Nortinga find it easy to engage with another bank in a new repurchase agreement?

Indicative answer

Given that repurchase agreements have been extended without problems for years, the likelihood of these rollovers must be assessed as being close to 1. It is therefore that International Bank of Nortinga will have a large amount of loans provided based on these repurchase agreements and will therefore have a large liquidity shortfall. Such a large liquidity shortfall requires the provision of significant collateral. Given that banks will take a haircut on collateral and not accept it at its face value, International Bank of Nortinga is unlikely to have sufficient collateral to obtain a new repurchase agreement.

Model(s) used: Sect. 17.2

Problem 193

Based on rumours amongst banks about the risks associated with the loans that Provident Bank Ltd. has provided in the recent past, the bank faces significant liquidity problems. They had extended their lending aggressively by seeking additional funds through interbank markets and repurchase agreements with hedge funds. As the rumours spread, interbank loans are not extended, causing a significant shortfall in liquidity, while hedge funds are willing to roll over existing repurchase agreements in full knowledge of these rumours. Facing the prospects of having to seek an emergency loan from the central bank, the senior management of Provident Bank Ltd. refutes any concerns about the risks of recent loans and accuses other banks of trying to benefit from their possible failure, while praising hedge funds for their continued support.

Why would interbank loans be withdrawn but hedge funds continue to roll over repurchase agreements?

Indicative answer

The rumours about the qualities of loans at Provident Bank Ltd. has put the bank, in the view of other banks, in the category of being high risk, or at least being very likely to be of high risk. This has increased the credit risk for interbank loans and for this reason they are not willing to supply them anymore. While hedge funds might share the assessment of Provident Bank Ltd., their repurchase agreements are secured by collateral, which is not based on these loans but other securities. Thus, even if Provident Bank Ltd. were to fail, they would be able to retain the collateral and are therefore not facing credit risk. Therefore repurchase agreements continue to be offered.

Model(s) used: Sect. 16.4, Sect. 17.2

Problem 194

Reliable Insurance SA seeks to expand their business into new markets and explore the possibility of offering deposit insurance. However, in contrast to other deposit insurance schemes, the insurance is not provided to banks, but to depositors directly. Advisors suggest to not proceed with their idea as banks would increase their risks, making the insurance not profitable. Managers at Reliable Insurance SA dismiss this advice.

Are they justified in doing so?

Indicative answer

The deposit insurance as envisaged by Reliable Insurance SA does not affect the incentives of banks directly. It is not banks that benefit from the payment of the insurance, but only depositors. As no payments are made to the bank, this insurance would not affect the outcome for banks and hence their incentives to take risks in lending would not be affected.

Model(s) used: Sect. 18.1.1

Problem 195

Every five years the regulator determines the deposit insurance premium of banks. After assessing Koningen Mutual Bank, it is charged a deposit insurance premium of 0.56% of its deposits, while Fresning Bank plc is only charged 0.47%. Koningen Mutual Bank complains to the regulator in what it sees as a discrimination against mutual banks in favour profit-driven businesses. They point out that the assessment has shown that the average risk of the loans given by both banks are nearly identical and they also argue that Koningen Mutual Bank has an equity ratio of 7%, while Fresning Bank plc only has 6.5%. They believe that this should result in Koningen Mutual Bank to be charged a lower deposit insurance premium. The regulator insists that their assessment is fair to both banks and points out that Koningen Mutual Bank operates a business model that, while not inherently more risky than that of Fresning Bank plc., relies on a small number of local businesses to lend to, whereas Fresning Bank plc provides loans to a large number small business and individuals.

Why would the deposit insurance premium charged to Koningen Mutual Bank be fair?

Indicative answer

The risks of loans that both banks provide are similar, suggesting at first sight a similar deposit insurance premium. The lower leverage of Koningen Mutual Bank would mean that risks to the deposit insurance is lower here, implying that the deposit insurance should therefore smaller for Koningen Mutual Bank. However, the important difference is that Koningen Mutual Bank lends only to a small number of businesses and will therefore not be well diversified, while Fresning Bank plc. lends to a wide range of borrowers, thus being well diversified. This diversification will reduce the risk of Fresning Bank plc. significantly and justify the lower deposit insurance premium.

Model(s) used: Sect. 18.1.2

Problem 196

Kitava Bank PLC has seen its deposit insurance premium increase from the previous year. While they appreciate that they have acquired new customers that were more risky, they do not see that this would justify the size of the increase in the premium they have been given. They point out that Kitava Bank PLC is highly profitable, making better use of its resources than previously. For example, they have reduced the excess liquidity they had and used the released funds to increase their lending, without increasing their deposits.

How can the deposit insurer justify the increase in the deposit insurance premium they have quoted?

Indicative answer

While the risks of the banks have not changed significantly from the new borrowers to justify the increase in the deposit insurance premium, Kitava Bank PLC has also increased its leverage. As it has provided more loans by releasing some of the liquidity reserve, which is generally regarded as risk-free, the overall risk of the bank will have increased.

Model(s) used: Sect. 18.1.2

Problem 197

Until recently, Banca Fontana SpA was a specialist lender to artisans and independent shops selling their products, a sector which other banks were not actively involved in. As profit margins for lending to such businesses were low, they have acquired another bank, Banca Populare Fontana, which is a slightly smaller mutual bank operating a mainstream lending model with higher profit margins, comparable to most other banks. The risks of the loan portfolio of Banca Populare Fontana are slightly lower than those of Banca Fontana SpA, but overall their cautious lending policies are compatible with each other. The financial regulator charges banks a deposit insurance fee based on the characteristics of their business. Banca Fontana SpA used to be charged a deposit insurance premium equivalent to 0.27% of their deposits and this has now increased to 0.42% for the new entity. As a mutual bank, Banca Populare Fontana was not part of the deposit insurance scheme, which only applies to non-mutual banks. The management of Banca Fontana SpA are at a loss as to how the deposit insurance premium could increase so much, when the new entity has overall the same characteristics as its predecessor.

Why has the deposit insurance premium of Banca Fontana SpA increased?

Indicative answer

While the overall characteristics of Banca Fontana SpA after the merger has not changed significantly, the risk even seems to have reduced slightly, the newly merged bank is no longer a specialist lender, but one that through the acquired bank has become a mainstream lender, and as such their correlation with other banks will have increased significantly. Thus, the risks of Banca Fontana SpA failing together with other mainstream banks has increased, increasing the potential social costs and making the need for a bailout more likely. The new deposit insurance premium will take into account these additional social costs, which lead to the increase in the deposit insurance premium.

Model(s) used: Sect. 18.1.3

Problem 198

Makuria is a country where companies are highly dependent on bank loans to finance investments and deposits are the main form individuals keep their savings. The neighbouring Kingdom of Farussia, in contrast, has a well developed bond and stock market that not only is the main source of funding for companies, but is also widely used by individuals to invest their savings; banks do exist, but play a much less prominent role in the economy than in Makuria. The banking system in Makuria is characterised by all banks having similar policies and operating in all markets, making banks mostly indistinguishable from each other, while in the Kingdom of Farussia each bank operates its individual nice market, with only limited degrees of overlap. Investigating the reasons for this difference, you cannot find any other distinguishing features between the two countries, which both operate deposit insurance schemes where banks are charged the full costs of any failures as a premium, so there are no differences in the risk to depositors in either country. In both countries there are a large number of banks, none is dominating the market, therefore you attribute the observed differences in the bank strategies to different business cultures.

Is there another possible explanation for banks behaving very differently?

Indicative answer

One key difference between the two countries is the importance of banks in the economy. Banks play a key role in Makuria as they provide nearly all loans to companies and individuals rely on them for their savings; in such a situation it would be very costly for allow banks to fail, especially if there are multiple banks failing simultaneously. These high social costs will lead to a situation in which the failure of multiple banks will result in them being bailed out. While an individual bank might not be bailed out, this is likely to happen if multiple banks fail. It is therefore that banks will follow similar strategies such that if they fail, other banks are likely to be affected similarly and hence will also fail, causing a bailout by the government. In contrast to this, the minor role banks are playing in the Kingdom of Farussia means that the social costs of banks failing are low, making a bailout unlikely. The deposit insurance in this case will incentivise banks to follow different business strategies and avoid large-scale failures of banks. The high social costs in Marukia were giving a too strong incentive for banks to ensure a bailout is firthcoming in case of widespread failures and the deposit insurance was not able to overcome these incentives.

Model(s) used: Sect. 18.1.3

Problem 199

With banks generating record-level profits, a discussion has emerged about the implicit government guarantee for deposits. A statement during a banking crisis seven years ago made it clear that the government would ensure that no depositor will loose money if a bank would fail. It was acknowledged at the time that this would put potentially significant strains on public finances if this guarantee was ever called upon, but it was seen as necessary at the time to avoid having to bailout banks suffering deposit withdrawals; it is generally understood that this commitment by the government is still valid. As banks were never charged a fee for this guarantee and they are highly profitable now, it has been suggested that banks should make a contribution to these costs and an additional tax of 5% on their profits has been proposed by some politicians. Critics of this approach claim that such a move would be counterproductive and increase the chances of another banking crisis; instead the guarantee should be withdrawn.

Is this criticism justified and should the guarantee be abolished?

Indicative answer

It has to be noted that the proposed tax represents a deposit insurance fee that is not based on the risk of the bank. As such the bank would have an incentive to increase its risk by granting more risky loans and increase their leverage. However, the deposit insurance is already in place, hence the incentive do exist already. By charging the additional tax, however, banks might seek to recover the lower post-tax profits and this will generally be only possible by increasing risks as these would generate higher returns. The consequence would be that banks become more risky, contributing to a higher possibility of a future banking crisis as banks are more likely to fail and hence more likely for multiple banks to fail. Withdrawing the guarantee would eliminate the incentives to increase risks and reduce the risk to individual banks as well as the banking system as a whole. A second effect of the deposit insurance with a deposit insurance premium independent of the risks banks take, maybe to increase the risk as banks will align their strategies to secure a bailout in case they are failing through triggering a banking crisis. This risk is, however, independent of the amount of the fee charged, or whether a deposit insurance exists in the first place, and hence the tax would not change this incentive. In order to reduce this risk, a deposit insurance premium that reflects the risk of causing a banking crisis should be applied, but this is not proposed. Hence, overall, the introduction of the tax would slightly increase the incentive for banks to increase their risks further, while abolishing it would likely reduce the risks banks take. The strength of each effect is difficult to assess, hence it might well be that the effect is sufficiently small and the introduction of the tax is overall beneficial.

Model(s) used: Sect. 18.1.1, Sect. 18.1.3

Problem 200

The Financial Regulatory Institute is the financial regulator in Samaril and seeks to protect depositors from banks failing. Their initial plan in a consultation paper is to charge banks a flat fee of 0.16% of the relevant deposits as an insurance premium and cover the deposits of all private depositors as well as offer a reserve fund for potential bailouts if bank failures become more widespread. Their proposal has been criticised from many experts, it included a criticism of the level of the fee as not taking into account the effect the deposit insurance has on banks' behaviour, which will increase the risks they are taking. A suggestion that was made multiple times is to base the fee that each banks is charged on the risks the banks takes when providing loans.

Would this change to the way the deposit insurance premium is determined solve the problem of banks increasing risks?

Indicative answer

With a fee based on the risks of the individual bank, if priced appropriately, the incentives for banks to increase their individual risks will indeed be addressed. However, as the deposit insurance is set up, it is proposed that funds are accumulated to finance bailouts of banks. Knowing that bailouts can happen will give banks incentives to align their businesses such that either none or all of them fail, to ensure a bailout is forthcoming, as it is only available if a banking crisis emerges, that is the failure of multiple banks. Hence the deposit insurance premium has to take not only into account the individual risk of a bank, but also the risk, and costs, of a bailout to avoid incentives for banks to increase the probability of a banking crisis.

Model(s) used: Sect. 18.1.1, Sect. 18.1.2, Sect. 18.1.3

Problem 201

’We do not need deposit insurance, the free market has found a solution, it is called the interbank market. As always, if regulators interfere, however well-meaning they are, they will make things worse.’ This statement was made during a discussion about reforms of the banking sector by libertarian economist Marc Roeckel.

Is there substance to this statement?

Indicative answer

The interbank market can act as a deposit insurance only in some instances. Most notably it allows banks to obtain liquidity if they face a withdrawal of deposits, while other banks have excess liquidity reserves; this will most notably be the case if depositors transfer their bank from one bank to other banks. Those banks receiving additional deposits could lend their excess liquidity reserve to the bank facing this withdrawal. However, this mechanism will not work if there is widespread withdrawal of funds out of the banking system, either into other assets and cash or to banks abroad; in this case other banks will not obtain excess liquidity reserves they can lend to the bank affected. Furthermore, interbank markets only work sufficiently well if banks are seen as safe by other banks; banks seen as having a high credit risk and facing deposit withdrawals for this reason will not be able to secure interbank loans. In these cases, the only way depositors can be protected is through deposit insurance. Deposit insurance is, however, not without its challenges. If the pricing of deposit insurance is not reflecting the risk a bank is taking, it might incentivise the bank to increase its risk. In addition the price of deposit insurance premium needs to take into account the social costs of a banking crisis and the costs of bailouts as banks have an incentive to align their strategies to fail or succeed together and in the former case trigger a bailout, something which the failure of a single bank may not trigger.

Model(s) used: Sect. 16.2, Sect. 18.1.1, Sect. 18.1.3

Problem 202

A pamphlet issued by the Banking Association of Eyalat states that 'Your deposits are safe in our member banks. If a bank comes under pressure because depositors worry about the safety of their deposits, other banks will support it by providing them with additional loans to ensure your deposits are safe and accessible at all times. Therefore, there is nothing to worry about, you are in safe hands.'

Is this statement correct?

Indicative answer

It is true that if a bank faces deposit withdrawals, other banks might provide it with interbank loans. However, they are only able to do so if they have excess liquidity themselves, thus it requires a transfer of deposits from the affected bank to other banks; a withdrawal of funds from the banking system, for example into cash or overseas, would not generate the excess liquidity in other banks needed to be able to provide such interbank loans. Without other banks have excess liquidity, their ability to provide interbank loans to such a liquidity shock is limited, although they might do so, but this will reduce their own liquidity reserves, put themselves under more risk of failing if any subsequent liquidity shocks occur to them. Furthermore, if the withdrawal of deposits if based on negative information about the value of the assets of the banks, for example a high default rate on its loans, then the credit risk to other banks will be substantial and they would not be willing to lend to this bank, even though they might have the excess liquidity from transferred deposits. Thus the statement is only true in the specific circumstances where a bank faces the withdrawal of deposits, these deposits are received by other banks and there is no negative information about this bank.

Model(s) used: Sect. 16.2, Sect. 16.3, Sect. 16.4

Problem 203

The Association of Bank Customers, a group representing the interests of private bank customers, has commissioned a report that recommends to increase the limits for deposit insurance from currently £60,000 to £150,000. Market commentators are surprised by the group pursuing this agenda as having deposits in excess of £60,000 is well outside the scope of their interest group.

Why would the Association of Bank Customers seek an increase in the limit for deposit insurance, even through their interest group are unaffected by this change?

Indicative answer

It is true that those depositors the Association of Bank Customers represents will not directly benefit from the deposit insurance. However, they will indirectly benefit from the reduced risks to larger deposits as this increases competition between banks for deposits, making deposit rates more important than bank services for the utility of depositors as the value of deposits increase. Hence competition for larger deposits will have a positive effect on smaller deposits.

Model(s) used: Sect. 18.2.1

Problem 204

The deposit insurance in Rolturia is provided by a private company, which is government-backed and charges a fair premium to banks. Each bank can decide whether they want to participate in the scheme or remain uninsured. As the deposit insurance scheme is voluntary, until recently very few banks were participating and the coverage they provided was for small amounts only. However, during the last few years a number of new banks have been opened, some as subsidiaries of foreign banks and other backed by local investors, which mostly participate in the deposit insurance scheme. These banks are all small and specialising in lending to underprivileged groups, such a low-income families, or providing services to newly founded companies; to gain market share, they have priced their loans very competitively. The established banks have mostly neglected this market segment and focussed on mainstream borrowers, with a main focus on mortgages and other secured lending. It has been suggested that the new banks seek deposit insurance because as newcomers they do not have sufficient reputation with depositors and they seek to reassure them through deposit insurance that they are safe banks.

Do the newly established banks take out deposit insurance to reassure depositors about their safety?

Indicative answer

The reason for the use of deposit insurance is not to build confidence, but is rooted in the risk these banks are taking. By focussing on more risky loans to high-risk groups like disadvantaged people and the usually more risky new companies, the risks they are taking, makes it beneficial to take out deposit insurance. While deposit insurance is costly, the banks benefit from being able to offer lower deposit rates, which given the higher default rates on their loans will reduce significantly, more than outweighing the costs of the deposit insurance; given the competitive pricing of loans, the high default rate will make the losses from reduced lending relatively small compared to the benefits from lower deposit rates. The established banks are very safe, given their loan focus, and hence there would not be much benefit from, the reduction in the deposit rate; consequently they do not take out deposit insurance.

Model(s) used: Sect. 18.2.2

Problem 205

Kornato Bank has started to reposition itself in the market. While it was established as a bank providing loans to agricultural enterprises and farmers, usually backed by mortgages on farmland and using machines as collateral, they have now expanded into firms developing and selling environmentally friendly electricity, a much more volatile business offering few collateral against the loans they provide. They found that the lack of competition in this market allows them to provide loans at much higher margins than in their previous lines of business. While for a short time they considered to seek comprehensive deposit insurance, they decided to not incur these costs and instead pay higher deposit rates to compensate for the higher risks they are taking and limit themselves to insuring only a small fraction of their deposits provided by private individuals.

Why has Kornato Bank considered taking out full deposit insurance but then decided against it?

Indicative answer

While the higher risk the bank is now suggesting that deposit insurance might be beneficial, they have also been able to provide loans at high loan rates given their strong market position. As the condition to provide widespread deposit insurance if that $\pi^2 (1 + r_L) < 1$, the increase in the loan rate will have been sufficient to not meet this condition, despite the risks increasing (π reducing).

Model(s) used: Sect. 18.2.2

Problem 206

The National Deposit Guarantee Scheme offers all banks to insure deposits for a fixed annual fee of 0.17% of the insured assets. It is at the discretion of banks which types of deposits they include into this insurance, the only requirement is that depositors must be made aware whether they are covered by the National Deposit Guarantee Scheme or not. For years Old Wessex Bank has not provided deposit insurance to their deposits but now seeks to fall in line with other banks and they include basic salary accounts with a balance up to $5,000, which represents about 80% of the deposits they are holding. Many loyal customer see this move as a result of an increasingly competitive banking market, which not only has eroded profit margins, but has also left Old Wessex Bank struggling to hold on to depositors as well as traditional and well-established borrowers, instead having to resort to finance start-up companies as well. The management of Old Wessex Bank justifies taking up deposit insurance as a measure to provide small depositors with additional security and not be at a competitive disadvantage in attracting deposits and retaining those well-established borrowers that have not switch to other banks.

Will taking up the deposit insurance stop the competitive pressure on Old Wessex Bank and will its risk-taking stabilise?

Indicative answer

Firstly,. the use of deposit insurance will not change the competitive pressures that Old Wessex Bank is under; the deposit insurance will allow it to reduce deposit rates as the risk to depositors has reduced, but this is merely adjusting for risks. The reason for taking up deposit insurance is that over time the risks that Old Wessex Bank takes has increased and it is now optimal for their profits to include some degree of deposit insurance; the higher risks, combined with the lower profits margins, hence loan rates not increasing in line with risks, makes loans less valuable and the reduced lending due to the additional costs from deposit insurance premium payments are more than compensated by the lower deposit rate. While taking up deposit insurance has no effect on the competitive position of Old Wessex Bank with respect to deposits and loans, the fixed fee nature of the deposit insurance will provide incentives to Old Wessex Bank increasing its risk further. Thus the increase in risk-taking will most likely continue.

Model(s) used: Sect. 18.1.1, Sect. 18.2.2

Problem 207

Having given highly risky loans to finance the acquisition of commercial property by a number of property development firms, Ongerto Construction Bank plc. has suffered significant losses from defaults after property prices collapsed and the value of the property on which the mortgages were based could not be realised. The accumulated losses are such that Ongerto Construction Bank plc. is bankrupt and fails to make payments to their depositors. Based on a previous pledge by the Ministry of Finance that depositors will never suffer from poor decisions of banks, the government agrees to bailout depositors and repay them their deposits. This decision leads to a debate in parliament where a number of opposition members criticize the government, not for making payments to depositors, but that this payment comes out of public funds and is not paid by the banks themselves. The Minister of Finance agrees that this is an unacceptable situation and promises to consult on the introduction of a special tax on banks which is paid into a fund to finance such payments to depositors. Unsurprisingly, banks are opposed to such a tax.

How would banks argue against the use of this tax to finance future payouts to depositors?

Indicative answer

The government has provided a guarantee to depositors, thus effectively provided deposit insurance, but they have not charged banks for this provision. The tax proposed is very much like the government levying a deposit insurance tax on banks. This could be detrimental to future economic growth as banks would have to pay this tax out of the funds they have available, their equity, and thus they would have to reduce lending as they will face a limit on their lending, relative to the amount of equity. Given this leverage, the amount of lending that is reduced exceed the amount of tax collected by many times. This significantly reduced lending will reduce investment by companies and thus reduce future economic growth. If, however, the deposit insurance premium is provided through general taxation, the effect will be only to reduce deposits by the amount the tax raises from depositors, and no effect arises from non-depositors paying tax, which is not subject to this leverage effect, giving a much lower impact on lending.

Model(s) used: Sect. 18.3

Problem 208

Libertarian president Edoardo Mancini seeks to abolish as many regulations as possible and allow the economy to regulate itself. Amongst many other targets for his policy is the banking sector and here he suggests to abolish any lending restrictions, including leverage constraints. His argument is that through competition banks will have to pay adequate deposit rates to compensate for the risks banks take and the higher deposit rate will give an incentive to limit the leverage and thereby the risk that banks take. To placate critics, at least in the short term, he proposes that banks set up a deposit insurance scheme, financed by banks themselves, depositors making a contribution, and as a sign of goodwill he agrees to small tax to subsidize this fund.

Will the deposit insurance scheme work?

Indicative answer

It would be optimal for the deposit insurance to be financed out of general taxation only. That way the lending of banks could be maximized by not reducing resources available for lending, either from banks' equity or deposits. If this money is coming out of taxation levied on funds not available to banks, bank lending would be maximized and the benefits this generally brings can be used optimally. However, as bank lending is providing better returns than other investments, all funds will be provided by banks. This would leave no basis for a tax on non-bank investments, no tax revenue would be raised and the deposit insurance would have no funds to repay depositors if needed.

Model(s) used: Sect. 18.3

Problem 209

A heated discussion in a parliamentary debate on the introduction of deposit insurance leads Marc Hardcliff, well known for his proximity to the banking sector as a former senior manager in several leading banks, to say: 'Banks don't want it and if you think you need to force it down their throats, they should not pay for it.' On the shouted intervention 'Who will pay it then?', the bluntly replies: 'Everyone should pay it through their taxes.'

Does Marc Hardcliff represent purely the position of banks or would his suggestions be overall beneficial to the economy?

Indicative answer

His position on banks not wanting deposit insurance is clearly the position of banks and not the wider public, nearly of whom will be depositors as well. In this part of his statement is acts as a lobbyist for the banking sector and goes against the interests of depositors. However, once it comes to the payment of the deposit insurance, if introduced, his suggestions of paying for the deposit insurance through taxation is for the wider economic benefit. Requiring banks to pay for deposit insurance will reduce their equity and hence limit their ability to lend, which will reduce significantly due to the high leverage they have, while taxation will have much less effect on lending; while lending is reduced, depsoitoprs and other investors are not subject to the leverage and hence the effect on bank lending is much smaller.

Model(s) used: Sect. 18.2.1, Sect. 18.3

Problem 210

A meeting of the treasury strategy group discusses issues in the short-term and medium-term financing of Mariska Bank plc. for the nearing Christmas period, which always sees a lot of fluctuations from payments between companies but also from individual customers transferring funds and making purchases. Quickly the discussion settles on the question of whether to fill any liquidity shortages with interbank loans or repurchase agreements with other banks. The same discussion then also ensues for how to make use of any excess liquidity reserves. Quickly two groups of people emerge, one claiming that interbank loans and repurchase agreement are essential the same, while others claim they are quite different.

Which group is correct?

Indicative answer

In many ways interbank loans and repurchase agreements are similar; both can be used to obtain additional liquidity from other bank at short notice, or use excess liquidity to provide a loan to other banks. In a first instance, the main difference is that repurchase agreements are collaterised, while interbank loans are usually unsecured. Thus the use of repurchase agreements to obtain liquidity would depend on the ability of suitable securities that can act as collateral, which is a constraint not faced with interbank loans. Of course, with interbank loans being unsecured, credit risk becomes more important and may lead to a bank not being able to secure funding if they are deemed to be of too high risk, while with a repurchase agreement this should not be a constraint as long as collateral is available. However, in addition, the collateral that has been obtained, actually been sold to the bank providing the collateral, can now be used as collateral itself to obtain liquidity, for example if the liquidity situation of the bank changes or it seeks to pursue other investments. Thus the collateral from repurchase agreements can be used for rehypothecation, something that is not possible with interbank loans. Interbank loans can however, be used to fund additional investments and these investments can be used as collateral to obtain an additional loan in a collateral pyramid. A final difference is that in practice repurchase agreements are usually more long-term than interbank loans, but this can be negotiated individual and very short-term repurchase agreement exist as well as more long-term interbank loans.

Model(s) used: Sect. 9.3, Sect. 16.3, Sect. 16.5, Sect. 17.1

Problem 211

The competition regulator is concerned about the increasing cooperation between banks to provide account services to customers of other banks. They see this cooperation as undermining competition between banks by establishing, in principle, a single large bank. The latest announcement was that a group of seven banks already cooperating have reached an agreement with another group of five banks, that are also cooperating, to offer a access to each other, making a group of twelve banks cooperating.

Why are these two bank groups seeking to cooperate and is this detrimental to customers?

Indicative answer

It is probably that due to the increasing availability of services through cash machines and banking hubs that a wider cooperation between banks is beneficial. Technological progress allows banks to offer more and more services, reducing the need to visit bank branches for customers; the cooperation between banks is a reaction tho this technological development. The benefits to customers are that they have easier access to such services and it also increases competition between banks, benefitting customers, although this will be partially offset by banks knowing of these benefits to customers and reducing deposit rates. Nevertheless, overall customers benefits due to reduces costs to access services.

Model(s) used: Sect. 19.1.1

Problem 212

A group of mutual banks offers their customers free access to each other's facilities to obtain cash, access account data, and obtain basic advice on banking services. The same arrangements are in place for customers of savings banks, who can obtain services at any other savings bank. For a long time, mutual and savings banks have refused to consider a more widespread cooperation to allow access to each others' customers. After a meeting between some of their respective banks, it has been suggested that such cooperation should be considered.

Why would such mutual access between these two groups of banks be of interest now?

Indicative answer

There are two ways this can be achieved. Firstly the cooperation could be emerge as a result of technological advances or changed behaviour of customers, who require more frequent access to bank services remotely, such as cash machines or bank service points. In this case, it is optimal for banks to offer better access to such services as the increased competition between banks and the resulting higher deposit rates is outweighed by the ability to attract customers because of the access to a large banking network, in this case by cooperation between mutual and savings banks. Such cooperation to the benefit of customers could also emerge if the banks could agree a fee for customers to access such services at each other's banks. Such a fee would make the cooperation beneficial to banks as the additional fee income compensates them for the increased competition between them, which increases deposit rates.

Model(s) used: Sect. 19.1.1

Problem 213

Consumer groups complain that banks do not offer sufficient access points for banking services, especially in rural areas. They commence a campaign for banks to provide more electronic kiosks, accessible to customers of all banks, offering access to cash, advice through secure video links, and other services, but banks refuse to do so as they claim this is not cost-effective, despite the fact that banks are paid a fee for customers of other banks using their access points. Banks demand a subsidy to cover the costs of such access points.

Would a subsidy be effective in providing more access points to banking services for customers?

Indicative answer

A subsidy would reduce the costs of providing each access point, and while this increases the socially optimal number of access points and the reduced interchange fee banks pay each other for the use of each others' access points, it will increase the number of access points. This increase in access points provided by banks is more than the increase of the social optimum and hence, the subsidy would result in a number of access points closer to the social optimum than before.

Model(s) used: Sect. 19.1.2

Problem 214

A group of three banks agrees to provide banking kiosks across the country from which basic banking services can be conducted by their customers; most of these kiosks are located in existing bank branches. A few months later, another group of three banks joins together offering the same service. It is after a number of years that these six banks join forces and allow access to all their customers at all their banking kiosks. However, a large number of such banking kiosks are closed, leaving only slightly more kiosks in operation than before two bank groups allowed access to each other's facilities. Many commentators see these closures as a sign of lacking competition due to banks colluding in withdrawing services.

Is this view justified?

Indicative answer

The withdrawal of banking kiosks is not a sign of banks colluding but a result of having an excessive number after they have been made available to customers of more banks. While it might have been optimal before to have this number of banking kiosks as those belonging to the same group were further apart than they would be now that customers have access to any banking kiosk. Given the costs of operating such kiosks, it would therefore be optimal to reduce the number of kiosks, still resulting in a higher density of banking kiosks before the merger.

Model(s) used: Sect. 19.1.2

Problem 215

Banks have for a long time cooperated to provide remote access to banking services for all their customers, initially through cash machines and then through banking kiosks and now through the provision of a banking hub, where in a dedicated building facilities for all banks are provided. These remote access points have initially increased significantly, but since the advent of internet banking have reduced again.

How can you explain this initial increase in the number of remote access point and the subsequent reduction?

Indicative answer

If the costs of providing these remote access points reduces over time, as is reasonable to assume, then their number would have increased. This will explain the increasing number of remote access point in the initial phase. It is unlikely that these costs will have increased, even with the increase in banking hubs. However, the advent of internet banking will have made the costs of not having access to kiosks lower and given the convenience of internet banking from home will have increased the costs of visiting one to the remote banking services, making it optimal for banks to reduce their number again. It is thus that the initial increase in number of facilities was driven by the lowering costs to banks offering these and their withdrawal was driven by the increased relative costs of customers visiting them.

Model(s) used: Sect. 19.1.2

Problem 216

Through legislation, the seven nationally operating banks are required to retain access to a physical branch in every town exceeding 25,000 inhabitants and locally operating banks have to do so in every town with more than 10,000 inhabitants within their local area. How such a physical branch operates has not been determined and it has been found that some banks share facilities by operating counters next to each other in a single building, or even offering only a single counter where all banks are represented. The nationally operating banks have formed three groups that in larger towns share a branch and are often joined by local banks; in smaller towns it is often only the local bank being present, although in some instances one of the groups of nationally operating banks are represented, too. For fear of falling foul of competition law, banks share costs of these branches, but they do not conduct the transactions for each other. However, in a clarification, the competition authority has made it clear that it would not regard it as an anticompetitive measure if a bank cooperates with another bank to conduct its business at a branch where they both are represented, as long as the bank conducting the business on the other bank's behalf is adequately compensated. Before this ruling, towns had at least three bank branches from each of the nationally operating banks, and in some cases there were four with a local bank operating alone; since that ruling, most towns only have a single branch, although some have retained two branches, but they are all offering access to all banks.

Why has this ruling caused such a change to the branch network?

Indicative answer

Prior to the ruling, banks were only partially cooperating in the operation of the branch networks, thus was presumably optimal given the demand for such services and the associated benefits as banks did not seek to compete too aggressively and reduce profits. The ruling then has changed the behaviour of banks in that they were allowed to pay access fees, or an interchange fee. This creates additional revenue for banks to conduct the customer business on behalf of the other bank. The result is that all banks are fully cooperating and we have in principle a single branch in each town. However, customers might find it more attractive to have banks in different locations, so not all branches in excess of the minimum requirements were removed, but some were retained.

Model(s) used: Sect. 19.1.1, Sect. 19.1.2

Problem 217

Viggo Pedersen is an economic consultant to the finance ministry and his main focus is on the banking sector. For a long time he has criticised the lack of competition between banks. One result of this low competition between banks, in his view, is that they are very conservative and introduce innovative banking services and innovative ways of providing such services only with substantial delay until there is a clear demand by customers, especially in cases where such changes would increase competition between banks. As he once put it, 'It is not banks that drive innovations, banks are forced to adopt innovations.' As a result he has long promoted ideas to increase competition between banks. Banks, on the other hand, cite concerns about the safety of innovative ideas that necessitate a long development phase and then subsequent testing.

Is there merit in either Viggo Pedersen's assessment of bank competition or the bank's stance that safety concerns delay the adoption of innovative ideas?

Indicative answer

The level of competition between is irrelevant for the adoption of new banking technologies, high levels of competition affect the level of profits banks are making and the introduction of innovative ideas will not affect directly affect the competition between banks itself. What drives the decision to introduce an innovative service or a new way of delivering services is the demand. If the demand is increasing, it offers the change for a bank to differentiate themselves from other banks by offering it and thereby increasing their market share at the costs of those banks not offering these new services or delivering their services only in traditional formats. If such innovative services are increasing competition, banks would weigh the increased market share against the increased competition. Once the demand is sufficiently high, banks not offering a new service would lose too much market share and despite the increase in competition offer it. There is no concern about the safety of innovations, this is only brought up by banks as a justification for not offering the service, not the actual reason.

Model(s) used: Sect. 19.1.3

Problem 218

Bank customers have become used to having banking apps on their phones, but as each bank has their own app, it has become difficult for some customers with accounts at different banks to keep an overview over their account balances and payments in deposit and savings accounts across banks. The use of multiple apps is made even more difficult by banks having different log-in processes, different layouts of apps, and different ways of using the services offered in apps. Velia Inc. has developed an app that allows to manage all accounts by accessing the apps of individual banks and then use a single interface to access all relevant information and conduct transactions. This app has been offered to banks previously but it had been rejected by them as not being needed as their customers were satisfied with the app they were currently provided with. However, with customers becoming more and more aware of different offers of banks and opening more accounts to take advantage of these features, Velia Inc. believes their app is more important than ever.

Is the app, or a similar app, likely to succeed in the future?

Indicative answer

The app requires the cooperation between banks to provide access to this app, otherwise it will not become widely used. Such cooperation between banks is only forthcoming if the demand by customers is sufficiently high, that is not providing access to its account on the app would give it a competitive disadvantage in attracting customers. The more inconveniences customers are by the lack of such an app allowing them an overview of all their accounts, a high cost in its absence, the more likely banks are to agree sharing the information with this app. It is thus that once demand is sufficiently high and the inconvenience to customers of not having the app becomes high, a small group of banks will see it beneficial to cooperate and offer access to the app, getting a competitive advantage over other banks. As the app will make it easier to compare conditions of accounts and transfer funds, it will increase competition and thus erode the profits of banks. It is thus only once the demand is sufficiently high and/or the inconvenience substantial that all banks will allow access to the app.

Model(s) used: Sect. 19.1.1, Sect. 19.1.3

Problem 219

First Trust Bank Inc. has traditionally appealed to older and more conservative customers that value a personal service in conveniently located branches near town centres. In contrast to that InnoBank plc. has a reputation to be at the forefront of technological advances and offer the latest innovations at the costs of abandoning traditional ways of banking. It is therefore mostly attracting younger customers who rarely visit the bank but prefer to interact online through apps and chats; for this reason they have no branches. Management consultants have been asked by both, First Trust Bank Inc. and InnoBank plc. to assess their strategy and suggest ways of increasing their respective market shares. With both banks being the main banks available to customers, management consultants in First Trust Bank Inc.'s case consider suggesting to offer online banking facilities, while for InnoBank plc. they contemplate the opening of traditional branches.

Would these suggested strategies be beneficial to either bank?

Indicative answer

Taking one view, in order for the strategy to increase profits, there needs to be sufficient demand for the innovative services from those banking with First Trust Inc. and sufficient demand for branches in the case of customers from InnoBank plc. Both is unlikely to be the case with their own customers and hence there is no benefit from doing so. However, these services are attractive to those customers at the other bank and hence they might attract customers. However, it needs to be jusdged how likely customers are to switch banks for such a strategy to be beneficial. If it is a case of each bank attracting customers of the other bank, there will only be an increase in competition with no benefit for either bank. It will thus depend on whether one bank will find to make this move profitable with the aim of attracting customers of the other bank. This will increase competition between banks and reduce their profits, so the increased market share needs to outweigh this effect. Whether the other bank then reacts by seeking to attract new customers, too, will depend on the degree of customers they lose and how likely they are to attract new customers.

Model(s) used: Sect. 19.1.3

Problem 220

Kim Song-yan complains about the behaviour of his bank. He is on a low income but lives frugally and manages to save small amounts every month to cover the costs of unexpected expenses, such as repairs to kitchen goods or his small car; every month his bank charges him KRW 10,000 for his current account. In contrast to that, he knows through friends that Hwang Ye-yun, proliferate spender, who is on a much larger income and is constantly battling debts, pays only a nominal fee of KRW 500. Kim Song-yan acknowledges that on the two occasions in the last 5 years he had to relay on a loan, one to replace his car and the other when his washing machine and fridge broke down within days of each other, he paid interest of only 7.5% p.a., while Hwang Ye-yun usually pays 10 or 11% p.a., but he attributes this to him being the more prudent one and posing less of a risk to his bank. He complains that banks are supporting reckless spenders over those trying to make ends meet.

Is he right in his claim that banks prefer spenders like Hwang Ye-yun and for this reason charge him a higher fee to maintain his account?

Indicative answer

Banks will charge Hwang Ye-yun a lower account fee as they can make additional profits from his lending, while Kim Song-yan does not generate much income for the bank from loans. However, in contrast to claiming that the higher loan rate is only due to the higher risk Hwang Ye-yun poses to the bank, it could also reflect a different pricing strategy by the bank in that it will charge Hwang Ye-yun a low fee but high interest on loans, while for Kim Song-yan the loan rate is lower, but the bank generates its income from the account fee.

Model(s) used: Sect. 19.1.4

Problem 221

Kreditbank AG offers customers free current accounts, while the Volksbank Murrenningen eG charges a fixed fee of €7.50 per month. Your friend says that it is a no-brainer where to open a current account, while you believe that the market will ensure that you are not overcharged if opening an account with the Volksbank Murrenningen eG.

Are you correct in your assertion?

Indicative answer

If we assume that these two banks are competing such that the profits they generate from customers are identical, then it would indeed be irrelevant where you open your account. The fee charged by Volksbank Murrenningen eG will be offset through better conditions for other bank services, for example when requiring a loan, the loan rate might be lower than at Kreditbank AG. This lower loan rate, or lower costs for other services, should offset the higher account costs.

Model(s) used: Sect. 19.1.4

Problem 222

'Banks give to the rich and take from the poor. Just look at Salaris Bank's fees: €10 per month for accounts with an average balance below €5,000, €5 for averages balances between €5,000 and €20,000, and no fee for average balances over €20,000. This is just an example, which normal person has even €5,000 in their bank account?. We all know why they do this, rich people easily switch banks, while poor people lack the knowledge and the time for that.' This was the comment of Alessandro Novelli from the left-wing party Ala Sinistra. He carries on with his criticism of banks and that they need to be brought to heel and develop a social conscience.

Are banks exploiting the fact that poorer depositors are less likely to change banks in response to higher fees?

Indicative answer

It is not the ability or willingness to switch banks that drives this results. It is simply that larger deposits are more attractive to banks as they will generate more profits by the simple fact that they are larger. It is therefore that banks seek to compete for these deposits and charging a fee would not be optimal for them as another bank could easily undercut their fee and obtain deposits from them. For smaller deposits, the same possibility exists, but as the deposits affected are smaller, the losses from losing these deposits affect their profits less and hence they maintain a higher fee.

Model(s) used: Sect. 19.1.5

Problem 223

Banks in Zamek are seen to be highly competitive, while in neighbouring Palak two quasi-monopolistic banks enjoy government protection from competitors. However, many see the banking system in Palak as fairer, because every customer has to pay the same fee for their account, while in Zamek such fees are only paid by those with small account balances and their fees are higher than in Palak. The Banker's Association in Zamek disputes that the high fees for small depositors are unfair and point to the high degree of competition between banks, who would have eroded any such fees if they were not justified.

Why do small depositors in Zamek pay higher fees than those in Palak, while large depositors pay no fees in Zamek?

Indicative answer

The reason is actually in the different levels of competition. In both cases banks are attracted to large deposits and primarily seek to attract them. However, with lower competition between banks in Palak, they are not lowering account fees to attract these larger deposits as this would reduce their revenue without increasing the amount of deposits significantly, reducing profits overall. In contrast with more competition, banks are more aggressively competing for deposits and seek to increase their market share through lowering account fees. However, to compensate for the reduced income from this competition, they increase the fees on small deposits who are less attractive and thus less competed for. Hence the differences in the charging for accounts is actually the result of different levels of competition between banks, benefitting large depositors to the detriment of small depositors.

Model(s) used: Sect. 19.1.5

Problem 224

Analysing the fees bank charge for current accounts for a consumer magazine, you observe that banks charge higher fees to customers on low income, with wealthier customers often charged lower fees or no fees at all. However, you also find that, relative to their risk, low-income customers face lower loan rates than wealthier customers; these lower loan rates do not fully compensate for the higher fees, however.

How can you explain these observations?

Indicative answer

Banks seek to make adequate profits from customers and this will be a combination of fee income and the income from the provision of loans, we can thus see banks having different strategies on how they achieve this. Some banks will charge higher fees, but then offer loan rates, while other banks might charge lower fees and then offer only higher loan rates. In principle these two effects should offset each other. However, there is an additional effect in that only small deposits get charged a fee, while larger deposits are not. This is due to the competition of attracting large deposits, which due to their size are more attractive than small deposits. Combining these two effects, we see that customers with large deposits, on average, face lower costs than those with small deposits.

Model(s) used: Sect. 19.1.4, Sect. 19.1.5

Problem 225

Everyman Ltd. has as its aim to provide access to credit cards for everyone and issues these through banks mainly to customers on steady, but low incomes. At the opposite end of the market, the Cardinal Diamond credit card, issued by Cardinal Inc. is available exclusively to customers with incomes in the top 1% of the population. While Cardinal Diamond credit card is universally accepted in nearly all shops, the cards issued by Everyman Ltd. can only be used in selected shops. Those shops not accepting Everyman credit cards are frequently accused of snobbery as they do not want to sell to customers of low incomes.

Is there an alternative explanation for the reluctance of shops to accept Everyman credit cards?

Indicative answer

Everyman credit cards are issued to customers on low incomes and thus after making purchases the credit risk to the Everyman Ltd. will be significant, while for those customers obtaining the Cardinal Diamond credit card they high income will make defaults unlikely. This higher default risk of Everyman Ltd. will result in shops (merchants) being charged a high fee to ensure the bank does break even. This higher fee may make it not profitable for shops to accept this card as their profit margin might not be enough to cover these costs. The much lower default risk on the Cardinal Diamond credit card will result in a lower fee charged to shops and hence their profits are unlikely to be full;y eroded, making them more willing to accept this card.

Model(s) used: Sect. 19.2.1

Problem 226

It has become a talking point among shop owners that for many years all major credit cards have increased the fees they are charging shops accepting them as payments. As credit cards have become ever more widespread, once the preserve of the wealthy and now available to people even on lower than average incomes, not accepting them has become a drain on sales, while accepting them drains their profit margins. The Association of Retail Shops has urged the government to conduct an investigation into the behaviour of credit card firms and their abuse of the market power they have.

Will such an inquiry likely show that credit card companies are exploiting their widespread use by increasing fees to shops or is there an alternative explanation?

Indicative answer

With the availability of credit cards increasing to customers with lower and lower income, the credit risk to the issuers of credit cards increases. This is because low-income customers are commonly seen as more risky and these risks the banks seek to cover through the fee they charge the shops as no interest income is generated. It is this lowering of income requirements and thus increase of risks that have contributed to the increase in fees over time. This might explain the observation, rather than an abuse of market power.

Model(s) used: Sect. 19.2.1

Problem 227

A major selling point for banks when seeking to attract depositors is the availability of credit cards at no costs. However retailers complain that while buyers benefit from an interest-free time period, they are charged exorbitant fees by their bank to accept credit cards and finance the purchase of their customers. The banks defend the charges to retailers by the fee they are charged by the bank of the card issuer for initiating payments to the retailer.

Why is the fee charged to retailer so high?

> Indicative answer
>
> The sensitivity of depositors, those using their cards to make purchases, makes it impossible to charge them a fee; competition for their custom, through bank accounts will cause this outcome. The costs of the bank issuing the credit card will be covered by the interchange fee without a contribution by the depositors (purchasers) and this interchange fee is then a costs to the bank of the retailer, who will have to recover it through its fee to the retailer, in addition to their own costs. It is therefore that the retailer has to bear the full costs. It is that the low sensitivity by retailers to such costs due to fearing to lose sales is responsible for them bearing the full costs of issuing payment cards.
>
> **Model(s) used**: Sect. 19.2.2

Problem 228

With new banks entering the market in Gramedon, competition for deposits between banks has increased with depositors benefitting from increased services and easier access to account benefits. Once the preserve of a few privileged customers, competition has forced banks to offer credit cards to an increasingly wider range of their customers as part of the account package without being able to increase account fees. In contrast to this, banks in Laurentia are not competing as fiercely as in Grameda and account packages that include credit cards are usually attracting a higher account fee. Retailers in Gramedon complain about the high costs of accepting payment cards despite the competition between banks, where banks are also competing for their custom, noting that the costs of retailers in Laurentia are much lower.

Why are costs for retailers to accept card payments in Grameda higher?

Indicative answer

It seems that competition for depositors between banks in Grameda has made it impossible to charge a fee for credit cards to depositors and it is therefore reasonable to assume that their sensitivity to any banks doing so will lead to them switching account to another bank; this will then the issuing bank to recover any costs through the interchange fee, which the banks of the retailers will turn charge to them. In Laurentia, however, it is common for depositors to pay a fee for credit cards, at least indirectly through account packages, thus they seem to be less sensitive to these fees and the issuing will charge a lower interchange fee and thus the banks of the retailers will have less costs to charge retailers, making the fee lower. It is thus that competition between banks in Grameda causes the costs of credit vards to be charged to retailers rather than depositors as in Laurentia.

Model(s) used: Sect. 19.2.2

Problem 229

In order to attract new customers, Harrier Cards plc. has introduced a new credit card, the Harrier Basic. It is aimed at young professionals at the start of their careers, while its main product the Harrier Executive is aimed at those in mid-ranking and higher professional positions. The new Harrier Basic is offered with higher credit limits than other comparable cards, but an annual fee of $100 is charged, while the credit cards of competitors are usually provided free of charge. Retailers are charged 0.2% of the transaction value with a minimum fee of $0.25 per transaction, this fee is comparable to other credit cards, including the Harrier Executive.

Why is the charge to retailers for the new credit card similar to that of other cards?

Indicative answer

The credit limit on the Harrier Basic is higher than that of competitors, which implies that Harrier Cards plc. faces higher credit risk. This higher credit risk needs to be recovered through fees, which are typically charged to the retailer, implying that the fees should be higher. However, the credit card comes with an annual fee and this additional income that accrues to Harrier Cards plc. will not have to be recovered through the interbank fee, reducing the fee to retailers such that its is comparable to other cards. This arrangement is only possible if depositors are not very sensitive to the price of credit cards, which is reasonable to assume here as the credit limit on the Harrier Basic is higher than other cards, making it more attractive to the target market.

Model(s) used: Sect. 19.2.1, Sect. 19.2.2

Problem 230

Ophira Bank plc. offers current accounts that feature unlimited account transactions and access to the Ophira credit card, issued by its own credit card subsidiary and equipped with a credit limit of 3 monthly salaries, for a monthly fee of $12. In addition, they quote a typical loan rate for an average borrower of 7.75% p.a. For more price sensitive customers, they also offer a conventional account, comparable to the conditions found at most other banks, with a monthly fee of only $3 and they offer a credit card by Remark with a credit limit of 1 monthly salary; with this account the typical loan rate would be 8.5% p.a. While many customers found the account featuring a $12 fee attractive, they soon found that many shops they went to were asking them if they had another card they could pay with instead. This left many customers confused and writing to newspapers about their experience, an expert on banking explains the reasons for their experiences.

What would this explanation be?

Indicative answer

First, the different account fees need to be explained and the implications be discussed. The high-fee account comes with the benefit of a higher credit card limit and lower loans rates. Now it can be proposed that the additional fee income of the banks accounts for the lower loan rate and is not a fee to pay for the benefits of the credit card. If that is the case, then the higher limit of the credit card on that account is imposes a higher credit risk on Ophira Bank plc., which needs to be recovered through fees. If we assume that the fee mostly pays for the lower loan rate that is offered, then the only way to recover these higher costs is through a higher interchange fee which is charged to the banks of the retailers, who in turn will charge this fee to the retailers. The lower risk of the Remark credit card will have a lower risk and hence the amount that needs to be recovered from the retailer will be lower, making this card cheaper. It is thus that retailers know that using the Ophira card imposes higher costs on them, reducing their profits, they ask customers to use another card which has lower costs.

Model(s) used: Sect. 19.1.4, Sect. 19.2.2

Problem 231

Jyrki Salminen complains to his bank that the payment to a friend he submitted last week had not arrived for three days, while payment by his brother for the same amount to the same person submitted just minutes earlier did arrive the next day. The bank employee points out that Jyrki Salminen is on a basic account which charges no fees and while he is not allowed to divulge details, customers on fee-paying accounts obtain priority when making payments. Jyrki Salminen is not satisfied with this response as he believes that it makes no difference how long a payment takes to be credited to the recipient's account.

Why could it matter that Jyrki Salminen's account does not charge a fee, while his brother is charged a fee?

Indicative answer

If a bank does not receive a fee for making the payment, it faces no direct costs in the form of lost revenue from withholding the payment for a while, while those paying a fee for such transactions expect payments to be made promptly, hence delaying these payments can result in the loss of revenue to the bank. It will therefore be that banks prioritise these payments over those that are conducted for free. It is not efficient for the bank to hold higher cash reserves as making the payment by Jyrki Salminen in time does not generate the bank and revenue, while that of his brother does.

Model(s) used: Sect. 19.3.1

Problem 232

Commercial Bank plc offers its customer two form of payments to accounts at other banks, the standard payment costs TWD 10 and the payment will reach the recipient within 4 working days, while the fast payment costs 1% of the payment value with a minimum fee of TWD 1000 and is guaranteed to reach the recipient the next working day.

Why is the fast payment more expensive than the basic payment?

Indicative answer

In order to make payments, banks have to hold sufficient cash reserves, which is costly. If the payment is paid for by a sufficiently high fee, the fee income outweighs these costs and the payment is guaranteed to be made. However, payments that attract only a small fee will not cover the costs of holding additional cash reserves and it might therefore not be able to conduct this payment, it will may be delayed until the bank needs to make less payments and sufficient cash reserves are available.

Model(s) used: Sect. 19.3.1

Problem 233

Calpurnia's banking system has matured over the last 20 years. Through regulation based on more advanced economies and strict requirements in the qualifications of senior bank managers, the risks of banks have not only declined overall, but the widely varying levels of risks banks took, often out of ignorance and poor management decisions, have also reduced. While banks are still taking different risks due to different target markets, these risks are adequately managed and it is mostly known which risk levels banks accept when providing loans. As part of the modernisation of the banking system and in reaction to significantly increased payments between accounts held at different banks, the banking regulator considers a significant change to the way payments between banks are settled.

Is Calpurnia's banking system in a phase where the transition from the current gross settlement system to a net settlement system should be made?

Indicative answer

The evidence suggests that Calpurnia's banks have changed significantly in the last two decades. While the risks they took previously was not only high but also varied hugely between banks,this is not lower and, evenly important, the differences of risks between banks are reduced. These two aspects favour a net settlement system that has lower liquidity requirements, allowing banks to provide more loans and promoting economic growth. The restraints on banks providing high-risk loans due to these higher liquidity requirements, will also become less desirable as overall these risks have reduced.

Model(s) used: Sect. 19.3.2

Problem 234

Banks lobby the regulator to allow them implementing a net settlement systems for payment between them, a move that is opposed by consumer groups. Even as banks point out that the lower liquidity requirements with net settlement will allow banks to pay higher deposit rates as they can provide more loans, making them more profitable and allowing them to distribute some of these profits to depositors, consumer groups remain opposed.

Why do consumer groups oppose this move to a net settlement system?

Indicative answer

Banks have to hold less liquidity reserves in a net settlement system compared to a gross settlement system, this also means that banks might take more risks by providing more loans; if these increased loans are high-risk this is not necessarily good for depositors. They might see higher liquidity requirements in gross settlement systems as beneficial to their returns on deposits with poorly performing banks performing less poorly. This will have to be weighed against the benefits of potentially higher retuirns from low-risk banks, but ina situation where high-risk banks are taking substantially more risks than low-risk banks and they are relatively common, a net settlement system is detrimental to depositors overall. It is most likely this scenario that leads consumer groups opposing the move to a net settlement system.

Model(s) used: Sect. 19.3.2

Problem 235

Natufian has a nascent financial system where banking services are only emerging and bank managers lack experience. The system to settle payments between banks is inefficient as banks use different IT systems that are not compatible and payments are advised by phone message and recorded by hand in some instances, making it subject to many errors. Attempts to link banks electronically have failed due to the high costs involved. Apart from the local banks, there are two foreign-owned banks that have a very good understanding of the banking system and the challenges local banks face, probably a better knowledge than the local banks themselves; in addition they have an IT system that is broadly compatible with most local banks. At the reception of the governor of the central bank, the heads of these banks suggest to improve the payment system in Natufian.

What would their suggestion be?

Indicative answer

The foreign banks may suggest that they act as clearing banks to support the payment system. There is evidence to suggest that the foreign banks have a good understanding of the local banks and should therefore be able to identify those that will face liquidity constraints in the near future. In addition, they have a cost advantage in that they have an IT system that is compatible with local banks, or could be made compatible at relatively low costs. This would allow to settle payments more efficiently. As the cost advantage of the foreign banks is substantial it will probably be that all payments between banks are conducted through them.

Model(s) used: Sect. 19.3.3

Problem 236

In the early stages of the development of Yavoi, payments between banks were conducted through clearing banks, that were specifically established with government support for this purpose after frequent liquidity shortages gave rise to delays in payment processing. However, over time liquidity shortages have become rare and the use of clearing banks has reduced, with many banks not using them at all and it has now come to the point where these banks propose to the central bank that they cease to offer the clearing service and banks will have to settle their payments directly.

How can you explain this change in the way payments are settled?

Indicative answer

With government support, it is reasonable to assume that the clearing banks had distinct cost advantages over other banks and settling payments through them was beneficial, also to assess potential liquidity shortages by banks and prevent losses from payments not honoured. However, as Yavoi has developed its banks will have become more sophisticated and the probability of liquidity shortages has reduced. With technological advances, the costs of direct settlement will also have reduced for banks, even to the point where direct settlement might be cheaper than the use of clearing banks, which involves at least two transactions, from the banking making the payment to the clearing bank and from there to the recipient bank. Yavoi has thus moved from a situation where direct settlement was expensive to where it is cheap, resulting in this change. The role of clearing banks in identifying banks with a potential liquidity problem in the future might have haven been reduced with liquidity shortages becoming rare, undermining their other competitive advantage.

Model(s) used: Sect. 19.3.3

Problem 237

Nearly all banks in Viguera are local banks operating in individual towns and some in entire regions, where these regions are more rural. The only nationally operating bank, Viguera Commercial Bank, is operating branches in virtually every town and region and as a tradition its branch managers collect systematically information on the economy in general within their respective areas, but their competitors, the local banks, in particular. That way they have established a good picture of all banks they are competing with. Ever since its formation as a national bank from a number of failing mid-sized banks in the aftermath of a previous banking crises, regional banks have conducted all payments between them through Viguera Commercial Bank. They cite that this is much more cost effective than making arrangements directly with other banks; while Viguera Commercial Bank charges a substantial fee for their services, the overall costs to local banks are lower than what they would face otherwise. Their own analysis has shown that the use of Viguera Commercial Bank reduces their liquidity requirements by more than half, which contributes to a significant reduction in costs.

How do you explain these benefits of making payments through Viguera Commercial Bank?

Indicative answer

The cost advantage of using Viguera Commercial Bank makes them a clearing bank and all banks prefer using this clearing bank as the costs are lower than direct settlement. While the fee Viguera Commercial Bank charges local banks for this service is described as substantial, the reduction in required liquidity reserves outweighs these. These lower costs probably arise because with Viguera Commercial Bank they use a net settlement system, while with direct settlement a gross settlement system would be applied. The knowledge of Viguera Commercial Bank about local banks, and they are the only ones making and receiving payments, makes net settlement beneficial, while in direct settlement the local nature of banks will probably mean that significant uncertainties about the risk banks take are present, necessitating a gross settlement system, which requires higher liquidity reserves to be held.

Model(s) used: Sect. 19.3.2, Sect. 19.3.3

Problem 238

The owner of Nail & More Ltd., Lydia Provost, observes that payments submitted to her bank in the morning are in most cases not processed until later in the day and funds are available to the recipient only the next day. As a small business owner paying other small businesses for their specialist suppliers, this has given rise to disputes on several occasions where other businesses claimed the invoice was not paid on the due date. These disputes arose as suppliers mostly work with larger companies and their payments always come through in the morning.

Why are the payments made by Nail& More Ltd. frequently delayed?

Indicative answer

Nail& More Ltd. is a small business and as such will not have much leverage with its bank. Delaying their payments until the afternoon will have cause little costs to the bank; a larger customer, in contrast, might complain and the perceived poor quality of service might lead to them losing the business altogether or having to provide compensation for the delay. It is thus that the costs of delaying the payments of Nail& More Ltd. are lower than the costs of larger companies and the costs of obtaining additional liquidity reserves to make these small payments are higher than the consequences of Nail& More Ltd. being delayed. For larger companies these costs are substantially more and therefore their payments are normally not delayed.

Model(s) used: Sect. 19.3.4

Problem 239

The payment system between banks in Duklia used to frequently experience breakdowns in that no banks would process payments between customers in the morning, but all payments would only be made before the afternoon, leaving some customers without access to funds during the day, even though these had been sent early that morning. Such a situation usually occurred at times when liquidity was scarce in the banking system and interbank loan rates were unusually high. Banking specialists have commented that the gross settlement system is to blame for this situation as it requires high liquidity reserves.

Would switching to a net settlement system improve the reliability of Duklia's payment system?

Indicative answer

A net settlement system would reduce the requirements for liquidity reserves, and might improve the blockage of the payment system. The lower liquidity requirements will make it less costly to process payments immediately as less liquidity reserves need to be retained, on average. It will not, however, avoid blockages completely. A full suspension of early payments may still occur, although it is less likely due to the reduced costs. However, what might occur is that some stop processing payments to save on liquidity reserves, while other banks will still process payments. It will be as likely that some form of delays remain in the payment system, but they will not often not be delays affecting all banks, but only some.

Model(s) used: Sect. 19.3.4

Problem 240

In the early hours of the morning, for reasons not yet known, FTR Bank AD has stopped processing payments to other banks and at this stage it is unclear if it will commence making payments at a later stage in the day. While the news that FTR Bank AD has stopped processing payments spreads, all banks suspend the processing of payments between them. Alarmed about the paralysis in the payment system, the central bank seeks to reassure banks by pointing out FTR Bank AD is not a major bank and banks have sufficient liquidity to continue making payments in an orderly manner. This comment has no effect and payments between banks remain suspended.

What action might the central bank take to ensure that payments are processed again?

Indicative answer

There are two elements that might help overcoming this liquidity crunch. The first is the costs for banks delaying the processing of payments; here the central bank can increase these costs through statements to the effect that there is no reason to stop processing payments, leading to reputational loss if they do so. They may also be able to promise central bank loans to those who continue processing payments at preferential rates in the future, while those stopping processing payments will have to pay a higher rate; this increases the costs of stopping the processing of payments. The second element is the costs of banks failing if FTR Bank AD does not commence making payments and due to not receiving their payments, a bank faces a liquidity shortage. The central bank can intervene here by committing to provide any bank in that situation a central bank loan, allowing to avoid failure. It is thus not enough to point out that there are enough liquidity reserves in the banking system, but the bank might have to affect costs of banks through measures that gives them sufficient incentives to continue processing payments.

Model(s) used: Sect. 19.3.5

Problem 241

Two banks have experienced the sudden and unanticipated withdrawal of deposits from large depositors abroad. The reason for the withdrawal of deposits is not yet known and rumours about the two affected banks facing large losses are as much spreading as an explanation that the depositors were rebalancing their international investment portfolios. The central bank is known to be in discussion with these two banks to provide liquidity support and until these talks have finished all payments from these two banks are suspended. It is well known that the central bank has a clear policy of only providing liquidity support to banks that are financially sound and its initial reaction has made it clear that there is no intention to deviate from this policy. At the same time the central bank reiterated that the banking system overall has sufficient liquidity to commence operations as normal. Despite these reassurances, banks stop processing any payments between them. Noticing this development, the central bank contacts banks again more confidentially and makes it clear that even though some banks might face a liquidity shortage due to the lack of funds arriving from the two affected banks, the overall liquidity reserves are sufficient to continue with making payments as scheduled and the central bank will not provide additional funds.

How can be ensured that payments between bank are processed again?

Indicative answer

Banks face a liquidity crunch; they have sufficient liquidity to make any payments now but are concerned about the lack of payments from the affected banks such that at a later time they might face a liquidity shortage. For this reason they stop processing payments now to preserve liquidity and avoid failure at a later stage. As there is no question about the stability of the unaffected banks, this is a pure liquidity shortage, or anticipated liquidity shortage. Overall there is also sufficient lliquidity in the banking system to process payments as necessary, it might just not be at the right place. Without the central bank providing additional liquidity, banks can resort to interbank loans to redistribute liquidity within the banking system as needed.

Model(s) used: Sect. 16.2, Sect. 16.3, Sect. 19.3.5

Problem 242

Inflation in Debarth has increased from 6% p.a. two months ago, to 9% p.a. in the previous month, and the latest publication of figures will show that inflation increased further to 14% p.a. The central bank sees this development primarily as the result of wage increases agreed between employers and trade unions in recent months on the back of a booming economy. Having hesitated previously, they now decide to increase the lending rate to banks from 7% p.a. to 15% p.a. No one foresaw an increase of the interest rate by the central bank of this magnitude and as the announcement is made at 8am before business commences, some banks react by suspending the processing of payments customers have initiated, although the majority of banks initially continue to conduct their business as usual. As soon as it becomes known that some banks have suspended their payments temporarily, all other banks also suspend processing payments. Seeking a briefing about the reaction of banks, the governor of the central bank asks for an explanation on the causes of these developments.

What would this explanation contain?

Indicative answer

The sudden and unanticipated increase in the interest rate has made borrowing from the central bank much more expensive. These higher costs has led some banks to to suspend processing payments in order to save liquidity; they are able to do so as they might not have to seek a central bank loan to increase their liquidity reserves. This increase in costs to obtain liquidity, if needed, outweighs the costs of delaying the payments, such as reputational loss with customer or compensation payments. Clearly, this was seen as preferable only by some banks, most likely dependent on the type of customers they serve, with those serving individuals less affected than those serving large companies. This suspension of payments by some banks has then caused concern with banks who are not receiving the payments from these banks, causing them a liquidity shortage. They then have themselves sought the save liquidity for future payments and avoid liquidity shortage then, even though now they have sufficient liquidity to continue processing payments.

Model(s) used: Sect. 19.3.4, Sect. 19.3.5

Problem 243

A panel discussion on the challenges in regulating banks has for most of the time focussed on credit risk and the adequacy of capital to cover such losses and how it should be adjusted to account for the risk appetite of banks. It is only towards the end that Vasileos Varakianis seeks to introduce a different point by provocatively stating 'The main risk these days is coming from loans, securities, property, and whatever fancy assets banks might get into, this is well regulated and monitored. What we have not paid any attention to here, and most regulators don't either, is the risks arising from the liability side of banks. I know that those without a banking background might find it strange to talk about risks from liabilities, but I think these are not only overlooked, but also poorly understood.'

What risks might Vasileos Varakianis have referred to?

Indicative answer

There are four main risks for banks associated with liabilities and indirectly they all impact liquidity, but in a much less manageable way than in non-bank companies. Liabilities of banks are typically short-term and can be withdrawn at any time, while assets, loans and other investments, are to a large degree long-term and relatively illiquid. The main liabilities of a bank are its deposits. Here the risk of a bank run is ever present if depositors only change their expectations about the stability of a banks, or even their expectations about what other expect about the stability of a bank. The same problem is also present with interbank loans, which for some banks form a major source of funding, while for other banks their importance is minor. While interbank loans can be useful to overcome liquidity shortage, banks may also face a liquidity crunch if interbank loans are not extended. The same principle with repurchase agreements, they might also not be extended in what is a referred to a repo run. All these issues surround the sudden withdrawal, or absence of extensions, of loans to the bank by different parties, depositors, other banks, other institutional investors. Finally, deposits are not only subject to runs, transfer of deposits between banks as custom,ers make payments for goods and services can also lead to the failure of banks if payments cannot be made due to a liquidity shortage in other banks, causing failures to spread. Compared to credit risk and market risk, these risks are receiving much less attention and are less well undnerstood as well as less well regulated.

Model(s) used: Sect. 15.1.1, Sect. 16.4, Sect. 17.2, Sect. 19.3.4, Sect. 19.3.5

Problem 244

Looking at the interbank loan rates, the spread to the government yield curve is increasing with time to maturity, even though there is no evidence of the bank taking on additional loan risks for longer time horizons.

How can you explain this observation?

Indicative answer

Particularly long-term interbank loans can be seen as an investment rather than the provision of liquidity to another bank facing a liquidity shortage. Such loans would commonly be agreed, depending on the benefits that this investment provides to the bank granting such an interbank loan and the benefits obtained for the bank receiving the loan. While the credit risk arising from the provision of loans and the therefore possible failure of banks has to be included in this calculation, it would lead to a a constant difference to the yield curve of government bonds, with the stated assumption that these risks are not increasing. What needs to be included in the interest agreed, however, is the possibility of a bank run and the subsequent failure of the bank for that reason. The longer the time to maturity, the higher the chances of such a bank run as it gives more time for self-fulfilling expectations to form.

Model(s) used: Sect. 15.3, Sect. 16.1

Problem 245

Competition between banks has eroded any account fees charged to depositors and basic bank services, including transfers between banks, are free. Compared to a time previously when fees were charged for each transaction, the public perception is that the service banks provide, has deteriorated. It is often that transfers to other banks by a customer is not acted upon promptly, increasing the average time until a payment is received from 2 days many years ago to over 4 days now. Banks blame the outdated gross settlement system for these delays and point out that they have been lobbying for the switch to a net settlement system for years. The central bank has refused such a step pointing out that some banks take, in their view, excessive risks, and higher liquidity reserves are reducing these risks.

Would such a switch to a net settlement system improve the transfer time between banks and be generally preferable?

Indicative answer

The problem is with a gross settlement system that the low fee charged by banks, or in this case no fee being charged, provides no incentives for banks to make the transfer as it does not generate revenue. The bank will, however, incur costs when making a transaction as it needs to hold a liquidity reserve to be able to make payments, which is costly to banks. Switching to a net settlement reduces the costs as incoming payments can be used to make payments, reducing the amount of liquidity reserves that banks are required to hold. In this sense it might help speeding up the payment. There are, however, downsides to a net settlement system in that the lower liquidity reserves required allow banks to provide more loans. This can be positive in the case that loans are low-risk and overall beneficial, however for high-risk loans that are socially not desirable, net settlement systems might be overall detrimental. It is thus that a net settlement system has its benefits, faster payments here, but might also have its down side in the expansion of high-risk loans the central bank is not supportive of.

Model(s) used: Sect. 19.3.1, Sect. 19.3.2

Problem 246

The government introduces new legislation that requires all banks to insure their deposits up to $50,000 per customer in each bank. Harbinger Bank positions itself at the top end of the market for their customers by offering a wide range of premium accounts and generally seeking to provide superior services that most other banks do not offer. It had insured its deposits on a voluntary basis for a considerable time. Most other banks had not done so and they opposed the introduction of the legislation.

Why is Harbinger Bank's approach to deposit insurance so different?

Indicative answer

Harbinger Bank provides many additional benefits to their deposit account holders and these make deposits very valuable to their customers, allowing them to pay a low deposit rate and in order to retain these benefits, customers are willing to accept even lower deposit rates such that the bank can pay for deposit insurance. Other banks, not offering such services, will not be able to reduce deposit rates sufficiently to recover the costs of this now compulsory deposit insurance. It is therefore that they oppose this measure by the government.

Model(s) used: Sect. 14.3

Problem 247

The recession the economy experiences is much steeper than experienced for a long time and everyone is concerned about companies failing, deepening and prolonging the recession due to increased unemployment and reduced consumption due the uncertainty of a recovery. In an unusual step, banks, under the guidance of the central bank, have taken to publish updates on the defaults of loans they have provided and an outlook on likely future defaults. So far all banks have shown default rates on their loans remaining stable.

What is the aim of this measure?

Indicative answer

The publication of these data is supposed to ensure that depositors are aware of the risks banks are exposed to and thereby reassure them that their deposits are safe. Normally in a recession depositors would expect the default rate to increase and this might cause them to withdraw their deposits, causing a bank run. By showing that this is not happening in this steeper recession, banks try to avert such a bank run.

Model(s) used: Sect. 15.2.2

Problem 248

Fallow Bank has specialised in providing loans to mining companies and their suppliers, but with the demise of this industry due to overseas competition, has found it more and more difficult to grant loans in this traditional area of expertise; the expansion into other industries has not been successful as the bank lacks the knowledge about the demand these industries have. However, the bank is firmly rooted in the local community and they remain loyal to the bank, using it for their daily banking needs. This has led to Fallow Bank accumulating excess cash reserves and struggling to remain profitable while still paying competitive deposit rates.

How could Fallow Bank invest the excess cash reserves?

Indicative answer

With no loans to be granted, Fallow Bank could provide interbank loans. This would be comparable to any other loans in principle, it reduces the excess cash reserves and allows the Fallow Bank to earn interest, which then can be used to pay interest on deposits. It is thereby that the excess funds it has accumulated is made available to other banks, who have better use for these funds by providing loans to other industries.

Model(s) used: Sect. 16.1

Problem 249

Labunar Bank had agreed to join the deposit insurance scheme operated by the Ministry of Finance a few years ago; the premium for this deposit insurance if based on the risks the bank takes. Having attracted a number of high-profile borrowers to their bank, they have experienced an increase in their leverage as these borrowers required substantial loans to be transferred from their previous banks. The board of Labunar Bank is now concerned that this will lead to an increase in the deposit insurance premium and reduce their profits.

What options does Labunar Bank have to reduce the deposit insurance premium?

Indicative answer

The risk of a bank has mainly two sources, the default risk on loans and the leverage of the bank. With the leverage having increased, This can now be compensated by reducing the default risk on loans. By becoming more conservative when giving new loans, thus reducing the default rate, the overall risk of the bank will reduce again and thus allow the deposit insurance premium to reduce. however, as loans with lower risk usually also command lower loan rates, it might harm the profitability of the bank and this has to be weighed against the lower deposit insurance premium.

Model(s) used: Sect. 18.1.2

Problem 250

Nyr Banki seeks to expand its business by attracting more customers with low income by offering them access to credit cards with a limit of ISK 150,000. The offer is attractive to their target market, but the Nyr Banki is criticised for requiring merchants to pay a fee of 4% when accepting this credit card. They point out that their own credit card issued to middle and high-income earners only asks for a 1.5%

fee. The Association of Retail Shops seeks an injunction in court against such a high fee being demanded as it is clearly not a competitive fee and constitutes an abuse of their market power by being the only bank offering credit cards to this market segment.

How does Nyr Banki defend its merchant fee?

Indicative answer

The higher fee will reflect the higher risk of default these customers pose to the bank. As the bank does not charge interest on purchases made with a credit card, they need to recover these losses, and this is done through the merchant fee. The result of the higher default risk in this market of low-income individuals is that the merchant fee will be higher to cover these risks; this not an abuse of market power but reflects the higher costs the bank has. The merchants also benefit from accepting cards, otherwise they would not do so as they can increase their sales to this group of people.

Model(s) used: Sect. 19.2.1

Part IV
Competition for banking services

Problem 251

In order to develop further the banking sector in Larantion, the government suggests to introduce deposit insurance with the aim of making bank deposits more attractive and thus allow more bank loans to be provided. Their proposal is to fund this deposit insurance through a levy on banks, partly reflecting their size by requiring a premium based on the amount of deposits they hold and partly reflecting the risks individual banks are taking, such that no costs are incurred by the government for operating the deposit insurance. Having expected opposition from banks, the government is surprised the proposals are not universally welcome by bank customers. Depositors criticise the partial determination of the deposit insurance premium from the size of the bank, while businesses relying on bank loans lobby the government to determine the deposit insurance premium more by the size of the bank rather than the risks they take.

How can you explain these very opposing views of bank customers on the financing of deposit insurance?

Indicative answer

The costs of deposit insurance will affect depositors through lower deposit rates and companies through higher loan rates as the banks will try to recover these additional costs at least partially. It is that the part of the deposit insurance premium that is based on the size of the bank, thus the premium charged as a fraction of the deposit of a bank, is a cost to the bank and that reduces the deposit rate they are willing to pay. It is thus that depositors would seek to avoid such a determination of the deposit insurance premium. In contrast to that, the part of the deposit insurance that is determined by the risk the bank takes, originating from the loans the banks provides, is a costs arising from the loans and is charged as a cost to these, increasing the loan rate to companies. It is thus that depositors seek a fully risk-based deposit insurance as that maximizes the deposit rate they are offered, while companies seek a fully size-based financing of the deposit insurance to minimize the loan rate.

Model(s) used: Sect. 20.1

Problem 252

Ingenos Bank is a highly capitalised bank that is seen as being completely safe from failing, while Sturia Bank only meets the minimum capital requirements imposed by regulation and is generally seen as a bank that might fail if the default rate on their loans were to increase. After a recent reduction in the policy rate of the central bank, both banks adjust their loan and deposit rates to the new market conditions. While both bank reduce their interest rates, Sturia Bank reduces the deposit rates less than Ingenos Bank.

Does the lower reduction in the deposit rate at Sturia Bank make them more attractive to depositors?

Indicative answer

We can interpret Ingenos Bank as a bank without default risk due to their high capitalisation, thus equivalent to a bank with unlimited liability where depositors will not face a loss from the bank failing; in contrast to that Sturia Bank may impose losses on depositors and can thus be interpreted as a bank with limited liability. In this case, the lower loan rate as a result of the reduced interest levels overall will reduce the revenue of the bank from those loans that are repaid and this will reduce the resources available to repay deposits, ultimately increasing the risks to depositors and thereby requiring Sturia Bank to offer a higher deposit rate. This does not improve their competitive position as the higher deposit rate is a compensation for the higher risks of deposits not being repaid fully.

Model(s) used: Sect. 20.1

Problem 253

Claverton Bank has experienced an outflow of deposits due to some of their main customers having made payments for the provision of goods and services, leaving their cash reserves lower than the optimal level. With demand for loans being strong, the bank is conscious of the potential need for central bank loans in case of more deposit withdrawals or a continuing high demand for loans, unless they start to turn down loan applications.

How should Claverton Bank react to manage their cash reserves effectively?

Indicative answer

In order to either attract additional deposits or make the withdrawal of existing deposits less attractive they should increase the deposit rate. At the same time they might want to increase loan rates to make the taking up of loans less attractive without having to explicitly turning down potential borrowers, which might send a negative market signal. By increasing both interest rates, Claverton Bank becomes more attractive to depositors and less attractive to borrowers, increasing the chances of their cash reserves to increase.

Model(s) used: Sect. 20.2

Problem 254

Through new market entries the competition between banks has increased in the last few years. This increased competition has led to customers becoming less loyal to their banks and frequently moving deposits between banks to take advantage of the best deposit rates and the loans are more and more taken from banks offering the best loan rates; this changed behaviour has led to much less stable deposit and loans amounts in banks. Despite the increased competition, the interest margin of banks, measured as the difference between loan and deposit rates, has increased, suggesting that the competition between banks to attract customers has not had the desired effect on loan and deposit rates.

Why has competition not reduced the interest margin of banks?

Indicative answer

While increased competition between deposits will in general reduce the interest margin of banks, this is offset here by another effect, the increased volatility of the deposit and loan amounts. Banks will seek to balance loans and deposits optimally and the competitive forces makes this more difficult as customers react to differences in loan and deposit rates more sensitively than before, increasing the risks of banks to hold a non-optimal amount of loans and deposits; this risk needs to be compensated and it will cause the loan rate to increase while the deposit rate decreases, increasing the interest margin of the bank. This is not of failure of the competition between banks, but the result of increased risks the banks face due to this competition.

Model(s) used: Sect. 20.2

Problem 255

The competition commission seeks to increase competition between banks through regulatory changes with the aim of reducing loan rates and increasing deposit rates. Unsurprisingly, banks are opposed to any such measures and they argue that while there will be a positive effect from increased competition, the rising uncertainty about demand by customers for loans and deposits in such a competitive market may well offset the gains made, especially for depositors.

Is there merit in the arguments of the banks?

Indicative answer

If more banks compete in an oligopolistic market the loan rate will reduce and the deposit rate will increase, although the latter effect might not be as large as the lower loan rate reduces the resources available for banks from repaid loans to distribute to depositors, limiting the effect on depositors. Other measures to increase the competition, such as making access to banks easier, will also enhance competition with comparable effects. However, banks argue that this will lead to more volatility in the amount of deposits and loans at each bank individually as customers chase the best conditions. Such an increased volatility will make it more difficult for banks to manage their cash reserves and they will require additional profits to compensate them for this increased risk; these additional profits will come from increased loan rates and reduced deposit rates, reducing the benefits to both customer groups. In some instances the benefits might even be fully eliminated and loan rates might increase with increased competition while deposit rates are reducing. This is especially likely for deposit rates as the benefits for them are reduced due to lower revenue available to banks that can be reused to pay depositors in case the bank fails.

Model(s) used: Sect. 20.1, Sect. 20.2

Problem 256

The banking market in Salstron is dominated by three banks that are operating nationally with smaller regional banks playing no significant role as they restrict customers to specific groups, such as workers in a single industry. The government wants to improve competition between banks and increase the choice of service models for bank customers. To this effect it has published a consultation paper in which it suggests to encourage the founding of new banks to compete with the existing dominant incumbents. Obviously, the current banks are opposed to such a measure and seek to argue against the need for more banks.

How could they argue to maintain the status quo?

Indicative answer

The current banks cannot be advised to use the argument that the increased competition will reduce their profits. Instead they can acknowledge that more banks would be able to cater better for the demands of customers and that it would reduce loan rates and increase deposit rates. However, with more banks there will also be higher fixed costs that banks need to recover to remain viable in the long-run. Thus increasing the number of banks in the market might not be socially optimal if these fixed costs are taken into account. It is thus from a social welfare perspective that increasing the number of banks is not desirable.

Model(s) used: Sect. 21.1

Problem 257

Karitan prides itself in having well developed banking market with minimal entry hurdles for new banks to commence operation and no regulatory constraints beyond common minimum capital and liquidity requirements. It has been noticed recently that some banks have started to operate a banking model where loans are only available to customers who are also depositors with that bank. Market commentators have urged to investigate those banks operating this banking model for anti-competitive behaviour as the restriction on offering loans only to depositors reduces competition and will be detrimental to customers while allowing banks to exploit their position and generate higher profits through higher loan rates. The affected banks refute the allegation.

Are the bank correct to assert they their business practice is not generating them higher profits?

Indicative answer

The profits generated by banks that offer tied contracts, where borrowers have to be depositors, and those offering loans to any customer, regardless where deposits are held, will be identical. Competition between banks will ensure that banks offering tied contracts cannot overcharge as customers can obtain a loan from a bank offering untied contracts. While in tied contracts the loan rate might be higher than in unties contracts, competition between banks will ensure that they offer higher deposit rates as well, offsetting the higher loan costs for customers. It is therefore that customers are not disadvantaged nor that banks can generate higher profits from offering tied contracts.

Model(s) used: Sect. 21.1

Problem 258

Consumer groups express concerns about the high loan rates that banks typically apply. For an average borrower the loan rate is 12.5% p.a., while deposit rates are only 3.75% p.a. In their view interest rates of 10% p.a. or more are not justifiable in the current market conditions and lobby the financial regulator to impose a upper limit of 10% p.a. on the loan rate to limit bank profits. While banks have not yet reacted to the lobbying effort of the consumer groups, financial journalists have pointed out that the imposition of such a restriction would not be effective and not improve the position of bank customers.

How would the financial journalists argue their case?

Indicative answer

The restriction on the loan rate would in principle reduce the profits of banks as long as they compete for deposits, whose rate would not fall. However, banks would probably offer tied contracts where only customers holding deposits at a bank can obtain a loan. In such a situation, the bank could reduce the deposit rate to maintain their interest margin and hance their profitability. It is then that borrowers would benefit from lower loan rates, but would also be offered lower deposit rates, making them equally well off. Banks will find such tied contracts more profitable as they can reduce the deposit rate, which with untied contracts would not be possible, and hence they will proliferate, effectively reducing the choice of borrowers. Unless tied contracts are ruled out by additional regulatory measures, there will be no overall impact of the restrictions on loan rates on either bank profits or the overall costs of bank customers.

Model(s) used: Sect. 21.1

Problem 259

While requiring the compliance with strict capital requirements, to ensure the safety of the banking system, the government of Gunum seeks to encourage economic growth by expanding investment into fast-growing sectors. Investment into such new and emerging sectors are generally seen as risky by banks and for this reason the provision of loans is very much limited, not least to comply with capital requirements in case of any losses. In order to achieve their goal of increasing economic growth, the government liberalises the banking market and thereby increases competition between banks, hoping that this measure will induce them to embrace the provision of loans in these more risky but fast-growing sectors. However, after the measures to increase competition between banks have been implemented, the provision of loans to these sectors are reducing further. An economic advisor to the government is perplexed by this situation as he had assumed that the reduced profits due to the higher level of competition would induce banks to seek alternative sources of profits, namely the provision of more risky loans to fast-growing sectors. This is exactly what has happened in Lanamy and Transistria, two countries that have implemented similar policies in the recent past, although commencing from a much less competitive banking system than Gunum.

Why is the policy in Gunum failing, while in Lanamy and Transistria it has been successful?

Indicative answer

The reason that the policy failed and even reduced the loans to companies in fast-growing sectors is that the increased competition reduces profits from other loans, leaving the bank with limited profits to cover any losses from such loans, given the strict capital requirements they are subjected to. In contrast in Lanamy and Transistria the provision of these loans has increased, suggesting that the increased competition has increased profits for banks from loans to other, less risky, sectors. The reason the policy worked in these countries is that due to the low level of competition, the increased competition lowered the costs of loans, leading to an increased demand for loans in the low-risk sectors of the economy. This expansion is dominating the effect of increasing competition. Once the level of competition is sufficiently low, demand for loans will not increase significantly anymore, as in Gunum, and the increased competition between banks does not increase the market banks servem but only reduce the loan rate and hence profits.

Model(s) used: Sect. 21.2

Problem 260

The National Bank of Tagu has attempted to increase the competitiveness of the banking sector by ensuring that each bank offers a wider range of services that meets the requirements of a wider range of society. This measure had the effect of improving the loan and deposit rates, although less than anticipated due to some banks withdrawing from the market. Critics of the National Bank of Tagu have pointed out from the start that the policy is not effective and proposed to restrict loan rates instead to increase the demand for bank loans and hence investment.

Would the measure suggested by the critics of the National Bank of Tagu have a better solution to benefit bank customers?

Indicative answer

The measures taken by the National Bank of Tagu will have reduced the market power of banks as they have become more homogenous given the offer a wider range of services; this reduces the importance of selecting the preferred bank. This will increase competition between banks, reducing loan rates and increasing deposit rates. But it has also the side-effect that with banks facing fixed costs the number of banks the market can support will increase as bank make less profits to recover any fixed costs. This reduction in the number of banks will partially offset the positive impact of the measure as it reduces competition again. Having a restriction on the loan rate will not affect bank profits and hence the number of banks in the market; this is because banks will move to tied contracts and reduce the deposit rate. It is thus that borrowers feel the full impact of the proposed measure, but this is fully offset by the lower deposit rate, making bank customers not better off. In contrast to this, the reduced loan rate and increased deposit rate in the National Bank of Tagu's policy has seen bank customers benefit from the increased competition, even though it is limited due to the withdrawal of banks from the market. It is thus that with the critics' proposal only borrowers benefits, while depositors are worse off and banks unaffected, while with National Bank of Tagu's policy borrowers benefits, although potentially less than in the critics' approach, and depositors benefit, at the expense of banks.

Model(s) used: Sect. 21.1

Problem 261

Solny Sp. z o.o. is a life science company located in an industrial estate on the outskirts of Labin. They seek to conduct an investment of PLN 120m into their research capability and have secured a bank loan of PLN 45m, the remainder a private investor has agreed to fund. They are surprised to learn that a company taking the unit next to theirs on the industrial estate, Hydrauliczne Sp. z o.o., a supplier of plumbing accessories, has been able to secure a bank loan of PLN 30m on their total need of PLN 50m to increase their warehouse capacity and stock a wider range of products; the remainder they seek to finance through a loan from the same private investor as Solny Sp. z o.o.

Having ruled that these decisions are not driven by banks taking different views on the prospects of the two companies repaying their respective loans, what could be a reason for these different outcomes when securing a bank loan?

Indicative answer

It is reasonable to assume that monitoring a company's research activity is more difficult and cost-intensive than that of a traditional wholesale business. It is in this case that these higher costs of the bank monitoring the efforts of Solny Sp. z o.o. will require a higher loan rate to recover these costs, giving incentives to Solny Sp. z o.o. to increase the risks of their investment, necessitating a reduction in the size of the loan, which leads to only a small proportion of the investment being funded by bank loans. The monitoring of Hydrauliczne Sp. z o.o. will be much more easily achieved as it is a much more easily understood business and therefore it will be able to finance a larger part of the investment as the lower loan rate provides less incentives to choose a more risky investment strategy.

Model(s) used: Chap. 22

Problem 262

'Smaller banks should offer more attractive deposit rates than bigger banks; the reason is that smaller banks are more risky. However, the market does not seem to refekct this and banks of all sizes offer similar loan rates.'

Is this statement true?

Indicative answer

A bank that has a larger market share in deposits will seek to invest these funds and thus provide loans to companies that might be better assessed for their creditworthiness or monitored by another, smaller, bank as they have a higher level of expertise for these companies. Thus bigger banks enter market in which they have little expertise and hence face higher costs of providing such loans; these higher costs will have to be recovered and if we assume that the loan market is competitive such that loan rates cannot be increased, larger banks will reduce the deposit rates they offer. This is not related to the risks of loans they provide, but driven by the higher costs these banks face. However, larger banks will also be able to spread costs more effectively, economies of scale, and this will reduce the costs of larger banks, making the deposit rates comparable overall.

Model(s) used: Chap. 22

Problem 263

Concerned about the high profits banks are making, politicians across different parties call for measures to increase the competition between banks, whithout compromising on the tight regulation of capital requirements. They are convinced that not only will their customers benefit from better loan conditions and higher deposit rates, but that banks will also expand their lending to finance more innovative companies; the reason for the latter being that banks will seek to generate more profits and turn to more risky loans on which they can charge a higher loan rate. A proposal these politicians have published suggests to encourage competition by encouraging banks to broaden their appeal to a wider range of customers rather than being attractive only to some parts of the market and also to widen their expertise. It is thought that banks this way would become more similar and be similar attractive to all customers and banks would become more equal in their size.

Would such measures have the desired effect?

Indicative answer

If banks offer a wider range of services to customers, this implies that the costs of customers seeking out a bank according to their preferences will reduce. which will limit the market power of banks and further competition between them, resulting in lower loan costs and higher deposit rates. This will reduce the profits of banks and thus may therefore reduce the ability of banks to provide more risky loans. The profits made from safe loans can be used to cover any losses from such more risky loans and still ensure that capital requirements are met. With such profits reduced, they will only be able to cover less losses, implying that less risky loans can be provided.

Model(s) used: Sect. 21.1, Sect. 21.2

Problem 264

Vario Bank has always sought to attract innovative young companies, in addition to low-risk traditional companies, which make a substantial part of their loan portfolio. Deposits in Vario Bank are not seen as risk-free; this limits their market share amongst deositors, despite offering attractive deposit rates as most depositors prefer them to be risk-free. Seeking to grow their lending portfolio, Vario Bank is exploring ways to become risk-free in the eyes of depositors, without changing their lending policy. They seek to securitize their loans to innovative companies in order to reduce the risks of their loan portfolio, but quickly realise that with the current commitments to depositors they cannot achieve their aim, although they get close to be risk-free.

How can Vario Bank achieve its aim fully?

Indicative answer

Given that risky loans are constituting a substantial part of their lending portfolio, it seems that the amount of loans that are to be collaterized is quite large compared to the amount of low-risk loans to traditional companies. As they achieve nearly the risk-free status, they could consider reducing their commitment to depositors; as they cannot reduce the deposits themselves, they could reduce the deposit rate and this might allow Vario Bank to be seen as risk-free. However, this reduction in the deposit rate might affect the willingness of depositors to remain with Vario Bank, especially if depositors are not fully aware of the reduced risks they face at Vario Bank.

Model(s) used: Sect. 23.1

Problem 265

Over many years Candia Bank has attracted a significant number of well-established and highly profitable companies. The loans they provide to these companies are generally regarded as very safe and consequently deposits in Candia Bank are recognised as virtually risk-free. This status was retained when they started to expand their business to serve the needs of newer and more innovative companies, generally seen to be more risky than their main customers. A rival to Candia Bank, Landis Bank, has taken the opposite direction in their strategy; their business model was to provide loans to newly established and innovative companies that are more risky than other companies, but recently has expanded its business to provide low-risk loans to more established companies, some of which are companies that have matured over the years and reduced their risk-taking. In order to compete with Candia Bank for depositors, Landia Bank will need to be seen as offering deposits that are seen as being risk-free.

Given their higher risks in lending, can Landis Bank achieve this aim without changing their lending strategy substantially?

Indicative answer

Landis Bank can achieve being seen as providing risk-free deposits if they can reduce the risks from their lending portfolio sufficiently. This can be achieved if they reduce their risky loans significantly such that the returns from the low-risk loans can fully absorb any potential losses from risky loans, but this would probably involve a significant change in the lending policy. It might be possible to increase the lending to low-risk companies to a lesser extent and then securitize the risky loans they provide, this would require a smaller change in the lending policy, but could well require a bigger change then they feel comfortable with. The final option then would be to increase the low-risk lending less, while still securitizing risky loans, and reducing the deposit rate, making it easier for Landis Bank to meet its obligations to depositors. However, depositors might not be willing to accept lower deposit rates, which would not allow this strategy to be implemented.

Model(s) used: Sect. 23.1

Problem 266

For a many years international investors and local companies alike had concerns about the stability of the banks in Vedanis. The lack of any meaningful regulation and constraints on bank behaviour had lead to banks holding very little capital while providing loans that had significant default risks. After the last election seven years ago a new government took office and in one of their first legislative measures established a banking regulator who immediately imposed capital requirements on banks with which they had five years to comply with. During these five years, all banks in Vedanis set up fund management companies, mainly offering money market funds guaranteed by banks, which over time attracted substantial investments, while deposits reduced; in recent years deposits and size of money market funds have stabilised. Opposition parties accuse the government of driving banks slowly out of business, to which the government replies if that was the case then banks would have ceased to exist a few years ago rather than innovate to offer different investment opportunities to their customers.

Who is correct in their assessment?

Indicative answer

The shift of deposits towards money market funds, a form of shadow bank, is the result of increasing capital requirements on banks, which was not imposed on money market funds. The slow increase of money market funds, and accompanied reduction of deposits, is the result of regulatory arbitrage where banks securitize loans and sell these to their money market funds as these are not subject to the increased capital requirements. As such a process is costly as banks reduce their profits in return for lower capital costs, the shift was not complete, but as the costs of banks increased, more loans were securitized and banks reduced their corresponding deposits. The reason that bank's costs increased gradually is that banks had five years to adjust to the new capital requirements and it is reasonable to assume that the actual capital held was increased gradually over time. With banks having to comply with the new capital requirements for two years, this process has been completed and thus the costs of the capital requirements are not increasing anymore, leading to the observed stability of the size of the shadow banking system.

Model(s) used: Sect. 23.2

Problem 267

Felix Undermatt has a regular column in the weekly Finanznachrichten, the leading magazine on financial news for individual investors. In his latest column he criticises the national regulator for allowing money market funds to grow without restrictions and not providing additional protection against losses for investors in such investments. He contrasts this to the safety of deposits, which give only a marginally lower return than money market funds, but benefit from deposit insurance underwritten by the government. In a letter to the magazine the head of the Organisation of Money Market Fund Managers, Olaf Huber, points out that this criticism of his industry is not justified but instead their funds are as safe as deposits, even without the government guarantee that banks benefit from.

Is Olaf Huber's assertion that money market funds are as safe as deposits justified?

Indicative answer

Money market funds purchase securitized loans from banks that, despite an additional guarantee by the bank, may not have sufficient funds to repay all investments made if the default rate on loans is sufficiently high. However, if it is important for money market funds for them to be able to return all investments, as seems to be the case here, banks will have an incentive to ensure securitization is conducted such that sufficient safe loans, or government securities are included in the sale to money market funds that any such losses are not causing investors to face any losses.

Model(s) used: Sect. 23.1, Sect. 23.2

Problem 268

The Competition Commission is investigating a number of peer-to-peer lending platforms for making misleading claims about the safety of any investments that consumers make. The claim that the thorough assessment of borrowers will ensure that investments are safe and comparable to bank deposits is disputed by the Competition Commission.

Is the Competition Commission correct to raise concerns about this claim of peer-to-peer lenders?

Indicative answer

It is that peer-to-peer lending attract high-risk borrowers as these are more costly to banks and peer-to-peer lenders, facing lower costs due to less regulatory constraints, can offer better conditions to these borrowers while remaining profitable. It is therefore that in such a scenario banks will provide low-risk loans and hence the likelihood of banks failing will be low, too, while peer-to-peer lenders will face high risks and thus their risks will be higher than for deposits in abnks. It is therefore that the claim of peer-to-peer lending is as safe as deposits is indeed not sustainable.

Model(s) used: Sect. 24.1

Problem 269

In assessing the credit score of individuals, the credit reference agency CreditRank takes into account the originator of any loan. It has become apparent that those obtaining loans through the retailer of goods will receive a lower credit score than those obtaining an equivalent from a bank.

Why does CreditRank provide lower credit scores to those obtaining loans through the retailer?

Indicative answer

The provision of loans through retailers will generally be to consumers wjo are assessed as being more risky as the retailer seeks to generate additional sales and thus obtains profits from the sale it can use to subsidize more risky borrowers. CreditRank therefore uses the loans obtained through retailers as an indicator for the risk of the borrower, which will be higher and thus justify the lower credit score it assigns.

Model(s) used: Sect. 24.2

Problem 270

The liberalisation of the market for borrowing and lending over the last few years in Argonos has led to substantial changes in the market. By removing restrictions on lending, which used to be confined to tightly regulated banks, but now can be offered by anyone seeking a licence; such a licence is available to any organisation which meets minimum requirements in terms of corporate governance to ensure they comply with consumer an investor protection laws. In the aftermath of these reforms many companies and online platforms have been set up to provide loans to potential borrowers.

Who will have benefitted mostly from this liberalisation, even though the banking market was seen as quite competitive?

Indicative answer

The extension of the provision of loans to non-bank lending will allow more risky borrowers access to loans. Consumer finance companies would extend loans to more risky consumers, but also to corporate purchasers of goods with loans provided through the seller. The use of peer-to-peer lending will have a similar effect as these platfgorms will face lower costs and they can thus provide loans to borrowers that are not profitable to banks as they are too risky. It is thus that mostly more risky borrowers benefit through better access to loans than with bank-only lending. If course, the availability of alternative lending will increase competition with banks and ensure lower loan rates as banks have to compete with non-bank lenders and depositors will similar benefit through the competition of deposits with peerl-to-per lending. It is thus that these groups are also benefitting, albeit probably to a smaller extend as the banking systen was already seen as quite competitive.

Model(s) used: Sect. 24.1, Sect. 24.2

Problem 271

The economy of Kamistan has grown rapidly in recent years due to the discovery of natural resources and its use of these resources to attract innovative companies through an attractive business climate; this has resulted in substantial wealth accumulating that cannot all be invested domestically. With the banking system in Kamistan not being as developed as other parts of the economy, historical links between Horilan and Kamistan have led to substantial funds being directed towards banks in Horilan and many businesses seeking loans there. Many of the wealthy investors in Kamistan are Muslim and with Horilan being a predominantly Christian country the banks operating there are conventional commercial banks. To cater for investors from Kamistan a number of Islamic banks have been founded, but they have not been able to gain a meaningful market share.

How do you explain this failure of Islamic banks?

Indicative answer

Islamic banks will provide loan that are more costly than conventional banks to compensate banks for the additional risk of losing the asset purchased before selling it on to the 'borrower'; this makes loans from conventional banks more attractive. While deposit rates at Islamic banks are higher, this compensates for the additional risk to the return where no fixed deposit rate is payable and any risk averse depositor might well prefer to provide deposits to conventional banks for that reason. It is thus that Islamic banking is not attractive on purely financial terms and would only be sustainable if customers have a preference for Islamic banking; their lack of appeal in Horilan suggests that this is not the case for customers from Kamistan.

Model(s) used: Sect. 24.3

Problem 272

Tekstil PT is a small manufacturer of fabrics produced in the traditional style. Thanks to a revival of interest in ancient manufacturing processes and a growing tourist market, they seek to expand their business by investing into a second workshop. Plans to make an investment of similar size to expand their business catering for the export market have also been developed, but the owner of Tekstil PT acknowledged that this strategy was more risky, although could yield a potentially much higher profit if successful. Approaching their bank for a loan to finance the expansion of their business, they seek a loan of IDR100m, which would allow them to use four additional looms, bringing the total to nine looms. However, the bank is only willing to provide them with a loan of IDR70m, which would allow for two new looms and if stretching other resources maybe three additional looms. In the district there are other manufacturers with similar businesses and while they are competing with each other, they also see them themselves as stalwarts in upholding traditions and are cooperating in many aspects of their business. Other manufacturers were also considering an expansion of their and faced the same problem with their banks, loans were available but for a smaller amount than sought. Ni Wayan Ayu, as the owner of Tekstil PT suggests they form a cooperative and that this cooperative will then apply for a loan with a bank, distributing the proceeds of this loans amongst its members; the cooperative would be such that all members are jointly liable for its liabilities.

Would forming such a cooperative alleviate the problem of companies being offered smaller loans than they seek?

Indicative answer

The lending through the cooperative as envisaged here can be seen as a group lending. It is that each member of this cooperative is jointly liable for the entire loan that has been provided. The banks do not give the full loan amount to manufacturers because a large loan might induce them to pursue a more risky investment, here by focussing on the export market, which seems not to be profitable to banks, hence they seek to induce manufacturers to invest into the domestic market, which is safer, and achieve this by limiting the amount of loans available. If the manufacturers will become jointly liable for all the loans that have been provided to the cooperative, it will reduce the risk of the bank as repayment rates will increase, allowing them to reduce the loan rate, which in turn reduces the incentives for manufacturers to choose the more risky investment. It is thus that the loan size can be increased without inducing the manufacturers to seek the more risky investment. Thus forming the cooperative should increase the amount of loans available to each manufacturer and thus alleviate or even eliminate the restriction on expanding their business.

Model(s) used: Sect. 24.4.1

Problem 273

SeedBank Ltd. is a community bank that provides small loans to entrepreneurs with commercial ideas that would be beneficial to the community they live in. In order to apply for a loan groups of four to seven entrepreneurs apply jointly for a loan and remain jointly liable for this loan; these entrepreneurs are usually knowing each other well through their previous work in the community. After receiving the application, SeedBank Ltd. will then assess the risks of the group as a whole and determines an appropriate loan rate if they seek to provide a loan. It is usually quite difficult for SeedBank Ltd. to assess the riskiness of the businesses involved given their reliance on success in the specific community they are operating in and therefore they usually seek to asses the risks of two of the business ideas they are most familiar with. An auditor of SeedBank Ltd. criticises this approach as not being sufficiently robust and that the unassessed businesses might pose significant higher risks.

How would SeedBank Ltd. justify their approach of assessing the risks of only two businesses?

Indicative answer

In group lending it is optimal for companies with similar risk profiles to group together. As the entrepreneurs know each other, it is reasonable to assume that they are able to assess the risks of each other to a satisfactory level. Given that the risks of entrepreneurs in each groups will be similar, it is sufficient to assess the risks of two entrepreneurs as their risks would be reflected reasonably accurately in the risks of other entrepreneurs in the group.

Model(s) used: Sect. 24.4.2

Problem 274

Prisha Sharma seeks a loan for her business of selling kitchen utensils in rural areas; the loan would allow her to increase the variety of utensils she has on offer and satisfy the demand of her customers better as currently she often does not have stock of items that are demanded. Approaching a bank for this purpose her loan application is turned down with the reasoning that the amount she is seeking is too high in the view of the bank and they vice concern about her expanding her well-run business into other areas that are more fluctuating in demand, such as spices. The bank cites some comparable instances where such expansions were observed and suggests that they might be willing to consider a smaller loan. However, Prisha Sharma believes that she needs a higher loan amount to be able to have a sufficiently large stock of items. A friend suggests to her to approach other traders in the area that face similar problems and, as long as they are not direct competitors, apply for a loan jointly; failing that a bank might put her into contact with other traders to form such a group. She reacts with surprise and dismisses idea out of hand. She tells her friends that this will hardly benefit her and that she is not willing to pay for the failure of others and others might be less able and diligent than her, making losses more likely, which she then has to cover.

Is Prisha Sharma's reluctance justified?

Indicative answer

If obtaining a group loan, this loan van be larger than the loan offered to her. The reason is that the reduced risks to the bank from the joint liability, loans are more likely repaid as it only requires some of the group members to be successful, will lead to lower loan rates, increasing the availability of loans as her incentives to expand her business in other areas will be less of a concern to the bank given this lower liability. She would not be grouped with traders that are taking significantly higher risks, nor will she benefit from significantly lower risks; it is optimal for groups to consist of borrowers with similar risks. It is thus that Prisha Sharma might be able to benefit from the larger loan she seeks and while she might have to pay for the failure of other traders, these additional costs are offset through a lower loan rate. Thus Prisha Sharma should seriously consider this suggestion.

Model(s) used: Sect. 24.4.1, Sect. 24.4.2

Problem 275

Aissatou Ebode claim that she would never obtain a joint loan with other businesses. She says that being liable for the repayment of the entire loan will make her having to repay more than her original loan if others are failing with their business and she has to cover their share of the loan repayment.

Is this reasoning correct?

Indicative answer

It is true that Aissatou Ebode potentially has to repay the loan allocated to other businesses, but this is compensated for through a lower loan rate. The higher repayment to the bank reduces the risks of banks, who in a competitive market would then offer a lower loan reate reflecting this lower risk. This compensation in form of the lower loan rate offsets the additional costs of having to repay the loans of other, failing, businesses. If markets are perfectly competitive, this offset will be exact and Aissatou Ebode would be as well of with a joint loan than with an individual loan.

Model(s) used: Sect. 24.4.1

Problem 276

The business of Somchit Panit is offering innovative beauty products that seek to address concerns about the effect of chemicals on the skin and health in general. The size of this market in his hometown, which is his target market, is not quite established. To finance the initial production of his products in larger quantities to fill a newly acquired store, Somchit Panit seeks to apply for a joint loan with other well-established and flourishing businesses along his street. While the other businesses agree on applying for a joint loan, Somchit Panit is not invited to join this group. He is not only disappointed by this decision, but believes that this is due to his business being new and the well-established business do not want to seek younger entrepreneurs succeeding?

Is there a better explanation for excluding Somchit Panit from the joint loan?

Indicative answer

The exclusion of Somchit Panit from thr joint loan is not directly because he is a new business, but because his business is more risky compared to the well-established business seeking the joint loan. It is optimal for businesses with similar risks to apply for joint loans and they therefore exclude Somchit Panit because of his higher risk, not because his business is new.

Model(s) used: Sect. 24.4.2

Problem 277

Juanita Alvarez is building her first business of selling refreshments new a major tourist site. Competition between sellers in these areas is fierce, but she is convinced her products will appeal to customers as she prepares these refreshments in front of their customers rather than having them pre-prepared or bought in. Seeking a seeding loan to purchase a small stall and pay the licence fee, the loan conditions offered are not feasible for her. An advisor at her local council suggests she approaches a lender called SmallStarts Ltd., which specialises in the provision of loans to several businesses who then assume joint liability for the loans provided.

Why might such a type of loan be more suitable for Juanita Alvarez?

Indicative answer

The business of Juanita Alvarez is quite risky as she faces significant competition from other traders. With such a highh risk, it will in general be optimal to of a group loan as this lowers the loan rate due to the lower risk to banks arising from the joint liability, which forces all members of the group to repay each others' loans. The high risk, and thus low chance of success of her business, at the same time makes it sufficiently unlikely that Juanita Alvarez will have to make any such contribution.

Model(s) used: Sect. 24.4.3

Problem 278

Somchai Kham owns several small businesses, including a travel agency, motorcycle repair shop, a small grocery shop, and funeral parlour. His businesses are generally seen as being successful, but banks are concerned about him spreading his time too thinly. His latest business idea is a courier service between the town he lives in and the major city about an hour's drive away. Lenders are agreeing with him that such a business has a good potential and in principle would provide him with a loan to finance the initial investment required. However, to Somchai Kham's surprise he is not offered a standard loan, as he had previously for his other businesses, but is instead offered a loan together with three other very similar businesses, where the businesses have joint liability for the loans of each other. The other businesses are from local entrepreneurs that have not only a good knowledge of the market Somchai Kham seeks to enter, but know him well, too.

Why would the lenders make such an offer to Somchai Kham?

Indicative answer

The lenders feel that Somchai Kham is spreading his time too thinly across his existing business and this will only become more an issue with the newly added business. The aim of the lender is therefore to ensure that he puts sufficient effort into his new business to ensure its success and the group loan will provide such an incentive. The good knowledge of the other borrowers about Somchai Kham and his proposed business, so will be able to monitor him well and ensure that he exerts sufficient effort to reduce the risks of his new business. This reduced risk makes the loan more viable for the lender and it is for this reason that Somchai Kham is offered a group loan.

Model(s) used: Sect. 24.4.4

Problem 279

Bunigam Electrics Ltd. offers the installation of solar panels in remote locations as an alternative to generator-based electricity. After having received much positive feedback on their solar panels, they seek to improve the offering by adding batteries to the solar panels in order to store electricity for use at night. The demand for this improved product is substantial and they seek a loan to purchase the batteries. In order to reduce costs, they have decided to join with Karikan Solar Ltd., a similar company offering the same product and services to customers ina neighbouring district. Their joint venture seeks to apply for a single loan that is then repaid jointly by the two companies. The terms of their loan are much more favourable than the offer they had received when applying individually for a loan.

Why are the conditions of the loan to joint venture more beneficial than for loans the companies obtained separately?

Indicative answer

The loan to the joint venture can be interpreted as a group loan because the two companies will be jointly liable for the repayment of the loan. If one company fails, the requirement of the other company to repay the full loan acts similar to a collateral, a guarantee, for the loan. As such the risks of incurring a loss to the bank are reduced, unless both companies would fail, and thus a lower loan rate is required. This makes the loan more attractive, not least because the two companies see very low risks given the high demand they experience.

Model(s) used: Sect. 24.4.5

Problem 280

Bindi Lee owns a petrol station at busy dual-carriage highway and enjoys high volumes of traffic due to the nearest alternative petrol station being over 2 hours drive away. In the opposite direction Omeo Cooper is in a comparable position. With new regulations soon coming into force, both owners need to upgrade their petrol and diesel pumps for which they seek a loan. As in the past, they apply together for a loan and then share the proceeds as well as the repayment, taking advantage of very low loan rates. Omeo Cooper's friend Jarrah Fester operates a business selling souvenirs in a small town not far away; this business is very variable as tastes change as well as weather patterns can lead to varying numbers of tourists. He remarks that he would never join together with another business like his to obtain a loan, even if this meant foregoing better loan conditions.

How can you explain the very different approaches between Jarrah Fester on the one hand and Bindi Lee and Omeo Cooper on the other hand?

Indicative answer

The key differences between their respective businesses is the risks. Bindi Lee and Omeo Cooper run businesses that are low risk due to their near-monopoly position at a highway, while Jarrah Fester owns a high-risk business that is subject to changing tastes and weather conditions. Interpreting the joint loan by Bindi Lee and Omeo Cooper as equivalent to providing collateral, which is the requirement to repay the other's loan if they default, the likelihood of such additional repayment is low as both businesses are low-risk, while the benefits of the lower loan rate are very likely to be realised as logn as they do not default. This makes the joint loan attractive to them. the high risk of Jaraah fester's business would make it too likely that the additional repayment is required and the benefits of lower loan rates are less often realised, making any joint loan less desirable.

Model(s) used: Sect. 24.4.5

Problem 281

Tangania seeks to expand financial services beyond its major cities to promote economic growth also in more rural areas of the country. Development agencies advise the government that such an expansion needs to be managed careful so as to give the highest possible benefits to the rural population rather than banks. They report of experiences in other countries where it was mostly the interest of banks that dominated, at the expense of the rural population. A specific problem was that banks were only offering traditional loans, but because of strong social ties within communities joint loans to groups of businesses were very much preferred in many instances, ignoring the needs of the population. The development minister in Tangania re-assures the development agencies that he will ensure a free competition in the provision of loans and will allow to let the market solve this problem.

Is the approach suggested by the development minister in Tangania likely to succeed?

Indicative answer

The problem is not that of limited competition or regulatory constraints on banks, it is the incentives banks have. If borrowers prefer group loans over individual loans as their businesses are not as risky, then banks might not find it optimal to supply such loans as the loan rate they have to apply does generate them less profits than when providing individual loans. It is therefore not a failure of the market that the desired loan format is not available, but it would probably require the intervention by a regulator to require that such group loans are offered by banks.

Model(s) used: Sect. 24.4.6

Problem 282

The government of Nari seeks to improve the attractiveness of its banks to domestic as well as overseas customers. To this effect they introduce a government guarantee for deposits for which banks are charged a fee of 0.2% of their deposits, which is based on the average annual costs of failing banks over the last 15 years. In addition they promote competition between banks and encourage the market entry of foreign banks as well as the foundation of new domestic banks. Within a brief period of time the number of banks operating in Nari has increased significantly, although deposits overall have not increased. Market commentators have pointed out, however, that banks have become much more risky than they previously were.

How could the government of Nari adjust their policy to reduce the risks banks are taking, without imposing additional restrictions on the decisions by banks?

Indicative answer

The cause of the increased risk-taking by banks is the deposit insurance that is charged at a rate which is not affected by the actual risks a bank takes. Banks react to the reduced profits, due to having lower deposits and thus banks being smaller, by seeking to offset these through higher revenue from increased loan rates that correspond to more risky loans, while their costs remain unchanged. The government of Nari could change the deposit insurance such that the premium is determined by the actual risk a bank takes, this would increase the costs to banks taking more risks and thus counter the incentive to increase risks; the result should be a reduction to risks comparable to that prior to the competition between banks being increased.

Model(s) used: Sect. 25.1.1

Problem 283

As part of a trade agreement with developed countries, Masalit has agreed to open its finance sector to foreign banks, who are keen to enter this market due to its central location and history as a major trading hub in the wider region. During the discussion for the ratification of this trade agreement, some representatives of small businesses and groups representing individual bank customers advocate that this opening of the banking market should be accompanied by protections for smaller depositors. In response to these demands, the government considers the introduction of a deposit insurance scheme.

If, how should the government finance the deposit insurance scheme?

Indicative answer

With competition between banks likely to increase due to new entrants to the banking market, deposit insurance premia should be charged based on the risks that banks are taking. If deposit insurance is not priced or the premium is not based on the actual risks taken, banks have a strong incentive to increase the risks of loans in order to recover some of the profits lost due to the increased competition. As they do not face increased costs when taking higher risks, the deposit insurance premium does not increase and as deposits are cvered by the deposit insurance, the deposit rate will also not increase, there are no adverse consequences to providing more high-risk loans, which will demand a higher loan rate. Charging deposit insurance premia based on the actual risks taken will affect the costs of banks increasing their risks, reducing or even fully eliminating the incentives to increase risks.

Model(s) used: Sect. 25.1.1

Problem 284

After the liberalisation of the banking market, the number of banks operating in the market has reduced significantly, which has positive effects on the loan rates charged to borrowers, which have seen a substantial decline. Initial fears by some market commentators that the lower profit margins would increase risk-taking by banks has not materialised, despite no other regulatory measures having been enacted. On the contrary, initial investigations show that bank loans have become less risky.

Why has the risk of bank loans been reduced?

Indicative answer

Due to the lower loan rate, bank profits are reduced, even from borrowers that repay their loans and thus banks have a lower cushion in which they can capture losses from defaults. It is therefore that in order to remain profitable banks will have to reduce their losses, which can only be achieved by providing loans that are less risky and hence resulting in fewer losses. Accruing losses over time might result in banks violating capital requirements or even become insolvent, and for this reason, they seek to avoid such a situation.

Model(s) used: Sect. 25.1.2

Problem 285

Artisan Glass Ltd. produces glass ornaments as home decor and also obtains commissions for artworks. The business prospects are very much varying with the taste of consumers for such articles of home decor as well as the uncertainty about obtaining commissions for art work. Despite this situation, Artisan Glass Ltd. has in the past been able to secure loans as and if necessary to finance the acquisition of raw material as well as investments into their workshop. Recently they have found it much more difficult to obtain such loans, even though the prospects of their business remains fundamentally unchanged. They acknowledge that the banking market has changed substantially in the last few years; while there used to be only three banks active in their region, the advent of online banking has given borrowers access to well over 20 banks. While they notice a reduction in loan rates, they are at a loss to understand why they struggle to obtain a loan in the first place.

How can you explain this change in their ability to secure a loan?

Indicative answer

The competition between banks has increased, as evidenced by the larger number of banks and the reduced loan rates, reducing the profit margins of banks. With Artisan Glass Ltd. being a high-risk borrower, banks will now be reluctant to provide loans to them as to protect their profitability. The lower profits from each borrower due to lower loan rates, provided the loan is repaid, do not compensate them fully for the losses from companies defaulting. Consequently they seek to reduce the defaults from borrowers and this will predominantly affect high-risk borrowers like Artisan Glass Ltd., who will find it more difficult to obtain a loan.

Model(s) used: Sect. 25.1.2

Problem 286

The banking market in Frisia has undergone substantial changes in recent years. The government has made it easier for foreign banks to enter the market and new banks have been given licences, too. This has led to a substantial increase in the number of banks active in Frisia. To mitigate any concerns by deositors about the safety of their deposits in the newly liberalised banking market, the measures to increase competition have been accompanied by the government providing a guarantee to depositors, at no charge to the banks. This latter measure had been heavily criticized by financial journalists as being short-sighted and encouraging banks to take high risks that will then result in bank failures, the costs of which have to be borne by the government due to the deposit insurance provided. To their surprise, the risks banks are taking remained largely unchanged.

Having to provide an analysis of effect the changes to the banking market had, how would you explain that risks have remained unchanged?

Indicative answer

There are two effects at work that offset each other and lead to no meaningful change in the risks banks are taking. Firstly there is the effect of the effect of the deposit insurance increasing the risks banks are taking. This is because deposit insurance here is provided for free and thus taking higher risks is not increasing the costs of banks. Providing more risky loans will be preferred as the lower profits due to the increased competition will be compensated for by higher loan rates that can be charged in these more risky loans. However, on the other hand, more risky loans are also failing more often, causing banks to make more losses. These losses need to be compensated for by profits from loans that are repaid; as competition will reduce these loan ares, banks will make less profits to offset their losses. Consequently, banks will have to reduce risks to lower the losses they make from default, reducing risks due to the increased competition. Thus these two effects, increasing risks to obtain higher profits from higher loan rates due to higher risks being taken and lowering risks to avoid large losses that cannot be compensated by the lower profit margin on repaid loans, seem to offset each other here.

Model(s) used: Sect. 25.1.1, Sect. 25.1.2

Problem 287

Consumer groups are concerned about the lack of sufficient competition between banks for deposits and lobby the banking regulator for measures to make banks more competitive in this respect. Naturally banks are opposed to any measures that would increase competition and hence reduce their ability to generate profits. In briefings and during meetings with government as well as regulator officials, banks point out that increasing competition might result in banks taking higher risks when providing loans to compensate them for the loss of profits from deposits.

Acknowledging this possibility, how could the consumer groups amend their suggestion to improve the competitiveness of deposit markets to counter any such effect?

Indicative answer

Banks will initially seek to compensate the higher deposit rate resulting from increased competition by increasing the loan rate, which in turn will attract only more risky companies to demand such loans, increasing the risks banks take. This will be limited however, by their market power in the loan market as borrowers might switch banks and induce more competition between banks. This would then result in risks reducing as loan rates fall and loans become attractive to less risky companies again. Banks seem to claim that this latter point is not reached and banks will be at a point where they increase risks. However, complementing the increase of competition in the deposit market by ensuring loan markets are more competitive, this threshold where banks act competitive will reduce as borrowers can switch banks more easily. If this point can be brough forward sufficiently, then the increased competition in the deposit market will overall not increase the risks banks take.

Model(s) used: Sect. 25.1.3

Problem 288

Banks face increasing competition from other forms of investing funds and to stay competitive had to increase their deposit rates. Initially the central bank, also being responsible for the stability of the banking system, was concerned about the impact of this increased competition to banks on the risks banks are taking. They thought that the declining profit margins of banks from higher deposit rates would be offset by banks taking on higher risks when providing loans. Assessing the risks of banks, the central bank, however, finds that loan risks have not only not increased, but indeed slightly reduced.

Was the reasoning of the central bank that banks seek to offset lower profit margins from higher deposit rates by giving loans with higher risks wrong?

Indicative answer

The effect as anticipated by the central was present, but as the level of competition seemingly increased substantially, a second effect became relevant. This second effect is that as banks increase loan rates, they become more vulnerable to competition from other banks to undercut their loan rates as companies seek to switch banks. In response, banks reduce their loan rates, which has the effect of reducing the parofit margins even more; in order to protect their smaller profits, banks will reduce risks. In the case here it seems that these two effects mostly offset each other, resulting in a small net reduction of the risks banks take.

Model(s) used: Sect. 25.1.3

Problem 289

With the aim of increasing competition between banks, the government has lifted a moratorium on the granting of bank licences, which has resulted in a significant increase of the banks operating and there is clear evidence that competition between banks has increased, as was intended. Analysing the impact of this change in the banking sector, a financial analyst considers the risks banks are posing to investors, most notably the risk of their failure, in order to determine its value. In their initial assessment they focus on two banks, Garmingan Bank plc and Rotunda plc These banks have been selected because they operate very different business models, with Garmingan Bank plc focussing their attention on the agricultural sector, while Rotunda plc provides loans to all sectors of the economy and has no particular focus. To their surprise they learn that Garmingan Bank plc is now less likely to fail than Rotunda plc, while perviously the risks were comparable.

How do the financial analysts explain their findings?

Indicative answer

Garmingan Bank plc focusses on one sector of the economy, the agricultural sector, its loans will therefore not be very well diversified. This will cause the bank to reduce their risk from lending, and hence reduce their probability of default; this is because the increased competition has reduced their profit margin and the high correlation of loan defaults in their portfolio will cause them to become more cautious to avoid default. On the other hand, Rotunda plc is well diversified and will increase its risks in lending, increasing the possibility of its own default. The cause for this decision is that the Rotunda plc seeks to recover the lost profits due to competition through providing more risky loans, which are more profitable if repaid. As their portfolio is well diversified, any specific risk is eliminated and thus the risks taken initially are lower.

Model(s) used: Sect. 25.2

Problem 290

During a recession in Changdai banks are remaining highly profitable and in order to reduce the government budget deficit, they seek to impose additional duties on banks. These duties include the provision of low-cost loans to companies that have been granted status as to be 'future innovation leaders'; these loans are supposed to account for 5% of all new loans granted by banks. As the interest on such loans will not be able to cover the costs associated with them and will count like conventional loans against their capital requirements, banks are naturally opposed to such a regulatory inference.

Knowing they cannot argue on that basis, especially in light of their high profits throughout the recession, how could banks argue against the imposition of this regulatory burden?

Indicative answer

As only banks are affected by this requirement to provide low-cost loans to selected companies, this increases the costs of banks and with existing capital requirements limits the amount of more profitable lending. With other financial institutions not affected by this requirement, it will make shadow banking more attractive and hence this sector can be expected to grow. This would result in banks being less able to fulfill their role in the economy to provide loans to the general public provide the liquidity insurance to depositors. On that basis banks should point out the detrimental effect on social welfare that this move by the government would bring.

Model(s) used: Sect. 4.1, Sect. 23.2

Problem 291

Regulators look unfavourably at the emergence of websites advocating the provision of loans to innovative and fast-growing companies directly by consumers. They are in particular concerned about the high risks these loans have and seek to limit access by private individuals to such investments; they are considering a limit of £5,000 across all platforms for each individual. Companies having obtained such loans make representations to the regulators and raise their concern that access to funding for their innovative projects will be severely curtailed. Advocates of the restriction claim that these companies would be able to obtain bank loans as most of the funds by consumers would be held as deposits, which is now unavailable to banks.

Is the claim of the advocates of this restriction correct?

Indicative answer

Peer-to-peer lending is subjected to less restrictions and thus the running costs of peer-to-peer lending is lower than the running costs of banks. This enables peer-to-peer lenders to provides loans to more risky companies than banks are able to, while remaining profitable. It is thus not certain that high-risk companies are able to obtain bank loans, even if banks can retain more deposits. It is thus a possibility that such companies might not be able to access loans anymore.

Model(s) used: Sect. 24.1

Problem 292

A junior trader collaterized securities observes a price difference between two securities that he seeks to exploit. His observation is that two securities, on which collateral in the form of small consumer loans is provided, are priced at 87% and 83% of their face value, respectively. From the documentation he cannot identify any meaningful difference between these two securities. Presenting his observation to the manager of his trading desk, his idea is rebuffed instantly with the comment that the first security is based on loans provided by GETU Bank, while latter uses loans given by Computing World Finance Ltd., the consumer finance arm of the technology retail chain Computing World. Not daring to ask for a further explanation, he returns to his desk and continues is normal trading activity.

How can the dismissive attitude of the trading desk manager be explained?

Indicative answer

The loans by Computing World Finance Ltd. are granted in effect by the retailer, who has an interest in selling its products and will thus be willing to provide loans to more risky consumers, even if this not profitable due to their risk. The ensuing losses are compensated for by the profits from selling the products, making this arrangement overall beneficial to the retailer. It is therefore that retailers are willikng to provide quite risky loans. Banks, on the other hand, have no incentives to provide loans that are not profitable as they have no profits from the sale of the products, thus will not be providing loans that are too risky to generate profits. Therefore, loans originated by Computing World Finance Ltd. are more risky than those originated by GETU Bank, accounting for the higher discount observed in the market.

Model(s) used: Sect. 24.2

Problem 293

Islamic Finance Bank has been founded to support the needs of individuals seeking investments or finance for investments in a way compatible with their beliefs. Comparing the returns of those investing into their accounts with the return on deposits in conventional banks shows that Islamic Finance Bank offers significantly higher returns. Nevertheless, very few depositors have switched to Islamic Finance Bank, despite this information being widely circulated.

How can you explain this reluctance of depositors to open accounts at Islamic Finance Bank?

Indicative answer

Apart from the possibility that depositors are not willing to open such accounts due to moral concerns, the deposit rates are not guaranteed, thus deposit returns are risky. In Islamic banking interest is forbidden and any return to depositors will be them participating in the success of the loans the bank has provided, including a low return if more loans than anticipated have not been repaid. This makes deposit rates variable, dependent on loan repayments, and if depositors are risk averse they might not find the higher return offered by the Islamic Finance Bank sufficiently attractive.

Model(s) used: Sect. 24.3

Problem 294

After many unsuccessful applications, Matthew Pale has received a job offer from Highfield waste Management Ltd. as a trainee accountant. His job requires him to move from his parent's house to his own small apartment abut 150 miles away. While he had sufficient funds to pay the deposit on his apartment, this left him with no funds to purchase carpets, furniture, and a kitchen. Seeking a loan to this effect from his bank, where he has held an account for the last four years, he has been turned down on the grounds that his future earnings potential is too uncertain. While visiting a furniture store, the shop assistant there reassures him that they are working with a finance company and he is sure that unless he has defaulted in loans before, he will be approved for a loan to purchase the necessary items. After having been turned down by his banks Matthew Pale is naturally cautious, but agrees to make a loan application, which to his delight is accepted instantly. With a smile the sop assistant explain that they like to support young professionals at the start of their career and hence his loan has been approved.

Is this explanation by the shop assistant the true reason for them granting the loan to Matthew Pale?

Indicative answer

If the furniture store were not to grant the loan, they would not make a sale and hence not generate profits. The granting of the loan will take into account these profits and even if the loan itself is loss-making due to the risks Matthew Pale poses to them. His bank did not take into account any profits from the sale of the furniture, as at it does not accrue to them, and found the loan to him not profitable, unlike the furniture store. Hence the true reason for the loan being granted can be found in the profits generated from the sale of furniture.

Model(s) used: Sect. 24.2

Problem 295

A fire has partly destroyed the covered market at Sultanam Square and the owners of the individual stalls are responsible for any repair costs under the lease they signed when taking possession of their stands. As the business of stall holders had been difficult since the opening of a larger shopping mall only a few minutes walk away, many struggle to raise loans from banks to pay their share of the required repairs. Faced with such a dilemma, the traders decide to form a cooperative 'Traders of Sultanam Square', for which each traders has full liability and this cooperative seeks a loan to cover the full costs of the repairs. An oversight committee is formed to ensure all 63 members of the cooperative are making adequate contributions to repair the granted loan. However, a while after the repairs have commenced, an increasing number of traders declare themselves bankrupt, in most cases after selling any remaining stock at a discount and paying themselves an increased salary from their business. After just a few weeks only 4 traders remain that have not declared themselves bankrupt.

How can you explain these sudden defaults?

Indicative answer

While group lending, which this loan to the cooperative for which all traders are jointly liable represents, is able to reduce or even prevent strategic default by individual group members, this has failed here. The reason here is that the high risk of their business in light of the competition by the shopping mall reduced the value of their businesses sufficiently that even in the presence of monitoring and potential exclusion from future lending does not make it beneficial to maintain their business. This development is then exacerbated by the increasing share of the joint loan by remaining traders, giving an incentive for them to default strategically.

Model(s) used: Sect. 24.4.6

Problem 296

As part of their mission to promote the development of rural economy in Farigonia, the state-owned Farigonia Development Bank, offers small loans to individual farmers and traders that have an income of no more than twice the subsistence level. The aim of these loans is to allow them to invest into their business and improve their productivity or expand into more lucrative markets, thereby aiding the economic development of rural areas. While there has been some demand for these loans, the take-up rate was lower than anticipated by the government and for this reason, looking at other countries, require Farigonia Development Bank to offer loans to groups of borrowers who would then repay the loan jointly. These group loans are taken up only by by a small number of groups consisting of traders and farmers that are having well-established business, although fulfilling the formal requirements, and the groups rarely consist of more than three members.

Why did the group loans not succeed?

Indicative answer

Group loans are feasible only for group that are homogeneous in the risks each member takes, and thus would see low-risk traders form a group, as found to be the case here; these are relatively low-risk as their business is well-established. Those traders with a higher risk could also form groups and there is on the one hand an incentive to form large groups as to reduce the loan rate given the lower risk from default to the bank of default, but on the other hand the higher risk of other group members makes it unattractive to take up a group loan in the first place as there is a high likelihood of a successful group member having to repay the loans of unsuccessful members. The fact that group loans for these higher-risk borrowers are not widely taken up, suggests that the increased risk from higher repayments due to defaulting group members outweighs the benefits of lower loan rates, making individual loans preferable.

Model(s) used: Sect. 24.4.2, Sect. 24.4.3, Sect. 24.4.5

Problem 297

The Mills Gate Shopping Centre has introduced the ability to operate so-called micro shops in one of their empty retail units. They offer these micro shops initially to individuals who are receiving state benefits and can present a viable business idea. To support this scheme, the regional government, in conjunction with the regional development agency, has made available funds to support the establishment of these businesses. They offer loans to groups of similar businesses, who are then jointly responsible for repaying the loan. Assessing the scheme after two years, the regional development agency found the default rates to be significant lower than initially anticipated based on the assessment of individual businesses applying to join the scheme. In addition is was observed that traders in general, but in particular those who belonged to the same group had close relationships and even became friends, despite some degree of competition between them. They also found that the amount of loan fraud, the deliberate refusal to repay their share of the loan amount, was less than comparable schemes in other areas where loans are provided to individual businesses.

Why were defaults and loan fraud lower than anticipated?

Indicative answer

The lower default rate can be attributed to each business making more cautious decisions; this could be the result of stringent monitoring in such a close-knit community, reducing the moral hazard and thereby reducing risks as businesses make less risky choices. In addition the fact that businesses monitor each other will also reduce strategic default; this strategic default is here presented as loan fraud. Monitoring each other will thus reduce moral hazard as well as strategic default, both reducing the risks to the regional development agency and thus increasing repayments, showing the benefits of group lending.

Model(s) used: Sect. 24.4.4, Sect. 24.4.6

Problem 298

With the more widespread use of online banking the location of banks has become less and less important; customers access banking services routinely remotely and this allows them to make use of the services of banks not operating in their region. These changes in the banking industry have increased competition between banks significantly as previously separate markets with a small number of banks now effectively have become a single market with a much larger number of banks being present. This increased competition had a significant effect on the behaviour of banks, loan rates reduced, deposit rates increased and banks profits reduced noticeably. A review of the banking system by the central bank for its five-yearly comprehensive financial stability report shows that banks tend to provide less loans to innovative but risky companies, while expanding their loans to well-established companies. In addition, banks are focussing more on separate sectors of the economy when providing loans and a suspicion is that they do so in order to reduce the level of competition in the loan market. Despite banks becoming more cautious in their provision of loans, there is no evidence that the overall risk of banks have reduced.

Having to provide an explanation for their findings of reduced loan risks without reducing bank risks overall, how would the central bank use the increased competition between banks as their reasoning?

Indicative answer

The increased competition between banks has reduced their profits due to reduced profit margins, increasing deposit and reduced loan rates. These reduced profits limit the ability of banks to absorb losses arising from the default of loans and consequently banks will reduce the risks of loans to reduce the default rate and thus the amount of losses that could erode their profitability. At the same time, they have, however, reduced the diversification of their loan portfolio as they focus more on companies in a single sector of the economy. The resulting increased correlation of loan defaults will have offset the effects of reduced individual default rates.

Model(s) used: Sect. 25.1.2, Sect. 25.2

Problem 299

Significant regulatory changes in the water industry will necessitate water companies to make substantial investments into their water treatment plants to improve the quality of their drinking water. At present it is not clear which method will be the most cost-effective and additional research will be required to establish this. Water companies are wary of the ability of banks to meet their loan demands, but are encouraged by the recent consolidation within the banking sector. In order to avoid duplication of work and to coordinate their investments, water firms for a Water Research Laboratory, which is jointly backed by all water companies; it is through this entity that banks apply for loans to banks for the financing of the required research and subsequent investments.

Has the consolidation in the banking sector and the formation of the Water Research Laboratory allowed water companies to obtain loans more easily?

Indicative answer

The consolidation of the banking sector has led to fewer but more importantly bigger banks. Such larger banks will compete more for borrowers and they will not only doing so by offering better loan rates, but also by providing larger loans and thus reducing the requirements for other sources of finance, particularly those that are less able to monitor the water companies and thus will face higher moral hazard costs and will charge higher loan rates. The formation of the Water Research Laboratory effectively makes the loan a loan to all water companies with joint liability. The joint liability reduces the moral hazard of companies seeking higher risk investments and thereby allows the provision of larger loans. Combining these two effects, water companies can obtain larger loans from banks than would be possible in a more fragmented market and without this joint liability.

Model(s) used: Chap. 22, 24.4.1

Problem 300

Consumer activists have long complained about banks exploiting their strong market position and pay deposit rates that are allowing them to make excessive profits.

Having reviewed the banking industry in reaction to sustained lobbying, the government of Wolgron has started to implement measures do increase competition between banks in the deposit market, most notably the removal of restrictions on advertising and offering different types of accounts, both of which were thus far much restricted. Evidence suggests that the effect on the deposit market is as expected with deposit rates having increased and a wider range of deposit accounts offered. As the competition between banks thus increased, the government observes that lending to consumers is slowly reducing and consumer finance companies obtain an ever increasing share of the loan market in this segment. Questioned about this development, the economics minister denies any connections between these two events as the increased competition was affecting the deposit market and no changes have been implemented in the loan market.

Is the economics minister justified in dismissing any connection between the two developments?

Indicative answer

The increased competition in the deposit market is increasing deposit rates and thus with no changes in the loan market, reducing bank profits. This will reduce the risks of loans that banks are willing to provide, they do so in order to protect themselves from any losses due to default as their cushion is reduced to the lower profit margin, and lower loan risks will result in less defaults and hence less losses to the bank. Having reduced losses will result in some borrowers no longer being able to secure a loan from banks and they will therefore have to rely on consumer finance to finance any purchases. Thus consumer finance will fill the gap that has been left by banks for the provision of consumer loans to more risky borrowers, increasing their market share.

Model(s) used: Sect. 25.1.3, Sect. 24.2

Part V
The conduct of banking activities

Problem 301

Karam Bank plc sends an internal notice to all branches that they will soon launch a promotion in time for the start of the Christmas shopping season, where they offer a standard loan rate of 7.5% p.a. for consumer loans of up to six months, reduced from 7.85%. Simultaneously the interest rate on savings accounts are increased by 0.5% p.a. to 5.4% p.a. for those customers agreeing to not accessing their deposits for one year. Staff in branches are asked to actively promote uptake of these offers and steer customers away from other products if possible and justifiable. Based on historical data, it is clear that these changes will be detrimental to the profitability of the bank, even when taking into account that new customers might be attractive to the bank.

Why would Karam bank plc launch such a promotion?

Indicative answer

It is clear that the motivation of Karam Bank plc is not to increase its profits. Instead the short term of the loans they seek to promote will reduce the duration of their loan portfolio, provided these loans are taken up by consumers. Similarly, the relative long term of the savings account will increase the duration of deposits. Combining these two effects, the duration gap between loans and deposits will reduce and this will reduce the interest rate risk of Karam bank plc.

Model(s) used: Sect. 26.1

Problem 302

Recent increases in interest rates by the central banks have surprised banks and their profits have reduced as a consequence. The profits of Nordic Bank plc have reduced by 23% in the first months after this event, while the profits of Lakeside Banks plc has only reduced by 14%. You can find no meaningful other changes that have occurred to either banks during this months.

How can you explain the differences in the profit changes between Nordic Bank plc and Lakeside Bank plc?

Indicative answer

Banks are making losses if interest rates rise because they need to adjust their deposit rates, increasing them, to remain competitive, but they are not able to increase existing loan rates, only the loan rates of newly agreed loans will be increased. This reduces the profit margin of banks and hence their profitability reduces. The profitability at Nordic Bank plc has reduced more than at Lakeside Bank plc, suggesting that the duration gap at Nordic Bank plc was higher than at Lakeside Bank plc. This makes Nordic Bank plc more vulnerable to an increase in interest rates than Lakeside Bank plc.

Model(s) used: Sect. 26.1

Problem 303

Banking regulators in Acheopatras and Travunios are cooperating closely their policies as both countries have deep economic and historical ties. Consequently the reguation of their respective banking system are very much aligned and the similarity of their countries' economies exposes them to comparable risks. Both banking regulators have an understanding with their respective governments that banks will be supported in case a liquidity shortage affecting multiple banks emerges. While banks in Acheopatras and Travunios are also very much alike in their lending policies, they differ in the amount of cash reserves they hold. Banks in Acheopatras hold cash reserves that account for around 8% of deposits, well in excess of the usual withdrawal rate of 3.5%, while in Travunios banks only hold cash reserves of 3.5% to cover the usual withdrawal rate of deposits. The regulator in Travunios has no expplantion for their banks holding much lower cash reserves than those in Acheopatras.

What is a possible cause of this difference?

Indicative answer

While the conditions for banks in both countries are very much alike, the level of cash reserves differ as a result of banks coordinating their decisions differently. The observation suggests that in both countries liquidity shocks might occur that are sufficiently high to impose significant costs on banks if they were to hold adequate cash reserves to cover these liquidity shocks. If a bailout were not forthcoming, banks would hold such cash reserves, but if a bailout were to be provided, no cash reserves would be held. As a bailout is only expected if multiple banks are facing a liquidity shortage, thus all or a substantial fraction of banks hold low cash reserves, banks can coordinate their decisions on cash reserves such that they hold low cash reserves to obtain this bailout if necessary. In Acheopatras, however, banks have coordinated to hold high cash reserves and thus avoid a bailout altogether; any bank holding low cash reserves would not be bailed out as they would be the only bank to fail, making a deviation from holding high cash reserves not profitable. Thus the different cash reserves by banks in Acheopatras and Travuniosare are not due to any inherent differences in the country, but represent two different possible equilibria in this scenario.

Model(s) used: Sect. 26.2.1

Problem 304

Having experienced a number of bank failures as depositors lost trust in banks and rapidly withdrew deposits, despite banks not facing any losses on the loans they have provided, the central bank and government of Doclea have made it widely known that in the future in such a situation banks will be bailed out. The aim was to reassure depositors that their funds are not at risk. While depositors have reacted positively to the informal announcement, banks have reacted with reducing their cash reserves substantially. While depositors are not concerned about this reaction of banks, the central bank is surprised why their announcement had such a significant impact on the behaviour of banks.

How can the reduction in cash reserves be explained?

Indicative answer

Banks hold cash reserves in order to avoid bankruptcy if they experience higher than expected deposit withdrawals. The higher costs of holding cash reserves, due to less loans being provided, are balanced against the losses from becoming illiquid and failing, making the holding of high cash reserves desirable. If a bailout of banks is a possibility, the costs of illiquidity will reduce as banks can no longer fail, but will only have to bear some additional costs arising from the bailout, which are lower than from failure. These lower costs of facing high deposit withdrawals have made the holding of cash reserves less beneficial and hence banks have reduced the amount of cash reserves to cover an possible liquidity shortage.

Model(s) used: Sect. 26.2.1

Problem 305

In a meeting with the central bank, the heads of all leading commercial banks are told off-the-record that unlike on previous occasions, banks that require emergency funds to meet their liquidity needs, will be charged a significant higher interest rate by the bank. The standard rate will move from 3% p.a. above the base rate to 6% p.a. After a few months the central bank notices that companies are complaining about a more difficult investment climate, despite the economy performing well, where the main complaint is that loan rates are increasing while the general interest rate level remained stable..

Given the announcement of the higher lending rate for emergency funding, is there a connection with the higher loan rates?

Indicative answer

The higher loan rate for banks facing a liquidity shortage will induce banks to increase their cash reserves in order to avoid using such emergency loans altogether or if they are to be sued reduce the size of such an emergency loan. Increasing the cash reserves, however, implies that banks have to reduce the amount of loans they provide, thus limiting the supply of loans. With demand unaffected by the inofficially announced policy measure, the loan rate will increase, reflecting demand for and supply of loans.

Model(s) used: Sect. 26.2.2

Problem 306

Banks in Jarendian have recently experienced a substantial inflow of deposits from neighbouring countries due the stability of their economy and the banking system, but also its implied guarantee of the government to bailout banks. The deposits from foreign depositors are seen by many as temporary that could easily be withdrawn at short notice, unlike domestic deposits whch always have been very stable. While it always has been widely acknowledged that the bailout will come at substantial costs in the form of high interest payments on any funds provided, the recent increase in deposit has made any possible bailout even more expensive for the government and they have further increased the interest rate on any such loans to failing banks. The central bank had expected that the increase in the loan rate for emergency funding would increase the cash reserves banks are holding, but since the foreign deposits have been flowing in, banks have reduced their cash reserves substantially.

Why was the expectations of the central for rising cash reserves wrong?

Indicative answer

While the increased costs emergency funding should increase the amount of cash reserves held due to the higher costs of funding any liquidity shortage from the withdrawal of deposits. However, the main effect is that the possible liquidity shortage has increased substantially due to the more volatile foreign deposits. This will have made it not cost effective for banks to hold large cash reserves at low or no interest and they rather invest the funds into more profitable loans. Instead banks will rely on the bailout to avert failing if deposits are withdrawn; as a bailout occurs regardless of whether the bank faces a small or large liquidity shortage exceeding their cash reserves, banks will not high cash reserves. It is therefore that the effect of higher loan costs in a bailout has become irrelevant and the larger possble liquidity shortage drives this result.

Model(s) used: Sect. 26.2.1, Sect. 26.2.2

Problem 307

Fleuriet & Co. is a private bank that caters mainly to high-net-worth individuals and has a requirement for their customers to have liquid assets of at least CHF 10m. They offer deposit account for their customers as a means to transfer funds for the purchase and sale of securities rather than for their daily expenses. For their approximately 1300 customers, the average turnover on all current accounts is CHF 203m per day and hold cash reserves of CHF 25m. A small regional bank located opposite Fleuriet & Co., the Raiffeisenbank Thormen eG, serves approximately 12,000 ordinary customers, most of which have deposits below CHF 5,000 and use their deposit accounts mainly to make payments for daily purchases. Similar to Fleuriet & Co. their turnover on all of their accounts is CHF 199m, but their are holding cash reserves of only CHF 5m.

How do you explain the differences in the amount of cash held by these two banks?

Indicative answer

While the turnover of deposits in these two banks is identical, the amounts of each transaction will be different, with those at Fleuriet & Co. being substantially higher as they are conducted by more wealthy individuals for investment transactions, while at Raiffeisenbank Thormen eG these transactions will be by ordinary customers for daily living expenses. As the turnover is similar for both banks, the number of transactions at Raiffeisenbank Thormen eG will be much higher than at Fleuriet & Co. This larger size of transactions makes it more likely that Fleuriet & Co. will reach a given threshold of cash reserves, high or low, than Raiffeisenbank Thormen eG. In order to save costs, Fleuriet & Co will therefore have to hold larger cash reserves in order to reduce the number of costly transfers in and out of cash reserves. It s therefore that Fleuriet & Co. will hold much higher cash reserves than Raiffeisenbank Thormen eG.

Model(s) used: Sect. 26.2.3

Problem 308

Regulators have raised concerns with the development of cash reserves held by Sidon Bank. Over the past few years Sidon Bank has grown substantially by acquiring and fully integrating many smaller competitors, most of which catered for the needs to low-income families; this move was seen as a diversification of the business as the bank previously focussed on the wealthy upper class of society. While acquiring these smaller banks, their cash reserves have fallen from 7.3% of deposits to now only 3.2%.

How does the Sidon Bank justify this reduction of their cash reserves to the regulator?

Indicative answer

The acquisitions of smaller banks has also led to an increase in the number of less wealthy customers, who will usually have smaller transactions on their deposits than more wealthy customers, reducing the average size of any individual deposit changes. It is often also that less wealthy customers make less such transactions. It is therefore that the risk of breaching the thresholds of cash reserves such that transfers into or out of cash reserves are less frequently needed. This allows Sidon Bank to reduce the amount of cash reserves held. The reduced cash reserves are thus a consequence of less volatile movements in deposits.

Model(s) used: Sect. 26.2.3

Problem 309

GrowthSelect Fund is a closed-end investment fund that uses the monies provided to them to grant to a wide variety of companies and individuals. While the fund has generated good returns since it inception, it has never appealed to a wider group of investors. The fund was originally envisaged to compete with banks for the provision of loans, but also sought to divert bank deposits to their investment fund. A regulatory change restricted the ability of GrowthSelect Fund to provide loans by requiring them to retain a proportion of cash to account for any defaults on loans, which led to a situation where some 15% of the fund value was held in cash. Soon afterwards the fund experienced a significant inflow of monies released from bank deposits.

Why has GrowthSelect Fund become attractive to bank depositors after the regulatory change?

Indicative answer

The regulatory change requires the fund to hold cash reserves, and this will provide incentives for them to monitor the loans they have provided more closely. The consequence is that the funds becomes less risky as default rates are decreasing. This will then assure investors that the fund will be able to maintain the value of their investments and the fund thus becomes (nearly) risk-free. This will be attractive to depositors, whose bank deposits wil be similarly risk-free and thus the GrowthSelect Fund become an actual competitor to banks for their deposits.

Model(s) used: Sect. 26.2.4

Problem 310

Under a new management Bandos Bank has decided to change its lending policy and rather than continue to focus on the provision of loans to individuals in deprived areas, they new focus will be on loans to small but well-established business and they seek to enter the market for loans to middle-class customers. The aim is to reduce the risks the bank takes and increase the profitability of the bank. Having provided this information on the change in strategy quite a while ago, gone ahead with implementing the new strategy through a marketing campaign, and the sharing of meeting milestones in this process, the bank has not been able to implement the anticipated reduction in deposit rates as depositors are not willing to accept these. Given the risks have reduced, the Bandos Bank has decided that they can increase the overall provision of loans without having to raise additional capital.

Why do depositors insist on maintaining deposit rates despite the risks of the bank reducing?

Indicative answer

While the bank communicates their new strategy effectively, depositors might not fully belief the effectiveness of their strategy in terms of reducing the risk they are taking. This is exacerbated by the bank increasing the leverage through the provision of more loans, while a low-risk bank would normally seek to signal their risk level by holding higher amounts of capital, or a lower leverage. This signal is missing here and it is therefore that depositors have doubt about the ability and willingness of Bandos Bank to reduce risks.

Model(s) used: Sect. 26.3.1

Problem 311

The accounting standards in Wirsista are not well developed giving companies, including banks, significant leeway in the presentation of their financial position. It has been bemoaned by the banking regulator for some time that having stricter accounting rules would allow the general public to be better informed about the banks and the risks these are taking. However, their own research department has published a study that suggests that deposit rates closely reflect the actual risks of banks. While the results of the study are unambiguous, the authours of the study are unable to explain this result.

Why do deposit rates accurately reflect the true risks banks are taking?

Indicative answer

Banks are not able to reveal their true risks credibly due to the low accounting standards, which would allow high-risk banks to claim being low-risk. However, low-risk banks can seek to distinguish themselves from high-risk banks by holding a larger amount of equity, or having a lower leverage. Observing leverage or equity is relatively straightforward from accounts, unlike assessing risks from provisions for defaults, that are much more easily manipulated. Having this information on the leverage of a bank, they can then infer that banks with a low leverage have lower risks and they will therefore demand lower deposit rates. It is thus that deposit rates reflect the risks banks are taking as depositors obtain a signal in form of the leverage of banks.

Model(s) used: Sect. 26.3.1

Problem 312

Having made significant losses from higher than expected default rate son loans in the last few years, Marindas Bank has under increased scrutiny by the markets for their lending policy, even though the past losses have been widely attributed to unforeseeable circumstances that does not affect other loans they have provided. As part of the assessment of Marindas Bank by market commentators, it has been noted that the loans provided since their losses have become more risky. It has been suggested that this probably does not represent a real change in the risks Marindas Bank is taking, but reflects a more critical view of their loans.

Is it correct to attribute the assessment that Marindas Bank takes higher risks after their losses to the analysis becoming more conservative?

Indicative answer

The losses that Marindas Bank has accumulated will have reduced the amount of equity they are holding. This might well have put their equity amount below a critical threshold that now provides incentives for Marindas Bank to increase the risks they are taking. Rather than attributing the increase in risks at Marindas Bank to a more conservative risk assessment in light of the losses they faced, the increased risk-taking by Marindas Bank might well be due to the bank actually taking on additional risks.

Model(s) used: Sect. 26.3.2

Problem 313

The regulator of BPP Bank is concerned about the risks the banks is taking when providing loans as the probability of the bank failing has reached a level they feel uncomfortable about. It does not have the necessary regulatory tools to require BPP Bank to reduce their risks; the only measures available to them is the imposition of minimum capital requirements. Critics of this approach to banking regulation have warned, however, that if capital requirements are not accompanied by tools to limit the risk-taking of banks, their regulatory powers will be insufficient to actually reduce the risk-taking of BPP Bank, or other banks.

Is it correct that the deficits in the regulatory tools of the regulator makes it impossible to compel banks to reduce risks?

Indicative answer

While the regulator cannot affect the risk-taking of banks directly, increasing the amount of equity a bank has to hold can give incentives for banks to reduce risks. A higher amount of equity increases possible losses that owners need to bear and these higher potential losses can induce them to reduce risks such that losses are reduced. This arises from the potential asymmetry of losses and profits, given the limited liability of banks. It is therefore that a regulator does not necessarily need powers to interfere in the risk-taking of banks directly. This tool to reduce risks will, however, be rather limited in that the amount of equity required needs to exceed a certain threshold to reduce risks and no fine tuning of the risks banks take can be achieved easily using this single tool.

Model(s) used: Sect. 26.3.2

Problem 314

Hartigen has allowed foreign-owned banks to operate in the country with strict regulatory restrictions on their operations and type of loan risks they were allowed to take, while domestic banks were not subject to any regulatory oversight beyond the licensing of banks. This was regime was introduced many decades ago to build expertise in the banking sector and not be dominated by foreign-owned banks. In recent years domestic banks have been able to compete successfully with foreign-owned banks and gained market share. Although foreign-owned banks were heavily regulated and domestic banks were free to make their decisions on lending without any restrictions, the riskiness of the loans that are provided and the capital held were broadly similar for domestic and foreign banks.

Why do unregulated domestic banks follow the same policies as regulated foreign banks?

Indicative answer

Domestic banks will seek to signal to the market that they are providing low-risk loans, comparable to foreign banks. This signal is provided through them holding a high amount of equity, even if no such requirement exists. This allows them to benefit from paying lower deposit rates. Holding this higher equity does not only serve as a signal to depositor as an indication of their risk-taking, it will also provide an incentive to ensure the loan portfolio they hold is of low risk.

Model(s) used: Sect. 26.3.1, Sect. 26.3.2

Problem 315

With banks in Aquila concentrated in the main cities, the government seeks to ensure that rural communities are also served by banks. To this effect the government allows banks access to loans at a rate below the current market rate offered to depositors on the condition that they expand their presence in rural areas; these total amount of loans is limited to 7.5% of the GDP of Aquila and banks will be limited to 4% of the loan portfolio of each bank. These loans to banks have been successful with all banks taking them up and the banking services in rural areas improving. The Central Bank of Aquila is however concerned about these loans and is asking for additional regulatory powers in order to reduce the risks of banks, even though individual loans have become no more risky. Instead, they have noted that since these government loans were available the risks banks taking have increased due to more loans being provided than before and have identified the government loans as the cause for this development. The government refutes their assessment and instead suggests that increased risks might be the result from expanding into the less-developed rural market, which is generally seen as slightly riskier.

Is the government right to refute the demands of the central bank?

Indicative answer

The government loan at a loan rate lower than the deposit rate is a subsidy to banks and with its total amount limited, as well as well as it being limited to a certain size of their loan portfolio, banks will seek to compete for these funds. The larger a bank is, the larger the subsidy they can obtain and hence they will seek to expand their lending. It is thus that they compete for this subsidy by increasing their loan portfolio, thus increasing their leverage. This will increase the risks of a bank failing. It is thus correct for the central bank to be concerned about the effect the government loan has on the banking system

Model(s) used: Sect. 26.3.3

Problem 316

Banks are suffering from significant losses due to high default rates on loans during a recession. Financial journalists question the quality of the banks' risk assessment as they seemed to have underestimated the losses during such a recession and question why banks are not reacting to the latest development by introducing more sophisticated systems into place to identify risks. Instead banks dismiss such concerns and claim that the type of recessions causing such losses was unexpected and unprecedented. Calls are made for the banking regulator to intervene and require banks to introduce better risk assessments and so overcome their reluctance to make the investment into improving their own procedures. The banking regulator is hesitant to impose such a requirement on banks with the argument that while they might obtain a more precise risk assessment, it does not necessarily lead to better lending decisions; if the banks currently see no benefits in introducing better assessments, then forcing them to do so will not be beneficial.

Is the reasoning of the banking regulator correct?

Indicative answer

Banks would not want to introduce the advanced risk assessment during a recession as the costs at this time would outweigh the benefits. If they were required to introduce the advanced risk assessment, the costs of its implementation will become irrelevant as banks are required to implement it. In this case, banks will make better decisions, that is choosing low-risk loans, only if the likelihood of the recession ending is sufficiently high. Given that the recession is ongoing, this condition might not be fulfilled and banks would continue to choose high-risk loans, making no improvement or even making worse decisions as currently loans cannot be distinguished and hence banks would provide a mix of high-risk and low-risk loans. Thus the benefits of introducing the more sophisticated risk assessment at this point might indeed provide no benefits or be even counterproductive.

Model(s) used: Sect. 26.3.3

Problem 317

A discussion between representatives of the banking industry and financial journalists turns heated when the ability of banks to identify loan risks comes up. A few financial journalists point out that assessing loan risk is a key skill by banks and they regularly fail by giving loans to those that are high-risk and refusing loans to low-risk borrowers. Banks point out that they continuously improve their risk assessment procedures, while financial journalists point out that this only happens after banks make large losses, but never before.

Is this final point a fair assessment of how banks introduce improvements to their risk assessments?

Indicative answer

Banks will usually only find it profitable to introduce more sophisticated risk assessment systems, often at considerable costs, if the prospects for the economy are sufficiently positive as it is only then that choosing low-risk investments is beneficial as the profits of such loans will then be sufficiently high. Such sufficiently good prospects will only be present at end of a recession or in the ensuing upturn of the economy, but not when the economy is starting to decline as then prospects are low. It is thus indeed the case that improvements are made after losses only, but this is not reaction to these losses and instead represents the optimal time to make such investments and they would be made even without any losses.

Model(s) used: Sect. 26.3.3

Problem 318

Hanno Jotilainen is regarded as one of the best bank mangers that works in Suominen Bank, the largest bank in the country, and has therefore been promoted quickly to lead the largest division within the bank. At the annual performance review, he seeks a further pay rise. Arguing that other managers that are generating less profits than him obtain a larger bonus, relative to their profits. When told that increasing his share of the profits will not be possible, he threatens to apply to work for competitors if his demands are not fulfilled. The CEO present at the meeting, laughs and says, ’In that case good luck’.

Why does the CEO risk losing his best manager?

Indicative answer

The threat of the manager to leave the bank is not credible. He is heading the largest division in the largest bank, and thus will be paid the highest salary. Another, smaller, bank will not be able to offer him a salary that is higher than what he receives currently. While other managers might be able to obtain a larger fraction of the profits they generate, this fraction will be based on smaller division and smaller profits, giving them a lower overall remuneration. It is thus that when seeking employment elsewhere, Hanno

Jotilainen will not be able to increase his salary; for this reason the CEO is not worried about losing his best manager.

Model(s) used: Sect. 27.1

Problem 319

Giving into public pressure, the High Pay Commission has introduced a limit on the pay that senior managers in banks can earn. While the move is generally applauded by bank customers and government as a way to align the remuneration of bankers with that of other industries, banks are challenging these restrictions unsuccessfully. On confirmation that the pay limit is going to be implemented from the next fiscal year, the stock prices of banks reduce significantly.

How can a limit on the pay of managers lead to a reduction in the stock price?

Indicative answer

The limit on manager remuneration will on the one hand reduce the costs to banks, of course, which should be impacting the profits positively and thus lead to an increase in stock prices. However, there is secondary effect that dominates this profit increase: With the pay limited, banks will now not be able to manage their business optimally. By not being able to reward their most able managers adequately, they will not be able to exploit their competitive advantages fully and allocate resources sub-optimally. By investing into business lines that are less lucrative as a consequence of this pay limit, the profits of banks reduce overall, despite the lower remuneration paid, reducing the stock price.

Model(s) used: Sect. 27.1

Problem 320

Nicolae Bank has been criticised for encouraging the provision of risky loans as it was found that the loans they have provided are causing larger losses than their competitors. The management defends their current practices and points out that all employees are paid a set salary, of which some is rolled over to be paid only if losses from loans are sufficiently small. It is therefore no incentive for anyone to grant loans that are more risky; the higher risks taken are therefore the result of the type of customers that Nicolae Bank is able to attract. As further evidence they cite that most banks offer bonuses to their employees that are based on the profits they generate and Nicolae Bank abstains from this. Further, they point out that their borrowers are willing to pay loan rates of 8.5-9% p.a. while those with comparable risks at other banks are paying barely 8% p.a., making Nicolae Bank more profitable.

Is it correct that Nicolae Bank does not provide any incentives to provide more risky loans?

Indicative answer

It is not that the salary of managers is encouraging them to take on higher risks, but that it does not discourage such risk-taking. Offering bonuses as described does not alter the risk-taking of employees compared to Nicolae Bank. It is therefore reasonable to assert that Nicolae Bank does not encourage risk-taking more than other banks. The reason for the higher risks taken by Nicolae Bank is instead due to the interest rates they apply with loan rates for higher-risk loans higher than that of competitors. This will make more risky loans more attractive and can explain the differences in actual risk-taking.

Model(s) used: Sect. 27.2

Problem 321

A paper entitled 'Bonus culture increases bank risk' claims that paying employees bonuses reflecting their contribution to bank profits results in higher risks being taken. The authors point to a time in the past when such bonuses were less common and bank risks were lower, having accounted for a range of other factors. A critical review of the paper highlighted that while they account for a number of changes in the economy over time, they do not account for the currently unusually high profitability of companies making investments into innovative technologies.

Can the high profitability of innovative companies explain the higher risk-taking over the use of bonuses?

Indicative answer

Using a bonus to reward employees does not induce higher risk-taking by banks compared to paying them a fixed salary. The increase in risk-taking can, however, be explained by the high profitability of companies. This high profitability of some companies allows banks to charge high loan rates. It is the high loan rate of that can be charged to innovative companies that makes them attractive to banks. This would be the case regardless of the way the salary of employees and menegers is determined.

Model(s) used: Sect. 27.2

Problem 322

Banks are facing increasing competition from other industries within the financial sector. In particular the insurance industry seeks to employ bankers for their expertise in credit risk assessment as investing into securitized loans has become widespread. Attracted by the high salaries offered in the insurance industry, many experienced bankers have left the banking profession and banks find it difficult to retain them by increasing salaries. An analysis if the banking sector has warned that in light of experienced bankers leaving the industry, risks are increasing and a systemic banking crisis has become more likely. Banks vehemently deny that the loss of experienced bankers has increased the risks of a banking crisis, commenting that banks remain profitable and can afford to pay the increased salaries necessary to retain the necessary expertise.

Based on the comments of the banks, can the public be assured that a banking crisis is no more likely than it used to be?

Indicative answer

It is not the loss of experienced that is the heart of the increased risk of a banking crisis, but the increase in salary bankers can demand. Their outside option, the salary offered in the insurance sector. Banks need to offer comparable salaries and if this salary increases too far, it provides bankers with incentives to choose more risky loans and hence increase the risk of banks failing, possibly causing a banking crisis. This increase in risk-taking is due to the fact that the salary that can be retained if the banks are taking high risks and not failing is sufficiently high to outweigh any possible risks from clawing back past salaries after a failure. It is thus the increase in salary that induces more risk-taking in banks and thereby increases the risk of a banking crisis rather than the loss of expertise.

Model(s) used: Sect. 27.3

Problem 323

Kalonia has experienced a banking crisis as a large number of banks failed in quick succession. After a previous banking crisis only eight years prior, it was suggested by outside consultants that banks should ensure that managers do not have incentives to take excessive risks that can lead to such a banking crisis. Following their recommendation, the central bank required all banks to introduce a clause in the contract of senior managers that allow banks to require the repayment of remuneration they have received in the previous five years should a banking crisis emerge. Initially it was agreed that banks can reclaim 10% of the salary in each of the past five years, but after a public outcry that this is hardly an incentive to ensure the banking system is safe and this was temporarily increased to 55%, and then a year before the recent banking crisis dropped to 25%. Looking at the origin of the banking crisis, it was found that it was mainly losses accumulated from loans granted in the twelve months. The central bank refutes the claim that reducing the repayment of salaries from 55% to 25% was the cause of this development.

Why is the central bank wrong in their claim?

Indicative answer

By reclaiming a smaller amount of the salaries, managers had more incentives to select risky loans that could lead to losses and trigger a systemic banking crisis. It is that the reward from the higher profits of risky loans, a higher salary, outweighs the costs of the clawback. The large clawback in place after the last banking crisis acted as a deterrent to provide loans with higher risks and once this threshold was lowered, this deterrent was not sufficient and managers started to provide more risky loans.

Model(s) used: Sect. 27.3

Problem 324

Faced with banks who take higher risks than the central bank is comfortable about and not willing to impose higher regulatory burdens on them to maintain their competitiveness, it has been ruled out to increase capital requirements or impose lending restrictions. Instead the central bank seeks to influence the decisions by senior managers with the aim of reducing their incentives to grant high-risk loans. Based on the theoretical literature, it is quickly settled that salaries are clawed back if a bank fails. Despite agreeing on the principles quickly, a discussion ensues about the implementation of the clawback. One group wants to claw back a fraction of salaries from the period prior to a bank failing, while another group seeks to claw back salaries for a number of past period, but only if a banking crisis materialises. The first group rejects that and says that it will cause moral hazard in that for a banking crisis many banks need to fail, so individual banks could away with failing and not seeking compensation from managers, weakening their incentives to reduce risks.

Which group is right in their assessment?

Indicative answer

If only the last salary after a bank failure is (partially) clawed back, incentives on risk-taking do not change as the salary managers will obtain are compensating for this risk of repaying their salary, leaving decisions on risk-taking unchanged; higher risks are compensated for by a higher salary. This will be different if salaries are only clawed back in case a systemic banking crisis emerges. In this case the likelihood of the bank failing in itself is not relevant, but only whether sufficient other banks are also failing and casing a systemic banking crisis. While a single bank makes only a limited contribution, the potential losses to the managers are higher as more past salaries are clawed back. This gives managers an incentive to reduce risks, especially as they have accumulated salaries from the past they do want to lose. As there is no compensation for the current risk in past salaries, which remain fixed, reducing current risks is beneficial. It is therefore that clawing salaries from back multiple years in case of a banking crisis only is more effective.

Model(s) used: Sect. 27.2, Sect. 27.3

Problem 325

As part of the annual evaluation of the banking system, the Financial Stability Committee observes that large and small banks are more likely to fail than mid-sized banks. Ruling out the exposure of large banks to foreign markets as the cause for this difference, which smaller banks generally do not have, the lead author of the report surmises that it must be that large banks have to provide more loans and as they provide more and more loans they have to seek out more and more risky borrowers, something smaller banks are less required to do as they need fewer borrowers. However, the smallest banks might then have difficulties in providing loans to large and low-risk borrowers due to their limited size and have to resort to more high-risk small loans. A junior member of staff brings up the possibility that the cause are management decisions and large as well as small banks prefer inherently to provide more risky loans.

Is there merit in the junior staff member's assertion?

Indicative answer

Larger banks will be able to attract the most able managers as by virtue of their size they can pay the highest salary. This high salary is necessary to prevent managers from taking a position at another, smaller, bank and thus they have an outside option to their current employment. Managers in small banks, on the other hand, are not that able and command only a small salary given their lower ability. It would thus require that managers of high and low ability prefer to take high risks, while those of average ability prefer to late low risks. If we now translate this into their respective salaries we see that high risks are taken by managers with high and low salaries, while those with average salaries take low risks. The reason for this would be that if, as is common, salaries of managers are clawed back in times of stress in the banking system, and those on high salaries will have secured enough funds that is not clawed back and they are willing to take higher risks in the hope of securing the full amount without worrying to much about the potential loss. Those on low salaries have not much to lose if the banking system comes under stress and therefore are willing to jeopardize this amount by taking on higher risks and secure a larger salary. It is those on medium salaries that have sufficiently to lose from a clawback to be concerned about the loss, but also have not enough to gain from taking on additional risks and hence will reduce risks. It is therefore that large and small banks take on higher risks and medium-sized banks choose low risks. Therefore the junior staff member is correct to attribute the result to active management decisions.

Model(s) used: Sect. 27.1, Sect. 27.3

Problem 326

A recruiter gives the advice to a young graduate that if he joins the National Regulator for Financial Services, overseeing the banking sector amongst others, he will not be able to gain employment with bank and be stuck on a low salary forever.

Is this sound advice?

Indicative answer

The regulator will normally only employ staff that are identified as being low-skilled while banks will employ highly-skilled applicants. Therefore accepting a position at a regulator can be seen as a signal that a graduate is assessed as having low skills and this would then preclude them from being of interest to banks, who seek to employ highly-skilled employees. In this sense the recruiter is correct. However, the low salary at the regulator is acceptable to the graduate because of the benefits this role gives them, such as the building of expertise; this expertise might increase their skill levels and could open the path to joining a bank in the future.

Model(s) used: Sect. 27.4

Problem 327

A parliamentary inquiry into the supervision of banks bemoans the low detection rate of banks violating regulatory constraints. The head of the regulatory agency defends its track record by pointing out that it provides value for money.

Why position is correct?

Indicative answer

The parliamentary inquiry is correct that detection rates of misconduct in banks will be quite low; this is because regulators are only able to attract low-skilled employees as highly skilled employees are employed by banks. However, the head of the regulatory agency correctly points out that while the detection rate might be low, their salary costs are also low as they are able to pay low salaries, making the cost per detection lower than if they were to employ highly-skilled employees at higher costs.

Model(s) used: Sect. 27.4

Problem 328

Saulaina Bank has experienced significant losses due to a number of loans to leading companies had to be written off partially as part of an agreement to ensure their survival and prevent an increasing level of unemployment in the economy. Managers at Saulaina Bank have their boni paid into a common pool and its funds are distributed after 5 years according to pre-determined rules. The board at Saulaina Bank considers, amongst other things, the implications the losses have for future payments into the bonus pool. Some board members think that is inevitable to for the time being the bonus pool is not added too, not least because of the public perception in light of the losses they have incurred. Other board members, however, argue that the bonus pool should be added too as planned as the losses were mainly the result of a political decision to write-down these loans and not the consequences of poor management decisions; in addition given the losses the bank needs to retain the best managers and reducing bonus payments would make it easy for other banks to entice them to leave Saulaina Bank.

How would you suggest Saulaina Bank proceeds with the payment into the bonus pool?

Indicative answer

Were Saulaina Bank to reduce the payments into the bonus pool, it will reduce the payment to managers and they might leave for another bank. However, with managers leaving the bonus pool would be distributed among fewer remaining managers, increasing their share of the diminished bonus pool. The more Saulaina Bank reduces payments into the bonus pool, the smaller it becomes and the lower the payments to each manager; to compensate for this more managers need to leave for competitors. It is thus a trade-off between the reduced payments into the bonus pool and the number of managers leaving. It is therefore that Saulaina Bank needs to trade off optimally the size of the payments into the bonus pool against the number of managers it will lose.

Model(s) used: Sect. 27.5

Problem 329

Henk Gronemaker has many years of experience working in a number of banks and specialises in the development of innovative solutions for customers requiring bespoke debt instruments to exploit regulatory loopholes in taxation rules and when facing other constraints. He has recently left the banking sector and accepted a position in a private equity firm that provides, amongst other financing solutions, loans to companies. Talking to former colleagues about his move after a few months at his new employer, he states how glad he is to have moved out from banks. He mentions that he can develop products that better suit their customers than when he worked at banks and the pay was better too. His former colleagues are surprised that he can develop solutions that are better for customers, but Henk Gronemaker replies that they do not face as many regulatory constraints, such as deposit insurance, as banks and so can focus on customer needs more closely.

Is the lower regulatory burden on private equity the reason for Henk Gronemaker being able to develop solutions better suited for their customers?

Indicative answer

The reason that Henk Gronemaker can develop more suitable products for customers at the private equity firm is not that banks face regulatory constraints on what they can and cannot develop, but at private equity firms there are less incentives to sell products that are not suitable for their customers. The losses from selling customers will affect private equity companies more as they have to bear the full costs of such events, while banks are more isolated from such losses due to the existence of deposit insurance. Misseling these loans will increase the risks to those financing the provate equity firm and hence they would require returns on their investments, which gives incentives to reduce the misselling of loans. It is thus not the absence of regulation that causes less misseling but the incentives to meet the demands of customers more closely.

Model(s) used: Sect. 28.1

Problem 330

A range of politicians, supported by a few of the leading banks, raise concerns that banks have lost a number of high-profile employees to non-bank financial institutions, such as private equity, and hedge funds. Bemoaning the loss of their most capable employees, it is suggested that these non-bank financial institutions are subjected to the same rules, including capital requirements, for which there are no constraints currently; the aim is to compensate for the deposit insurance that banks benefit from. Critics of such suggestions point out that firstly, non-bank financial institutions offer valuable services to their customers by providing products and services that are more closely suited to their needs than banks were able to provide.

Would a levelling of capital requirements ensure that banks and non-bank financial institutions ensure that banks would not continue to lose their best employees?

Indicative answer

While identical capital requirements would reduce the quality of products and services offered by non-bank financial institutions, it would not make them equivalent. Increasing these capital requirements will affect the incentives of non-bank financial institutions to missell their products, which will become more likely and hence the quality as perceived by their customers will reduce. However, non-bank financial institutions will retain an advantage in that the absence of deposit insurance will make them more susceptible to higher funding costs if they missell loans too frequently and incur losses from doing so. It is therefore that non-bank financial institutions are still more attractive to employees because they are less commonly 'forced' to missell products and risk their bonus payments. Thus non-bank financial institutions will remain more attractive to employees than banks, but the advantage of non-bank financial institutions will have been reduced.

Model(s) used: Sect. 28.1

Problem 331

Using intelligence from tax authorities, the Ministry of Finance has conducted searches at the leading banks in Geldern. They suspect that loans have been routinely been approved only if borrowers paid substantial bribe to bank employees. Evidence collected during their searches have lead to a number of prosecutions of employees, but in all cases the banks have not been cooperative in conducting these cases and after convictions had been secured, no measures have been taken by banks to reduce the risk of such practices. Their arguments to not helping the prosecution has been that it would be wrong to target their employees, who are low-paid, and the borrowers making such illicit payments should be prosecuted.

Why would banks not be more proactive in seeking to prevent future cases of employees taking bribes?

Indicative answer

Bank employees are very low paid and this benefits the banks, even they provide loans that are subsequently not repaid. If they were to take measures that reduce the acceptance of such bribery they would have to increase the salary substantially, reducing their profits. It is thus that banks prefer to pay low wages and if charging high loan rates, they would make higher profits, despite the bribery, than when increasing wages to eliminate bribery. It is thus not in the interest of banks to support the reduction in such practices.

Model(s) used: Sect. 28.2

Problem 332

The banking system in Lodavnia has become more competitive in recent years which has reduced loan rates considerably. It has, however, also had the side-effect that loans overall have become more than they previously were. Investigating the cause of these increased risks, the central bank identifies that over the years for no apparent reason the ability of employees to assess the creditworthiness of borrowers has reduced. It is particularly the case that loans have been approved that previously would not have been approved, not due to a conscious decision by the employee to grant a more risky loans, but because the risk assessment has been conducted to lower standards.

With out any evidence to suggest that it has become more difficult to assess the risks of borrowers, how do you explain these observations?

Indicative answer

The increased competition between banks has reduced loans rates for borrowers; this makes loans more attractive to them and in order to secure such cheaper loans they are willing to make additional payments, if needed. It is therefore that borrowers are willing to pay larger bribes to bank employees and these larger bribes are then inducing these employees to approve loans that they would have refused previously. This will explain the seemingly less reliable risk assessment as these loans will be presented as being creditworthy. As these loans are higher risk, the overall risks of banks increases.

Model(s) used: Sect. 28.2

Problem 333

Colander Bank has experienced losses from higher than expected default rates in the last recession and was required to raise additional equity in order to comply with capital requirements. Given the generally difficult economic conditions at the time, they were only able to raise the minimum capital required, leaving them dangerously close to violate banking regulations again. While the economy has started to recover from the recession, they have still more companies than initially expected failing to repay their loans, although new loans they have provided are generally seen as being safer. Looking at their latest data, Colander Bank realises that defaults in the current year will be high enough to cause losses again.

Seeking to avoid violating capital requirements again, how could Colander Bank avoid declaring these losses?

Indicative answer

If Colander Bank does not recognize the losses this year, but delay them until the coming year, they might be able to offset them against losses from that year and report overall profits, thus avoiding the violating banking regulations. This can be achieved by extending the loan to those borrowers that fail and then recognising the default only a year later, reducing future profits. If these future profits are sufficiently large, these losses can be offset without ever showing a loss.

Model(s) used: Sect. 28.3

Problem 334

Farina Madan Ltd. is a normally highly profitable mining company that has suffered a number of accidents recently that involved expensive rescue missions as well as the stopping of other mining operations. This has resulted in substantial losses to the company and they are currently not able to serve their loans as scheduled. With Farina Madan Ltd. being the by far largest borrower of National Rural Bank, the default of Farina Madan Ltd. would also cause its banks substantial losses, putting its survival into doubt unless the central bank would intervene to their benefit; this situation has come about due to large depreciations on their previous expansion into investment banking which was not successful and has been abandoned. National Rural Bank decides to extend the loan that Farina Madan Ltd. was due to repay for another two years and extend a new loans to cover the costs arising from the accidents, even though their internal credit risk scoring puts them below the minimum level normally required to approve a loan.

What is the rationale for this decision by National Rural bank?

Indicative answer

The reasons for this decision by National Rural Bank are two fold. Firstly, Farina Madan Ltd. is a generally profitable company that is not able to repay the loan only because of the costs resulting from the accidents; it is therefore reasonable to assume that they will return to be profitable son and thus be able to repay the loans from these future profits, at least partially. This would reduce the losses of the bank, or even allow both loans to be fully repaid. In addition, it prevents National Rural Bank having to recognize the losses from the default on the existing loan and this exacerbating the current losses. This should allow National Rural bank to avoid having to rely on central bank support; any losses from the possible default of Farina Madan Ltd. would be delayed and offset by future profits the bank should be able to generate. It is thus a combination of seeking to recover at least some their loan from Farina Madan Ltd. and delaying the recognition of losses to ensure the bank does not have to rely on central bank help.

Model(s) used: Sect. 11.2.3, Sect. 28.3

Problem 335

Concerns have been raised that banks in Rotsunda are used by international crime organisations to transfer money into off shore accounts. The Ministry of Finance, to which banks are required to report any suspicious transactions or accounts, believes that banks report too few suspicions transactions. Intelligence from other countries suggest that banks seem to report only a small fraction of the transactions that result from criminal activities are reported and foreign government blame the very low fine imposed on banks for not reporting suspicious transactions. Giving in to international pressure, the Minstry of Finance increases massively the fines bank have to pay for any transaction related to criminal activity that has not been reported.

Would this measure increase the compliance of banks to report suspicious activities?

Indicative answer

If the fines are increased too much, there will be an incentive for banks to report any transaction as being suspicious in order to avoid the possibility of receiving a fine for having not identified correctly a transaction. This would likely overwhelm the Ministry of Finance and would not be the desired outcome. On the other hand, the currently low fines provided no incentive to go through the costly process of reporting suspicious transactions. It is thus important that the new high fines are not so high that they cause banks to report each transaction.

Model(s) used: Sect. 28.4

Problem 336

The Financial Oversight Committee has instigated new procedures for banks to report any activities by customers that might be the result of illegal activities. The old paper-based system has been replaced with an online tool that can be integrated into the banks' IT systems. Rather than requiring between two and four hours of work for each report to collect the evidence and fill in a lengthy form, the new reporting tool collects the relevant information from the IT system and fills out forms automatically, requiring no more than 10-15 minutes of time. Since the new system has been implemented, the Financial Oversight Committee has been inundated with reports of suspicious activities, the average number of cases reported has increase from five per day to over 200. At the same time, the number of activities that have actually been confirmed as being related to illegal activities has increased from two per day to just under three.

How can you explain these changes in the reporting of suspicious activities and the only marginal increase in actually detected cases?

> Indicative answer
>
> The new reporting tool by the Financial Oversight Committee has reduced the costs of reporting significantly. From the data reported, it suggests that these are now so low that banks rather report any even remotely possible illegal activity, even if they do not have strong evidence for it, to avoid having a fine imposed on them for not reporting any such activities. This has led to a situation where activities are reported, whether the bank has a reasonable suspicion or not. The result is that only very few additional cases of illegal activities are detected as most cases were detected previously, but or now drowned by the reports on activities without sufficient initial evidence.
>
> **Model(s) used**: Sect. 28.4

Problem 337

During the long expansion of the economy in the past few years Haningen Bank has sought to expand their lending and pursued this strategy with marketing campaigns and aggressive pricing of loans. This approach has been criticised by some of their shareholders, who would prefer a more cautious approach to growing the bank. However, at the Annual General Meeting, the CEO of Haningen Bank announces that after their recent growth they will now focus more on the quality of their lending, not least to be well prepared for an anticipated downturn in general economic growth. Shareholders are delighted about the change in the strategy of Haningen Bank.

Has the CEO of Haningen Bank changed the strategy of the bank in response to pressure from these shareholders?

> Indicative answer
>
> If the economy is performing well, the risks from loans are usually low and hence little effort by the bank is required to provide low-risk loans and managers can focus their effort on attracting additional borrowers. The econ-

omy is now changing with economic growth slowing down and this usually implies that lending becomes more risky. It is therefore that banks need to provide more effort in managing the rising risk of lending, leaving them less resources to seek a further expansion of lending and hence their focus will shift more towards risk management. It is thus the changed economic conditions that have resulted in a re-alignment of the bank strategy and not the pressure from shareholders.

Model(s) used: Sect. 29.1

Problem 338

Being concerned about the limited access of small and medium-sized companies to bank loans, the Ministry of Economic Affairs seeks to incentivise banks to provide loans to such companies. Banks cite the higher risks of loans to such companies as a reason they are less inclined to provide loans, alongside with the reluctance of company owners to change business practices that reduce their default risk. The Ministry of Economic Affairs has as its only tool measures to increase competition between banks, such as making it easier for foreign banks to enter the market and the granting of licenses for newly founded banks.

Would increasing competition between facilitate the access of small and medium-sized companies to bank loans?

Indicative answer

If competition between banks increases, they increase their effort to attract new customers, not least to maintain market share compared to other banks. Thus banks will focus more on growing their lending, which should benefit small and medium-sized companies as they would be the natural target of this drive for the growth of lending. At the same time, banks will have to reduce their focus on the risks of lending due to them having limited resources and thus allow for more risky borrowers, which would fit the characteristics of small and medium-sized companies. It is thus that increasing competition will shift the focus of banks more towards attracting new borrowers and away from focussing on the risks of lending, benefitting small and medium-sized companies.

Model(s) used: Sect. 29.1

Problem 339

Město Bank plc has announced that it will take over from a rival bank the sponsoring of the local football club, Zelení přátelé FC. The move is positively received as a sign that Město Bank plc seeks to deepen its roots in the local community. While the commercial terms of the sponsorship are confidential it is assumed that the payments made by Město Bank are substantial; despite this increased expense has the stock market reacted positively and this has been attributed to the increased publicity the bank will receive throughout from this sponsorship.

Is this publicity the reason for the increase in the stock price of Město Bank plc?

Indicative answer

While the sponsorship will increase publicity for Město Bank plc, this will unlikely be sufficient to offset the costs of this sponsorship, this increased profits are unlikely to result from this. It is, however, the signalling effect of this sponsorship that is the cause of the stock market reaction. The fact that Město Bank plc can afford to engage in a loss-making activity, will send a signal to the market that the bank is highly profitable, something that might not have been widely known. Engaging in sponsorship of the local football team reveals this information to the public.

Model(s) used: Sect. 29.2

Problem 340

Foster Garman plc is a local bank that has over years been involved in the community and regularly sponsors events in the community centre and local schools. These sponsorships have always been small contributions and been agreed on for each individual event. With Bertrand Foster standing down as CEO of the bank, his designated successor has announced his plan to designate an amount of US$ 2m each year for such good causes and that each event taking place can bid for funding. With previous sponsorships typically costing around US$ 500,000 per year, this is a substantial increase. On announcing the sponsorship fund, the stock price of Forster Garman plc increases by 5%. Market observers attribute this to a late reaction on the appointment of a new CEO, which this announcement brought back to the attention of investors.

Is this assessment of the stock price movement correct?

Indicative answer

The stock price movement is a reaction to the announcement of the sponsorship fund. The increased size of this fund now makes it clear to the market that the new CEO believes the bank to be in a strong position and be able to afford such an amount; thus the announcement signals to the market this confidence and the stock market reacts accordingly. It did not react to prev ious announcements of sponsorships as the amounts were substantially smaller and therefore not sufficient to provide this signal.

Model(s) used: Sect. 29.2

Problem 341

Amira Madi has become unsatisfied with her current due to a large number of booking errors arising from her investments, which were slow to be resolved. Looking for other banks, she is quickly frustrated in that she finds it difficult to compare the offers different banks make her. While the charges for managing her investments are very clear to her, she struggles to understand the services and charges offered for her current and savings accounts as well as for her self-managed investments. The charges itself are barely comparable as they include different thresholds for interest rates, turnover requirements for lower brokerage fees, a long list of penalty charges, and varying account benefits. While looking through the information provided, Amira Madi becomes frustrated and seriously considers to remain with her current bank.

How can you explain the experience of Amira Madi when seeking to change her bank?

Indicative answer

Banks will seek to limit competition by making prices and services difficult to compare for low-margin products and services. Such products will routinely include all forms of deposit accounts and account services, but also brokerage services. This allows banks to maintain some profit margin on these products, even if essentially facing the competition of other banks. On the other hand, banks will compete for customers on products that are giving them a high profit margin. This is reflected in the experience Amira Madi has when comparing the terms and conditions of banks.

Model(s) used: Chap. 31

Problem 342

With the emergence of foreign banks competing with established local banks in Chatistan the choice for customers has increased significantly. However, consumer group complain that while there is a lot of choice between banks, there seems to be very little competition. The variety of offers makes it difficult for customers to identify the products and services the prefer and then determining the price for these is another difficulty. Before the market opened to foreign banks, banks had a very simple pricing structure that most customers could easily understand, although the offerings were also less diverse. Consumer groups blame the different approaches to banking taken by foreign banks as the reason for the resulting confusion about offers and charges.

Are the foreign banks the origin of these changes?

Indicative answer

Foreign banks have increased competition between banks and as such the profit margins of the incumbent banks will have eroded and banks react to this competition by seeking to protect their profit margins. This is achieved by making the comparison of charges and services more difficult as has happened in Chatistan. It is thus not directly the result of foreign banks entering the market with different banking models, but it would have happened similarly with inc creased competition from domestic banks.

Model(s) used: Chap. 31

Problem 343

Melek ÖzlÖglü compares the typical loan rates of different banks in a national newspaper as he soon will seek a loan to finance the purchase of a new car. A cursory glance tell him that the lowest loan are all available from small mutual banks, while the larger banks all offer loans only at higher rates. In his opinion the large banks exploit their market position as they are well-known and not many borrowers will make extensive comparisons with mostly unknown smaller banks.

Is his assessment of the reason for larger banks charging higher loan rates correct?

Indicative answer

The higher loan rates of larger banks arise because as conventional banks they attract more high-risk borrowers than the smaller mutual banks. This is because as mutual banks the borrower will only obtain smaller loans and receive a share of the profits as compensation as they repay their loan; for high-risk borrowers this is not attractive as the high default rate make this benefit unlikely to be obtained. As the newspaper reports the typical loan rate, the lower risk of borrowers in mutual banks will result in a lower loan rate being reported; this does not imply that loans at a conventional banks is necessarily higher as the loan rate would reflect the actual risk rather than the average risk of borrowers at a bank.

Model(s) used: Sect. 30.1.1

Problem 344

The local government seeks to support small businesses and individuals in their area and suggest at a meeting with the Chamber of Commerce to set up a mutual bank. In their briefing they suggest that the typically lower loan rates at mutual banks would benefit local companies and also individuals. Representatives from local business are generally sceptical about the plan and while not rejecting the suggestion, are lukewarm in response at most. Many do not see the benefits of establishing such a bank.

Why would companies overall not be benefitting as much from a mutual bank as the local government envisages?

Indicative answer

It is correct that mutual banks on average offer lower loan rates, but this is because the borrowers seeking loans from them are less risky than those at conventional banks. As loans will be priced according to the actual risk of the borrower, there might be little benefits to companies from the existence of a mutual bank. Also, more risky companies, and many small companies fall in this category typically, will not find the arrangements with a mutual bank desirable and thus obtain no benefit from their existence at all. While some companies might benefit from the sharing of profits, these benefits will often be small.

Model(s) used: Sect. 30.1.1

Problem 345

Boulangerie Arnaud is a local and well established bakery who seeks a loan to expand the range of products he offers in order to remain competitive with supermarkets that more and more encroach on his market. His application for a loan at Credit Rurale SA, alarge nationally operating commercial bank has been refused with the reasoning that the expansion of his business will not be viable given the competition he faces from supermarkets. The owner of Boucherie Framière suggests to approach one of the local mutual banks as they are more open to support local businesses.

Why should Boulangerie Arnaud consider applying for a loan at a mutual bank?

Indicative answer

As mutual banks are not primarily profit driven and when making decisions on loans will take into account the benefits a loan can bring to their customers. The consequence of this is that mutual are generally open to provide more risky loans than conventional banks.Assuming the risks of Boulangerie Arnaud are not too high, he might be able to secure a loan.

Model(s) used: Sect. 30.1.2

Problem 346

The senior management of Banka Empex dd, a local mutual bank, has been changed with the new leadership team emphasising more the importance of supporting local businesses than generating profits to the bank. In the aftermath of this change in the management of the bank, the lending policy has been reversed. While the previous management over time provided loans that were less and less risky in order to counter the effect that increasing competition and maintain their profits with low default rates, the new management seeks to provide loans again to more risky borrowers to allow them to benefit even more from the lower loan rates that apply.

Why is this policy reversal instigated by the new management of Banka Empex dd?

Indicative answer

The reason for the change in policy is the change in the focus of the bank on providing benefits to local businesses rather than a focus on bank profits. This change means that rather than foremost protect their profits from risking competition and hence fallow loan rates by reducing the risks the bank is taking, the bank now focusses more on the benefits of loans to local companies, allowing them to provide loans to more risky companies as their benefits offset the lowered profits this will generate.

Model(s) used: Sect. 30.1.2

Problem 347

Saffos SA is in financial difficulties after a major customer has filed for bankruptcy. As a major employer in the region rumours of large-scale redundancies are circulating and with elections due to be held in only five months' time politicians of all parties are seeking to ensure that Saffos SA is saved and redundancies avoided. To this effect politicians lean on banks to extend any loans and grant new loans to ensure salaries can be paid. Knowing that politicians will be working behind the scenes through regulators to ensure that banks provide the support necessary, the leading contenders in the election obtain large donations for their election campaigns through a fund managed by the banks having lend to Saffos SA and contributed to by its major shareholders. After this fund has been set up, the politicians reduce their demands on Saffo SA to extend existing loans but do not pressure them anymore in providing new loans.

Why would politicians reduce their demand for the support of Saffos SA?

Indicative answer

The donation to the election fund by bank shareholders can be seen as part of an implicit agreement with politicians to reduce their demand for support of Saffos SA in return for such donations. Politicians have additional funding available, although they might face a slightly higher backlash from the electorate if Saffos SA obtains less support and the population worries about possible redundancies. Making these donations is beneficial to shareholders as they will be able to reduce the exposure of their bank to Saffos SA and thereby increase the value of their shareholding.

Model(s) used: Sect. 30.2

Problem 348

The Central Bank of Jorenios is concerned about the level of risks banks are taking; in order to reduce the likelihood of a banking crisis they suggest to increase the capital requirements imposed on banks. As expected banks object to this measure with the argument that it increases their costs and in international competition puts them at a disadvantage. Instead, banks suggest that they commit to improving the quality of their risk-assessment. Conscious about the competitive position of banks, the Central Bank of Jorenios suggests a compromise that sees a smaller than planned increase in capital requirements if banks are taking steps to improve their risk assessment procedures. This compromise is in turn criticised by politicians, who accuse the Central Bank of Jorenios to give in to the lobbying of banks and dilute their efforts to reduce the risks in the banking system.

Is this criticism by politicians justified?

Indicative answer

Increasing the capital requirements gives incentives to banks to provide less risky loans in order for them to avoid large losses on their higher proportion of equity underlying the loans they provided. Using more sophisticated risk assessment procedures would have a similar effect in that banks would generally reduce the level of risks they are taking as their ability to distinguish risks better results in more high-risk loan applications being denied. It is therefore that both measures have the same effect in that they reduce the risks banks face, albeit for different reasons. Thus the suggested compromise will not necessarily be detrimental to the aim of reducing the risks banks are taking, provided the balance between the two measures is chosen carefully.

Model(s) used: Sect. 26.3.2, Sect. 26.4

Problem 349

Haldanis Bank holds higher than average liquidity reserves amounting to 7% of their short-term liabilities, mostly deposits; this compares to an industry average of 4%. Investors have criticised this high level of liquidity reserves as it reduces the profits the bank can generate and urge management to reduce them. The management of Haldanis Bank rejects the demand by investors pointing out that holding such cash reserves serves many purposes, it allows them to with ensure their customers can make payments to other banks at any time, they have assurance about the safety of deposits and thus reduces deposit rates, and it gives them additional headroom against and unexpected cash outflows. In their response to investors they add that all these costs are adding up quickly and it is that other banks are not willing to take such a cautious approach and will neglect some of the risks they seek to mitigate by holding larger liquidity reserves.

Assuming other banks do not face lower risks, how would they justify holding lower cash reserves than Haldanis Bank?

Indicative answer

Of course, the risks as identified by Haldanis Bank are present in all banks and need to be taken into account. However, the liquidity reserves required to cover these risks are not additive for each of the risks outlined. Liquidity reserves held to ensure the bank can make payments on behalf of depositors to other banks in their normal course of business will also be available in the case that a liquidity shock is observed and the cash flows are not well balanced over time. The same liquidity reserves are also of use to ensure depositors can have confidence in the safety of their deposits as banks will not take too high risks. It is therefore that cash reserves can be much lower than the sum of liquidity reserves that would be needed for each of the risks individually. Haldanis Bank is therefore excessively cautious in their approach to liquidity reserves.

Model(s) used: Sect. 26.2.1, Sect. 26.2.3, Sect. 26.2.4

Problem 350

The economy of Atlanum has undergone a significant change in recent years from being mostly based on agricultural products to a modern service economy. It has lead to a situation where banks that have built and early expertise in analysing companies in the service sector have competitive advantages over banks that still focus on the agricultural sector. It is therefore that the latter banks are laying off employees while the former banks are increasing their staff numbers. Despite the poor prospect of employment in banks that serve a sector of the economy that is shrinking, the move of employees towards banks serving the service industry is slow with only a few employees seeking a change in employment. It has been noticed that despite the difficulties for some banks in retaining employees, the banking regulator has not been able to benefit by attracting experienced bankers.

How can you explain the job market for bankers in Atlanum?

Indicative answer

Bankers are only moving over to banks serving the service industry slowly as by moving they would give up their current entitlement to bonuses in exchange for a bonus at their new banks that will be diluted. As some employees move banks, the bonus pool at the existing bank will be divided between an ever diminishing number of employees, making it more attractive to stay at a less competitive bank. Working for a regulator for such experienced bankers is not attractive as the remuneration will not be competitive as they prefer to employ less experienced employees at lower salaries. Experienced bankers are unlikely to benefit from building knowledge while working at a regulator and increase their chances of better paid positions in banks later on; it is thus not providing them with additional benefits.

Model(s) used: Sect. 27.4, Sect. 27.5

Problem 351

In recent years competition between banks has increased through a range of regulatory measures that have made it easier for new competitors to enter the market; this has resulted in the emergence of finance companies providing loans that are funded by private equity. Groups representing small businesses and consumers are overall satisfied with the increased competition as it has lowered loan rates, but find it dissatisfying that banks are often providing loans to companies who and consumers who do not need such large loans, incentivising excessive spending on investments or purchasing too expensive goods. They point out, however, that loans provided by finance companies are less affected by such problems.

Why do finance companies provide tol-large loans less frequently than banks?

Indicative answer

Banks are able to provide larger loans as their long-standing expertise and banks could use this as a competitive advantage. However, this ability to grant larger loans can easily result in a situation where loans are granted that are too large for the needs of the borrower, even if formally affordable; this could be classified as a misselling of loans. Misselling of loans is generally more common in banks than shadow banks due to depositors not requiring a risk-premium for any risks from such activities, such as finance companies, even without any other differences between banks and shadow banks. As shadow banks, finance companies, can only provide smaller loans due to their lack in expertise to monitor borrowers, the risk of misselling too-large loans is further reduced.

Model(s) used: Chap. 22, Sect. 28.1

Problem 352

Bank Danai seeks to increase its profits and with the salaries of employees being the largest part of the costs of the bank, besides interest on deposits, they decide to freeze the overall size of the bonuses that are paid. In order to ensure that employees continue meet the demands of existing customers, the bonuses will be more based on their ability to approve loans rather than the risks taken. To their surprise, Bank Danai finds that more loans than ever approved and risks taken by the bank are increasing, but complaints are becoming common that companies seeking loans are expected to pay for lavish 'business meals' and loan negotiations taking place in country hotels with talks during a round of golf, all paid for by the company seeking a loan. The senior management of Bank Danai is surprised by these developments, but refuse to act against employees being invited to such events.

How can these developments at Bank Danai be explained?

Indicative answer

Firstly, the focus of the bonus being shifted towards the granting of loans will incentivise employees to focus more on the granting of new loans rather than the risks involved. While risks will not be neglected completely due to it still being a part for the determination of the bonus, the effort employees put into limiting risks to the bank is reduced and shifted more towards the expansion of the loan provision, which will increase in risk, as observed by Bank Danai. However, with the overall size of bonuses frozen in size, the value of bonuses reduces due to inflation. This gives employees an incentive to seek additional income for granting loans to compensate for their loss in income and the bank would be willing to tolerate this as it allows them freeze bonuses without losing employees

Model(s) used: Sect. 28.2, Sect. 29.1

Problem 353

White Star LLP is a private equity firm that has build an interest in a number of banks. Once they have obtained a sufficiently large stake in a bank, it seeks to obtain a seat on the board of that bank for one of its partners and influence the strategy of the bank. Usually the initiatives launched by this partner will include the reduction of costs and a focus on the growth of the bank. There has been much criticism of this approach by White Star LLP as it has resulted in banks reducing the provision of loans to innovative companies and the cost reduction has affected many cultural events and reduced the social engagement of the banks thus affected. It has been put to Sonia Calabrese, as one of the partners of White Star LLP, that it is irrational to cut out lending to innovative companies if the bank seeks to grow. This is evidenced by observing no positive reaction to the announcements of policy changes on the stock price of listed banks.

How does Sonia Calabrese defend the policy of White Star LLP?

Indicative answer

The reduction in loans to innovative companies as a measure to reduce risks and thus having to spend less effort on managing the higher risks such companies pose in favour of loans to less risky company; this then allows the bank to focus their efforts on growing their loans to low-risk companies. While this measure, combined with reducing costs, should increase the value of the bank, this is not reflected in the stock price. The reason for this might be that as part of the cost reduction non-commercial activities have been reduced and these usually serve as a signal to the market that the management of the bank is confident in the position of the bank to generate future profits. With such a signal missing, the stock price might fall as it can be seen by the market as an indication of reduced profits in the future. This is however of no concern directly as it does not effect the value of the bank, only its stock price. Once the market realises the true value of the bank generated from these measures, the stock price will increase to reflect the higher value accurately.

Model(s) used: Sect. 29.1, Sect. 29.2

Problem 354

The Volksbank Reiningen eG is a local mutual bank that serves the town of Reiningen and the villages surrounding it. It is a popular bank with professionals and high-income employees as well as well-established local traders and companies. Local politicians have criticised the bank, however, for not supporting the future development of the local economy sufficiently. They point out that very few of those companies they deem to be prepare the region for the future due to them being most innovative in new technologies are financed by the Volksbank Reiningen eG, but instead rely on larger banks operating nationally or internationally. The CEO of Volksbank Reiningen eG points out that they are more than willing to consider the requirements of such companies, but there have been very few approaches by the companies concerned, but those that have approached have been largely obtained financing even though they had been turned down by other banks.

Why does the Volksbank Reiningen eG provide so few loans to innovative companies and those they provide seem to be to companies that have been turned down elsewhere?

Indicative answer

Mutual banks, like Volksbank Reiningen eG, are not attractive to high-risk borrowers as they are unlikely to benefit from the distribution of profits by the mutual bank due to their high failure rate, they prefer a lower loan rate at a conventional bank. Hence there is no demand for loans by Volksbank Reiningen eG from such borrowers. However, once a high-risk borrower approaches Volksbank Reiningen eG, they are more likely to obtain a loan than with conventional banks as mutual banks take into account the benefits of their loans to the company itself and not only its own profits. Thus companies refused by conventional banks, might seek a loan from a mutual bank as a second best solution and are more likely to be granted such a loan.

Model(s) used: Sect. 30.1.1, Sect. 30.1.2

Problem 355

West Galen is a state in the Federation of Vanenda and has its own parliament, where elections are due in 17 months. With the economy having entered a slight recession the governing party is keen to ensure the economy is growing again well before this election to increase their chances of being re-elected. To this effect senior parliamentarians seek their position on the board of the largest bank, in which the government holds a 33% stake arising from a previous bailout during a financial crisis. As board members these parliamentarians are seeking to influence the bank's management to provide loans to the few large companies that provide directly a significant part of the employment in the state and indirectly through their supply chains. These loans are essential to the companies as due to the recession they have suffered significant losses that might prevent other banks from lending to them. Non-government board members are resisting such pressure and behind closed doors propose that donations to the party should be made instead. To their surprise, despite not changing the criteria for the provision of loans, employees below board level approve most of the loans to such companies. After the election they observe that most those employees having granted such loans are leaving the bank and taking up positions in leading roles at government think tanks and government-owned companies.

Why did these loans being granted despite the bank making donations to the governing party?

Indicative answer

The donation to the governing political party could be interpreted as a bribe for the parliamentarians on the board to not pursue any pressure for providing loans to these companies that are not creditworthy. This donation was supposed to provide the party with the same benefits as the provision of loans would have given them; this should have seen off the provision of loans. However, the resignation of senior employees after the election suggests that they might have been individually bribed to approve the loan. The bribe here took the form of offering them positions in government or government-near organisations. It was thus this offer to senior employees that thwarted the effects of the donation and eventually loans were granted.

Model(s) used: Sect. 28.2, Sect. 30.2

Problem 356

The requirements for banks to establish themselves in Granaria have been reduced significantly, which has also reduced the costs of operating a bank once established. A consequence of this change was that the average loan rate reduced, but this did not affect all loan rates equally. Loans to mid-sized companies, usually seen as the most lucrative part of the business for banks, did reduce most, while loans to consumers, a low-margin business, were barely affected, even when taking into account rh lower profit margins. Similarly, loans to large companies for which there is significant competition between banks due to the prestige of such loans, were not reducing in light of the regulatory changes. It has been observed that for consumers the choice between loans of different banks has become less straightforward as banks tend to offer different rules on the early repayment of a loan, offer insurance against unemployment or defects of the product purchased with the loan. Even taking into account the value of these product features would not have reduced the loan rates for consumers.

How can you explain the observed changes in the loan rates?

Indicative answer

The lower entry requirements and the subsequent lower running costs of banks will have reduced the fixed costs of banks and this will have lead to more banks being active in the market. This will ordinarily lead to lower loan rates, although with the monopolistic competition here will have less an effect than with homogeneous goods. That we have monopolistic competition results from the observation of banks offering different product specifications at least to consumers. It is the low-margin loans to consumers who seem not to benefit much from the increased competition. It is this low price, the low profit margin, that entices banks to offer loan conditions that are not easily compared, especially for uninformed consumers; this will complexity of the product will allow banks to maintain their profits margins by eliminating competition between banks as prices are not transparent. The high-margin loans to mid-sized companies are not affected by this as the high profits allow banks to compete for such customers on the price of the loans, the loan rate. The prestigious loans to large companies were very competitive in any case and there was not much scope to reduce loan rates any further in light of increased competition.

Model(s) used: Sect. 21.1, Chap. 31

Problem 357

A confidential survey of senior loan officers has revealed that the largest part of their bonus is the result of increasing the loans they granted in the past year. A commentary by a reader of a financial magazine states that 'The control of risk always remains second for as long as the government will support failing banks in any crisis.'

Why is this comment correct?

Indicative answer

The size of the mostly determined by the growth of the loan portfolio suggests that banks focus on this aspect at the expense of putting effort in assessing, monitoring, and managing risks, it is therefore that risk considerations are less important as stated. The reason for this preference for growth is that banks that way obtain a larger part of the funds in times of financial crises and thus banks compete on their size, putting effort mainly onto this aspect of the business.

Model(s) used: Sect. 26.3.3, Sect. 29.1

Problem 358

Sarina Bank seeks to reduce the risks of their loans and requires loan officers to prioritise loans to traditional, well-established companies as well as mortgages in prime locations. The effect of this policy has been that loan officers pursued a rather aggressive approach to provide new loans and granted mainly loans to long-term investments and mortgages to younger families with low repayments, exceeding the standard 20-25 year term for repayment to 40 years. The board does not understand why loan officers expand their loan portfolio so aggressively and while they are not concerned about the risks involved in the loans, they do not want this strategy to continue.

Why do loan officers suddenly pursue a growth strategy that the board of Sarina Bank does not approve of?

Indicative answer

The focus of Sarina Bank on low-risk loans, leaves little effort required to mitigate the risks of the loans that have been provided, and thus allowing them to increase their effort in acquiring additional customers, thus growing the size of the loan portfolio. This growth has, however, been mostly in long-term loans and this will increase the duration of loans and thus increase the duration gap to the short-term deposits of the bank. This will increase the interest rate risk of the bank, which the board seems to be uncomfortable with.

Model(s) used: Sect. 26.1, Sect. 29.1

Problem 359

Lango Bank has experienced large losses arising from the failure of two large borrowers in the past few months. In order to obtain government support, the bank had to agree to limit the total amount of bonuses paid to employees to 50% of the previous year's bonuses to alleviate public concerns about high pay while receiving public funds. Worrying about the risks of other banks facing similar losses, the government has urged them to limit their bonus pool as well and not allocate more funds to them. Expecting Lango Bank to lose some of their best bankers to competitors in light of the reduced bonuses they are able to pay; this had happened in the past where some senior bankers gave their standard six months' notice. Surprisingly, however, none of their most able bankers left Lango bank, but a much larger number of mid-ranking employees did resign their positions very quickly using their three months notice period.

How come that many more less senior employees leave Lango Bank than in the past?

Indicative answer

Less senior employees have the benefit of being able to leave the bank sooner as they have a shorter notice period and presumably negotiations with other banks are quicker concluded than for more senior bankers. As more junior employees they will be paid lower bonuses and hence the dilution of the other bank's bonus pool is less strong as is the increase for employees staying at Lango Bank. Therefore the effect on bonus pools and hence the incentives to stay of such employees is smaller, allowing more of them to switch banks. Once these more junior bankers have left, the fraction of the bonus pool allocated to senior bankers will be such that it stays more attractive to stay at Lango Bank than to switch to another bank.

Model(s) used: Sect. 27.5

Problem 360

Soleda is a remote region with many temporary employees in the mining industry from other countries. It is typically at the end of their contracts that employees return home and due to the long delays in bank transfers to other countries, most employees withdraw their accumulated wages in cash, although a significant fraction retain their funds as they return on a follow-on contract. Banks that face large cash withdrawals will have to borrow funds in the interbank market from those that face less cash withdrawals. As every year the amount withdrawn in cash changes, planning ahead for banks is difficult. You make an observation about the relationship between the average amount of cash held and the interbank rate in that year as follows:

Year	2020	2021	2022	2023	2024	2025	2026
Cash (% of deposits)	3.5	5.8	2.4	4.2	3.4	5.3	3.1
Interbank loan rate (% p.a.)	4.53	2.17	5.08	3.21	4.41	1.89	3.47

During the entire time period the central bank rate was held constant at 4.5% p.a.
How do you explain the evolution of the cash reserves over time?

Indicative answer

The pattern that emerges is that the cash reserves alternative between high and low values; the interbank loan rate varies equally but the movements are opposite. We see that if we have a high interbank lending rate in a year, the cash reserves held the following year are high and if the interbank lending rate is low, they are low. We can interpret the interbank lending rate as the 'penalty rate' for having low cash reserves and having to acquire additional cash reserves due to withdrawals from workers. Banks learn for the next year that the interbank lending rate is high (low) and therefore increase (decrease) their cash holding to avoid the high interbank loan rate (make more investments as the interbank loan rate was low). The interbank lending rate itself is determined by demand and supply, a low (high) cash reserve suggest low (high) supply, but high (low) demand.

Model(s) used: Sect. 26.2.2

Part VI
Systemic risk

Problem 361

Sardina Bank and Claride Bank have both experienced a significant increase in losses from loan defaults due to their exposure to loans for companies in the shipping industry, which faces a significant downturn. Being the more conservative of these two banks, Sardina Bank did expect to weather the losses better than Claride Bank who has pursued a more aggressive approach in financing their loans. In line with traditional principles of banking, Sardina Bank has mainly used deposits to finance its loans and has relied only to a small extent on interbank loans from other banks if they either noticed a good opportunity to obtain a new promising customer or decided to support an existing customer with an additional loan. In contrast to that, Claride Bank has relied heavily on interbank loans to expand their business in recent years. In light of the higher than expected losses on their loans, Sardina Bank had thought that the interbank loans they had would be extended and they would not have to raise additional liquidity. However, it was Sardina Bank that faced a liquidity shortage as interbank loans were not extended, while all interbank loans that had been provided to Claride Bank were extended. Market commentators in the financial press pointed out that the failure of Claride Bank would have a much bigger impact on the stability of the banking system and it was therefore in the common good that other banks did not withdraw interbank loans, while there was very little danger from the failure of Sardina Bank.

Is it correct to assert that banks extended interbank loans to Claride Bank because they wanted to avoid the spread of failures across the banking system?

Indicative answer

Banks withdrawing their interbank loans are not concerned about the risks of any failures of banks spreading; they are only concerned about the losses that are imposed on them individually. The large interbank loans that Claride Bank has would require the bank to raise significant cash reserves if they were to be withdrawn, and hence increase losses from raising such funds; this would reduce the repayment of the interbank loans by more than when they are retained with the bank. At Claride Bank the situation is reversed; the low exposure to the interbank market means that raising additional liquidity to repay interbank loans does not impose large losses on the bank and hence the repayment of interbank loans is more beneficial than incurring losses when retaining them with the bank.

Model(s) used: Sect. 32.1.1

Problem 362

A recession has increased the losses from loan defaults, which has lead to widespread concerns about the safety of deposits amongst depositors. Banks are affected differently with some banks only experience slight increases in default rates while others experience a larger increase due to their exposure to more affected industries. The immediate impact on banks also seems to be very inconsistent, some banks that are experiencing only a minor increase in default rates are subjected to a bank run, while others with a similar increase or slightly larger did not experience a bank run. At a press conference the banking regulator the regulator is asked to explain these differences between banks and replies that the best explanation is that depositors assess the risks of banks differently and accordingly act in different ways. This explanation is seen as very unsatisfactory and journalists seek opinions to find a more convincing reason.

What could such an explanation be?

Indicative answer

The differences could be in their exposure to the interbank market. A bank will not face a bank run if the default rates on loans is sufficiently low as losses to the bank will be low, but these might be higher if the bank faces losses from the interbank market. If the losses to the bank which has obtained the interbank loan is sufficiently high, this will impose losses on the bank providing the loan, even if the default rate on normal loans is low. These losses will then cause depositors to withdraw funds and a bank run emerges. It is thus not the different assessments of risks by depositors that is the cause of the different outcomes for banks, but their exposure to the interbank market and there banks with higher or lower defaults these banks have provided interbank loans to.

Model(s) used: Sect. 32.1.1

Problem 363

Preveza Bank has seen a significant inflow of deposits that it could not lend out profitably due to a having a limited customer base and therefore provided loans to other banks. Two of these banks, Agila Bank and Vari Bank, have been exposed to higher than anticipated risks from their lending and incurred losses of similar magnitude. The management of Preveza Bank takes the decision to withdraw interbank loans from Agila Bank as soon as they become due, but extend those provided to Vari Bank. Employees managing interbank lending at Preveza Bank are finding this approach inconsistent as the losses to both banks were comparable and the amount interbank loans they have provided to these banks are also roughly similar.

Why might the decision to withdraw interbank loans from Agila Bank but not Vari Bank be justified?

Indicative answer

While the increase in the loan risk at both banks might be similar and the interbank loans provided by Preveza Bank are of similar size, the overall exposure to the interbank market might be different. If Agila Bank has a larger exposure to the interbank market overall than Vari Bank, then it can be rational to withdraw interbank loans only from Agila Bank. A high exposure to interbank loans would imply that withdrawing these loans, would impose high costs on the lenders, exceeding the losses from retaining the interbank loans. However, if a bank has only few interbank loans, raising the funds to repay these will not impose high costs due to their limited size, making their withdrawal less costly than retaining them and be exposed to the losses from higher credit risk.

Model(s) used: Sect. 32.1.1

Problem 364

The central bank is due to compile their annual financial stability report and collects information to inform its conclusions. They have established that in a continuation of a long-term trend the provision of interbank loans has grown again. As the implications of this information is discussed, two groups emerge, one argues that the increase of interbank loans increases the interconnectedness of the banking system, making it more vulnerable to the failure of one bank with the risks of this failure spreading increased. The other group argues that this increased interconnectedness will reduce the risks of failures spreading to other banks and reduce the risk of failures in the first place.

What should the conclusions in the financial stability report be?

Indicative answer

If we assume that interbank loans are approximately evenly spread across all banks, the higher interconnectedness of banks should reduce the risk of any bank failures spreading and even prevent interbank loans from failing banks being withdrawn and thus avoiding collapse. This is because any losses of a failing bank are spread widely and thus small compared to the losses if the interbank loans are withdrawn. Thus, from a financial stability perspective it is a positive development. It has, however, also the consequence of avoiding a failing bank to actually collapse, which can give rise to an inefficiency in the banking system.

Model(s) used: Sect. 32.1.2

Problem 365

Regulatory changes for banks in Beryllis have made it unattractive for banks to use any excess cash reserves to provide loan to other banks; this was achieved by requiring higher liquidity reserves and increasing the capital that must be held against such loans has also been increased; as a consequence the amount of interbank lending has reduced significantly. While the regulator argues that these measures make the banking system more stable, banks argue that it actually does the opposite and lobby the regulator to return to the previous regulation.

How would banks argue their case?

Indicative answer

The reduction of interbank loans has made the banking system more vulnerable to the failure of a single bank. If a bank fails, it would subject the entire banking system to a collapse of the interbank market, causing liquidity shortages that will impose additional losses on banks, causing them to fail as well. Banks are withdrawing their interbank loans as the small amount of interbank lending implies that each loan will have to take a larger fraction of any losses if a bank were to fail. As the loans themselves are smaller, the amount of liquidity that a bank needs to raise will be small and hence the losses to the bank and thus the bank withdrawing this loan will be small. It is therefore that the banking system with fewer interbank loans become more vulnerable to the failure of a single bank spreading. With more interbank loans, the costs of raising additional liquidity would rise and hence the possible losses from withdrawing interbank loans, shifting the balance towards retaining the interbank loans.

Model(s) used: Sect. 32.1.2

Problem 366

Nildi Bank plc has been managed by its majority owner, Sajiv Nildi, who is due to retire from his role and hand over to his son, Rohan Nildi. While Rohan Nildi has successfully managed the lending business of the bank for years, his father also instructs him on the way the bank is financed. One of the strategies in financing his bank has been to use interbank loans as little as possible, but if this was necessary seek to keep the loans from each bank as large as possible. However, Rohan Nildi suggests that it would be safer for the bank to seek a large amount of interbank loans, regardless of the size, and then lend some of these funds out other banks.

Why strategy is preferable?

Indicative answer

The idea of taking a large interbank loan out as needed suggests a thinking that a large loan will impose significant costs when withdrawn as the amount of liquidity that needs to be raised is large, hence the potential losses at times of distress by Nildi Bank plc would be so high that any lender would extend the interbank loan, avoiding a liquidity shortage for the bank. This, however, only works if the loan is sufficiently large and it is not the size of an individual loan that matters, but the overall exposure in the interbank market. Thus the same result can be achieved by obtaining multiple small interbank loans and as all banks will have the same considerations, it has the same effect. Having a large number of small loans, and obtaining more than required with the aim of lending excess funds out again to other banks, will increase the interbank market size and this might ensure that interbank loans are provided even if Nildi Bank plc becomes insolvent, interbank loans are extended as the losses from withdrawal of interbank loans would be higher than extending them; this might allow Nildi bank plc to recover from their losses and avoid collapse.

Model(s) used: Sect. 32.1.1, Sect. 32.1.2

Problem 367

Ardenia Bank has faced an unexpected and unprecedented withdrawal of deposits; the cause of these withdrawals could never be established, but are thought to be unrelated to concerns about the safety of the bank. In that quarter, despite all banks in the country facing no losses on the loans they did provide to the general public, each of them posted a loss. The central bank is concerned how such losses could be incurred and that despite tight regulations on the loan risks, the banking system is so vulnerable to the difficulties a single bank might faces. In response, the central bank considers an even tighter regulation of the loan risks that banks are able to take.

Would such tighter regulation of loan risks make the banking system more resilient against adverse events at a single bank?

Indicative answer

The cause of the losses to the banks were not risks arising from loans to the general public, but its origin was in the loss of deposits, which required the bank to generate additional liquidity, including the sale of loans at a loss. This then imposed losses on other banks as interbank loans obtained from them could not be repaid fully, in addition to the requirement of repaying interbank loans Ardenia Bank has been granted. This repayment of interbank loans by other banks will also impose losses on them as they in turn have to raise additional liquidity by selling loans below their full value. Thus reducing the risks of loans to the general public would not alleviate these problems, it could even make this problem more prominent as often lower-risk loans come with lower profit margins and hence banks have less profitable loans to cover any losses from such a liquidity shortage.

Model(s) used: Sect. 32.1.3

Problem 368

'We worry about the loan risks banks are taking as that might impose losses on innocent depositors, but liquidity is no concern as the worst that can happen is that depositors obtain their funds a little bit later.' This statement from a member of parliament at an inquiry hearing on improving the competitiveness of the banking system has been widely criticised as being short-sighted and dangerous.

Why is this statement wrong?

Indicative answer

A liquidity shortage, even in a single bank, if sufficiently large, can impose losses on all banks. The bank facing a liquidity shortage will have to raise additional liquidity and to this effect sell loans at a loss and recall interbank loans they have given. This, if the liquidity was sufficiently large, can impose a a loss on the bank which will not allow them to repay all interbank loans, and impose losses on depositors. The losses imposed on other banks from only partially repaying interbank loan may exceed any profits they have made from loans and thus not allow them to repay depositors in full. Hence it is important to consider liquidity shortages as they can impose direct losses on depositors.

Model(s) used: Sect. 32.1.3

Problem 369

Regulating the liquidity reserves of banks, it has been suggested that interbank loans, while beneficial in overcoming liquidity imbalances between banks, can also be the cause of losses spreading. It is therefore that suggestions have been made to limit the amount of interbank loans banks can give and receive such that the losses that can be spread through interbank loans are limited.

How would banks argue against the imposition of limits on interbank lending?

Indicative answer

Interbank loans can transmit any losses a bank makes, and impose losses on banks having provided such interbank loans as they are not able to repay them in full, who in turn can impose losses on banks that have provided them with interbank loans if these losses are sufficiently high. Limiting interbank loans might reduce the losses each bank has to bear, especially as this would require interbank loans from more banks and thus spread the losses more widely. However, the problem with such an approach is that the small size of the interbank loans, on aggregate, will not impose large losses in banks providing interbank loans if these are called in. It is therefore that it might be more beneficial for banks to call in interbank loans if they observe a bank being in difficulties rather; with larger interbank loans, such a recall would be more expensive as the bank would have to raise more liquidity from the sale of loans and hence suffer higher losses, making it more beneficial to extend interbank loans and hope for the bank to recover. It is thus not beneficial to impose limits on interbank loans as this will lead to them being called in more frequently, causing the failure of any bank in distress, while larger interbank loans would prevent such decisions and hence reduce the number of bank failures. The risk of losses spreading for larger loans is thereby alleviated.

Model(s) used: Sect. 32.1.1, Sect. 32.1.3

Problem 370

The banking system in Horgurion is characterised by frequent bank runs spreading between banks; the causes of these bank runs are well known to be the sudden withdrawal of funds to banks overseas by large companies and wealthy individuals. It has been noted that some banks are more exposed to such withdrawals than others due to the nature of their customers, however, the frequency of bank runs seems to be only very weakly related to this characteristic. Seeking measures to reduce the number of bank runs, the central bank wants to establish the root cause of bank runs being observed.

What do you suggest the central bank should investigate in order to understand the occurrence of banks runs?

Indicative answer

While there seems to be no connection between the frequency of bank runs and the size of deposit withdrawals at banks, a relationship should emerge if we consider the size of the interbank loans when a withdrawal occurs. If the size of interbank loans is small, we would expect that banks with a higher withdrawal rate of deposits have higher occurrences of bank runs; in contrast to that with a high level of interbank lending, those banks with low withdrawal rates will have higher chances of experiencing a bank run than those with high withdrawal rates. This is because with high levels of interbank lending, the bank with a small withdrawal rate will have a high exposure to the risks of other banks experiencing a bank run and hence them making a loss, which in turn will induce a bank run on them. If a bank has a high risk of facing substantial withdrawals, this additional risk from banks with a low rate of deposit withdrawals is limited as the other bank is unlikely to face a bank run directly and hence contagion is not commonly observed. With low levels of interbank lending the exposure to other banks is small and hence potential losses at these banks will not be able to cause bank runs.

Model(s) used: Sect. 32.1.4

Problem 371

In the last few years the central bank has been less active in providing liquidity to the banking system than it was before. They give as a reason that banks have been able to manage their liquidity needs well through interbank loans, which have increased significantly as the central bank liquidity support has been reduced, and hence the risks of banks runs from liquidity shortages has significantly reduced. Naturally, banks would prefer the liquidity support of the central bank to continue as this reduces the interest rates in the interbank loan market.

How would banks argue for the liquidity support to continue or even to be expanded?

Indicative answer

The increase in interbank lending that accompanied the reduction in liquidity support by the central bank, will increase the risk of contagion of any liquidity shock and thereby increase the risk of bank runs. With more interbank loans, losses to the bank providing such loans if a bank fails, for example because of a bank run, will be increasing due to the larger exposure of the bank to a bank run. These losses can then cause a bank run in the bank providing the loan as deposits might no longer be repaid in full. With smaller interbank loans any such losses will be lower and hence the risk of such contagion reduced. It is therefore in the interest of the central bank to provide more liquidity support and reduce the reliance on interbank loans as this reduces systemic risk.

Model(s) used: Sect. 32.1.4

Problem 372

The banks in Peratin have undergone substantial changes in recent years. While it used to be that banks were serving different group of customers, the merger and restructuring of banks has led to five highly competitive banking groups that serve all parts of society equally. While before some banks were serving large corporate customers as well as high net-worth individuals, who were providing notoriously volatile deposits and moved them to exploit even small differences in deposit rates with other domestic or foreign banks, and other banks serving individual customers who barely moved deposits, now all banks cater for a mix of such customers. The assessment of the systemic risk within Peratin's banking system has shown that these changes have reduced the measures considered and also the risk of individual banks failing has reduced.

How can this reduced risk to the banking system in Peratin be explained?

Indicative answer

The more homogeneous banks in Peratin have reduced the discrepancy between banks that have a potential high deposit withdrawal rate from high-value customers, and a those with a low rate of deposit withdrawals, those serving smaller individual customers. This smaller discrepancy between banks reduces the size of the interbank loans that banks provide to each other as a hedge against such adverse deposit withdrawals and hence if a bank fails the exposure of the other banks is sufficiently small as to not cause large enough losses that would threaten the survival of this bank. It is therefore that the failure of one bank will not lead to the failure of another bank. With more heterogeneous banks, the interbank loans would have been bigger and contagion might have occurred as losses from a failing bank would have been larger. It will also be that no bank anymore experience large sudden withdrawals of deposits as the banks most at risk, those serving large corporate customers and high net-worth individuals. It is thus that the risk of individual banks failing is also reduced.

Model(s) used: Sect. 32.1.3, Sect. 32.1.4

Problem 373

In order to reduce the risks of banks failing, new legislation proposes that banks will be limited in the size of loans they are can provide to borrowers. The aim is to reduce the reliance of banks on the repayment of large loans, whose default might cause a bank to become insolvent. Discussing the proposed legislation with central bankers, they urge caution in the implementation of such rules as risks might actually increase.

How will central bankers explain that risks are increasing under the proposed legislation ?

Indicative answer

If a limit on the size of loans is imposed, then large companies might not be able to obtain a loan of the size they require from a single bank, and thus have to seek a loan from multiple banks. Similarly, banks will have excess funds they will invest by providing loans to other companies. This diversification will reduce the risk of a single bank failing, assuming the correlation between the defaults of the companies chosen is sufficiently low to make a meaningful difference. However, now multiple banks will provide a loan to each large company, exposing them to the same risk; this will increase the correlation of banks defaulting as the failure of a single company will not only affect a single bank rather than multiple banks that have provided a loan to the failing company or companies. Therefore the risk of multiple banks failing has increased, while the risk of a single or small number of banks failing has decreased. It is this additional systemic risk that the central bank is concerned about.

Model(s) used: Sect. 32.2.1

Problem 374

As a measure to increase trust in the banking system of Gondwilla, the government announces the creation of the Bank Recovery Agency. Its purpose is to support failing banks in times of an emerging banking crisis and to this effect is committed to purchase bank assets at a fair price from failing banks. After the announcement of the Bank Recovery Agency companies experience more difficulties in obtaining large loans and instead have to rely on loans from multiple banks. Given the increased costs to companies when having to obtain multiple loans, they demand that the remit of the Bank Recovery Agency is extended to purchase bank assets not only in times of crises, but to support any bank that is failing.

Would the proposed measure be able to reduce the reliance of companies on multiple banks for large loans?

Indicative answer

The effect of the Bank Recovery Agency as introduced was that its asset purchases would have increased the price banks can obtain for their assets when a banking crisis is experienced, thus multiple banks are failing. This reduces the costs of banks arising from such a crisis but leaves the costs of banks failing individually, outside of a banking crisis, unaffected. The incentive for banks will therefore change such that it becomes less costly if a banking crisis emerges and with a banking crisis being the result of multiple banks failing, they are less avoiding such a situation, allowing them to choose strategies that makes banks more similar and hence subject to the same risks. This here means they are diversifying their loan portfolio by giving more but smaller loans, not allowing larger loans to be given by a single banks and hence companies seeking such loans having to seek loans from multiple banks. If the remit of the Bank Recovery Agency would be extended to purchase assets of any bank failing, regardless whether a banking crisis is emerging, then the costs of a bank failing is reduced in all situations, reducing the incentives for banks to diversify their loan portfolio and hence the provision of large loans could continue. It is therefore that the proposed change in the remit of the Bank Recovery Agency would revert the observed need for large loans to be split between banks.

Model(s) used: Sect. 32.2.1

Problem 375

'I do not understand why we make our lives so difficult. If we reduce the risks of each bank failing, then we have reduced the risk of a banking crisis. Simple.'

What is wrong with this statement?

Indicative answer

While the statement is true ceteris paribus, that is if no other decisions of banks would change if the risks of an individual bank failing is reduced, it neglects that banks might change their decision in such a situation. It is not only the risk of individual banks that matter for the emergence of a banking crisis, but also the correlation of any bank defaults. If banks choose strategies that are very much aligned, then they are more likely to fail together than when their strategies are very different, making a banking crisis less likely. Hence while some policy measures might reduce the risk of an individual bank, for example the diversification of their loan portfolio, the similarity of banks after such measures are implemented might actually make thr failure of multiple banks more likely.

Model(s) used: Sect. 32.2.1

Problem 376

Constanta Bank specialises in the provision of loans to large industrial companies and they therefore serves a very limited customer base with loans, while Mariuska Bank focuses on loans to the large number of small and medium-sized companies that have emerged since the liberalisation of the economy about a decade ago. Both banks have provided loans of approximately €120bn and the default rates on loans also being similar with 1.15% for Constanta Banks and 1.18% for Mariuska Bank. Despite these similarities, Constanta Bank offers deposits at 3.5% p.a. and Mariuska Bank 3.9% p.a. Financial advisors suggest that clients use Mariuska Bank due to their higher deposits rates, however, it seems that few clients follow this advice.

Why are deposits ar Mariuska Bank not more attractive?

Indicative answer

On first sight it seems that both banks are offering similar risks to depositors and hence should offer similar deposit rates. However, the uncertainty about the ability of Mariuska Bank to repay its depositors is higher. This is because they provide more loans than Constanta Bank and hence are exposed to a larger number of risks, which provides a higher degree of uncertainty about the outcomes; this exposure to multiple risks could be interpreted as diversification, but this has not resulted in a lower risk than at Constanta Bank. It is this wider range of possible outcomes for depositors which increases their risk and if they are risk averse, they will require additional compensation. This additional compensation required does not make a deposit rate higher by 0.4% p.a. more attractive but only offers reflects this additional uncertainty.

Model(s) used: Sect. 32.2.2

Problem 377

Ismail Bankası has changed their operating strategy in recent years from being a bank offering loans to local companies to now engaging extensively in trading non-precious metals, derivatives, and cryptoassets, in additional to a reduced activity in the local loan market. In making this transition, Ismail Bankası has managed to keep the risks it takes at the same level as before. As they started to implement their new strategy, they have found it more and more difficult to attract or retain deposits, despite keeping deposit rates at the same level as their more traditional competitors. Managers at Ismail Bankası suggest a marketing campaign to reassure depositors that their deposits are not less safe than they used to be or than they are at other banks and thereby stem the outflow of deposits. As head of customer relations, Deniz Bulut suggests that they simply have to increase their deposit rate to stay competitive.

Is Deniz Bulut correct to dismiss the marketing campaign and suggest a higher deposit rate?

Indicative answer

The strategy change at Ismail Bankası has exposed the bank to a number of different risks from the trading of the instruments they now pursue. While the overall risk-level has not increased, it adds additional uncertainty to the outcomes for depositors as this will be driven by a larger variety of risks. This additional uncertainty for depositors, while on average identical to before, requires additional compensation for depositors to accept such higher variety of possible outcomes. This implies that higher deposit rates, as suggested by Deniz Bulut, should be able to make deposits at Ismail Bankası attractive again.

Model(s) used: Sect. 32.2.2

Problem 378

Researching banks and bank behaviour for a think tank, Rudolph Schwammermeier makes a curious observation: As hedge funds were becoming a more important investment vehicle for the purchase of bank loans and similar assets, banks' strategies, in terms of the loan markets they targeted and the types of risk they were taking, became more similar than before, although overall risks stayed approximately the same. At the same time, the profit margins of banks reduced. Rudolph Schwammermeier suggest a research project to investigate the connection between these observations. Presenting his research proposal to a panel of senior researchers, his research project is rejected with the comment correlation does not mean causation.

Was the panel right to suggest that there is no causal relationship between these events?

Indicative answer

The emergence of hedge funds purchasing bank assets will have the effect that it will increase the price banks can obtain for any assets they have to sell, thus reducing the costs of failure. It is likely that this additional demand for bank assets has its strongest impact during times of banking crises when large amounts of such assets are sold. Thereby making the costs of a banking crisis lower for banks, they will be less concerned about following a business strategy that is capable creating a banking strategy. The banking strategy here is the fact that banks have become more alike and thus more likely to either all survive or all fail. With the demand for bank assets by hedge funds a widespread sale of such assets will reduce prices less and thus banks are less concerned about aligning their strategies. The fact that deposit rates have increased, despite no increase in risks having been observed, suggests that risks for depositors nevertheless have increased. This increase is not in the average risk, but the fact that by aligning their business strategies more, it must be that banks are exposed to a wider range of risks, which were before taken by different banks. This wider range of risks is increasing the range of possible outcomes for depositors and thus risk-averse depositors require a higher deposit rate as observed here. Hence there can well be a causal relationship between the observation as suggested by Rudolph Schwammermeier.

Model(s) used: Sect. 32.2.1, Sect. 32.2.2

Problem 379

Berlinga has entered a recession and while the prospect of companies in the long-run are promising, their reduced revenue stream does not allow many companies to make loan repayments as scheduled and they therefore seek to extend existing loans until the economy is recovering. In anticipation of the recession the central bank has provided additional liquidity to banks with the aim of reducing loan rates and stimulating investment by companies, as well as consumption by consumers. Market observers expected monetary policy to start to tighten at this stage in anticipation of the impending economic recovery, but to their surprise, the central bank loosens monetary policy further; this has lead to widespread criticism due to concerns about the central bank over-stimulating the economy and building up inflation throughout the recovery phase.

Is this criticism of the central bank justified?

Indicative answer

While it would make sense to reduce the liquidity provided in anticipation of the economic recovery, the central bank is concerned about the systemic the banking system poses. It is that banks face a liquidity shortage as loans are not being repaid, with companies and individuals probably demanding access to their deposits in order to maintain necessary payments, investments, and consumption. This will cause a liquidity shortage in banks, which can subsequently spread to other banks, who would be keen to obtain assets a bank with such liquidity shortage is selling at a low price to increase their profits, reducing their liquidity position and potentially causing a bank run. The additional liquidity provided by the central banks seeks to pre-empt such a liquidity shortage. The central bank will have to balance the benefits of this policy in terms of reducing the systemic risk in the banking sector by avpiding bank runs against the costs of potentially higher inflation due to banks having been provided with more funds and thus being able to provide more loans.

Model(s) used: Sect. 32.3.1

Problem 380

The central bank is concerned about the possibility of a bank run at some banks due to delays in the repayment of loans due to a recently overcome recession and for this reason seeks to ensure sufficient liquidity is available to bank to meet demands for deposit withdrawals. A quick analysis shows that all banks about which concerns has been raised are fundamentally sound and thus a bank run would not be justified; furthermore most deposits that have been withdrawn from the small number of affected banks have been re-deposited with other banks. It is therefore that there is no shortage of liquidity within the banking system and many economists have appealed to the central bank to let market forces solve the liquidity imbalance.

How would each side argue their case?

Indicative answer

With deposits remaining within the banking system and only being moved between banks, there should be sufficient liquidity for banks overall such that no bank run needs to occur. Banks who receive the deposits withdrawn elsewhere could provide interbank loans to banks facing such withdrawals and thereby replenish the liquidity reserves of these banks without reducing their on liquidity reserves below the initial level. This would rely on banks providing such interbank loans for the market to regulate the overall liquidity and avoid bank runs. However, banks facing a liquidity shortage might not be able to obtain interbank loans; banks with excess cash reserves might only be willing to purchase assets of banks with liquidity shortages. This would give the purchasing bank higher profits, but also reduce their own liquidity. The losses from to the bank selling the assets might turn the bank unviable by imposing losses and thus justifyng a bank run due to their insolvency. This will require additional assets to be sold, reducing the liquidity of other banks further until they themselves will not be able to meet the demands of their depositors and a bank run occurs at these banks as well. It is this scenario that the central bank seeks to avoid by providing additional liquidity to the market.

Model(s) used: Sect. 16.2, Sect. 32.3.1

Problem 381

Faced with the prospect of widespread bank runs after several large lenders requested an extension of the loan terms to take advantage of emerging investment opportunities in newly opened markets and basks were short of cash reserves to meet the deposit withdrawals of other depositors, the central bank intervened to avoid a banking crisis. How this intervention has been done was widely criticised by proponents of free markets. The central required all larger banks to attend an online meeting where based on information about their liquidity reserves and requests for loan extensions that they were forced to disclose confidentially, were required to adjust their deposit rates down from 4.75% p.a. to 3.5% p.a. This intervention was not only unprecedented, but also seen as anti-competitive.

How would the central bank justify their decision?

Indicative answer

The request for loans to be extended could have lead to liquidity shortages by banks expecting such payments and this can lead to bank runs. The central bank, knowing the overall position of banks from their disclosures, they concluded that the banking system had sufficient liquidity overall to be able to meet the demand by depositors, but only if the deposit rates were reduced. Higher deposit rates would not allow banks to make all payments to depositors and hence this intervention ensured that banks runs could be avoided.

Model(s) used: Sect. 32.3.1

Problem 382

Caja Aragon and Banco Valento are both facing significant deposit withdrawals after reports in the press that they face significant losses and might have to cease trading in the near future. While such rumours are denied by both banks and the central bank, they need to ensure they can meet the liquidity demand arising from deposit withdrawals. To this effect both banks seek to sell loans to outside investors. In the case of the Banco Valento this is possible without making significant losses, the bank is able to obtain prices for their loans that are on average 96% of the true value of the loans. However, Caja Aragon is having to agree on a substantial larger discount, enabling it to realising only 88% of the true value of the loans they sell.

Caja Aragon fails to understand why it fared so much worse than Banco Valento in their sale of assets and attributes this to for some reason not attracting the right investors purchasing their loans.

Why might Caja Aragon be in this less favourable position?

Indicative answer

The fact that the discount on loans by Caja Aragon is higher than for Banco Valento can be attributed to a higher level of adverse selection when selling these loans. It implies that there are less informed traders seeking the loans sold by Caja Aragon, making a higher discount necessary to alleviate concerns that sold loans are of lower value, for example exhibiting higher risk. Such a situation can arise if the loans given by Caja Aragaon are more difficult to value or they have provided loans to companies where less expertise is avaliable in the market to conduct a detailed valuation. In these cases there would be fewer informed purchasers of these loans, or purchasers that are less well informed. Thus the demand of informed iinvestors would be lower, sensing a less clear signal to uninformed investors about the quality of the loans, necessitating a higher discount.

Model(s) used: Sect. 32.3.2

Problem 383

First City Bank has to increase its liquidity reserves due to regulatory requirements and decides to sell some of its loan to hedge fund investors. The initial sale consists of loans to well-known companies and they are able to achieve a price that is close to the value of the loans, allowing only for a small discount to expedite the negotiations. Pleased with this result, they seek to sell a further amount of loans to build up excess liquidity reserves to ensure the future compliance with regulatory constraints. Rather than selling loans by well-know companies, they decide to sell loans from smaller companies and individuals. Despite assuring potential purchasers that the loans are as safe as the initially sold loans to larger companies, the purchasers insist on a significantly higher discount. First City Bank accuses investors of seeking to exploit their desire to increase their liquidity reserves and exploit their market position.

Is this accusation well-founded?

Indicative answer

The initial sold loans were provided to large and presumably well-known companies, allowing many investors to be well-informed. The second sale of loans to smaller companies and individuals will be much more difficult to assess, with generally less informed investors available. This will increase the adverse selection and the more frequent uninformed investors will have to be compensated for this risk, necessitating a lower price for the loans. It is thus not an exploitation of their market power that causes investors to offer lower prices but the higher adverse selection in these loans.

Model(s) used: Sect. 32.3.2

Problem 384

Jonti Construction Bank has suffered significant losses after a senior manager was detected to have committed fraud to an extent that endangers the survival of the bank. In order to ensure the stability of the banking system as a whole, the government and central bank is considering measures to rescue Jonti Construction Bank. At a preliminary meeting the situation of Jonti Construction Bank is discussed and it quickly transpires that, except for the detected fraud, the bank is performing well with defaults on loans below industry average. It is therefore suggested that Jonti Construction Bank should be taken over by a competitor and being offered at an attractive price. On learning of this suggestion, Jonti Construction Bank rejects the proposal and insists that it should be paid full market value for its assets.

Why do the government and central bank insist in subsequent meeting on implementation of the initial suggestion?

Indicative answer

it seems that the risks of the loans that Jonti Construction Bank has provided are low and with a low purchase price, another bank would find it attractive to take over Jonti Construction Bank and ensure it long-term survival at no costs to the government or central bank. If it were to raise the price of the assets, it would be less attractive to other banks and the bank might not be purchased. This would then lead to a liquidation of the bank, which imposes costs on the government and raises the possibility of systemic risk. From the government's and central banks's perspective it is therefore best for Jonti Construction Bank to be taken over by another bank.

Model(s) used: Sect. 33.1

Problem 385

GGBank is known for serving customers with low income and poor credit history at affordable prices. In its market it has been highly successful, but in light of unfounded rumours about its viability has been subject to a bank run, depleting its cash reserves quickly. The government decides to bail GGBank out by taking over its assets and repaying depositors as they demand it. This approach has been heavily criticised by other banks and they point to past precedent where Heron Bank in a comparable situation was liquidated by the government, who paid out depositors as part of the deposit insurance scheme. The government point out that Heron Bank was different in that it was providing services to high-net worth individuals and well-established companies; it therefore had less social value to the economy while GGBank serves a market that is neglected by other banks.

Is this argument for bailing out GGBank but not bailing out Heron Bank rational?

Indicative answer

While governments will take into account social costs, the main difference between the two banks is that GGBank was a bank with high loan risks, while it is reasonable to infer that Heron Bank will take significantly lower risks given its customer base. The high risks of the loans that GGBank has provided does not make it attractive to sell these loans as the revenue will be limited; this is in contrast to Heron Bank whose low-risk loans would generate much higher revenue when being sold. It is thus not primarily the social value that GGBank adds that drives the decision, anew bank could be founded to serve this market, but the difefrence sin the risk profiles of these two banks.

Model(s) used: Sect. 33.1

Problem 386

After a previous banking crisis with many bank failures, the government of Hertonsia has repeatedly made clear in official and inofficial communications that they are committed to prevent any further bank failures. The intention of such communication was not only to provide stability for depositors, but also set clear expectations for banks what would happen if a bank was to fail. Any communication would, however, made it clear that bank owners would not benefit from any government intervention and if necessary have to forgo their satke in the affected bank without compensation, similar to a case where banks were failing. Analysing the systemic risk of banks, the central bank notes that compared to the situation before the last banking crisis systemic risk has increased. When presenting this result at a press conference, a financial journalist puts it to the spokesman of the central bank that this is a predictable result; the prospect of a bailout has increased the incentives of banks to increase risks when providing loans, atypical moral hazard situation.

How should the spokesman of the central bank react to this question?

Indicative answer

The systemic riisk of the banking system has increased, but this is not the result of banks providing more risky loans; this would not be reasonable as the bailout would not benefit the bank owners directly. Instead, the higher systemic risk is the result of banks becoming more alike, reducing differences between them so that they either do not fail or fail together. It is this higher likelihood of banks failing together that has increased and resulted in a higher systemic risk. This is the result of banks benefitting from the bailout of other banks from any bilateral exposures. Thus we observe a moral hazard situation but not in terms of the risk each bank individually takes, but in the risks they collectively take. By aligning their business strategies and becoming more homogeneous they can benefit from any bailout another bank obtain to protect their revenue from providing interbank loans and their own bailout; this will reduce the risks to depositors as they are protected more due to the bailout of interbank loans, and deposit rates will be lower, increasing bank profits.

Model(s) used: Sect. 33.2

Problem 387

Banks are heavily criticised for reducing loans after the recent bailout of a failing bank by the government. Some commentators attribute this reduction in the provision of loans to companies to an increased awareness of the risks of such loans, but critics point out that much of the funds are available to banks are invested into loans to other banks. It has lead to the paradoxical situation where banks obtain a loan from another bank and then use these proceeds to grant a loan to yet another bank, and sometimes even lend it back to the same bank. In the view of these critics such behaviour is detrimental to the economy and an inefficient use of resources.

How can this observation of loans to companies being reduced while loans between banks increase, be explained?

Indicative answer

The increased use of interbank loans as observed here can be the result of expected bailouts in the future. The previous bailout may have set a precedent in that banks wil expect similar decisions in the future for any banks failing. In order to maximize their benefits from such a bailout, banks engage in interbank lending and thereby hold effectively risk-free loans, those to other banks. This reduces the overall risk of the banks and thereby allows them to reduce deposit rates, increasing profits, even if interbank loan rates are below the loan rates to companies after taking into account the different risk levels.

Model(s) used: Sect. 33.2

Problem 388

Banks in Gerdonia have traditionally been highly interconnected from making payments and providing each other with loans to overcome temporary liquidity shortages. Recognising the complex network of borrowing and lending between banks, the government has made statements to the effect that it would be infeasible to allow a bank to fail as this might have dire consequences for the entire financial system. In reaction to this statement, banks across the board have reduced deposit rates by nearly 1% p.a. A similar statement in the financially less developed neighbouring country of Hurandi, whose banks are much less connected with each other due to regulatory constraints, had resulted in a reduction of deposit rates of only 0.3% p.a. Consumer groups in Gerdonia complain about the decisions of banks to reduce deposits rates so much more than in Hurandi and claim banks are acting not competitively.

How would banks justify the greater reduction of deposit rates in Gerdonia?

Indicative answer

The reduction of deposit rates is the result of the implied government bailout of any failing bank; this bailout will reduce the risks to depositors and with a lower risk, their deposit rates should fall. In Hurandi the effect on deposit is much less pronounced as the banking system is much less interconnected than in Gerdonia. This has the effect that the risks to depositors in Gerdonia are even further reduced as interbank loans are also protected, effectively making parts of the loans risk free and hence reducing the risk of depositors not being repaid their funds. This additional protection due to the higher interconnection of banks in Gerdonia will reduce the risk of depositors more than in Hurandi, justifying the further reduction of deposit rates.

Model(s) used: Sect. 33.2

Problem 389

An internal discussion between banking regulators, central bankers and government officials has culminated in the agreement that once banks expect a bailout in case of their failure, it is impossible to not bail them out. Banks have taken on higher and higher risk to trigger such a situation.

How can such a statement be explained?

Indicative answer

If banks are expecting a bailout, they will increase their interconnections through interbank loans in order to benefit from the bailout of other banks and thus allow them to increase profits by reducing their deposit rates as the risks to depositors have reduced considerably. These interconnections between banks can make it very costly to liquidate banks and it is therefore preferable for governments to bail banks out. In order to initiate a bailout, it must be more beneficial for the government to do so, and this happens if risks are high as then the liquidation of banks would yield low revenue. The high risks of banks would also make their purchase by another bank less attractive, leaving only the bailout. Hence by increasing risks, banks maneuvered themselves into a situation where bailouts become the optimal solution for governments and this then made it rational for banks to increase their interconnections such that governments are not able to change their reaction to any bank failures.

Model(s) used: Sect. 33.1, Sect. 33.2

Problem 390

Söder Kredit Banken has over the last twenty years developed from a local banks serving the rural southern areas of the country to a bank focussing on the provision of loans to young technology companies. As such it has obtained a reputation for financing many of the now leading technology companies in their early stages and supporting them through a dedicated team of specialists that advise companies on the financial and strategic aspects of their business, which is often lacking in companies owned and managed by those focussing on the technology aspect. While this business model has worked well for Söder Kredit Banken in the past, a number of defaults on their loans is now threatening their survival. They approach the central bank for support and after a short time are told that no support would be available and they would be allowed to fail if necessary. This news is received poorly by technology companies and they see a clear change of policy from previous comparable instances. It was a few years ago that Östbanken received a bailout by the government when their loans to retailers were defaulting in light of the competition from online shopping. The only difference that technology companies see between these two banks is that Östbanken was not focussed on the technology sector and did not provide the support to borrowers that Söder Kredit Banken is providing.

Does the refusal of a bailout to Söder Kredit Banken constitute a change in policy with respect to failing banks?

Indicative answer

While the decisions in the case of the two banks are different, they do not necessarily show a change in policy, but reflect the different circumstances. The extensive support to borrowers that Söder Kredit Banken provides will be a costly way of reducing the default rates on the loans they have provided, while Östbanken was monitoring their borrowers in a much less comprehensive and cheaper way. This difference in monitoring costs between banks results in the different decision to bail out Östbanken, but not Söder Kredit Banken. The higher monitoring costs of Söder Kredit Banken reduces the profits of the bank annd hence in a bailout the reduced ownership of the existing owners will not allow them to recover these from the profits they are entitles to, meaning would no longer be willing to continue their monitoring programme and thus the banks would not viable to continue.

Model(s) used: Sect. 33.3

Problem 391

The banks in Danubia have a history of failing and requiring a government bailout, combined with losses to depositors who were bailed in to reduce the costs to the government. Having spent substantial sums on these bailouts, the government has decided that rather while it seems not appropriate to regulate banks more and limit the provision of loans, they would regulate companies more strictly. One regulatory change required each company with equity of more than US$ 5mn to have at least two board members with ten years of business experience whose main role is to advise the board and senior management on business strategies and financial planning;

when giving advice they explicitly have to take into account the interest of other stakeholders in the company, specifically customers, suppliers, and lenders. Since the implementation of this requirement, the number of companies failing has not reduced in a meaningful way and banks are staill frequently failing, but government bailouts have stopped with any bank in distress now failing and being liquidated. This has surprised many observers as the government has not announced a change in policy with respect to banks.

Was the abolition of bank bailouts an unannounced change in government policy?

Indicative answer

The lack of bailouts is not a change of policy but the result of changed circumstances in companies and hence banks. With the introduction of board members advising management on the running of the company the risks of poor financial performance will have diminished. The advice given will have prevented poor decisions that would in the past have led to the default of the company and this losses to banks; due to the regard they have to have to the interest of banks, this will have markedly reduced the risks. Before such regulations were implemented, banks often would give such advice and improve the repayment rate of loans. Now the benefit of such monitoring is reduced, but not necessarily its costs. The benefits of bank monitoring will be smaller as the high-risk outcome is now less risky than before, but the low-risk outcome has not improved significantly, presumably because the adice banks gave to companies was comparable to that of the new board members. This reduced benefit of monitoring for banks, makes it more difficult for banks to be willing to conduct such an activity and in any bailouts the existing owners would have a reduced stake in the bank, reducing the profits they obtain without reducing the costs of monitoring. It is therefore that a bailout is not feasible anymore as the saved bank would not be willing to monitor their borrowers, making banks unsustainable. It is therefore that failing banks are liquidated instead.

Model(s) used: Sect. 33.3

Problem 392

'It is always the same, those that gamble are rewarded, while those that play it safe are punished.'

How can this statement be applied to the bailout of failing banks?

Indicative answer

It is that banks providing loans with a high default rate (the ’gamble’) should be bailed out if they fail (’rewarded’), while banks providing loans with low default rates (’play it safe’) should be liquidated (’punished’). This is however not a deliberate strategy, but reflects the optimality of the decisions to bail out a bank or not. High-risk banks generate little revenue when selling loans in a liquidation as the value of such loans will often be low, making such a sale in a liquidation unattractive, favouring a bailout to rely on a recovery of funds from future profits. If depositors are bailed in, in addition to a government bailout, then the large contribution of depositors to the bailout can make the funds a government needs to provide for a bailout low. With high risks, such contributions by depositors will be high, making a bailout more attractive than the liquidation of the bank. Banks facing low risks would only be able to demand a small contribution of depositors to the bailout and hence it would be more costsly for the government to provide funds; this benefits the decision to liquidate safe banks.

Model(s) used: Sect. 33.1, Sect. 33.3

Problem 393

As part of the debate on the annual budget in parliament, the government provides detailed accounts of the past and planned expenditures as well as revenue. In an appendix to these account the government also lists any potential liabilities that may arise and how much they expect to spend in case these are called upon; one item in these potential liabilities are for the bailout of banks in case a banking crisis emerges. The item in the current year’s budget for such an instance is given a potential liability of $ 156bn, but this has been reduced to $ 126bn for the coming year. As there is no detailed justification for this reduction, Hugh Thomson asks the responsible minister during a debate why this liability has been reduced. The response he received short and sharp: ’Our assessment shows that the systemic risk of the banking sector has reduced.’ Not quite satisfied with this answer, but unable to table a follow-on question, he finds a report by the central bank that anticipates that interest margins of banks will increase in the coming year as the demand for loans is expected to increase, while depositors are reluctant to seek alternative investments. Remembering that a higher profitability of banks often leads to them taking higher risks, he is concerned that the government has reduced their potential liability without good justification. To explore this problem further, he seeks a written answer from the minister.

What should be the substantiative answer of the minister be?

Indicative answer

It is correct that in principle the higher interest margin will increase the incentives of banks to increase risks. Some of this incentive is driven by the prospect of a bailout if a banking crisis materialises. By reducing the amount of resources available for bailouts, and thereby lowering the prospects of a bailout being obtained by each bank, the incentives of banks to increase risks are curbed. Actually, the reduction of the bailout fund has the consequence that banks will reduce their risks. It is therefore that a banking crisis is less likely to occur, justifying the reduced amount in the bailout fund without compromising the overall safety of the banking system.

Model(s) used: Sect. 33.4

Problem 394

A ew projection by a leading economic think tank suggests that the economy of Forsland is growing faster than initially expected. As a consequence they expect loan demand for investment as well as consumption to be higher than currently and loan rates for companies as well as consumers to increase. With an improving economy, the demand for loans by more risky companies would be expected to increase, but the improved economic outlook should approximately compensate for this effect and default rates on loans are expected to remain stable. With low inflationary pressure, a tightening of monetary policy is not expected. At the same time the government announces that it has reduced the standing facility to support the banking system in times of financial crises. Surprisingly, on the publication of the report and the government's announcement, deposit rates remain stable.

Why do deposit rates reduce?

Indicative answer

Assuming stable deposit rates for now, the profitability of banks will increase as the loan rates will increase, without increasing risks. While this might give incentives for banks to give more risky loans, the government provides less funds for a bailout of the banking system, reducing incentives to increase risks and in response actually reducing the risks they are taking. This will then justify the reduced bailout funds as the likelihood of a banking crisis is reduced. With banks reducing the risks they are taking, deposit rates should be reducing as they become less risky, however, the lower bailout fund also makes it less likely than before that banks are bailed out, increasing the risks to depositors who are less likely to be bailed out. This second effect seems to have offset the reduction in risks each individual bank is taking.

Model(s) used: Sect. 33.2, Sect. 33.4

Problem 395

A controversial column in the Daily Financial News calls for governments to reduce the scale of bailouts for banks during banking crises the more costly a bank failure during a banking crisis is for the economy as a whole. The columnist does not elaborate on the logic for this principle.

Being forced by public pressure to justify the claim, what would the rationale be?

Indicative answer

Governments rarely have enough resources to bail out all banks during a banking crisis and thus will always have to let some banks fail. Even if governments were able to bail out all banks, the incentives for banks would then be to increase risks, making it optimal to limit resources. With some failing banks not being bailed out, the higher costs of these bank failures that cannot be bailed out have to be balanced against the costs of such bailouts. With reduced bailout resources and hence lower costs to the government, the incentives of banks to increase are reduced, even if they acknowledge the increased interest of the government to bail them out and avoid the costs of their failure. The higher the costs of banks failing is, the stronger this incentive for banks to limit their individual risk would be and this is achieved by reducing their chances of a bailout. The lack of a bailout will increase the interest banks have to pay on deposits to compensate for the risk of bank failure and hence their profitability reduces, and banks will reduce the risks they are taking. It is thus the higher the costs of banks failing are, the less bailouts should happen to incentivise banks to reduce the risks they are taking.

Model(s) used: Sect. 33.4

Part VII
Banking regulation

Problem 396

The regulatory authority in Roginas was previously concerned about the risks that banks take when providing loans and sought to reduce these through the implementation of capital requirements. With Roginas making its first steps at regulating banks, the regulatory authority imposed a simple leverage ration by giving each loan a risk weight of 0.2, regardless of the actual default risk of the loan, and required banks to limit their leverage to five times the risk-weighted loans. As a result the default rates on loans that banks gave have reduced and the amount of lending reduced, although the overall risk to banks has reduced less than anticipated. The regulatory authority feels, however, that this reduction in risks was not sufficient and reduces the leverage allowed to four. To their astonishment the default rates after this change in the maximum leverage have increased; although the overall lending has reduced further, the risks banks are taking has increased overall and exceeded even the level prior to the introduction of a maximum leverage. The head of the regulatory authority is surprised by this result and seeks advice on the causes of this change.

Why did the risks of banks increase after the latest reduction in the maximum leverage?

Indicative answer

The problem with the current regulation is that the capital requirements do not reflect the risks of loans, but are a uniform risk weight. Bank will therefore have an incentive to expand lending in high risk loans as there the returns are higher, while they can still comply with the capital requirements. The initial reduction in bank risk did occur because the capital requirements will have reduced the amount of lending and the resulting reduction of risk from this lower lending dominated the effect of each loan provided being more risky. Once the capital requirements were increased more, this reduction in the amount of lending was not sufficient to overcome the increased risk from the provision of all loans, not only reversing the effect of the initial capital requirements, but increasing the overall risk beyond what it was before. this so that banks can make sufficient profits ona much smaller amount of lending.

Model(s) used: Sect. 34.1.1

Problem 397

Banks in Vanutan are required to hold equity that represents 9.75% of the loans they have provided, where each loan receives a weight proportional to its default risk. Since the introduction of this regulation, the risks that banks are failing, as assessed by the central bank, has reduced; this reduction was, however, less than anticipated when these requirements were introduced. Considering the impact the current capital requirements have, the central bank suggest to increase the capital requirements by either requiring equity to represent 10.5% of the risk-weighted loans or to increase the risk weights proportionally across the board.

Will these measures ensure that the risks banks take are reduced or is there a better way to achieve this goal?

Indicative answer

Increasing the capital requirements either by requiring a larger proportion of equity or increasing the risk weights might reduce the risks banks take, but it might also fail its objective and actually increase risks. This is because the risk weights are not determined optimally; the specific results will depend on the risk preferences of banks. While the risk weights of loans are based on the default risk of each loan, the weight should be based on the contribution to the risk in the loan portfolio, the CAPM β. If risk weights were determined in such a way, a reduction in risk-taking by bank can be guaranteed and the risk taken will be independent of the risk preferences of the banks.

Model(s) used: Sect. 34.1.1

Problem 398

Marisa Haruta observes that in reaction to a tightening of capital requirements for banks, the reactions of banks have been quite different. Some banks have reduced the risks they are taking significantly, while other banks should a nearly unchanged level of risk; in all cases banks comply with the capital requirements but do not show capital in excess of the minimum required. As head of compliance at the Central of Abussia she is concerned about the wide variety of effects the tightened capital requirements had. In a memorandum to the Head of Banking Regulation, Latano Kibu, she urges the implementation of rules that ensure banks do not only formally comply with the rules but that ensure that it also has the desired effect on the risk-taking of banks. In response to her concerns, Latano Kibu replies to Marisa Haruta that he cannot control the behaviour of banks, he can only stipulate minimum requirements that need to be complied with.

Is there nothing Latano Kibu can do ensure that banks behave such that the objective of the increased capital requirements are met?

Indicative answer

The problem is that with capital requirements not directly based on the risk contribution of loans, there is an incentive for banks to increase risks strategically such that their preferred risk-return profile is retained while formally complying with the capital requirements. This leads to a situation where, depending on the risk preferences of banks, risks are reduced more less. This can be remedied of the risk weights are chosen such that the choice of a more risky loan increases capital requirements proportionally, for example by choosing the β of a loan measuring the contribution of the loan to the risk of the loan portfolio. This would ensure that banbks have no incentive to increase the risks and hence the risk they are taking will be at the level envisaged by regulators when implementing capital requirements.

Model(s) used: Sect. 34.1.1

Problem 399

Zudana and Burano or neighbouring countries with comparable economies, consisting of a wide mix of industrial production and services. What distinguishes these countries, however, is their approach to the disclosure of information by all companies. The approach in Zudana has always been one of maximal transparency for investors and creditors, resulting in extensive reporting requirements and regulators having access to detailed internal information. On the other hand, Burano is characterised by an approach that seeks minimal interference into the affairs of companies. This extends to the powers of any regulator to require the disclosure of information. These different approaches to information disclosure does not only apply to companies, but also banks. Despite enjoying much more freedom in Burano, the banking system is poorly developed and foreign banks are rarely attracted, while in Zudana the banking sector has become a significant part of the economy. As a reason for settling in Zudana rather than Burano banks often cite the lower capital requirements in Zudana.

Why does the banking regulator in Burano insist that its higher capital requirements are justified and set such as to maximize the benefits to the economy as a whole?

Indicative answer

The key difference between Zudana and Burano is that the banking regulator in Zudana has detailed information on the banks, can thus infer the risks of loans they have provided accurately, while this is not easily possible in Burano, where disclosure requirements are much less strict. It is for this reason that Burano needs to set higher capital requirements to ensure that banks taking high risks are not leveraged too highly and impose unacceptable risks on the economy. This is not necessary in Zudana as the knowledge of the risks allows depositors to require deposit rates that adequately reflect the risks the banks take and hence banks taking higher risks will face higher costs, making such a strategy less sttractive and capital requirements can be less stringent.

Model(s) used: Sect. 34.1.2

Problem 400

During a meeting with the Banking Authority to discuss a proposed increase in capital requirements to reduce the risk-taking by banks, banks agree to disclose detailed information about their loan portfolios to the Banking Authority under the condition that this information is treated as highly confidential. In return the Banking Authority agrees to not increase capital requirements but retain them at the same level on average with adjustments for each bank being discussed indivdually. This move has been widely criticised by market observers and was widely seen as caving in to the demands of banks.

Why is the move of the Banking Authority to not increase capital requirements in exchange for detailed information on the loan portfolio of each bank justified?

Indicative answer

The detailed information for each bank will allow the Banking Authority to have much more precise information on the risk of the bank and set capital requirements based on this precise information rather than a much less certain inference based on less precise information. This has the effect of increasing capital requirements as the socially optimal level of capital requirements would reduce and maintaining it at the current level is therefore equivalent to an increase in capital requirements. It is thus that the precise information which the Banking Authority used to set specific capital requirements for banks allows them to make more stringent demands on high-risk banks and reduce the capital requirements for low-risk banks and thereby tailoring these to the specific risks of each bank.

Model(s) used: Sect. 34.1.2

Problem 401

The National Conduct of Banking Agency suggests to ministers that they need more powers to obtain information on the risks of banks. Their concern is that currently they do not have sufficient information on the risk of loans banks provide and they therefore have not sufficient confidence that banks assign them to the correct risk category. In addition, the general uncertainty on the risks banks face due to their limited information, leads National Conduct of Banking Agency having to make inferences about the capital requirements they have to impose. In their assessment this limits their ability to regulate the risk-taking of banks adequately and it makes the regulation unnecessarily costly for banks.

How does the National Conduct of Banking Agency justify their conclusions?

Indicative answer

The lack of knowledge about the risks of individual loans can result in them being assigned the incorrect risk weights and this distortion will result in banks having an incentive to provide loans that are more risky, and hance generate higher returns, but who are classified as being lower risk for the purpose of calculating risk weights. This distortion of risk weights will lead to banks taking higher risks than the regulator wants banks to take with the impact of changing capital requirements difficult to predict as it depends on the risk preferences of banks. Secondly, the lack of precise information on their risks overall will lead to higher capital requirements as the regulator needs to take into account that it might underestimate the risks and hence impose higher capital requirements to ensure banks are not taking too high risks. This imposes higher capital requirements on banks than needed, making the regulation more costly. Hence with more detailed information, the National Conduct of Banking Agency could ensure their capital requirements have the desired effect and it would allow it to reduce capital requirements in most cases.

Model(s) used: Sect. 34.1.1, Sect. 34.1.2

Problem 402

The central bank in Luango also acts as the banking regulator and in order to fulfill its role as ensuring the financial stability of the financial system, it seeks to reduce the risks banks are taken when providing loans. Its analysis suggests that default rates on loans of no more than 1.2% should be allowed. After intense lobbying by banks to relax these requirements such that they can provide loans to more innovative and young companies, the central bank agrees to intervene and take over a bank only once the default rate at a bank exceed 1.5%, down from the current default rates at banks of 1.76%, provided its leverage did not exceed 14. This move has been widely criticised in the media as the central bank giving in to the demand of banks.

How would the central bank defend its policy?

Indicative answer

It will be very difficult for the central bank to implement a maximum default rate of 1.2% as the assessment of risks are difficult to achieve. For example, the central bank may lack the requisite information, skills, or resources to disprove the assessment of banks on the loans they have provided. However, by agreeing a higher level of intervention, which should be easier to detect as higher risks are more obvious to detect, the central bank can use the capital requirements to ensure banks comply with this requirements on risk-taking without facing any violations. The threat of intervention will always never have to be used, but it is a credible threat as the level of 1,5% will be the optimal risk level at which the central bank would intervene.

Model(s) used: Sect. 34.2

Problem 403

At a symposium on the challenges of banking regulation, a participant remarks that 'If a regulator cannot confirm the default risk of a loan at the time it is given, there is no point in regulating risk to obtain a level of risk that is optimal for the economy as a whole. Even if a regulator can determine the risk of each loan, it would be a massive intervention in the running of a bank to impose limits in this way. Therefore, banks will choose whatever risk level is optimal for them.'

As a regulator for banks, how would you refute this statement?

Indicative answer

Regulators can use incentives to ensure that banks do not take too high risks. One such incentive is the imposition of capital requirements; if this is combined with the threat of taking over banks that are taking too high risks, it can be effective. In order to be credible, the regulator will have to choose an acceptable level of risk that is optimal for that regulator balancing its costs and benefits; while this might not be the social optimum it will probably be closer the social optimum than the risk level optimal for banks as banks never take into account the costs of their failure. Using capital requirements can then provide an incentive for banks to not violate this risk limit and hence the threat of intervention, while credible, becomes purely hypothetical. It is thus that a regulator might struggle to implement the social optimum, but could achieve a second best solution.

Model(s) used: Sect. 34.2

Problem 404

Banking regulators in Khalifa have for many decades operated a policy of regulating banks conservatively. They imposed capital requirements that were based on the risks banks take and this was supplemented by a leverage ratio, which over the last seven years has been relaxed slowly. Having invested heavily into the qualifications of their staff in recent years and participated in knowledge exchange with banking regulators world-wide, they now suggest to drop the imposition of a leverage ratio, which is not based on the risk of a bank, but rely solely on risk-based capital requirements.

Why was the banking regulator in Khalifa able to make this move?

Indicative answer

The banking regulator in Khalifa was initially not very strong and that its lack of experience did not allow it to assess the risk of banks accurately; it therefore had to rely on the declaration of banks on the risks they were taking. In order to ensure that banks reported their risks truthfully a leverage ratio was introduced. Once the regulator was able to gain more experience through better qualified staff and gaining knowledge from other regulators, the ability to verify the risks of banks improved and the regulator could more and more rely on this identification of bank risks to ensure banks truthfully report their risk-taking, allowing it to relax the restriction from the leverage ratio. Once this ability to identify the risk of banks had been sufficiently high, the leverage ration served no purpose and could be abolished, allowing the regulator to rely on risk-based capital requirements only.

Model(s) used: Sect. 34.3.1

Problem 405

New legislation is passed in parliament that allows the financial regulator in Normannia to impose fines of up to 25% of the profits on banks that fail to report loan risks accurately; the previous limit was set at 10% of the profits. Once the new law has been passed, the financial regulator announces that while the capital requirements will remain at 11% of the risk-weighted assets of a bank, it will increase the maximum allowed risk-independent leverage ratio from 25 to 30 effective from the commencement of the legislation. A discussion in the corridors of parliament ensues in the aftermath that the regulator is in the hands of the banks because just as they increased the fines for banks misrepresenting information, the regulator eases other constraints on them. Many members of parliament agree that this is compensation by the regulator for the higher fines they will have to levy.

Is this assessment of the change in the leverage ration correct?

Indicative answer

The leverage ratio has been increased not as a compensation to banks for the higher fines, but in recognition that the higher will make it more costly for banks to misrepresent the risks they are taking and thus evade proper capital requirements. These higher costs of misrepresenting risks will reduce the incentives of doing so and the leverage ratio has always been an additional measure to ensure the truthful reporting of risks by banks and this role has now been taken over to a larger degree by the higher fines, allowing the regulator to loosen the leverage requirements.

Model(s) used: Sect. 34.3.1

Problem 406

In recent years the Reserve Bank of Zandinia as the banking regulator has been successful in recruiting employees with ample experience in banking supervision from highly regarded overseas regulators. These employees are appointed to the Supervisory Board for Banking and they have a review of the current regulation of capital requirements. They decide to recommend substantial changes. They firstly suggest to reduce the risk-based capital requirements from 14% of the risk weighted assets to 11% and at the same time abolish the currently existing maximum leverage ratio of 28.

How would the Supervisory Board for Banking justify their recommendation?

Indicative answer

Compared to the previous situation the Supervisory Board for Banking is now much more competent due to the high calibre of its members and will therefore be much better in supervising banks, including in assessing the risk of banks, than has been possible in the past. This has two effects. Firstly, the Supervisory Board for Banking will be much more likely be able to identify banks that do not report their true risk truthfully. This increases the chance of banks underreporting their risks being identified and regulatory action being taking, thus reducing the incentives to engage in such behaviour. This will increase compliance and the additional restriction through the leverage ratio to limit the risks of banks taking higher risk without holding adequate capital, becomes obsolete in that limit would have to be set very high to be a meaningful constraint, beyond the optimal level for banks, and hence it can be abolished. The second effect is that with the higher ability of the Supervisory Board for Banking to identify the risk of banks, the uncertainty about the risks that banks are taking is reduced. This allows capital requirements to be reduced as the possibility of banks taking higher risks than assessed by the Supervisory Board for Banking becomes less likely and hence any additional safety margin can be reduced as has happened here.

Model(s) used: Sect. 34.1.2, Sect. 34.3.1

Problem 407

The Supervisory Committee for Banks has for years promoted competition between banks and required transparency from banks about the deposit and loan rates they offer, as well as other charges. This has been complemented by promotional activities from the Supervisory Committee for Banks on making customers aware of the ability to shop around for the best conditions. Such awareness has been heightened by including these aspects into the school curriculum, forming an essential part of financial literacy. These promotions have been successful and customers are much more willing to switch between banks for better conditions. As this awareness did rise, banks competed more strongly, which lead to risking deposit rates and falling loan rates. Consumer groups widely welcomes these development, but were dismayed when a few months ago the Supervisory Committee for Banks imposed a limit on deposit rates at 2% p.a. above the base rate of the central bank and thus reduced competition between banks substantially. Having been challenged on this move, the Supervisory Committee for Banks feels obliged it has to justify its decision.

How should the Supervisory Committee for Banks respond?

Indicative answer

It is reasonable to assume that the increased awareness for bank products and the conditions attached to them has made customers more responsive to differences in deposit rates and other costs, this is equivalent to the elasticity of demand for deposits with respect to the price having been increased. In this situation, the elasticity has increased sufficiently to increase deposit rates to such an extent that banks' profit margins have become very low, giving them incentives to provide loans with higher loan rates, which will inevitably more risky. It is thus that the risk of banks will have increased as a consequence. By limiting the deposit rate, the profit margins of banks are protected and their incentives to increase risks to restore them is reduced. this will reduce the risks banks are taking.

Model(s) used: Sect. 34.3.2

Problem 408

It is generally accepted at the Bank of Purana, which is the central bank in Purana, that banks are taking too high risks, putting the financial stability of the country at risk. The Bank of Purana fully acknowledges the need for banks to be profitable to ensure the long-term viability of its financial sector and therefore seeks the banks' views on possible regulatory measures. As an exercise it puts five possible regulatory arrangements to banks and asks them to rank them by preference. The result of the voting is shown as follows:

Arrangement	**1**	**2**	**3**	**4**	**5**
Capital requirements (% of risk-weighted assets)	8.5	9	9.5	10	12
Maximum deposit rate (% p.a. above base rate)	2.75	2.5	2.25	2	1.25
Voting score	33	37	36	31	35

How do you explain this result?

Indicative answer

There seems to be no clear preference for any of the possible arrangements, suggesting that banks are overall indifferent whether they are subject to low capital requirements but then have to potentially high deposit rates or they face more onerous capital requirements but will be able to maintain high profit margins due to deposit rates being limited more strictly. The central banks will have chosen the different arrangements such that the overall profitability of banks will be equivalent, but at the same time ensuring that banks have no incentives to choose high-risk loans.

Model(s) used: Sect. 34.3.2

Problem 409

There is general agreement between the Bank of the Republic of Brunsway and the Office of Banking Regulation that banks are taking too high risks. However, they differ in their analysis of the causes of this result. The Bank of the Republic of Brunsway sees the cause in the competition between banks and the willingness of depositors to chase the highest deposit rate with the result of banks making low profits from low-risk loans; it suggests to limit competition between banks in this area. In contrast to this, the Office of Banking Regulation sees the origin of the high risks in the inability of the Bank of the Republic of Brunsway to properly assess the risk of banks in a timely manner and thus not imposing adequate capital requirements on banks, providing an incentive to increase risks. The proposed remedy is to limit the amount of lending banks can provide.

What policy should be implemented?

Indicative answer

The origin of the high risks taken by banks are seen from very different angles. The Bank of the Republic of Brunsway believes that the high elasticity of demand for deposits with respect to the deposit rate is causing deposit rates to be high, which reduces bank profits and they subsequently resort to high-risk loans in order to maintain their profitability. On the other hand, the Office of Banking Regulation points to the inability of the Bank of the Republic of Brunsway to identify bank risks sufficiently precisely and thus giving incentives to banks to underreport the risks they are taking and thus not having to fulfill more onerous capital requirements, which makes the provision of high-risk loans more profitable. With both analyses having merit, it is important to ensure that regulation addresses the problems adequately, without increasing the regulatory burden excessively. The imposition of a maximum leverage ratio should ensure that banks report the risks they are facing truthfully, this alone might remedy the incentives to take high risks. But it might nevertheless be that even with adequate capital requirements, banks still have an incentive to take additional risks, in which case this might have to be supplemented by a limit on the deposit rate to ensure low-risk loans are sufficiently profitable. Approaching the problem with a limit on deposit rates first is less promising as the incentib=ves to misreport the risks taken remains, making a lower deposot rate potentially less effective.

Model(s) used: Sect. 34.3.1, Sect. 34.3.2

Problem 410

The Independent Deposit Insurance Company Ltd. has been granted a licence to offer deposit insurance cover and to regulate the banks. Purchasing deposit insurance is not compulsory for banks and many banks have declined offers being made by the Independent Deposit Insurance Company Ltd., but those banks who purchase deposit insurance are charged a premium that is fully covering the costs of their potential failure. While initially the Independent Deposit Insurance Company Ltd. was given the mandate to regulate only those banks that purchase deposit insurance, it has never made use of this possibility and not imposed any restrictions on banks. An amendment to the mandate of the Independent Deposit Insurance Company Ltd. allowed them to also regulate banks they have not provided deposit insurance to, with the proviso that the regulation has to be in the public interest. Having been given this mandate, the Independent Deposit Insurance Company Ltd. immediately imposed minimum capital requirements on those banks that do not purchase deposit insurance from them. These banks have filed a lawsuit in the courts against the Independent Deposit Insurance Company Ltd. for abuse of their market position as they seek to coerce banks to purchase their deposit insurance to escape the minimum capital requirements.

How would the Independent Deposit Insurance Company Ltd. defend itself in court?

Indicative answer

The imposition of minimum capital requirements on banks not purchasing deposit insurance is not discriminatory, not is it meant to provide an incentive to purchase deposit insurance. The mandate given to the Independent Deposit Insurance Company Ltd. is to regulate banks in the public interest and it is in the public interest to ensure that banks do not take too high risks and impose significant costs on the public from their possible failure; the capital requirements firstly provide incentives to limit the amount of risks taken and provide an additional cushion against any losses to be borne by the public. It is therefore that these capital requirements are adequate. The fact that those banks purchasing deposit insurance from the Independent Deposit Insurance Company Ltd. are not subjected to any capital requirements is because firstly they impose no costs on the public in the case of their failure as their deposits are insured. Secondly, the costs of this deposit insurance, the deposit insurance premium, will affect the profits of the banks and impose an equivalent burden on their profitability as the minimum capital requirements do for the uninsured banks. The imposition of capital requirement on uninsured banks is therefore achieving a level playing field for all banks.

Model(s) used: Sect. 34.3.3

Problem 411

Having agreed to obtain deposit insurance from Provincial Deposit Insurance LLP, Haggerty Bank plc has provided key information to allow the deposit insurance premium to be calculated. When obtaining the quote from Provincial Deposit Insurance LLP, the bank is surprised that the premium is significantly higher than their own calculation had suggested. During a meeting of the bank's risk management team and representatives from Provincial Deposit Insurance LLP it emerges that given the niche loan markets Haggerty Bank plc is operating in, Provincial Deposit Insurance LLP failed to accept assurances that the risks of loans were well justified; instread they questioned the assumption made and how loan defaults were modelled. At the end of the meeting, Provincial Deposit Insurance LLP states that they stand by their initial offer, but might look at reducing the premium in the future once they have gained confidence in the risk assessment of Haggerty Bank plc.

Why is the deposit insurance premium offered higher than Haggerty Bank plc seems to find justified?

Indicative answer

The deposit insurance premium will reflect the risks of the loans that Haggerty bank plc has provided. Requesting the deposit insurance premium is equivalent to imposing minimum capital requirements on Haggerty Bank plc; the higher deposit insurance premium is therefore equivalent to requiring higher than expected capital requirements. The reason for this higher requirement is that Provincial Deposit Insurance LLP does not have confidence in the risk assessment of Haggerty Bank plc. Thus there is a level of uncertainty about the true risks the bank faces and this uncertainty will lead to higher capital requirements, equivalent to a higher deposit insurance premium; the reason is that Provincial Deposit Insurance LLP will seek an additional cushion against the risk of Haggerty Bank plc. being more risky than originally assessed. That this is the case can be seen from the statement that as they gain confidence in Haggerty Bank plc's risk assessment, thus the uncertainty reduces, the premium would fall; this is in line with capital requirements falling with a reduction in the uncertainty about the true risks.

Model(s) used: Sect. 34.1.2, Sect. 34.3.3

Problem 412

The government of Salinga provides compulsory deposit insurance to its banks and charges a market premium to banks. The premium is determined by the risks that banks take and for years has been based on a detailed analysis of loans and their default rates, as well as correlation between them, ensuring an as accurate reflection of the total risks of the bank as possible. This process has proved to be time-consuming and involved the employment of many highly qualified credit analysts. As a cost-cutting measure, it has been decided to simplify the process of determining the deposit insurance premium by allocating each loan in one of three risk categories and assign a risk weight to each of these categories as set out below:

Risk category	**High**	**Medium**	**Low**
Probability of default (% p.a.)	>7.5	1-7.5	<1
Risk weight	0.8	0.5	0.2

Based on these risk weights the deposit insurance premium was calibrated such that is is equivalent to the deposit insurance premium in the more refined assessment conducted previously. After this change, the government realises that the deposit insurance is loss-making after previously always breaking even.

Why is the deposit insurance now loss making?

Indicative answer

The deposit insurance premium should reflect the risks the bank faces and as the premium is paid for by the banks, it is equivalent to imposing capital requirements on the bank. The previous assessment was assessing the risks of loans individually in its context of the bank, while the revised assessment uses three broad risk categories. This gives banks now incentives to increase the risks they are taking, for example by choosing loans at the top end of each risk category. The higher risk will allow them to charge a higher loan rate and thus make higher profits without affecting the deposit insurance premium. It is therefore that banks will take higher risks than before, which is not reflected in the risk premium and hence the deposit insurance makes a loss.

Model(s) used: Sect. 34.1.1, Sect. 34.3.3

Problem 413

Larina is seen as a haven for companies as regulations are large absent and anyone is allowed to open a business and run as they see fit. The only exemption this rule is that anyone operating a bank has to maintain equity representing at least 17% of the risk-weighted loans they provide. This high capital requirement is seen by many foreign banks as a disincentive to establish a presence in the country. In discussions with the government these banks point out that in neighbouring countries capital requirements are much lower, typically 8-10% of the risk-weighted loans, using comparable risk weights.

Why are the capital requirements in Larina higher than in other countries?

Indicative answer

Larina allows any individual to operate a bank and it is in the interest of the country that banks do not take excessive risks, it thus wants to ensure that banks are operated effectively by competent individuals. It is through high capital requirements that it is ensured that banks are capable of adequately screening loan applications and monitoring existing loans to reduce risks. Most other countries will not operate such an open policy on bank foundation and require minimum qualifications of individuals operating a bank or comparable assurances. It is thus that not every individuals seeking to open a bank will be able to do so; this will allow capital requirements to be lower as the reliance on incentives to deter unqualified individuals from opening a bank will be much reduced due to the initial screening of individuals.

Model(s) used: Sect. 34.4.1

Problem 414

Following the failure of two banks in short succession, one due to fraud by its founder and the other through losses from loans to new companies investing into emerging technologies, the government of Canalino decides to tighten the requirements for individuals operating a bank at board level. While previously the requirements to obtain a senior position in a bank was limited to holding a university degree in a relevant field and at least 10 years experience in banking, this has now been made more stringent by requiring experience at a senior level and a proven track record of low default rates on loans under their supervision. While most banks welcome the new measures, they are seeking to reduce the high capital requirements that have been imposed on them shortly after the two banks failed.

How would the banks argue for the reduction in capital requirements?

Indicative answer

The new procedures will ensure much better than before that only well-qualified individuals are able to make significant decisions in banks, which should reduce the risks arising from management failures and make the pursuance of ill-conceived lending strategies less likely. It is thus that the reliance on high capital requirements to ensure banks are only run by well-qualified individuals is no longer needed to the same extent. The capital requirements as an incentive tool have been replaced by the screening of individuals leading the bank; it is therefore that capital requirements can be relaxed.

Model(s) used: Sect. 34.4.1

Problem 415

The regulation of banks in Peronna and Forinas are set up very differently. In Peronna anyone wishing to found a bank or become a member of the board has to undergo a detailed and thorough examination of their educational background, knowledge on banking, assessment of their personality, family background, and track record in the banking industry. Only once this is returned s showing no concerns, will their appointment to the board be approved or a licence for the foundation of a bank being granted. However, once appointed, there is very little interference in the conduct of banking activities and any regulatory compliance is only sporadically checked, and then usually not in great detail. In contrast to this, the approach in Forinas is diametrically opposite, there are very few requirements to set up a bank or obtain senior positions and any checks are light-touch at best. However, the operating of the bank itself is strictly supervised with detailed assessments of the compliance with any regulations by well-qualified supervisory teams.

How can you explain that the capital requirements in both countries are approximately equal?

Indicative answer

Peronna allows only highly qualified individuals to manage banks, making the reliance on capital requirements to ensure that nly well-run banks are operating, low. However, the capital requirements that exist cannot be enforced well as the supervisors will have very little information on the actual risks banks take and it would therefore easily be possible that banks are misreporting the risks they are actually taking; this will necessitate higher capital requirements to ensure that risks are actually low, making capital requirements quite high. In Forinas the ability to set up a bank is not restricted meaningfully, implying high capital requirements. However, the enforcement of capital requirements is very well organised, not necessitating a safety margin, which prevents their further increase. It is thus that these two effects are approximately offsetting each other, leading to similar capital requirements.

Model(s) used: Sect. 34.1.2, Sect. 34.4.1

Problem 416

Having for a long time relied on the presence of foreign banks, Gorgios has now seen the foundation of three domestic banks in short succession by entrepreneurs returning to their home country after many years successfully working for foreign banks overseas. The central banks takes over the function of a banking regulator in an ad-hoc way, as the regulation of foreign banks was left to their home countries. Lacking the skills to regulate banks, the central bank imposes a maximum leverage of 25 on these domestic banks, representing a slightly tighter restriction than the actual leverage of the foreign banks operating in Gorgios. The central bank justifies this with the lack of experience the bank owners have in running a bank in Gorgios. Instantly all three banks lobby the central bank to not impose a maximum leverage constraint on them but they instead seek capital requirements that are based on the actual risks of the banks. Even though the central bank promises to reconsider the maximum leverage requirements and take into account the risks they have taken once the banks are established, banks press for their suggested change. Their request is finally turned down on the basis that the costs of assessing the risks of banks is too high for the central bank and therefore not cost-effective.

How could the banks argue for the use of risk-based capital requirements?

Indicative answer

Implementing risk-based capital requirements will reduce the potential losses experienced by depositors if a bank fails. The higher capital requirements for high-risk banks provide a better protection against losses as these losses are relatively likely to occur. The lower capital requirements for low-risk banks are not increasing losses to the same extent, given that these losses are less likely to occur. In addition, as the average capital requirements of a risk-based approach are lower, and hence the costs to banks will be lower, it might even be possible for banks to offer to cover the additional costs incurred by the central banks.

Model(s) used: Sect. 34.4.2

Problem 417

With the banking system in Hattunga being poorly developed the Ministry of Finance has acted as a basic regulator of the sector. It lacks the knowledge and capacity to supervise banks closely and therefore has implemented a simple leverage ration, applicable to all banks. Having comer under significant pressure from banks and having shown examples of competitor countries using a more sophisticated approach to capital requirements by using a risk-based approach, they ask a consultancy firm to advise them on the implications of such a move. On receiving the report of the consultancy firm, they immediately reject the idea of moving to risk-based capital requirements as they notice that the capital requirements would be reduced. They argue that making this change would make the banking system less safe.

Is this assessment correct?

Indicative answer

It is indeed true that the capital requirements in a risk-based system are lower than in a systen that using a leverage ratio. This, however, does not increase the risks to the banking system, it would actually reduce the risk as the potential losses of depositors are reduced. this is because high-risk banks would be required to hold more capital than they currently are, while low-risk banks would be able to reduce their capital requirements, resulting in an overall reduction of capital requirements. The reduction for low-risk banks will be higher than the increase for high-risk banks as the probability of bank failures have to be taken into account and the fact that higher capital requirements reduce potential losses to depositors. Thus while the overall capital requirements are reduced, the total risks of the banking system are not increasing, but falling

Model(s) used: Sect. 34.4.2

Problem 418

The Supervisory Board for Banks has decided to revise its regulatory framework by moving away from a uniform maximum leverage ratio that all banks must comply with, towards a capital requirements reflecting the risks banks are taking. Thus far the Supervisory Board for Banks and its staff members have no or very little experience of assessing the risks of banks and a comprehensive legislative package that gives it wide-ranging powers, including fines, to enforce its directives are held up in parliamentary procedures. Having benefitted from the help of neighbouring countries, a framework has been established that determines the calculation of capital requirements for each bank and to the delight of banks, it transpired that most banks will benefit from lower capital requirements than under the current system. While banking regulators in other countries welcome the move towards risk-based capital requirements, they warn the Supervisory Board for Banks against lifting the leverage ratio fully and suggest a transition period where risk-based capital requirements are operating alongside the leverage ratio, with banks having to comply with both restrictions; the Supervisory Board for Banks does not understand the concerns fully and points out that consumer groups were in favour of this change.

Why would a move to full risk-based capital requirements premature?

Indicative answer

Consumer groups will see the benefits of the risk-based capital requirements has for depositors; the higher capital requirements for high-risk banks will increase the buffer and thus reduce losses to their groups, while the reduction in capital for low-risk banks has less of an impact in increasing losses due to these banks much less likely failing. What they do not consider properly, though is that the Supervisory Board for Banks is not yet in a position to assure that the risks on which capital requirements are based can be evaluated properly by the Supervisory Board for Banks; they also lack proper enforcement power due to the held-up legislation. In this case risk-based capital requirements should be maintained until the risk of banks can be assessed more reliably and sanctions are in place. This will reduce the incentives of banks to pass themselves off as facing low risks, when in fact they are taking higher risks.

Model(s) used: Sect. 34.3.1, Sect. 34.4.2

Problem 419

Having faced a run on its banks during the last recession, the government of Frantum is adamant to prevent a repeat of such an event. It therefore invites all banks to a meeting and secures an agreement with all banks that they will purchase any failing banks in a future crisis if advised so by the central bank. Leaving the government meeting, bank representatives are blindsided by the announcement of the central bank as the main supervisor of banks that capital requirements are to increase from 9% of risk-weighted assets to 10.5% over the next three years. The banks write a joint letter to the government complaining about the increased capital requirements and feeling backstabbed as they had just agreed to rescue any failing banks in the future. They complain that after agreeing to incurring these additional costs, they now see imposed on them another cost in the form of higher capital requirements.

Is the complaint of the banks justified?

Indicative answer

While increasing capital requirements will increase the costs of banks, this move is justified. What the agreement represents is in effect a bailout of any failing bank; this will reduce the costs of banks as they will not have to pay a risk premium on the deposit rate. It is therefore that the increased costs of holding more capital are at least partially offset. The increase in capital requirements in itself is also justified in that the implied bailout of banks would otherwise increase risk-taking by banks and these higher capital requirements offset these incentives. Indirectly this will also reduce the costs of banks as bank failure are gong to be less likely and thus banks will have to bailout a failing competitor less frequently, reducing their costs.

Model(s) used: Sect. 34.5.1

Problem 420

’As always, banks never pay their way. We need to make sure they are charged for the implied guarantee the government has given them. I do not see that in the current proposal.’ This statement was made during a parliamentary debate on the establishment of a rescue facility for failing banks in response to various bank failures in neighbouring countries. A government spokesperson replies with ’Banks very much pay their way, we will work with the Banking Board, our national regulator, that banks are adequately capitalised. These more stringent capital requirements will make the banking system safer and banks will pay for it through higher capital. This is part of the legislation and the memorandum from the Banking Board clearly outlines that they will ensure that the risks banks take will not increase.'

Is the proposed increase in capital requirements addressing the concerns raised?

Indicative answer

The increase in capital requirements offsets the incentives for taking higher risks in the presence of bailouts, which is what the proposed rescue facility is. However, this offsets the incentive to increase risks for banks, but does not make them pay for the costs their failure imposes on the government rescuing them. If this was the aim, the capital requirements have to increase even further, with the consequence that banks will take fewer risks through the internalisation of these costs. In this sense it can be argued that the memorandum received from the Banking Board does not go far enough.

Model(s) used: Sect. 34.5.1

Problem 421

The newly appointed head of the Central Bank of the Kingdom of Jorita is a well-trained economist and supportive of internalising the costs of bank failures, such that they are covered by the banks themselves; this approach, in his view, ensures that banks make decisions to benefit wider society rather than just their shareholders. Having inherited a regulatory framework that makes the bailout of failing banks likely, he proposes to implement higher capital requirements that fully take into account the costs of such a bailout.

Will the implementation of significantly higher capital requirements always increase social welfare?

Indicative answer

While increasing capital requirements such that they internalise the costs of any possible bailout should ensure banks make decisions taking into account the costs to all market participants, the implementation might not always be possible. Banks will take risks that are generally higher than is socially optimal and the implementation, even with capital requirements calibrated to take into account the effect of a bailout. This does not fully offset the incentives of banks to take higher risks in general. It will only be possible to mitigate for this effect to some extent, it will have to remain a compromise between the socially optimal level of risk-taking and the risk that is optimal for banks.

Model(s) used: Sect. 34.2, Sect. 34.5.1

Problem 422

Credit Agriculture SA, Banque du Rodin SA, and Société Bancaire SA are the leading banks in Langeau and highly interconnected through interbank loans as they often facilitate each other to overcome short-term liquidity shortfalls. Other banks in Langeau are operating only locally and are only very loosely connected. Worried about the risks banks face from global uncertainties, the government of Langeau has made it clear that should a bank fail due to losses on the loans they have provided, they will looks favourably at supporting their survival. However, it was also made clear, that this only applies to the failure of a single bank or a small number of banks that are failing for unconnected reasons due to limited resources available and a bailout is not guarenteed as the specific circumstances will be considered. In response to this announcement, it is noted that innovative companies at Credit Agriculture SA, Banque du Rodin SA, and Société Bancaire SA find it easier to obtaining loans, while the same companies find it much more difficult at local banks; it was just a few months ago that these companies noticed not much of a difference in access to loans between the different banks. At meetings of new, innovative technology companies, word goes around that the global uncertainties have increased the risk aversion of small banks.

Is an increassed risk aversion the reason for local banks refusing loans to these companies?

Indicative answer

The different attitudes towards innovative companies arises from the announcement of a bailout. Innovative companies are typically more risky than traditional companies and it is thus that high-risk companies find access to loans easier at Credit Agriculture SA, Banque du Rodin SA, and Société Bancaire SA, while ut is more difficult at local banks. We can therefore conclude that Credit Agriculture SA, Banque du Rodin SA, and Société Bancaire SA are willing to take higher risks than previously and local banks are reducing their risk. The reason is that the prospect of bailout has increased the risk-taking at banks that are likely to face contagion; this is the case at Credit Agriculture SA, Banque du Rodin SA, and Société Bancaire SA as they are highly interconnected through interbank loans, making the failure of one bank spreading to another quite likely. In contrast to that, the local banks are not much connected and hence contagion is unlikely to occur. They therefore become more cautious such that failure of their bank becomes less likely, as will the failure of other banks and hence in the unlikely event of them failing, they will be the only bank failing and are hence able to obtain a bailout.

Model(s) used: Sect. 34.5.2

Problem 423

Banca Molare SpA is a large bank operating nationally, while and Banca Puglia SpA operates locally and its assets are only a small fraction of the assets of Banca Molare SpA. To avert a potential banking crisis, the government has announced that it would provide a fund of €50bn to support any single bank failing due to defaults on loans to companies and individuals, but would not be able to support multiple banks failing and not every bank would be supported as the decision to do so will take into account the lending policy of the bank. In reaction to this announcement, Banca Molare SpA reviews its loan policy and decides to increase loan rates for more risky companies while reducing them for well-established safe companies. The reaction of Banca Puglia SpA is exactly the opposite.

Why do these two banks react so differently to the announcement of the government?

Indicative answer

The difference can be found in the size of the bank, Banca Puglia SpA is small bank and hence the funds made available by the government would, if they were to fail, provide a substantial bailout; this will increase the moral hazard and the bank is willing to take more risk. On the other hand, Banca Molare SpA is a large bank and the bailout fund will not account for a substantial fraction of the assets of the bank; this induces them to reduce risks as they will want to ensure that if they fail, they are the only ones doing so, making them more cautious to avoid default. This is reflected in the revised loan policies with Banca Molare SpA seeking to attract low-risk companies by making lons to high-risk borrowers less attractive and more attractive to those with low risks; Banca Puglia SpA implements the exact reverse policy.

Model(s) used: Sect. 34.5.2

Problem 424

With the government announcing the establishment of a bailout fund in case a single or small number of banks become insolvent in light of banking crises emerging in some countries surrounding them, the central bank as the banking regulator publishes a press release in which it makes clear that it recognises that this announcement will increase the moral hazard of banks as failures will not result in as much losses as prior to the announcement. In order to reduce the incentives for banks to exploit the existence of a bailout fund, it increases the capital requirements from 9% of risk-weighted assets to 9.5%. The central bank also makes it clear that a bailout will not be approved by the government if a failing bank is deemed to have taken excessive risks or the failure is the result of mismanagement.

Will the increase in capital requirements have the desired effect?

Indicative answer

The effect of higher capital requirements might actually increase the risks banks are taking. This is because it the threshold for the likelihood of a bailout being granted such that risks increase is reduced. The higher capital at stake should make banks prefer lower risks, but on the other hand with a bailout possible, they might also be less concerned about the loss of their capital as they are compensated for the risk they are taking by the bailout. The overall effect is that higher capital requirements might make banks more risky as they speculate more on the bailout being granted.

Model(s) used: Sect. 34.5.2

Problem 425

Banco Latidos is for the first time offering subordinated bonds that share any losses with the bank's owners on a 50/50 basis. In its press release accompanying the offer of these bonds, Banco Latidos justifies their decision by pointing out that this will allow them to expand their lending.

Why does the issue of a subordinated bond allow Banco Latidos to extend their lending?

Indicative answer

The yield on subordinated bonds will reflect the risks that Banco Latidos is taking and thus it internalises some of the costs of it failing. As this reduces the incentives of to take on higher risks, its capital requirements should be reduced. This will then in turn allow to provide more loan they are currently able to.

Model(s) used: Sect. 34.6

Problem 426

In the run-up to an important national election, politicians of the governing party seek to show their ability to manage the economy well and for this reason want to showcase the investments that companies make under their government. It is of particular interest to them that investments in new technologies are made and companies have indicated that banks view their plans as too risky and have thus far refused loans for these investments, despite banks publicly saying that loan demand is weak and they seek investment into alternative safe assets for the time being. Politicians are now leaning on the banking regulator to ensure that banks provide loans to companies seeking to invest into new technologies.

How would the regulator encourage banks to provide such loans?

Indicative answer

As the loans are too risky for banks compared to alternative investments, the regulator could reduce the capital requirements; this would induce banks to seek higher returns as their limited liability and implied deposit insurance would limit any losses they make.

Model(s) used: Sect. 34.7.1

Problem 427

The central bank is responsible for the stability of the financial system, but the regulation of the banking sector is conducted by an independent Regulatory Authority for Banking and Insurance. The central has been urging the Regulatory Authority for Banking and Insurance to consider an increase in capital requirements to reduce the risk of bank failures, but this has so far been ignored. Given the interest the central bank has in this increase of capital requirements, the Regulatory Authority for Banking and Insurance suggests that they establish a joint working group to consider the concerns of the central banks, the costs of which would have to be covered by the central bank. They point out that given their senior staff members have busy schedules because of meetings with bank representatives, many of whom represent foreign banks; therefore they suggest to schedule these meetings around meetings with bank representatives at locations that are amenable to their schedule. They suggest the first such meeting to take place on Bermuda following on from a meeting with the insurance companies located there.

Why does the Regulatory Authority for Banking and Insurance suggest these modalities of a joint working group to consider increasing capital requirements?

Indicative answer

The current arrangements of meeting banks in international locations suggest that these meetings are seen as perks and thus constitutes benefits from lobbying. If capital requirements are increasing, as envisaged by the central bank, banks might reduce their lobbying, giving less benefits to regulators as banks will have less profits to distribute with reduced lending. The request for the working group to meet in comparable locations suggests that regulators seek compensation for this loss with the central bank covering their costs.

Model(s) used: Sect. 34.7.2

Problem 428

The Federal Banking Authority has announced that they have reviewed the allocation of risk weights on loans and made changes to support the government priority of expanding investment into export-oriented businesses. Loans to companies that obtain at least 25% of their revenue from exports have been reduced by one risk class across the board. The government has for some time been pressing banks to provide loans to such companies, but given the uncertainties in the main export markets, banks have been hesitant to provide loans to many companies.

Why would the Federal Banking Authority make this change?

Indicative answer

The aim of the Federal Banking Authority is to encourage banks to provide loans to export-oriented companies, which would then make investments with these funds as desired by the government. This effect arises because the lower capital requirements overall if making loans to such companies allow banks, to increase lending and the resulting higher leverage would make it profitable to increase the risks they are taking; this will make providing loans to export-oriented companies more viable.

Model(s) used: Sect. 34.7.1

Problem 429

New rules are being introduced for public sector employees that does not allow them to accept any gifts, hospitality, or rewards exceeding \$500 per year or \$50 from each entity. Complaining that this will increase the costs of regulating banks considerably, the banking regulator announces that it will suspend most site visits and meetings with senior managers of banks. In the next round of reviews of capital requirements for banks, the regulatory authority announces that capital requirements will increase from 10% of risk-weighted assets to 10.5%. The reason for this change is given as the lack of more precise information on the risk assessment of banks due to the prohibitive costs of conducting confirmatory meeting with senior staff on site due to the new rules on accepting hospitality.

Is the increased uncertainty the only reason for the decision to increase capital requirements?

Indicative answer

The rules on accepting any meaningful gifts and hospitality has eliminated the benefits of lobbying by banks; this will then allow the regulator to focus solely on the social benefits of banking regulation, which will increase capital requirements. While previously capital requirements were kept low to allow banks to generate more income and thus benefit from their lobby work, this is no longer possible and hence the incentive to reduce capital requirements has been eliminated.

Model(s) used: Sect. 34.7.2

Problem 430

Sïrek Metaldarı AK is one of the largest companies in the country and faces significant competition from new discoveries of rare earth metals in other countries and struggles to reduce their costs, which is not helped by banks recognising the increased competition and withholding loans that could be used to modernise their equipment and save costs. Reading their annual report, Miguel Estores is surprised to see in the detailed accounts that the company spent a much larger amount than in previous years on ’Hospitality to interested parties’. Asking the Chief Financial Officer at the reception after an analyst conference about the recipients of this hospitality, he understand this to be senior staff at the central bank responsible for the regulation of the financial industry. Miguel Estores is surprised as Sïrek Metaldarı AK has no active business lines in the financial industry.

Why would Sïrek Metaldarı AK incur such expenses?

Indicative answer

The competition from competitors has increased the risks of loans provided to Sïrek Metaldarı AK such that banks are reluctant to provide them anymore. The aim of the expenses was to lobby the central bank as the financial regulator to relax the rules on lending by banks, for example by lowering capital requirements. Lowering capital requirements either in general or using criteria that specifically benefits Sïrek Metaldarı AK could induce banks to take higher risks and thus provide loans to Sïrek Metaldarı AK. The expectation is that these lobbying efforts are maintained and the regulator benefits from these payments.

Model(s) used: Sect. 34.7.1, Sect. 34.7.2

Problem 431

Banks are facing increasing competition from online payment platforms that allow customers to store funds and receive interest payments. While this has in the past reduced deposits held by banks that were withdrawn to these platforms, it had the main effect of making deposit withdrawals less predictable. The Office of Banking Supervision believes that banks have not reacted adequately to this change in the market and sees a real threat of a bank becoming illiquid. For this reason it is suggested to the board of the Office of Banking Supervision that they should introduce require banks to hold at least 5% of their deposits as cash reserves; current levels are commonly between 2% and 3.4%. Making their case at the board meeting, their proposal is defeated on the advice of the central bank without much discussion. The representative of the central bank only stated that banks becoming illiquid can easily be resolved, but the true problem is banks becoming insolvent.

Why lead this remark by the central bank representative to the proposal of minimum liquidity requirements being defeated?

Indicative answer

If the minimum liquidity requirements were introduced, banks would have an incentive to increase the risk of the loans they are providing. This is because cash reserves do not geberate high returns and the lost income is recovered by banks through higher loan rates, which are associated with higher risks. It is these higher loan risks the central bank is concerned about as they can lead to the collapse of a bank, while liquidity shortages can be overcoming by a temporary loan of the central bank.

Model(s) used: Sect. 35.1

Problem 432

Increasing competition from newly entered foreign banks has eroded their profit margins and the Financial Regulation Office has noticed that banks are providing more and more risky loans. Having signed an international agreement stipulating free trade in financial services with a group of countries that stipulated changes to capital requirements are to be coordinated and discussed in a joint forum, they feel it will not be possible to come to an agreement on increasing these, given that other countries not face such increased competition between banks. Nevertheless the Financial Regulation Office would like to implement measures of reducing the risk banks take to ensure the stability of the banking system.

How could they achieve their aim and at the same time comply with the international free trade agreement?

Indicative answer

The Financial Regulation Office could reduce liquidity requirements on banks; it seems that only capital requirements are subject to coordination and consultation and hence would be available as a regulatory tool. The effect would be that banks have available more funds to invest into loans rather than holding them back as cash reserves at low interest rates, allowing them to increase profits. This in turn will enable banks to reduce the risks they are taking while maintaining their profitability.

Model(s) used: Sect. 35.1

Problem 433

Banks observe that their customers are more readily transferring funds between banks to obtain the best deposit rates in the market. This has become more prevalent in recent times as banks seem to offer different types of accounts that appeal to customers but not others; movements between accounts have become quite unpredictable for banks. At the same time, the risks banks accept when providing loans have increased. This latter development is attributed to the increased competition between banks as evidenced by customers moving deposits and the assumption that competition in the loan market has similarly increased.

Is there an alternative explanation?

Indicative answer

The increased uncertainty about the movement of deposits has increased the optimal cash reserves of banks; this has happened so that they can withstand larger withdrawals without having to resort to the raising of additional cash reserves. Even though not a liquidity requirement imposed by regulation but the oprimising behaviour of banks, these increased cash reserves have reduced the funds available for providing loans and banks seek to recover the lost revenue from the reduced lending by generating more revenue through loans with higher risks as they attract higher loan rates. It is thus that the risk-taking of banks has increased in response to the higher liquidity reserves banks hold and not necessarily because of increased competition.

Model(s) used: Sect. 26.2.3, Sect. 35.1

Problem 434

Colander Bank plc specialises in customers from the garment industry; their main customers are the producers of textiles and clothing, including shoes makers and manufacturers of leather wares. Their local competitor is Sheroz Bank Ltd, which originally was founded as a bank for the benefit of workers in the local mining industry. Since the demise of this industry over 50 years ago, Sheroz Bank Ltd. has been seeking customers in all professions and industry. The management of Colander Bank plc has the reputation of being much more conservative, which manifests itself in them holding larger cash reserves than Sheroz Bank Ltd. Sheroz Bank Ltd. disputes the fact that they are less cautious in their policies.

How can Sheroz Bank Ltd. justify that despite holding less cash reserves, they are equally careful with their depositors money?

Indicative answer

Colander Bank plc focuses on customers in a single industry and will therefore have a quite undiversified loan portfolio. The high level of idiosyncratic risk requires Colander Bank plc to hold a higher level of cash reserves than Sheroz Bank Ltd. which attracts customers from all business lines and will therefore have a well-diversified loan portfolio. The lower risk of the diversified portfolio does not require Sheroz Bank to hold as much liquidity reserves as Colander Bank plc. Thus the different liquidity reserves are not the result of a policy decision, but reflect the different risk profiles of the two banks.

Model(s) used: Ch 35.2

Problem 435

The Heblin National Bank imposes liquidity requirements of 3% of deposits on all banks. These liquidity requirements are seen as onerous by all the larger banks that cover the entire market, but specialist banks, usually focussing on a single industry or locality, do not see these liquidity requirements as a constrain and hold more liquidity reserves voluntarily.

Why do these two types of banks react differently to the liquidity requirements imposed?

Indicative answer

The large banks will hold well-diversified portfolios that require liquidity reserves of less than 3% of deposits in order to prevent bank runs. In contrast to that, the smaller specialist banks will be much less diversified and therefore face idiosyncratic risk in addition to the systematic risk. This will necessitate higher liquidity reserves to re-assure depositors that the bank does not misappropriate funds. As a result the optimal cash reserves for these banks will be higher, notably above 3% and thus the liquidity requirement by the Heblin National Bank does not present an actual constraint to them.

Model(s) used: Sect. 35.2

Problem 436

Hiromoto Bank is the largest bank in Yayoi and has customers from the entire country as well as all types of business sizes and business lines. Based on their annual report, the average default rate of loans was 0.32% and the financial regulator estimates the probability of Hiromoto Bank failing at 0.13%. The much smaller Sagawata Bank, based in the province of Sagawata and restricting its business to customers there, who are predominantly engaged in the production of wine, has an average default rate on loans of 0.51% and a reported default for the bank of 0.28%. Generally the cultivation and production of wine is not seen a business more risky than the average business in Yayoi.

Why is Sagawata Bank taking higher risks than Hiromoto Bank?

Indicative answer

Hiromoto Bank is a large bank covering all business in the country, it will therefore be a well-diversified lender, which implied that needs to hold low cash reserves to address the moral hazard of diverting funds into unproductive investments. In contrast to that, Sagawata Bank specialises on a specific industry and will therefore be much less well diversified, it is not the size of the bank that is relevant as even small banks provide a large number of loans and could diversify well, implying it needs to hold higher cash reserves. This difference in diversification can be seen from the risk reduction between individual loans and the bank risk, for Hiromoto Bank this is about a 60% reduction, while for Sagawata Bank it is only 45%. The higher cash reserves held by Sagawata Bank induces them to provide more risky loans, as seen with a default of 0.51% against 0.32% for Hiromoto Bank. This is because the higher cash reserves give Sagawata Bank incentives to recover the lost income by providing more risky loans at higher loan rates.

Model(s) used: Sect. 35.1, Sect. 35.2

Problem 437

Banks in Colodinon enjoy close personal relationships with their regulator, who is staffed mainly with former senior employees of the banks they are supervising. This relationship between banks and the regulator has been criticised many times as being ineffective in enforcing regulations, including any sanctions, and ensuring banks disclose information appropriately. The lack of information available is particularly hurting the ability of banks to attract deposits as their risks are not well understood. Addressing these concerns, the government suggests to require the regulators to be staffed predominantly by employees with no relationships to any bank for at least 10 years prior to their appointment.

How can such a requirement improve the supervision of banks?

Indicative answer

The close relationship between banks and the regulator due to the regulators' past seems to give rise to a low level of enforcement as evidenced by the non-disclosure of information. This non-disclosure of information and the lack of enforcement provides very little incentives for low-risk banks to disclose their information as there are hardly any benefits from doing so and additional costs of reducing risks will not be recovered. If the supervision and enforcement can be improved, especially for high-risk banks, then information would be more willingly disclosed as there is a benefit from being known as a low-risk banks. With the close relationship between banks and the regulator broken,m there is a higher chance of an objective supervision.

Model(s) used: Sect. 36.1

Problem 438

The Banking Office acts as the regulator of banks and is able to grant and revoke licences of banks; it is required to revoke licenses of banks taking too high risks. However, it is well known that the Banking Office lacks the personnel and resources to enforce these rules adequately and consistently and any enforcement action is rare. Industry representatives accuse the regulator of letting them down by not enforcing existing rules and making it difficult for them to obtain bank loans, although the representatives of venture capitalists seem to be much less concerned about access to bank loans.

How can you explain the different experience of venture capitalists?

Indicative answer

Venture capitalists represent companies that take high risks and whose default rate is high as the companies they invest in are young and often exploring new markets and technologies. If the enforcement of rules and the imposition of sanctions are weak and inconsistent, banks have an incentive to not disclose their true risks and hence leave depositors in the dark about the risks they are taking, making the attraction of deposits difficult, leading to a limited ability of banks to provide loans. As the associated costs of identifying low-risk companies is not rewarded due to the lack of enforcement and therefore banks have a strong incentive to provide more high-risk loans, which explains why venture capitalists are less affected by this situation.

Model(s) used: Sect. 36.1

Problem 439

The Reserve Bank of Norinda has taken responsibility for the regulation of banks, which thus far had been largely unregulated, although some basic rules were enforced by the Ministry of Finance, but they lacked the resources to provide proper oversight. In transferring the supervision to the Reserve Bank of Norinda came the commitment of providing proper resources to ensure compliance with existing rules and the ability to sanction any violations.

How should the Reserve Bank of Norinda adjust capital requirements in light of these developments?

Indicative answer

With the supervisor, the Reserve Bank of Norinda, having the resources needed to enforce and rules and implement sanctions, it can be expected that banks are willing to disclose more information and thus allow regulators to make better decisions, alongside banks taking less risks as they are more likely to be found out and subsequently sanctioned if their risk-taking is too high. With better decision-making the benefits of disclosing information and reducing risks are increasing and hence despite higher costs banks take this path. This leads the Reserve Bank of Norinda to have better information about the banks, allowing it to reducecapital requirements as the better information does not necessitate a safety cushion in capital requirements to account for unknown risks.

Model(s) used: Sect. 34.1.2, Sect. 36.1

Problem 440

Yafa Bank is a small bank operating from a single location, which on advice of the regulator has been taken over after having seen the projected default rate on its loans to increase due to the emerging recession. At the same time, Tov Bank finds itself in comparable situation, but the regulator does not take any action, even when it becomes apparent that Tov Bank implements a policy that would further increase default risks in the future, for which there was no evidence at Yafa Bank. The only otherwise discerning property of Tov bank is that it is a large internationally operating bank with branches in its home market as well as overseas. The shareholders of Yafa Bank are planning to sue the regulator for unfair practices as it treats Tov Bank more leniently than it itself and therefore they believe the regulator is biased against small banks.

How would the regulator defend the different treatments of Yafa Bank and Tov Bank?

Indicative answer

It is not primarily the different sizes that drive the decision to press for the takeover of Yafa Bank while not doing so for Tov Bank, but it the complexity of any such takeover. The takeover of Yafa Bank would be very simple as it only costs of a single branch and given its size probably not involve much complex considerations, making the takeover quick and low-cost for the regulator. In this case the low costs to be borne by the regulator justify this action as the potentially higher costs of the bank accumulating losses in the future make it less attractive to keep the bank operating as a stand alone bank. In contrast to that the size, branch network, and international presence of Tov Bank will make a takeover much more costly to administer, outweighing the costs of keeping the bank operating. It is therefore a rational decision based on the likely costs of the alternative option.

Model(s) used: Sect. 36.2.1

Problem 441

The banking market in Baltiman is dominated by three banks. Vecs Bank is known for its conservative image and a lending policy that is attractive only to be most profitable companies. In contrast to that, Jauns Bank is widely regarded as the bank to turn to when starting a business or seeking to expand into new markets; it has a very accommodating lending policy that has made it popular with politicians as they have lead the innovation drive of the government to promote economic growth. The third bank, Sajauk Bank is not distinguishing itself at all by a distinct lending policy, but will accept borrowers from all business with a sound business plan. All three banks have in common that they operate only nationally with a headquarter in the capital and branches around the country; neither bank operates overseas or is active in unregulated markets. In response to a downturn in the economy due to political turmoil in neighbouring countries, the defaults on loans of all banks are increasing, but Jauns Bank is most affected by it while Vecs Bank barely notices a difference, with Saukat Bank seeing less of a deterioration than Jauns Bank. In response to the deteriorating conditions at all banks, the Central Bank as regulator suggests to seek a foreign purchaser for Saukat Bank.

Why does the central bank only suggest Saukat Bank is offered to overseas bidders, but not the other two banks?

Indicative answer

The information suggests that a takeover of all banks would be relatively straightforward as their business is not complicated to asses and transfer; thus costs to regulators of supporting this transaction should be low and comparable for all three banks. Where they differ, however, is the risk levels of the loans they have provided, Vecs Bank has the lowest risk, followed by Saukat Bank, and Jauns Bank is the most risky bank as they lend to new business that are usually more likely to default. Therefore, the risk of Vecs Bank are so small that it is unlikely they will fail and impose costs in the future, thus making the costs of a potential takeover higher than the benefits of avoiding their failure. Jauns Bank has high risks and is therefore likely to fail in the future; however it is not suggested to be taken over as it might fail before that, adding to costs. It is the banks with an intermediate risk, which is not imminently as risk of failure, sufficiently likely to do so in the future to outweigh the costs of administering the takeover.

Model(s) used: Sect. 36.2.1

Problem 442

Majhna Banka is small bank serving the needs of the rural local community in the area they are based in. A wet and cold summer has reduced the income from farming substantially and many borrowers already had to default and this trend is expected to continue. In reaction to this development the central bank is concerned about the viability of Majhna Banka in the short and long run. It approaches the management of Majhna Banka with a suggestion to seek a stronger partner taking them over to ensure their survival. Andrej Horvat as CEO of Majhna Banka and a veteran of many banking crises in various countries he has worked in, recommends to the board to reject the proposal of the central bank. His reasoning is that if the bank recovers, then all will be fine, and if the situation will become worse, they will receive a bailout from the central bank or government.

How does he justify his analysis?

Indicative answer

The business of Majhna Banka is relatively straightforward structured and the small size with its local area of operation should make the administration of a purchase cheap for the central bank. The relatively high default rates after the poor harvest will make it more costly for the central bank to keep the bank operating as it is likely to fail; therefore the central bank recommends that Majhna Banka is taken over by another bank. However, if the default rates increase even more, then the costs of letting Majhna Banka fail will be even higher as the accumulated losses are high and this would make a bailout the cheaper opetion for the central bank compared to a purchase of the bank at a substantial discount.

Model(s) used: Sect. 33.1, Sect. 36.2.1

Problem 443

The borrowers of KleinBank AG have suffered particularly through the recent recession and concerns have been raised about its long-term viability due to the potential losses that are accumulating. The central bank makes the decision to effectively close the bank as it is currently not able to meet its capital requirements due to the reduction of equity from losses; it suggests openly to other banks to consider purchasing KleinBank AG for a nominal amount. The board is flabbergasted by this announcement, which was conveyed to them by the central bank only hours before. The board agrees that it wants the central bank to review its decision as there are clear signs of a significant recovery in the ability of borrowers to repay their loans. The board feels that the central bank is not disregarding the enormous effort the bank and its staff have undertaken with the companies to ensure loans are repaid.

Is the board right to complain about the treatment they receive from the central bank?

Indicative answer

The effort KleinBank AG has exerted to reduce the default rate on loans is not ignored by the central bank, but the projected increase was not sufficient to change the decision of the central bank. The losses accumulated so far does not allow KleinBank AG to meet the regulatory requirement and so on the face of it, the central bank makes the correct decision to close it down. This possibility of the central bank closing a bank serves as an incentive for the affected bank to exert effort and reduce risks and thus make the bank viable again, however on this occasion the result is not sufficient for KleinBank AG to escape their closure.

Model(s) used: Sect. 36.2.2

Problem 444

After a stormy meeting with representatives from the regulator about the losses that have accumulated at Meong Bank, the board afterwards unanimously rejects the measures the regulator had sought to impose in the bank to aid its recovery. During the meeting it is agreed that for a large bank with a wide range of operations ion many markets as theirs, the threat of revoking their licence and administering them is hollow and will never happen. A remark is made that this threat is only used as an attempt to coerce them into complying with the demands of the regulators, even though they agree that it would reduce the risks of the bank failing, but they feel it is not feasible to achieve.

Is the assessment of Meong Bank's board correct?

Indicative answer

In a way their assessment is correct. The threat of closing the bank by revoking their licence is a tool to induce effort into the decisions of the bank to reduce the risk of failure in the future. It is, however, also the case that the recovery from low default rates does not have to be complete and the regulator would not close the bank if recovery is not fully achieved. This is exacerbated in the case that the closure of a bank imposes costs on the regulator. In this case the likelihood of the bank being closed is minimal, especially as for a large banks these costs can be assumed to be substantial due to the complexity of their operation. It can therefore be interpreted as a threat that has only merit if the bank were to not seek their recovery in a meaningful way.

Model(s) used: Sect. 36.2.1, Sect. 36.2.2

Problem 445

Large losses arising from a failed real estate development which Northern Construction Bank Ltd. financed, caused the capital to fall below the minimum capital requirements. To ensure the survival of the bank the central bank offers to purchase some of the loans whose repayments have become doubtful at a price of 73.5% of its face value, while the market value of them was assessed at 68.7%. Despite this generous offer, Northern Construction Bank Ltd. turns down the offer of the central and instead seeks to raise additional capital from their two owners.

Why does Northern Construction Bank Ltd. turn down the offer of the central bank to purchase their loans above market value?

Indicative answer

The central bank acts as a bad bank and offers to make this payment above market value to ensure the bank can continue to operate and through new loans generate profits that make them compliant with the capital requirements. However, using this arrangement imposes significant costs in terms of a loss of reputation and potentially higher funding costs as depositors assess the bank as being more risky. These costs outweigh the profits from selling the loans and the bank finds it more cost-efficient to seek a rise in capital.

Model(s) used: Sect. 36.3

Problem 446

Facing a large financial crisis after the collapse of the prices in metals on the world market, which form the main export of Niranga and the basis of its economy. The government in collaboration with the central bank have set up the Asset Restructuring Company Ltd. whose aim is to purchase non-performing loan from banks. This company offers to either purchase the loans at a price that is 7.5% above market value or it offers a repurchase agreements offering a premium of 10%. To the surprise of many observers, some banks refuse to sell loans at all, while others sell their loans directly to the Asset Restructuring Company Ltd., but no repurchase agreements are entered.

How do you explain this behaviour of banks?

Indicative answer

Those banks not selling any loans will think that the premium of 7.5% or 10% is not sufficient to cover the additional costs of doing so, for example the loss in reputation. Those banks who assess their costs to be less than this premium will prefer the outright sale, even though the repurchase agreement will give them more funds. This is because the high price that these loans have to be repurchased later, eroding the profits made.

Model(s) used: Sect. 36.3

Problem 447

Banks have been caught out by a sudden collapse in technology stocks after having been warned by analysts of their overvaluation and risk to the loans to private equity firms investing into these. The high losses from defaults and write downs due to higher credit risk puts the survival of these banks at risk and the central banks initiates a relief programme in which they purchase these loans from the banks. Each bank is assessed individually and offered an individual price to sell the loans to the central bank or in other cases offered a repurchase agreement with a maturity of 3 to 4 years. There seems to be no pattern to the prices offered for the sales and also no apparent pattern who is offered a purchase of the loans and who a repurchase agreement. Even a detailed statistical analysis by consultants did show that those banks which has many brokered deposits or deposits held from large institutional investors were offered a lower price and generally only the purchase of the loans; other relationships were not evident. It is thus concluded in the press that the central bank 'makes it up as she goes along' and sees how much she can extract from banks for them to accept it.

Is this a fair assessment of the policy of the central bank?

Indicative answer

The prices for purchases of the loans will be determined such that banks are compensated for the costs this purchase imposes; these costs can vary considerably between banks, for example the impact on future funding costs from depositors will depend on how depositors assess the risks; private depositors are less sophisticated in their analysis and might put too much emphasis on past risks rather than future risks, increasing their costs. This explains why banks with more professional investors obtain a smaller premium, their costs are smaller. Also smaller costs, and hence a lower premium, make the central bank prefer the outright sale as with repurchase agreements they face the risk of not being able to return the loan to the bank and realise the losses. It is only for banks with high costs, where the purchase price and thus the loss would be high; a repurchase agreement is preferred as the loss is only realised if the bank cannot repurchase the loan.

Model(s) used: Sect. 36.3

Problem 448

'Banks should be like any other business, they should just be closed if they get it wrong. If we bail them out, then they will never learn.'

Is there substance to this statement and how might a cost-effective rescue of banks be structured?

Indicative answer

The threat of failure and a regulator forcing the bank to close gives an incentive to banks to exert effort and recover from any losses made, or even not to get into that situation in the first place. However, there are social costs in the form of lost deposits and these costs can outweigh the costs of rescuing a bank. Rather than using a full bailout, the failing bank could be selling loans or engage in a repurchase agreement of distressed loans to obtain funds that can be lent out again to generate profits and become profitable again.

Model(s) used: Sect. 36.2.2, Sect. 36.3

Problem 449

Faraghar Bank has suffered a large unexpected outflow of deposits due to one of their major depositors, an investment fund, having seen the withdrawal of monies due to their low performance. Given the need for Faraghar Bank to obtain additional liquidity, the central banks provided a loan to allow the bank to continue operating in an orderly manner. The Deposit Insurance Agency, another arm of the government providing deposit insurance at no costs to banks heavily criticised this move and suggests that the bank should have been closed down instead; they complain that the central bank's decision-making is inconsistent as in a similar situation two years ago the central bank refused a loan to Morgan Bank and in the end it was purchased by another bank as a discount.

Is the decision-making of the central bank necessarily inconsistent?

Indicative answer

If we assume that both banks faced similar amounts of liquidity shortage, then it would be an explanation that Faraghar Bankis providing less risky bank loans than Morgan Bank. In this case the risks of the central bank not having their loan repaid by Faraghar Bank is lower than when lending to Morgan Bank, making the provision of a loan more attractive than closing down the bank. It is thus a decision which is rational and concistent, provided the inferences about the risks of the two banks are correct.

Model(s) used: Sect. 36.4

Problem 450

Having been faced with a number of bank runs based on unfounded rumours the government of Gorinad has assembled a group of expert to evaluate the decision-making during this time period and make suggestions for further improvement. Looking at the decisions taken, it is quickly established that the division of the Ministry of Finance that administers the deposit insurance in Gorinad has been blocking all but one of the attempted rescues by the central bank. With the central bank not being allowed to provide loans to banks without high-quality collateral, usually in the form of government securities, it fell to this division to approve any loans to banks that would have avoided their failure. It was granted only to the Gorinad Mortgage Bank plc, who operates a very restrictive business model of providing mortgages to a maximum of 70% of the value of the property. In discussing the results, the group of experts considers whether the central bank would have reacted difefrently if they had been allowed to provide loans without the need of collateral.

Would it be an improvement if the central bank was given the ability to provide loans to banks in such a situation?

Indicative answer

The outcome here is that only the safest banks, here the Gorinad Mortgage Bank plc, would be granted a loan and could survive the liquidity shortage. If the central bank were to make the decision, it would provide loans also to more risky banks, as long as the liquidity shock was not too large; this would get the decision closer to the social optimum. However, with the central bank making the decision, it might be even more restrictive for large liquidity shortages as the size of the loan becomes very large. In a bank run banks usually face the withdrawal of a large fraction, if not all of their deposits, posing a significant risk that the central bank would be even less willing to ensure banks are surviving and require them to be extremely low-risk; this would move the decision even further from the social optimum.

Model(s) used: Sect. 36.4

Problem 451

The central bank is accused of providing loans to banks facing liquidity shortages due to the withdrawals of risk-conscious deposits arising from concerns about their solvency too readily and allow banks to continue operating without facing the consequences of their decisions. In the view of bank critics the role of the central bank should not be to support banks unconditionally, but to ensure they exert the maximum diligence to reduce risks. A suggestion that has been put forward is to move the ability to grant banks loans to cover liquidity shortages, beyond the normal operation of ensuring the liquidity of the banking system as a whole, should be removed from the central bank and given to the deposit insurer. The deposit insurance would make better decisions, so the argument, as they are the ones who face the consequences of banks failing by having to repay depositors.

Is this reasoning correct and will it also provide incentives for banks to be more cautious in their lending?

Indicative answer

The deposit insurance will in most cases be more cautious when giving loans and require banks to have lower risk, unless the liquidity shortage is very large, in which case the central bank is more strict. By being less willing to provide loans to banks and thus be more willing to close a bank, the banks have an incentive to avoid such a scenario by reducing the risks they are taking, which then will make depositors less likely to withdraw funds due the perceived risks. It is thus a correct inference for not-too-large liquidity shortages, but for large liquidity shortages it would have the opposite effect.

Model(s) used: Sect. 36.2.2, Sect. 36.4

Problem 452

The signing of a free trade agreement for goods and services between Beloron and Markalan is opposed by the financial regulators of both sides unless it excludes banking services.

Why would financial regulators oppose such a wide-ranging agreement?

Indicative answer

Competition between jurisdictions for banks reduces the information regulators can obtain from banks. using liquidity requirements and taxation rates on bank deposits, regulators could ensure that banks were reporting their level of risk-taking truthfully, which is useful for other regulatory measures but also to assess the risks in the banking system. With the ensuring competition, taxes will be eliminated and liquidity requirements will not be dependent on risks banks are taking. It thus deprives regulators of this sorce of information.

Model(s) used: Sect. 37.1

Problem 453

The central bank is criticised for the way they impose liquidity requirements on banks. While it is generally acknowledged that liquidity requirements are useful, many have questioned why these liquidity requirements are increasing with the default rates on the loans a bank provides. It is argued that liquidity requirements are based primarily on the risks of liquidity shortages and not the default on loans as this does not affect the liquidity reserves of banks. It is also noted that the government has imposed a fee on bank deposits that is to be paid by banks, which in the eyes of many is incentivising banks to take higher risks, as the fee is lower the higher the risks of a banks.

What is the rationale of the central bank for the imposition of liquidity reserves being dependent on the loan risks of banks?

Indicative answer

Setting lower liquidity requirements for low-risk banks and higher liquidity requirements for high-risk banks will incentivise the high-risk bank to disclose its risks truthfully. This is achieved by combining the liquidity requirements with the deposit fees, which are used to partially offset the benefits of lower liquidity requirements; however this offset is incomplete and high-risk banks find it more beneficial to comply with higher liquidity requirements in exchange for lower deposit fees, while for low-risk banks the higher deposit fees do not outweigh the lower liquidity requirements.

Model(s) used: Sect. 37.1

Problem 454

The central bank imposes liquidity requirements on banks based on their individual characteristics. It has been found that banks that take higher risks when providing loans, have higher liquidity requirements. A banking representative questions this policy of the central bank and points out that while liquidity requirements are essential to ensure banks can make payments to their depositors, the way these are implemented are illogical. By making banks taking higher risks have higher liquidity reserves, it induces even more risk-taking by these banks rather than reduce the incentives to do so.

How does the central bank defend its policy?

Indicative answer

It is true that with higher liquidity reserves banks have an incentive to increase the risks they are taking as their ability to lend and thus generate profits is limited. This will then lead to banks providing loans with higher risks that are more profitable due to higher loan rates with the aim to recover their profitability. But, on the other hand, this will be limited as then their liquidity requirements will be increased even more, reducing the effect. In addition, the different liquidity requirements can also be used as part of a policy with deposit fees to induce banks to reveal the risks are taking truthfully. It thus provides more information to the regulator which can be used for the better regulation of banks, for example the imposition of capital requirements.

Model(s) used: Sect. 35.1, Sect. 37.1

Problem 455

Karaban is divided into five distinct regions which have very different characteristics in terms of their economy, ranging from rural communities relying on agricultural production, a region depending on iron ore mining, a high-tech centre developing software for the most advanced applications, a financial hub, and finally the administrative hub of the country. Banks are actively lending mostly in a single region given their different characteristics, but the regulatory approach taken by the financial regulator is common to all banks in all regions. This has left banks and customers in all regions dissatisfied as it seems that no one believes the applied rules are really suited to their needs. A federal commission who investigates how the different regions are interacting and supporting each other, suggest that each region should develop their own regulatory framework. This suggestion is blocked by the central government. As a result, the regional governors accuse the central government of trying to exert influence in order to retain power.

Is the opposition of the central government due to an attempt of retaining power?

Indicative answer

The suggestion is to move from a fully centralised to a fully decentralised approach to banking regulation. While the decentralised approach will increase the welfare in each of the regions as their characteristics are considered. As banks are only active locally, there are no or very few spill-over effects onto other regions such that taking into account their welfare is not necessary. It is therefore that the opposition of the central government is reducing welfare overall and their opposition is not based on sound economic thinking.

Model(s) used: Sect. 37.2

Problem 456

’We cannot have multiple regulators of banks, one from the central government and then another set of regulators in each of the regions. How can that work? The central regulator says its 8% minimum capital requirements and the regional regulator says I want 10%; this cannot work. To satisfy both regulators it would always be the more strict of the two regulations that has to be complied with. So forget about that.’ This statement is taken from a discussion of decentralised banking supervision in Rultana.

Is the statement correct or could another approach be followed to ensure regional banking regulation can be applied alongside a national regulation?

Indicative answer

The approach would be to identify the optimal weight of the regional and national regulations that maximize the overall welfare. Once these weights have been determined, then each policy by a regulator can be given the appropriate weight, so the capital requirements in the statement’s example would be a weighted average of the 8% by the central regulator and the 10% of the local regulator. It is thus compromising with each regulatory measure and not a requirement to comply with both sets of regulations.

Model(s) used: Sect. 37.2

Problem 457

Banks in Parthonon are specialist lenders who focus their lending activities on specific sectors of the economy; this arrangement has historical roots as many years ago banks were set up as mutual banks with the explicit mission to support specific industries and their employees. While especially depositors are less bound by these constraints any more and many use banks that are not associated with the industry they are employed in, this is much less the case with loan, who are mostly restricted to borrowers with specific industries. It has been suggested that each sector should be regulated separately, including the banks associated with each sector.

Given that currently banks are regulated centrally, would the proposed separeate regulation of banks be beneficial?

Indicative answer

The different sectors of the economy can be interpreted as 'regions' and we have regional and national regulations that need to be considered. A central, national, regulation will not take into account the welfare of each of the regions (sectors) adequately and is hence not optimal; what emerges is an average regulation that serves no sector adequately and is a compromise satisfying no one. Moving to the other extreme of each sector, region, being regulated separately, will increase the welfare of each sector, but as customers, predominantly depositors, are also found in the banks of other sectors, regions, their concerns are not fully taken into account, making such an approach not optimal. Which of the two extreme version would be better would depend on the importance of the external effects in each case. A combination of national and regional, central and sector-based, regulation would be the best combination.

Model(s) used: Sect. 37.2

Problem 458

Governments of neighbouring countries are negotiating a free trade agreement for banking services and the establishment of a single regulator for all banks in these countries. While most countries are keen to finalise the agreement, the government of Altania stalls progress by postponing meetings and objecting to seemingly minor compromises. Observers of these negotiations point out that all countries, including Altania, are already highly connected with cross-border deposits very common and therefore a common protection against a banking crisis would be in the interest of every one. It is particularly pressed on Altania that they would benefit most from such an agreement as currently their banking market is highly efficient with loan rates being considerably lower than in the other countries. A spokesman from Altania dismisses this argument by saying that this is not something that is relevant to them as their banks cannot easily grow due to capital requirements.

Is the arguments brought forward by the spokesman relevant?

Indicative answer

Highly profitable banks benefit more from banking unions as the increased rate of bailouts will ensure they can generate these profits more frequently. In contrast to this, the benefits of less profitable banks, like in Altania are lower and the higher rate of bailouts will induce incentives to increase risks, which reduce the profitability even further. Thus for these low-profit banks the benefits of the increased bailouts are less than the loss in profits due to higher risk-taking. It is therefore that Altania should oppose the creation of a banking union.

Model(s) used: Sect. 37.3

Problem 459

Governments are seeking to complement the extent of their free-trade agreement by creating a single supervisor for the banking system. They cite that banks already have the freedom to receive deposits from other countries and provide cross-border loans; this is widely used. The expressed aim of the single supervisor is to create a level playing field for all banks competing against each other. Surprisingly banks are opposed to the creation of a single supervisor.

How can it be that the government and banks are taking opposite position in this case?

Indicative answer

The government sees that a banking union would increase the overall welfare as the costs of failing banks overall would reduce as in bailout decisions the interests of all depositors would be taken into account, reducing the losses of deposits held in foreign banks more than the cost increase of including all depositors in a bailout. For banks this would, however, end their ability to engage in regulatory arbitrage, which has the effect of reducing the regulatory burden. In addition the higher likelihood of a bailout would increase incentives for banks to provide more risky loans, which is often not as profitable as providing safer loans.

Model(s) used: Sect. 37.1, Sect. 37.3

Problem 460

Donian and Frekira have agreed to open their banking markets to each other many years ago, but have maintained their own distinct style of regulating banks reflecting not only their own traditions but also the unique challenges their banks and economies face. It was only very recently that customers have become more comfortable to use banks in the other country. Reacting to this development, the regulators of both countries meet to discuss how regulation might have to be adjusted taking into account the increased cross-border activity of banks.

How should the countries proceed?

Indicative answer

The increased rate of cross-border banking suggests that a banking union should be considered. The existence of a single regulator would allow to take into account the interests of all customers equally and not cause external effects in that only domestic customers are considered in decisions and the interest of foreign customers ignored, imposing an externality on the welfare of the other country. However, the distinct characteristics of the economies and banks in the two countries might make a single rule for banks in both countries not desirable. While there should be some coordination reduce the external effects as described. the optimal regulation might be to establish global rules that can then be tweaked by the national regulators to suit their own preferences better. It would thus be ideal to find a compromise between the uniform regulation in a banking union and the different regulations in separate countries.

Model(s) used: Sect. 37.2, Sect. 37.3

Problem 461

A discussion emerges between two financial analysts about the problems of valuing banks compared to companies in other industries. Helen Scowcroft asserts that the valuation of banks is so much more difficult than other companies as the manifold regulations banks are subjected to have to be taken into account and make the task much more difficult. Thomas Banter refutes this and asserts that while the more intrusive regulations banks face put some constraints on what banks can do, but this would hardly make a difference given the number of factors that have to be considered in any industry. He challenges Helen Scowcroft to give him a specific example where the valuation of a bank is more challenging than in other industries.

What could Helen Scowcroft reply?

Indicative answer

The main difference in the valuation of banks is the imposition of capital requirements, which non-financial companies do not have. It is then that she needs to assess the impact of these capital requirements and how it affects shareholder funds. If a bank breaches its capital requirements it has to raise additional equity to comply with the requirements, this will dilute the stakes of existing shareholders. She therefore has to assess the probability of a breach of capital requirements and the degree of dilution existing shareholders face, This is not a concern in other industries.

Model(s) used: Chap. 38

Problem 462

Many analysts have used option pricing theory to determine the value of banks.

Why is this methodology much more common for banks than for companies in other industries?

Indicative answer

Banks have a high leverage and this makes the limited liability of banks particularly important. The high leverage of banks has the effect that the option value is significantly higher than the value of the equity if neglecting the limited liability; this is because the possibe large losses due to ther high leverage are not borne by shareholders and can therefore neglected. This will increase the value of the shares significantly, while for most industrial companies it would not make a significant difference. It is therefore that for non-financial companies using option pricing theory has no meaningful impact of the calculated value, while for banks the importance of limiuted liability will make a substantial difference.

Model(s) used: Chap. 38

Problem 463

The Office of Banking Regulation has made it compulsory for banks to join their deposit insurance scheme. In order to reduce the burden on banks, it has decided to significantly loosen the capital requirements of banks. This move has brought significant critique as many experts are concerned about banks taking on additional risks.

How could the Office of Banking Regulation alleviate these concerns?

Indicative answer

If the deposit insurance is priced such that it takes into account the risks of each bank, the default rates of loans as well as the amount lent, then the size of this premium would internalise any effects on the incentives to take risks due to the looser capital requirements. Thus banks would not increase their risks as this would increase their deposit insurance premium. In effect the imposition of capital requirements is superfluous.

Model(s) used: Sect. 34.3.3

Problem 464

There are concerns by the central bank about the stability of the banking system. It is therefore suggested that capital requirements are increased and to avert any concern by depositors, communicate that the central bank is prepared to support banks if needed. An opposing view is that this would make banks even more unstable and instead they suggest that in case a banking crisis emerges, the central bank should require all deposits over a certain size across all affected banks, suggested was £10m, to be repaid only once all smaller deposits have been paid.

Is this alternative proposal better suited at address the concerns about the stability of the banking system?

Indicative answer

Increasing capital requirements can have the effect of increasing the risks banks are taking as they seek to increase returns on investment to ensure the higher amount of capital used to finance these loans are adequately compensated. This is especially the case if a bailout is seen as being highly likely, as is implied by the communication of the central bank. If large depositors, on the other hand, are repaid only after smaller depositors, this is akin to a bail-in. These depositors will seek to be compensated for their risk and this will increase the costs to banks of increasing risks, reducing the incentives to increase risk or even to decease risks without the use of increased capital requirements. It is thus that the alternative proposal is more likely to be effective in reducing the risks that banks are taking.

Model(s) used: Sect. 34.5.2, Sect. 34.6

Problem 465

Farrindar Bank plc is experiencing significant losses on their loan portfolio due to one of their main markets, companies producing engines for cars, ships, and planes, is experiencing a severe downturn. With future losses likely to increase further, Farrindar Bank plc seeks to maintain their profitability by expanding into new markets with alternative technologies for generating energy, supporting small research-intensive companies. They do so despite being told by the regulator to increase their capital ratio as part of their powers where they can impose such additional requirements on banks that are likely to breach existing capital requirements in the near future; the increase in capital requirements has been in line with what has been required in the past to reduce the risks banks are taking. For the first time, potential investors into the bank have been assured by the regulator that the government would step in to protect shareholders' investments.

How should the regulator react to the altered lending policy of Farrindar Bank plc?

Indicative answer

The government has indirectly promised shareholders a bailout by assuring them of the value of their investments. This induces Farrindar Bank plc to increase the risks they are taking, as evidenced by the expansion into new markets that are reasonably seen as high-risk. It is obvious that the increase in the capital requirements were not sufficient to overcome this effect and it is therefore that capital requirements have to increase further due to the implied bailout of the bank. Such a bailout had not been promised before and thus lower increases in capital requirements would have sufficed.

Model(s) used: Sect. **??**

Part VIII
Macroeconomic implications

Problem 466

Suffering from high interest rates due to a weakening currently, Azuria's economy is also slowing down and without intervention would most likely enter a recession soon. Despite the current economic situation, many companies are seeing to invest in the hope of softening the impact of the looking recession through innovation and growth, but banks seem to be reluctant to lend at this stage and complain about tight cash reserves from to capital outflows. Due to the high loan costs, many companies feel that any further increase of interest rates will make investments unviable. In order to help the ailing economy and stimulate investment, the Reserve Bank of Azuria has decided to inject additional liquidity into the banking system to address the liquidity shortage of banks and induce them to commence lending activities more vigorously. With this injection commencing, companies expect to see loan conditions easing and access to loans becoming easier. While some improvement has been noticed after a few weeks, it is well below what the Reserve Bank had expected. Companies are complaining that loans have become slightly more expensive since the injection and loans are still difficult to come by.

Why does Azuria not experience a significant expansion loans?

Indicative answer

It seems that companies are on the edge of viability of investments in the current circumstances. The observed increase in the loan rate may well have let many companies to abandon their investment plans, implying a high sensitivity of loan demand to interest rates. With such a high sensitivity, the liquidity injection of the Reserve Bank would not induce a large increase in loans provided. Furthermore, the capital outflows would probably necessitate an increase in the cash ratio held, such that loan provision is further suppressed, with additional funding to a larger extend being kept as cash reserves. The interest increases as any loans the banks give are creating deposits that need to be held, causing deposit rates to increase, and subsequently loan rates as the cost basis of banks has increased. Therefore, overall the multiplier effect of the Reserve Bank will be much smaller than anticipated.

Model(s) used: Sect. 39.1

Problem 467

The economy in Etarios is recovering from a slight downturn and the central bank has started to raise interest rates in order to avoid an overheating of the economy. While this generally causes companies to re-asses their investment plans and revise projected borrowing, the central bank is concerned that it is mainly the most innovative sector of the economy, that seems to revise down future investment plans the most. These companies, while relying on loans to an extend are by far not as highly leveraged as some other parts of the economy that seem much less affected, e. g. utility companies and the pharmaceutical industry. These innovative companies, often operating with minimal resources, have in the past made many valuable contribution to the growth of the economy.

Why are innovative companies revising their investment plans more than other sectors?

Indicative answer

Innovative companies are operating on a shoestring and will therefore often not have many meaningful assets that could be used as collateral, This means that they will easily face lending constraints, not least because of the high risk of their investments. It is the higher exposure of banks to losses due to higher loan rates that make banks require additional collateral and if they cannot provide this, will face a higher reduction in loans than other companies that can provide such collateral. Furthermore, innovative companies often have the choice between several investments of various degrees of risk. With higher loan rates, the incentives to engage in more risky investments increases. This would necessitate a reduction in the amount of loans a company receives such that these incentives can be lmited, thereby acting as an implicit lending constraint. More traditional companies will commonly have very few investment strategies that are higher risk and thus would less likely to face such an implicit lending constraint. Consequently, innovative companies face lending constraints that become more binding in a high-interest environment and will be forced to reduce investment and lending more than traditional companies.

Model(s) used: Sect. 40.1

Problem 468

The economy of Manitosta is performing very well and its economic growth has been increasing in recent months. The central bank has used its monetary policy tools, mainly through increasing interest rates, to cool the economy down. Despite higher interest rates, the overall lending activity seems to be pretty much unchanged and demand for borrowing remains high, even though some companies start to cut back investment plans, but it has been observed that companies in mainly traditional industries find it harder to obtain loans, while those at the cutting edge of technological developments and innovation, report that obtaining loans is much easier than before. As in previous times of high economic growth, banks are accused in the wider media of becoming too optimistic and taking on risks they cannot afford. The banking industry, however, points out that the stability of the banking system is maintained as despite risks having increased, they have also increased their capital and shown restraint in lending.

Against this background, an opinion piece in the Financial Daily, the leading financial newspaper in Manitosta, accused the banks of 'irrational exuberance', transforming the economy in a casino where no one wins. The article cites many cases of loans that have been given to companies with questionable credentials, while companies with good track records have been refused loans. How could the banking industry respond to this accusation?

Indicative answer

As interest rates are increasing, alternative investments for depositors are becoming more attractive, requiring banks to increase deposit rates. At the same time, they cannot fully implement the same increase to loan rates as that would probably lead to a significant reduction in loan demand. Therefore, banks' profit margins are under pressure and cost reduction are essential. This might well mean that the standards applied to borrowers are not as rigorously enforced as previously and scrutiny of projects is reduced, making correct assessments more difficult. This will inevitably lead to an increase in the risks bank take as it is more likely that risky borrowers are assessed as lower risk and less risky borrowers as higher risk, given the level of risk they face. However, giving loans to companies that are investing into the latest technology should well be beneficial for the economy in the long run. In addition, banks are not increasing the risks society faces as much as the increase in risks themselves implies, because they have also increased their capital, mitigating at least some of the higher risks taken. Banks have increased their capital and as such are exposed to these risks themselves, ensuring they are not increasing risks too much. Hence, banks are acting rational in response to rising interest rates and the provision of loans to innovative companies, while risky, will in the long run benefit the economy.

Model(s) used: Sect. 40.2

Problem 469

A sudden and unexpected rise in the world price of a wide range of ores has severely affected companies in Bulagon, whose prime industry is the production of metals, such as aluminium, copper, manganese, iron, and steel. Companies often have long-term contracts with their customers at fixed prices for long time periods, while buying the ores at market prices. Given the current situation, banks have been reluctant to provide companies in this industry with loans, even though demand is strong as ever, and instead focussed on smaller and much less established companies in the technology and hospitality sector. The central bank has viewed large-scale lending to these sectors critically due to the substantial risks involved. The government is concerned that the lack of finance to the metal industry will have a detrimental long-term impact. The central bank, though, has refused to lower interest rates to induce more investment, pointing out that there is no prospect of a recession, only a time of low profitability of the metals industry, which is unlikely to lay off staff due to its long-term contracts and that bankruptcies are unlikely. The central bank also points out that demand for loans by the metals industry remains high, so there is no suggestion that the current level of interest rates is limiting investments. Bulagon has a system of deposit insurance, where depositors are repaid their original deposit if a bank fails, for which banks currently pay an annual premium of 1.2% of deposits.

What arguments would you use to convince the central bank to lower interest rates?

Indicative answer

Companies in the metals industry facing a shock to their profitability and this makes them less attractive to banks as they cannot charge that high loan rates without affecting the companies' profitability. This gives them incentives to look for alternative borrowers and they found them in the much more risky technology and hospitality sector. It should be pointed out that by banks granting loans to those sectors they increase the risks they are taking, which might affect the financial stability of the banking system. By lowering interest rates the costs of banks will be reduced as deposit rates will fall, making loans to the metals industry more profitable and might induce banks back to providing them with loans again. If the price shock is too big for reduced deposit rates to achieve this aim, it might be necessary to look at providing a subsidy to banks. This subsidy could consist of providing the deposit insurance at a lower cost, or even for free. Only if the shock was so big that even with such a subsidy, the banks could not be induced to lend to the metals industry, would lowering interest rates not result in increased lending to the metals industry. Hence, lowering interest rates, possibly combined with a subsidy by the government to cover deposit insurance costs, should give incentives for banks to move their loans out of the risky technology and hospitality sector back into the more safe metals industry.

Model(s) used: Sect. 40.3

Problem 470

A session in the upper chamber of the parliament in Worinta was supposed to discuss deregulation of wider areas of the economy to incease competition between firms, but has somehow turned on the role of banks in the economy. A well know left-wing politician claims that it is banks that cause a lot of the instability in the economy and not the often heavy-handed regulation of companies. He claims that banks are responsible for creating booms and busts in the economy and it therefore they who should be more tightly regulated, rather than other industries being regulated less. He claims this would serve the population much better than alowing a few companies to seek even more profits. You observe the debate as a journalist for the business section of a large national newspaper and have to write a report on the debate for the coming edition.

Your newspaper is keen to support deregulation, how would you argue in your article that banks should not be more regulated?

Indicative answer

Banks are responsible for financing investments through loans and they will do so in many circumstances in a way that causes these investments to fluctuate overtime. This aspect will refer to the ’boom and bust’ aspect of bank behaviour. Of course, investment is only part of the economy, the other main component being consumption. Banks will cater for the risk aversion of consumers by smoothing their consumption, manly by redirecting loans towards consumption if it is low and reducing it if consumption would be high. This reduces any variations in the overall economic activity of Worinta that might have been introduced by banks in investments. It is firstly to note that the vast majority of the population will most likely welcome the smoother consumption pattern and as this is what affects them directly. If banks are heavily regulated such that they cannot freely re-allocate loans between consumption and investments, this would most likely reduce the welfare of the popu;ation, who are then much more exposed to varying consumption.

Model(s) used: Sect. 41.3

Problem 471

At the Annual General Meeting of Beringia Bank, some shareholders were bemoaning the that the bank does not make use of its full potential to generate profits for its shareholders. It was pointed out to them by activist shareholders that the economy is going well and the bank has a great portfolio of very safe loans and this business strategy of only providing safe loans was welcomed. However, it was pointed out, that while lending could easily be expanded without increasing the risk substantially, it has actually reduced since the economy is performing well. This was contrasted with the expansion of lending of SimBank during the same time. It was pointed out that SimBank applies a different business model by mainly supporting younger and innovative companies, rather than the well-established customers Beringia usually serves.

While at the time of the AGM no direct response was required, the CEO asked her assistant to prepare a statement for the next board meeting as one of those criticising the bank along these lines has just been elected to its board. How would you explain the differences between Beringia and SimBank?

Indicative answer

Beringia serves low-risk companies and with increased prospects of these companies, we cannot simply increase lending without affecting profitability, e.g. by reducing loan rates. The high profitability of our low-risk borrowers during the recently good times will also attract funds to invest into them, leaving us with less resources to lend out. SimBank, in contrast, will have a lot of constraints in its lending as many companies will not be generating sufficient returns to merits lending and the increase in returns to their high-risk borrowers has opened new markets for them, without having to reduce loan rates. This allowed SimBank to expand their lending.

Model(s) used: Sect. 41.1

Problem 472

Companies in Ladinia have recently heavily invested into the manufacturing of batteries, using a mix of conventional and experimental technologies. It is generally seen as a risky strategy but also a strategy that promises high returns and banks have been more than happy to finance these investments in the past. With the increasing uptake of electric vehicles, many companies have come to long-term contracts with car and lorry manufacturers and as such the economic prospects of Ladinia have improved even further. The manufacturing of batteries has become very much automated and the increasing use of robots continues to require substantial investment. Despite the good prospects of the economy, companies recently find it increasingly difficult to secure loans. This is not only a perception of individual companies, but the lending activity of banks in recent months has failed to expand and there are signs that new loan approvals are actually reducing.

Why would loans reduce at times of high economic growth?

Indicative answer

While being relatively high-risk companies to the experimental technologies involved, battery manufacturers also have increasingly positive outlooks. This should lead to an expansion of lending to this sector, and given its importance in Ladinia, to an overall increase in banks lending. However, at the same time, the reliance on robots in manufacturing rather than labour, will limit the purchasing power of the population. This will selling high-priced products like electric cars, for which the batteries are needed, much more difficult. Thus, while individual companies might be doing well, on an aggregate level, companies might find their markets to be limited for this reason and hence limit lending.

Model(s) used: Sect. 39.2, Sect. 41.1

Problem 473

The economy in Tralsund is performing very well and in order to prevent an overheating, the central has increased interest rates regularly over the last few months. First indications show that these rises are starting to have an effect, even tough banks were not able to fully implement these rises on new loans, while deposits have been increased mostly in line with these increases. While all sectors experience a reduction in investment activities, it is more pronounced in sectors that are typically highly leveraged, even taking into account their higher debt burden. At the same time, it seems that companies at the forefront of technological developments have escaped most of the tightening conditions for loans and while they pay higher loan rates, they find it easier to secure loans in the first place. It is very opposite to that of companies who, despite the booming economy, have read the market wrong and face an unexpected reduction in demand for their products and services, that have an otherwise steady and predictable demand. Even when taking into account their increased risk due to their diminished market position, they find access to loans significantly reduced.

While the central bank never comments on the consequences of its policies, some journalists are finding it puzzling to be presented with these findings in an analysis put together by a junior researcher, who did not provide an explanation for these findings. Having to write a brief article using these results, what would be your explanation?

Indicative answer

Highly leveraged companies are more likely to face lending constraints arising from their leverage, and the increased interest rates will make this constraint more binding, reducing the overall investments these companies can make, making the impact of interest rate rises on such companies more pronounced. With banks not able to fully implement the interest rises in the loan market, but having to implement them in deposit markets, their profits margins will erode and this will induce them to recover these margins by giving higher risk loans, that attract higher loan rates. With technology companies being typically more risky, they will therefore find it easier to secure such loans in this environment. This is the same reason that otherwise safe companies find themselves in a position where securing additional loans becomes more difficult given such a change in their profitability.

Model(s) used: Sect. 40.1, Sect. 40.2, Sect. 40.3

Problem 474

The economy of Costina is undergoing a transformation from being based mainly on agriculture and small locally produced goods to one with highly automated factories producing similar goods for the local market. This automation is driven by a reduction in import restrictions on technology that made access affordable. This change has caused a significant increase in investment for such technology and consequently demand for loans to finance these investments is high. The central bank seeks to support this modernisation of the economy and to allow banks to provide loans more easily, has increased lending to the banking sector significantly. However, despite this increase in liquidity to banks, loans are not easily forthcoming, with lending having actually decreased. Instead, banks seem to hold a significant proportion of the additional central bank funding as cash or invest into government bonds.

How can you explain this observation?

Indicative answer

The increase in central bank funding would increase the ability of banks to make loans and the amount of loans taken out should increase as the demand is there. However, banks are reluctant to provide these loans and rather invest the funds otherwise. The reason could be that they have doubt about the ability of companies to repay the loans as the automation will reduce the requirement for workers and thus the wages paid. This in turn would limit the demand for the goods. Knowing that the sales of the goods would not be sufficient to repay the loans, banks will not provide loans on the scale requested, but instead will limit their lending to an extend that there can be demand for the goods that are produced. Given the lower employment anticipated, demand for the goods might be low and hence only few loans would be given. This will lead to the loans provided actually reducing. Previously due to the labour-intensity, the ability of the economy to sell their goods, even if much less efficient, was higher. Hence, despite a higher return to companies, they cannot secure the loans now.

Model(s) used: Sect. 39.1, Sect. 39.2

Problem 475

A new member of parliament, Rominos Tolitas, has been appointed to the committee overseeing economic policy. In one of the regular session by the head of monetary policy of the central bank, she refers to the cyclic nature of investments. Rominas Tolitas looks up from his notes and asks the central banker, whether it is not her job to ensure investment is steady. She replies that they do not target investment directly, but overall GDP growth, of which investment is one, although an important, component. Rominos Tolitas probes further by saying that he has seen that banks are overall behaving anti-cyclically by reducing lending during times of rapid expansions and seem to increase this during emerging recessions, at least if his understanding of the data in front of him is correct that suggest bank reduce leverage in good times and increase it in bad times, which should dampen the cyclic investments. Although, weirdly, there seem to be quite a few banks focussing on high-tech companies which go the other way. So, he asks, wouldn't it just make sense to target bank leverage for all banks and that way smooth investment?

Taking the role of the central banker, How would you respond to this question, taking into account all the comments made by the MP?

Indicative answer

There are two separate aspects to consider. Firstly the varying leverage of banks. We typically find that banks who give loans to companies exhibiting low risks are decreasing lending as the better prospects of these companies attracts many more lenders, including non-banks into this market, increasing competition and reducing the leverage of banks, but not necessarily the amount of lending overall. For high-tech companies, the higher returns of these high-risk borrowers make lending more feasible allowing banks to expand lending, increasing leverage. Hence banks may be anti-cyclic overall as high-tech companies are only a small fraction of the market, but the overall lending may not be anti-cyclic. Hence the effect of banks on the cyclical nature of investments would be limited. But avoiding cyclical investment is not necessarily something that should be pursued. Banks smooth consumption by allowing households to obtain steady returns on their deposits, regardless of the return on investments, which will vary with any business cycle. This will, however induce cyclical changes to investment behaviour as banks adjust their lending. Therefore, seeking to smooth investment may well cause consumption to become more volatile, and it is therefore a judgement call to maintain the right balance

Model(s) used: Sect. 41.1, Sect. 41.3

Problem 476

Kapetha's economy has performed poorly and this is generally attributed to companies making not enough investments. In order to support the economic growth in Kapetha, the central bank decided to provide additional funds to banks in the form of loans. While companies state that while in the past it was difficult to obtain sufficient loans for investments, in the aftermath of this measure, they have been able to access loans more easily. However, they complain that while loans are more readily available, loan rates have increased. Government ministers accuse banks of undermining the efforts by the government and central bank through non-competitive behaviour and not supporting economic growth, making additional profits from the loans they have been provided by the central bank.

Is the accusation of the government justified?

Indicative answer

If the central bank provides loans to banks and they lend these additional funds out, they create additional deposits. Such increased deposits need to be held in the economy and they thus need to be attractive to depositors, necessitating a rise in the deposit rate. This higher deposit rate will increase the costs of banks and this will necessitate an increase in the loan rate for banks to maintain their profitability. It is thus not that they are acting non-competitively, but a result of the need to retain the additional deposits.

Model(s) used: Sect. 39.1

Problem 477

The Reserve Bank of Galata has on many occasions supported banks to provide loans to companies in order to promote investment and hence economic growth. Such support took the form of loans by the Reserve Bank of Galata to commercial banks; this had the effect of increasing the liquidity reserves of these banks and allowing them to meet the loan demand without failing to comply with liquidity requirements. This has always allowed banks to increase their lending and has lead to a stimulation of demand for loans through falling loan rates. In an effort to increase growth further, the Reserve Bank of Galata has recently implemented a policy where it provides loans to commercial banks, even if they do not face restrictions due to low liquidity reserves. While this increased the amount of loans provided, its effect was less pronounced then on previous occasions. The Reserve Bank of Galata is surprised by the reduced effectiveness of their policy and asks economic experts investigate the causes of this result.

What is the investigation likely to find?

Indicative answer

In contrast to previous occasions, banks were not liquidity constrained, hence there is no excess demand for loans that banks satisfy due the increased liquidity from the loans of the Reserve Bank of Galata. Instead the loans they provide will have increased loan rates due to banks facing higher costs as they need to retain the increased deposits these additional loans have created. It is therefore that in order to remain profitable, banks have to increase loans rates. The demand for loans will be reduced due to the increase in the loan rate, making the expansion of loans less pronounced than on previous occasions.

Model(s) used: Sect. 39.1

Problem 478

Over the last few years the economy of Lasina has undergone substantial changes. Its manufacturing industry used to be characterised by a large number of small companies producing goods to a large degree manually with only basic machinery being used; these companies have now mostly merged to form larger units that employ the latest technology with input by workers being minimal. Employment has been maintained by a significant expansion of the production, but wages have remained low, while the return to the few remaining company owners have increased significantly. Reflecting on the developments of the past years, Alinafe Maseko as president of the Banking Association of Lasina points out the increasing importance of banks in financing the ivestment of companies, which would be much less if it were not for banks. In a comment published by the editor of the Financial News, Pilirani Kambale, states that this claim was the usual exaggeration of their importance by banks, in reality the importance of banks in financing investment is approximately the same as it has always been.

How would Pilirani Kambale argue this different point of view on the importance of banks to finance investments?

Indicative answer

Compared to financing investment with their own funds only, bank loans allow a much higher level of investment. The degree of this difference is reducing if the return on such investments are increasing as banks can provide more loans, given the higher return allows companies to make higher repayments, which would be in accordance with Alinafe Maseko's claim. However, the economy of Lasina has also seen a reduction in the importance of labour in the production; the effect of this is that the ability of banks to provide loans is reduced due to less funds being available to purchase the products of the companies. Combining these two effects would allow Pilirani Kambale to support the view that the importance of banks has not increased; this would be the case if the increased importance of banks due to higher returns on investment are exactly offset by the effect of the lower reliance on labour input in the production.

Model(s) used: Sect. 39.2

Problem 479

'As countries transition from inefficient capital-intensive industrial production to internationally competitive companies providing services, the importance of banks in financing investments increases ever more.'

How can this statement taken from a report by the Development Bank of Gauthina be justified?

Indicative answer

The transition as indicated here suggests that labour becomes ever more important in the economy with services in many cases much more labour intensive than the industrial production; this will allow banks to provide more loans to the economy as workers are able to purchase more of these services given their employment increases. This is complemented by an increase of returns on investments, given the industrial production is described as inefficient and thus presumably yielding low returns on investment, while international competitive service industries should be able to generate higher returns. Such higher returns allow the repayment of more loans that banks are happy to provide. It is therefore that due to the presence of banks loans will be significant higher in a service economy compared to the industrial economy, giving rise to the claim of ever more importance given to banks.

Model(s) used: Sect. 39.2

Problem 480

The advent of artificial intelligence is seen by many as a threat to employment as more and more services will be fulfilled by such programmes. Giving her view on the impact of artificial intelligence on the banking industry, Masina Vaai as head of Masoe Bank plc states that banks will lose their importance in the economy. This view is challenged by Taito Savea who claims that the use of artificial intelligence will require more investment into IT systems and hence banks will become ever more important in financing such investments.

How does Masina Vaai defend her position?

Indicative answer

The use of artificial intelligence will reduce the importance of labour in the provision of services and instead shift the importance towards capital investments such as IT infrastructure. This will reduce the ability of banks to provide loans as the total amount of wages paid that will be able to purchase these services will be reduced and hence the ability of companies to repay loans will be lower. This makes the involvement of banks less important in the economy as companies will have to rely on other sources of finance more, such as equity.

Model(s) used: Sect. 39.2

Problem 481

Interest rates in Nusea have been reducing as the central seeks to avoid a sharp downturn in economic growth. While the reduction of loan rates that banks charge following these decisions by the central bank are naturally welcome by all companies, such a move by the central bank was particularly demanded by companies which are already highly leveraged. The concerted lobbying effort by these companies has been criticised by holders of deposits as being based on pure self-interest as they have the most to benefit from reduced loan rates due to their high levels of debt.

How could such highly-leveraged companies argue that the reduction of loan rates for them specifically is in the interest of the wider economy?

Indicative answer

Highly leveraged companies are more likely than other companies facing constraints on their ability to obtain loans as they will have operating at or near the maximum leverage that banks would be willing to accommodate. By reducing loan rates, this constraint becomes less binding and companies would be able to increase their borrowing, and the effect is stronger on them than other companies as the high leverage causes the constraint to move more than for other companies; this will then allow these companies to use additional loans to increase investment, which will support the recovery of the economy in Nusea.

Model(s) used: Sect. 40.1

Problem 482

Opposition parties have criticised the government's decision to extend the appointment of the president of the Gauthana Central Bank, Marek Kanauska, for another six-year term. They are dissatisfied with the decisions of the Gauthana Central Bank during Marek Kanausta's first term. The main argument they use is that the monetary policy decisions under his watch were too cautious and this hampered economic growth and innovation. They in particular point out that during the last recession banks because much less involve din the financing of small and innovative companies and that would otherwise have allowed a quicker return of economic growth. In contrast to this, when the economy was finally growing more and inflationary pressure was building, banks were much more willing to give loans to companies seeking high-risk investments. This had the effect of heating up the economy even more and increased inflation more than anticipated. During his conformation hearing in parliament, Marek Kanauska defends his record by stating that when setting interest rates, these observations are not really relevant for the performance of the economy.

Pressed on explaining how this has happened, how would have Marek Kanauska responded?

Indicative answer

The monetary policy rate set by the Gauthana Central Bank represents the risk-free rate in the economy. If the economy is performing well and inflationary pressures build, they will increase this interest rate in order to reduce the demand by companies for loans and hence reduce investments, which should reduce inflation due to lower demand by companies and individuals seeking loans. However, a side-effect is that the increased financing costs of banks reduce their profits and banks react to this by reducing loan monitoring and making other costs savings, increasing the risks of loans they are giving. Hence the observation that more risky loans are provided by banks is correct, but this does not mean inflation is increased as the overall demand for loans will have reduced. During a recession the effect is reversed as interest rates are lowered. Here banks will be monitoring loans more as they are able to generate higher profits; this will reduce the risks they are taking. Such a lower risk-appetite will affect the level of high-risk loans banks are able to provide and that will be particularly detrimental to innovative companies that are typically taking higher risks. However, a further reduction of the interest rate would not remedy this effect, it would increase it. Again, the total level of investment would not be affected only who would be allocated such loans.

Model(s) used: Sect. 40.2

Problem 483

The left-leaning politician Sergio Ramirez advocates for the nationalisation of banks. The argument he has often brought forward in opinion pieces of newspapers friendly to his views is that if the economy is performing unexpectedly badly, it are the large majority of otherwise sound companies that suffer as their loans are immediately withdrawn and banks start to speculate. This is only prevented by bailing out banks, so nationalising them in the first place would reduce costs and their profits would also be accruing to the state.

Is there substance to the argument by Sergio Ramirez?

Indicative answer

If otherwise low-risk companies suffer a sudden shock that reduces their profitability, then their profits margins will not be sufficient to make payments on their loans even if they are successful with their investments, requiring banks to reduce loan rates, which in turn makes such loans less attractive and banks will turn to alternative investments, such as high-risk loans to companies that are able to make repayments if successful. This withdrawal of loans can be prevented, provided the shock to the liquidity of banks is not too high, by a bank bailout as then the deposit rate is also reduced, allowing banks to reduce the loan rate they are charging and maintaining profits. It will be this process that Sergio Ramirez refers to. When nationalising banks, this mechanism would still have to be maintained, so would not reduce costs. It is true, however, that the profits of banks at other times would then accrue to the state if banks are nationalised.

Model(s) used: Sect. 40.3

Problem 484

A recession in Rautia has caused the default rate of companies to increase and in some online discussions it is questioned whether banks have sufficient resources to cover these losses. This having been pointed out to the Financial Regulation Authority leads to it making the decision to raise the liquidity requirements of banks from 3.5% of deposits to 4% as a precautionary matter and a signal to depositors that their deposits are safe. The announcement of the increased liquidity requirements by the Financial Regulation Authority was made at 11am without consulting or informing the central bank. On learning the new regulation, the Committee for Monetary Policy convenes to an emergency meeting at 2pm and announces at 5pm that the interest rate for loans from the central bank has been lowered from 4% p.a. to 3% p.a. In a very brief statement accompanying the change in the lending rate the reason given for this change was the unexpected change in the liquidity requirements of banks.

Why would a change in the liquidity requirements induce a loosening of the monetary policy in Rautia?

Indicative answer

The increase in the liquidity requirement is equivalent to the a tightening of monetary policy. The higher liquidity requirements will make the borrowing of funds in the interbank market more expensive for banks facing a liquidity shortage, and hence their funding costs increase, necessitating an increase in loan rates if they seek to maintain their profitability. This is not in the interest of the central bank as the Rautia is in a recession and it seeks to keep interest rates low to induce lower loan rates and thereby higher investment with the aim to increase economic growth. It is therefore that the central counters the implicit tightening of monetary policy through higher liquidity requirements by reducing the lending rate for banks in order to maintain the loan rates at a low level.

Model(s) used: Sect. 40.4

Problem 485

Banks are able to borrow funds from the central bank at a rate of 5.25% p.a. if they provide collateral in the form of government bonds or mortgages; they can borrow up to 90% of the value of government bonds and 75% of the value of mortgages at this rate. Any additional borrowing by banks from the central bank is possible at a rate of 7% p.a. The central bank announces that in order to support companies seeking to expand their businesses and avert a projected recession, they allow banks to borrow at the more favourable rate up to 90% of the value of mortgages. The Industry Association, a lobby group representing industrial companies, criticise this move and instead seek a reduction in the interest banks pay for loans from the central banks. Their claim is that this would help companies more than banks being able to obtain more loan at the same interest rate.

Is their criticism of the policy of the central bank justified?

Indicative answer

The loosing of the restriction for access to the lower loan rate is equivalent to a reduction in the interest rate charged by the central bank. The ability to obtain more loan at a lower rate will reduce the costs to banks as the higher liquidity they can obtain will reduce the costs of interbank loans, reducing the funding costs of banks, which should be reflected in lower loan rates. This would be the same effect if the interest rate of the central bank were to be reduced. This policy is only effective if the lending by banks is such that the 75% limit on loans at the lower rate is an actual constraint on banks; if banks were to borrow substantially less from the central bank and the limit is not imposing a restriction, the policy change woiuld indeed be ineffective as in reality no benefits accrue to banks.

Model(s) used: Sect. 40.4

Problem 486

The Reserve Bank of Wardia did reduce the requirements of cash reserves for banks from 3.5% of deposits to 3.25% as they perceived the risks of liquidity shortfalls in banks to have reduced due to trust in the banking system having increased steadily over the last few years. After a few months the central bank notices that inflation is increasing unexpectedly, against their predictions, and a detailed analysis of the data they have access to suggests that the origin of this inflationary pressure can be seen in an increase of investment and consumption after the change in cash reserves for banks.

How can the change in minimum cash reserves have had the observed effect?

Indicative answer

The reduction of cash reserves had two effects increasing investments and consumption. Firstly, lower cash reserves allow banks to provide more loans as they have to hold back less funds and therefore can provide more loans. This will have increased the ability of companies to obtain loans for investment and for similar reasons allowed better access to loans for consumers. The second effect is that the reduction in cash requirements will have acted similar to a loosening of monetary policy and reduced the loan rate that is applicable on the interbank market as banks have more cash reserves they could lend out and there is less demand from cash shortages. These reduced costs will have caused the banks to lower loan rates, combined with the effect of falling loan rates due to a higher supply of loans from their ability to lend out more of their funds, increasing demand for loans.

Model(s) used: Sect. 39.1, Sect. 40.4

Problem 487

The central bank reviews their approach to disclosing monetary policy decisions. So far they have made announcements only as a policy was implemented and any decisions that had been taken for the future was not disclosed until it became relevant for banks. However, a board member has proposed to offer some forward guidance on future decisions. For example if banks obtain additional liquidity by the central bank as part of their monetary policy, it should be indicated when or under which condition it would be withdrawn or extended. The Head of Economic Analysis argues against such high levels of transparency and states that uncertainty helps to maintain the effectiveness of monetary policy decisions.

How could the Head of Economic Analysis argue their case?

Indicative answer

If forward guidance is provided, it would allow banks infer that any liquidity provided by the central will be reduced and thus with loan being long-term, that their liquidity position would be more constrained, having to rely more on interbank loans to meet liquidity requirements. This anticipated higher reliance would increase the loan rate in the interbank market now as banks seek to preserve liquidity now and borrow in the interbank in this anticipation of less future liquidity. With the interbank loan rate increasing, loan rates would be higher than they otherwise would be, reducing the desired effect by the central bank to lower loan rates and stimulate investment. Similarly, an anticipated reversal of a tightening of liquidity provision by the central bank would keep loan rates lower than they otherwise would be, reducing the effectiveness of tightening liquidity in order to increase loan rates and reduce investments to limit economic growth. It is thus that forward guidance makes monetary policy less effective and would require stronger measures to achieve the same effect.

Model(s) used: Sect. 40.5

Problem 488

The Central bank of Zinatan has announced that is provides additional liquidity to banks during the current recession in order to allow them to extent existing loans and provide new loans for further investment to companies struggling to repay their loans in the current economic conditions. It states that as the current recession is caused by the sudden collapse of prices in the dominant agricultural sector and there are clear signs of prices recovering, the additional funds to banks will only be available for a period of six months and then they will be withdrawn gradually over the coming six months. Expecting interest rates to reduce after the announcement, the Central Bank of Zinatan is surprised to note that while the amount of loans increase, loan rates only reduce marginally and interbank loan rates are actually increasing. Surprised by this development, they seek advice from colleagues at other central banks on the causes of this development and how to improve their policy in the future.

What would you expect these colleagues to suggest?

Indicative answer

The announcement of the additional liquidity to be withdrawn starting in six months has caused this limited effect of their policy. While banks used the additional funds to provide loans to generate additional profits, they are also wary of the withdrawal of liquidity before the loans they have provided are repaid. This will make them unwilling to lend in the interbank market but seek them to demand liquidity there, causing the rise in interbank loan rates. The slight reduction in loan rates is probably the result of the increased supply of loans, but this is limited due to the increased costs in the interbank loan market. The key reason for this outcome is that banks know the liquidity will be withdrawn; it would be more advisable to either leave banks in the dark about such a timing or commit to the liquidity to be provided long-term, for example the approximate time to maturity of the loans banks provide.

Model(s) used: Sect. 40.5

Problem 489

The Central Bank of Holtans announces that in order to support companies in making investments and support the economic growth of the economy, the interest rate at which bank can borrow funds from the central bank will be reduced by 50bp. In neighbouring Lantanos, which is financially less developed and relies on to a large degree on loans provided by banks in Holtans, this move is condemned by leading economists as being detrimental to their economy. During an interview an economist is confronted with the idea that the lower interest in Holtans should be beneficial for Lantanos as the banks providing most of the loans face lower costs and hence should charge lower interest also in Lantanos.

How does he reply to this proposition?

Indicative answer

The lower interest rates in Holtans will lead to reduced lending of their banks in Lantanos, assuming their lending is such that any capital requirements are binding on them. This is because the lower interest rate in Holtans will allow them to lend out more funds there as the demand is increasing, leaving less funds for loans in Lantanos. It is not that the higher interest rates in Holtans could be more attractive, as they will have to adjust due to the intereat rate parity to prevent arbitrage.

Model(s) used: Sect. 40.6

Problem 490

’We have opened our banking markets and banks of all countries in the CEFA region are operating across borders freely. While this has increased competition between banks and allowed companies to obtain loans at much more competitive rates, we have lost the ability to react to developments in our own countries through the use of monetary policy. It has become a requirement that the central banks carefully coordinate their decisions.’

Why is this statement from a meeting of CEFA central bank governors correct?

Indicative answer

If a country makes a policy decision, such as lowering interest rates, this will affect bank lending not only in their own country, but also in all other countries. If interest rates increase (decrease) in one country, banks from that country would reduce (increase) lending in their own country in line with standard economic theory. However, they would then also increase (reduce) the lending in other countries as their constraints on capital requirements become more (less) binding. This increased (reduced) lending will affect investment and hence inflation in other countries. If these effects are not desired, the other countries need to take comparable measures and increase (decrease) their interest rates. It is thus that monetary policy has to be closely coordinated.

Model(s) used: Sect. 40.6

Problem 491

The Reserve Bank of Kalanistan seeks to increase the stability of the banking system and protect it better against bank runs by depositors and for this reason plans to increase the liquidity requirements of all banks from 4% of deposits to 5.5%. In order to offset the effects such a requirement has on the ability of banks to provide loans, it seeks to provide banks with additional lending facilities that allow them to borrow additional central bank funds for a transition period of one year. Using data from past policy decisions in Kalanistan and comparable countries, the Reserve Bank of Kalanistan estimates that the provision of an additional RSD 100bn in central bank funds should have no overall impact on banks. However, the outcome is that while bank loans have only reduced minimally, the loan rates have increased significantly and more than expected.

Why did the policy as implemented affect banks more strongly than anticipated?

Indicative answer

The increase in liquidity requirements will have made access to cash reserves more expensive as banks will have been less able to lend funds to each, given they have to retain larger liquidity reserves than before, while at the same time increasing demand for such interbank loans from banks facing liquidity shortages that previously would not have been affected. These increased costs will have been reflected in higher loan rates. The idea of the Reserve Bank of Kalanistan was to offset this effect by providing additional liquidity to banks. However, this additional liquidity increased the interbank rate even further; banks used the liquidity to maintain their lending despite the higher liquidity requirements, but the knowledge that this would be withdrawn in a year's time, before loan are maturing, will have caused an additional reliance on interbank loans to obtain liquidity reserves and thus increase interbank loan rates.

Model(s) used: Sect. 40.4, Sect. 40.5

Problem 492

Contans and Pretas are two regions with the country of Beluga, whose economies are built on very different foundations. Contans is an agricultural region while Pretas has established itself as a centre for the development of software applications. Given the disparity between these two countries, they are governed more like independent states, but without any trade barriers; banks are freely operating in both regions, but are subject to different regulations depending on their main customer bases. It is also that monetary policy is conducted differently for banks in these two regions, although there is a close cooperation to ensure the decision in one region is not detrimental to the other region. After a large expansion of employment in the software sector of Pretas, the central bank seeks to stop the economy there from overheating and increases interest rates at which banks can borrow funds. At the same time, it is announced that liquidity requirements in banks based in Contans will be increased to avoid an overheating of their economy.

Why are these two decisions presented as an example of coordinated monetary policy?

Indicative answer

We can interpret the two regions as two different countries. The increase of the interest rate in Pretas would have normally shifted the provision of loans from there to Coltans without any counter measures; this is because the lower demand for loans on Pretas after the rise in interest rates will allow more funds to be deployed in Contans. The counter measure taken here is the increased liquidity requirement, which has the same effect as increasing interest rates in that it reduces the ability of banks to provide loans and increases loan rates indirectly through its effect on funding through interbank loans. It is thus with this measure that a more restrictive monetary policy in Contans is conducted and hence not more loans are provided there, avoiding an overheating of their economy.

Model(s) used: Sect. 40.4, Sect. 40.6

Problem 493

Having experienced the collapse of their main export market due to political instability, companies in Relantis are struggling to adjust their products to expand into new markets. Repeatedly representatives of various industries have complained to the government about the struggles they face in making this adjustment, particularly that banks are lending much less than they used to and hence making investments into future markets more difficult. The government of Relantis favours free markets and refuses to be involved in the decisions of banks to provide loans, however pointing out that the risks of such investments have increased significantly and that it is therefore only prudent for banks to reduce their lending. This argument is refuted by the representatives of industry as they had adjusted for this increased risk and they therefore suggest that banks have become overly cautious in their lending policy.

Is it the case that banks are lending less because they are overly cautious?

Indicative answer

Companies are in a transition from exporting into one market to other markets, with potential changed products and product mixes to account for different tastes and competitors. This will, at least temporarily, reduce the productivity of these companies as they learn about these markets. The consequence is that the lower productivity will allow them only to pay lower rates on bonds, which will be reflected in low deposit rates and hence relatively low loan rates that banks charge. This in turn will result in banks providing less loans as larger loans do not provide them with sufficient income due to reducing marginal products. It is therefore that banks provide less loans than they used to be. This is not the result of banks assessing companies to be more risky or becoming more cautious in their approach to lending.

Model(s) used: Sect. 41.2

Problem 494

A statement by the Minister for Economic Affairs is given in parliament, in which the minister stated: ’Banks are an essential part of our economy and they provide the funds for our companies to invest and provide economic growth for the benefit of everyone. This role has never been more important than during this recession. It is banks who will be at the forefront to allow companies to make investments for the future and I know they will rise to this challenge. There is no doubt they will be working hard to provide companies with loans, especially those companies that approach them with innovative and new ideas.’ In their response, the opposition spokesman derides the comments by the minister and says: ’We need a firmer regulation of banks, the minister is naïve to rely on them doing the right thing. We already see that banks reduce their lending and the first casualties are those companies that are most innovative and willing to take risks with new products and ideas.’

Who is right in their assessment of banks?

Indicative answer

During recessions companies are commonly showing a low productivity and hence their marginal product will be low, allowing banks to charge only low loan rates that remain attractive to them. This will then lead to banks reducing their lending as increasing lending would reduce the marginal products and hence loan rates even further. The effect is that bank lending reduces. Furthermore, the lower interest rates charged by the central bank during this time period reduces the incentives of the bank to take risks, this is because deposit rates cannot be lowered to the same extent as loan rates have to be lowered, reducing bank profits and they will therefore resort to less risky lending. It is thus true that banks will not be willing to finance companies as easily as the minister suggests and the financing of innovative companies will also be much more difficult to achieve; therefore the statement of the opposition spokesman is correct.

Model(s) used: Sect. 40.2, Sect. 41.2

Problem 495

After Herlowe Bank plc has failed and the government of Jurga intervened by making payments to depositors, a discussion emerges in mainstream media about the benefits of banks. Many commentators point out that while undoubtedly banks have many advantages, these are manly for the benefit of companies and wealthy individuals rather than ordinary citizens. In their argument they point to the instability banks cause, not only if they fail, but also how their lending behaviour makes investments more erratic than it would otherwise be. The main benefits for ordinary citizens would be that it is easier for them provide deposits than invest their money directly, although advances in technology, such as online investment platforms, have made these benefits less pronounced.

As a supporter of banks, how would you argue the case for their importance?

Indicative answer

Banks provide two key benefits to ordinary citizens. Firstly they allow the efficient transformation of despoits into loans. Loans are demanded for long-term investments and banks allow depositors access to their funds at any time. This maturity transformation of deposits cannot be replicated with market mechanisms or other technological solutions. Secondly, the existence of banks allows consumers to smooth their consumption. Banks are able to provide loans to consumers such that even in time sof low economic growth they can maintain their consumption levels, this will come at the expense of loans to companies for investment; in the absence of banks, consumption would vary as loans for investment are not adjusted to allow steady consumption. It is thus that consumers benefit from lower volatility of consumption and the ability to access their funds, something that cannot be achieved in the absence of banks.

Model(s) used: Sect. 4.1, Sect. 41.3

Problem 496

Advances in the production of microchips developed in Dobiton has given its technology company a distinct advantage over producers in other countries. This has lead to companies seeking to build up production facilities and making large-scale investments to this effect. With technology companies already dominating the economy, analysts have warned of an ssaturation of the market as well as the ability of other countries to catch up with the technology. Technology companies attribute this, in their view, overly pessimistic assessment of their prospects to the observation that companies are struggling to obtain loans to conduct the required investments; often loans are refused for no apparent reason, while other in comparable situations are granted. Even offering to pay a premium on the standard loan rate has no effect on the decision of banks. They acknowledge that this is not only a problem for technology companies, but all companies are affected, but as they are by far the largest sector, it affects them most.

Are technology companies correct in attributing the difficulties in obtaining loans to the critical comments by analysts?

Indicative answer

The comments by the analysts suggest that the investments are not without risk, but as some loans are granted while others are refused, these risks seem not to have dissuaded banks from providing loans in principle; further more the difficulties are not limited to technology companies. Instead companies experience credit rationing. The new production technique has caused the loan demand to increase significantly as companies seek to make investments; this increase in loan demand will be large given the dominant position of the technology sector in the economy. It is therefore that due to the risks involved, banks are limiting the amount of loans they are providing with the aim to limit their own exposure to risks.

Model(s) used: Chap. 42

Problem 497

Hardestin's economy is dependent on the mining, processing, and export of non-ferrous metals. The nature of the market is such that prices for these metals, and hence the processed products, are fluctuating widely. This leads to large variations over time of companies' investments into mining as well as processing of the metals. A common complaint for companies is that during times of large demand for these metals they cannot make sufficient investments as banks often decline loans, while other companies are provided loans. In their view the ability to obtain a loan is a lottery and call for a stricter regulation of the banking sector to ensure they apply common standards to assess the creditworthiness of companies and require banks to charge loan rates that reflect the risk of the company, which is not done as a uniform loan rate is applied for most companies.

Would such a regulation alleviate the problem of companies not obtaining loans during times of high investment?

Indicative answer

The problem is not the assessment of credit risk by banks, this might well be consistent across banks and over time, but instead the high demand for loans during these time periods leads to credit rationing. This will explain why some companies are granted loans while others are not. banks will seek to limit the total amount of lending and will therefore not approve every loan application, even if it fulfills their criteria for creditworthiness. By rationing the amount of loans banks give, they limit their risk exposure. Increasing the loan rate to reflect the higher demand would not be beneficial as companies might not be able to repay the increased amount, giving no additional revenue to the bank.

Model(s) used: Chap. 42

Problem 498

'It was easier to get a loan while we were in a recession than now that the economy is growing again. Back then we were refused now and then, but recently this has become much more common, and there is no apparent reason. Banks do not even increase loan rates as much as the central bank has increased it.' This statement is made during the annual meeting of pharmaceutical companies when discussing the ability of companies to obtain loans for research projects, which is especially pressing for pharmaceutical companies as new discoveries in gene editing has increased the potential research projects significantly.

As the pharmaceutical company is the dominating industry and by far the largest borrower in the economy, why do they face more difficulties obtaining loans during times of high economic growth?

Indicative answer

The pharmaceutical industry, as probably other sectors, face credit rationing. This arises because of the high demand for loans due to the new discoveries in gene editing. Given the risky nature, banks will seek to limit their exposure and increasing loan rates is not optimal as the higher repayment will often not be made. This credit rationing is more prominent in a growing economy because banks are reducing the amount of loans in general during times of economic growth. The higher interest rates associated with times of high economic growth do not allow banks to fully recover from borrowers, as indicated in the statement above, causing profits to reduce. Banks will therefore reduce the amount of lending so as to be able to retain more low-risk borrowers. This implies that more pharmaceutical companies are refused loans than was the case during the recent recession.

Model(s) used: Sect. 40.2, Sect. 42

Problem 499

'Banks are good for consumers, but bad for the economy overall.'

How can you justify this statement?

Indicative answer

The presence of banks smoothes the consumption of individuals by allowing them to save in deposits at times when they have excess funds and obtain loans if they are short of funds. This comes at the expense of loans to companies for investment, which will fluctuate more in the presence of banks. The smoothing of consumption is generally seen as being positive, while the larger fluctuation is seen negative as this will economic growth to fluctuate more, which is negative.

Model(s) used: Sect. 41.3

Problem 500

The central bank is concerned about the lending of banks. While economic growth is high, the central bank is concerned that although lending is not expanding beyond the usual growth rate of loans, the default rate on new loans has been increasing steadily.

Hoe can you explain this analysis by the central bank?

Indicative answer

During times of economic expansion, banks will increase their lending to high-risk companies and reduce their lending to low-risk companies; this will lead to an overall increase in the risks that banks are taking. The amount of lending overall remains unaffected if the expansion of high-risk loans is offset by the reduction in low-risk loans.

Model(s) used: Sect. 41.1

Andreas Krause

Theoretical Foundations of Commercial Banking

This book provides readers with a comprehensive and state-of-the-art overview of the theories of banking. It presents theories on lending decisions and any conditions associated with it, as well as deposit-taking and the challenges such short-term funding poses to banks. We use a consistent and coherent framework in modelling bank behaviour that allows combining different theories to develop more comprehensive analysis of developments in this important industry. Going beyond the core activities of banks, this book also includes an analysis of the competition between banks, their employment practices and strategies. How banks can contribute to systemic risk will also be considered and the regulation of banks, partly introduced to prevent individual banks from failing and imposing losses on depositors, but also used to curb systemic risk. Finally some macroeconomic implications arising from the presence of banks in an economy are discussed.

This *accompaniment* to the textbook contains indicative answers to all problems, including references to the models that can be used to develop these answers.

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