

Andreas Krause

Theoretical Foundations of Investment Banking

Indicative answers to problem sets

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Preface

This booklet accompanies the textbook 'Theoretical Foundations of Investment Banking' and provides indicative answers to the problem sets provided therein. For each problem, I have provided a suggested answer of how I intended 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 result. 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 results rather than the detailed outcomes, which are based on specific modelling assumptions.

Each problem requires either a single model to provide an answer or the combination of a number of models, in most cases two models, but in some instances a wider picture is required. For each problem I have provided such 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. Finally, at the end of this booklet I have provided a list of the problems that can be solved for 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
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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.

	Model	Simple problems	Compound problems
	Prologue Ch. 2	94, 95, 96, 99	
Part I	Ch. 3	3, 7	4, 8
	Ch. 4.1	1	4, 9, 40
	Ch. 4.2	2	4, 9, 34
	Ch. 5	5, 6	8, 35
Part II	Ch. 6.1.1	11	15, 39
	Ch. 6.1.2	12	15, 39
	Ch. 6.2	13	15, 36, 39
	Ch. 6.3	10	15, 36, 39
	Ch. 7.1.1	14	17, 37
	Ch. 7.1.2	16	17, 37
	Ch. 7.2.1	18	20, 37
	Ch. 7.2.2	19	20, 37
	Ch. 7.3.5	22	23, 37, 38
	Ch. 7.3.2	21	23, 35, 37, 38
	Ch. 7.3.3	24, 25	37, 38
	Ch. 7.3.4	29	30, 37, 38
	Ch. 7.3.1	26, 27	37, 38

	Model	Simple problems	Compound problems
	Ch. 7.4	28	30, 37
	Ch. 7.5	31	33, 34, 37, 40
	Ch. 7.6	32	33, 37
Part III	Ch. 8.1	41	43, 48, 49, 50
	Ch. 8.2	42	43, 50
	Ch. 9	44, 47	46, 49
	Ch. 10	45	46, 48, 50
Part IV	Ch. 11.1	51	53, 70
	Ch. 11.2	52	53
	Ch. 11.3	67, 68	70
	Ch. 12	55	56
	Ch. 13	54	56
	Ch. 14.1	57	59
	Ch. 14.2	58	59
	Ch. 15.1	60	62, 69
	Ch. 15.2	61	62, 71
	Ch. 15.3	63, 64	71
	Ch. 15.4	65, 66	69
Part V	Ch. 16.1	72, 90	75, 92
	Ch. 16.2	73, 74	75, 92
	Ch. 17.1	80	83, 89, 93
	Ch. 17.2	81	83, 88, 93
	Ch. 18.1	85	86, 89, 92
	Ch. 18.2	84, 87	86, 92
	Ch. 19	78, 91	79, 93
	Ch. 20.1	77	79, 93
	Ch. 20.2	76, 82	88
Epilogue		97, 98, 100	

Problems sets for Part I

Problem 1

Tenggara is a developing country which has started to develop a stock market and seeks to attract local companies to list their shares. Accounting and disclosure standards are still not comparable to those of more advanced economies, although there are plans to enhance them in the future. Listings have so far been sought directly, making use of the latest online-technology for buyers to subscribe to the issues brought to market. This was done as investment banks showed little interest and no support for the introduction of the local stock market, having proposed to list on other stock markets in the region instead. Having rejected this proposal, Tenggara's government has sought the current arrangement to reduce the costs of engaging investment banks, who charge considerable fees for the usually small offers in the country, if they are even interested. While a small number of companies has successfully listed, these were mostly local subsidiaries of larger international companies, and local companies were very limited in securing a listing. Many companies had started the process of registering with the online platform, but the interest of buyers has been very low. Critics of the current approach to developing the stock market blame the exclusion of investment banks in the process for this lack of success and consequently demand that Tenggara takes the more conventional route to issue new shares through investment bank underwriting.

Is this the only way to make listings of local companies on the stock exchange easier for companies?

Indicative answer: *The key problem here is the lack of information by potential investors about the companies. The low accounting and disclosure standards imply that little information about the companies is available, thus the market suffers from an adverse selection problem. Subsidiaries of foreign firm have this problem to a smaller extent as information will be available about the parent companies. Investment banks would collect information and by agreeing to bring an issue to market, investors know that they believe the company is fairly priced, as otherwise they would not be able to make a profit when selling the issue on to investors. That way investors can have confidence that those issues offered are of good quality. Investment banks have the role of reducing asymmetric information between companies and investors, but this can also be achieved by making information available by other means. This could be done by pulling forward the improved accounting and disclosure requirements, the effect might be similar to introducing investment banks into the process.*

Model(s) used: Ch. 4.1

Problem 2

In Samia, Makka Holinen is the head of new listings at the local stock exchange. Looking back over the past few years, she finds new listings in the technology sector have overall performed disappointingly, while those in more traditional sectors have been more successful. Having taken into account the higher risks in the technology sector, this effect still persists and has led to discussions whether the listing requirements for technology stocks should be tightened. Makka points out that while this would obviously improve the quality of listings, it would mainly be achieved by reducing the number of listings in this sector, rather than improve the quality of companies itself. She points out that improving the prospects of technology companies is generally more difficult than for traditional sectors, not least due to rapid technological progress and uncertain demand structures for new products. Instead, she suggests to look at how listing are conducted and see whether the processes contribute to this development. The role of investment banks should be looked at in particular.

Why would investment banks distort the listing of companies such that technology stocks are faring worse than traditional stocks?

Indicative answer: *Investment banks have information on the prospects of companies and can thus more clearly distinguish between companies of different qualities. This gives companies on the one hand an incentive to take measures to improve the quality of their company, i. e. improve performance, such that they can sell shares at a higher price. On the other hand, a company that promises a good performance, is clearly distinguished from other companies and will be able to sell shares at a high price, reducing the need for further improving their performance. If the costs of improving performance are low, the higher price paid for an issue will provide the main incentive to increase performance. With traditional sectors being more easily able to do so, we should see this effect dominate. In the technology sector, however, these costs are much higher as improving the performance is more difficult to achieve. Here the clearer distinction between companies of different qualities due to investment banks might well induce companies to forego some performance and thus accept a lower share price, in order to save costs. This will result in a lower performance of technology stocks. It is not the investment bank itself that causes this 'distortion', but the effect their superior information and how this is conveyed to investors that causes this effect.*

Model(s) used: Ch. 4.2

Problem 3

Carlos Severiano has recently taken early retirement in lieu of redundancy and received a significant lump-sum in compensation. He seeks to invest this money into the stock market for long-term returns, but has not the requisite knowledge to evaluate

the prospects of companies. Therefore, he seeks to acquire relevant information from a small investment bank to aid his decision-making. Upon reviewing the files he received, covering a wide range of companies, he notices that information on many companies seems to be missing and any information provided in the pack is negative in that they suggest the companies will be performing worse than expected. He complains to his contact at the investment bank that they have not provided him with information on the other companies. They respond that he has received the full set of reports they have available and only been charged for those companies he has received information on.

Why is there no information on many companies and what is the likely outlook for those companies not included?

Indicative answer: *Information cannot be verified by those buying it, hence they have to rely on investment banks providing credible evidence for its existence. They do this by holding trading positions consistent with the information they sold. However, positive information would require banks to hold long positions, something they would also do in the absence of any information, thus positive news cannot be credibly communicated. Therefore, companies on which positive news is available are not included in the pack. Only where negative information is to be reported can the investment bank communicate this credibly through holding a short position in the stock. These companies have been included into the pack. Carlos can conclude that information on the companies not included is positive, although the magnitude of this positive information will be unknown.*

Model(s) used: Ch. 3

Problem 4

Nusinia has strict regulations on financial services and any activities are strictly controlled, with any public statements requiring government approval and banks generally not allowed to buy or sell securities. As the government sees any activity by banks with suspicion and against the national interest, not many banks have entered the market in Nusinia. This has resulted in virtually non-existing capital markets for bonds or stocks. Business gently pressure the government to allow capital markets to develop in order that they can finance future investments more easily and attract some foreign capital. The government is hesitant and claims that investment banks offer no real benefits as they just take a slice of any capital raised, adding little value in the process. Using online platforms allows investors to buy and stocks or bonds, so investment banks are no longer needed.

Do investment banks add any value beyond distributing stocks and shares?

Indicative answer: *Investment banks are typically better informed than the general public. While they could sell this information to the public, it is difficult to convince the public that they have actually obtained this information as verification for its existence is difficult. Investment banks would have to hold the securities in such*

a way that it reflects the information provided; this cannot be done for positive information, limiting the information that can be made public credibly. If they are buying securities from sellers directly and then re-selling them to investors, their desire to make profits from this transaction reveals the belief of investment banks truthfully. Apart from conveying this information, this also allows for transactions to go ahead at all, as the adverse selection problem becomes less severe. This might also induce companies to work more such that they can increase the value of their stocks or bonds and thereby increase value to investors. However, if the costs of improving or maintaining company value is sufficiently high, they might be induced to reduce efforts as any dilution of value due to possible lower values are eliminated. Therefore, investment banks do not only merely pass on securities, but they add value in that they directly or indirectly reveal information about the company issuing these securities.

Model(s) used: Chs. 3, 4.1, 4.2

Problem 5

Aliena Vikolova has inherited a significant amount of money from a relative and she approached her bank, Agricultural Bank plc. for advice on its investment for a period of a few months to consider the best options for her future. She is directed towards the asset management division but her short-term plans are not suitable for their business model and she is instead referred to an advisor working with this division to cover instances like hers. Seeking a higher return than deposit accounts, this advisor directs her to a range of investment funds and talks her through the options that are available. Finally he firmly recommends a number of funds by a small but well respected investment company. Having followed this advice, a few months later she seeks advice from another bank that positions itself as being strong in advising individuals with considerable but not very high wealth. In a first meeting, her advisor tell her bluntly that the advice she had been given previously, was bad. She has invested in funds that are among the most expensive in the market for initial fees and are not really suitable for her needs. Instead he proposes another range of products that he says is more in line with her needs. Although they charge a higher management fee, they are cheaper in the long run and overall suit her profile better.

Aliena Vikolova asks herself whether she can trust the advice given by her new advisor. She does not know whether one or both advisors are providing good advice or why they might differ so much in their recommendations. Can you explain some of the motivations of her advisors?

Indicative answer: *Both advisors will be driven by the commission they can earn from the investment. This will drive their decision more towards one or the other of the options available to them. While her interests are not fully disregarded, they act as a limit to the bias in their decision so as retain her custom in the future. This will have lead her initial advisor to the fund with the high initial fee. It is reasonable that*

the commission would have been high, given the short-term nature of the investment and thus the fund obtaining a profit from her investment. The new advisor has a more long-term view and would therefore benefit probably from higher commissions on these funds as they charge higher fees over a long period of time. Thus both of her advisors will be equally driven by the commissions they can earn, subject to not damaging the relationship with her too much.

Model(s) used: Ch. 5

Problem 6

Carsten Stockl has been advising clients on suitable investments for many years and achieved a high satisfaction rate with his customers. His advice has always been free of charge as he was paid a fee for referring business to them by the investment providers, mutual funds, real estate companies, insurances, and others. More than other colleagues, he used to have a customer base that usually had quite specific needs on their investments. His customers were highly satisfied with the advice given, such that he usually had the highest ranking. As these rankings are made public to customers, more and more customers have sought to switch advice to him. Over time his satisfaction scores have reduced and are now only marginally above that of colleagues.

Carsten Stockl blames this development on the high workload due to all the additional customers he has to cover. Is there an alternative explanation?

Indicative answer: *Carsten Stockl had customers with very specific needs, hence selecting the right investment is important and there will be significant difference between the value added to the customer of obtaining the correct and the wrong investment. This has the effect that his advice will be closer to that what is optimal to customers as the differences between these investment are significant and deviating too much would damage his reputation. With more customers seeking his advice, these new customers have not the same characteristic, but the values added from either investment will be closer. This will allow him to give more biased advice and consequently his customer satisfaction reduces to the level of other advisors. The reason is the importance of specific characteristics is lower with most clients, hence the commission becomes more important for the advice given.*

Model(s) used: Ch. 5

Problem 7

Chandapoon Ramaswamy is a well-known trader who has made a name for himself through frequent appearances on television, mostly on programmes concerning stock market developments, but also in mainstream news reports to answer questions on

significant events in the stock market. Given his status as a well-known and highly successful trader, he has set up his own company that allows subscribers to receive regular trading tips through email prior to the start of the trading day. The number of subscribers to his newsletter has been very low and not improved significantly over time, despite being given effectively free advertising opportunities during his television appearances. A common response he has heard from the public when asked why they do not subscribe to his newsletter, was that if the tips he gives, are that good, he surely has used them already and it will now be too late to make profits. The fortunes of his newsletter significantly improve once Chandapoon Ramaswamy starts to publish his trading records in nearly real-time format and changes the focus of his newsletters on warnings of stocks that he believes will be underperforming in the short run. The number of subscribers significantly increases in a short period of time.

How can you explain the sudden success of the newsletter?

Indicative answer: By publishing his trading records, Chandapoon Ramaswamy provides information on how he has acted on information he has obtained. As long as his trading record is consistent with the information he has provided in his newsletters, subscribers can verify that he actually holds the information. While only negative information can directly be verified from his trading, it would be attractive for him to copy the impact positive information has on his trading even if not holding this positive information. The absence of negative news can be interpreted as positive news; this makes the newsletter more valuable to subscribers and therefore he will gain more clients.

Model(s) used: Ch. 3

Problem 8

Winslow Financial Advisors Ltd. recommends financial products to its clients. Many clients, however, think that the recommendations often turn out to be wrong when looked at retrospectively. Clients find that the way Winslow Financial Advisors Ltd. make their recommendations is akin to a 'black box' and they do not understand the basis for their recommendations and how this is suitable for their specific needs. Many clients have therefore requested that they are given the information itself and it is explained to them clearly how this information gives rise to the recommendations they provide. Winslow Financial Advisors Ltd., however, refuse to do so with the argument that information is not easily conveyed and it would therefore not help their clients.

Would providing the information as requested improve the advice given by Winslow Financial Advisors Ltd.?

Indicative answer: The recommendations by Winslow Financial Advisors Ltd. will be driven on the one hand by the needs of their clients, but also by the commission they receive from the providers of the financial products they recommend. This commission

might well bias their recommendations towards financial products that pay higher commissions and are not always the most beneficial to their clients. Providing information to their clients on the process of obtaining the recommendation would in theory make obvious any bias they might have in their recommendations. However, as information is usually not verifiable or only with significant difficulties, Winslow Financial Advisors Ltd. could easily claim to have specific information that leads to the recommendation that is optimal for them, rather than their clients. Unless there is a mechanism with which to verify the accuracy of the information to their clients, the provision of this information would indeed not add any value to the process.

Model(s) used: Chs. 3, 5

Problem 9

A talk show on Radio Capital asks for opinions on the importance of the financial sector relative to manufacturing and other services in the economy. The discussion quickly turns on the role of investment banks in particular and one listener calls in to say that in her view investment banks do not add any value to the economy and their demise would not make any difference for anyone, except for those working in them. She elaborates that they are similar to retailers in that they just bring people together and that could be done much cheaper and faster using online platforms.

Do you agree with this assessment of the role of investment banks?

Indicative answer: *Investment banks do more than merely match buyers and sellers of securities. Through their involvement they might on the one hand provide information about the security, such as only buying and then subsequently selling high-quality securities. This provides valuable information to a potential buyer that in an online platform would be lost. Resulting from this ability to distinguish between securities of different qualities, their presence might induce issuers of security to ensure they are of higher quality to obtain a better price, although the opposite effect can be observed if the costs of providing quality securities are high. Thus investment banks do not only match buyers and sellers of securities, but they provide information to them and even affect the quality of the securities themselves, having a much more active role than a retailer would have.*

Model(s) used: Chs. 4.1, 4.2

Problems sets for Part II

Problem 10

Rolltech plc. has made an offer to buy their competitor Glide Inc. from its current owner. Both companies are well established with their main business focussing on ball-bearings for a wide range of applications. After months of negotiation, the deal fell through as the current owner did not accept the direction the business would take, with a stronger focus on energy generation rather than transport solutions. A few days after the negotiations had been terminated, the investment bank of Rolltech plc. sends its invoice for the termination fee that had been agreed and at the same time offers a detailed debrief for senior management to discuss ways forward. The CEO is livid about being presented with such a bill as he has come out of the negotiations with no benefits for the company. While he accepts that this was part of the contract they signed and was thus payable, he continues to rant in the debrief the coming week that now he understands why the investment bank did not really advise him well. He claims that as they were being apid anyway, they had no interest in the outcome whatsoever and should have put more effort in advising him better.

How would you as a member of the team advising Rolltech plc. react to this allegation?

Indicative answer: *Firstly, the termination fee covers only some of the costs of the investment bank and therefore completing the merger would have been in the investment bank's interest as they are making a loss from this deal that never was. In addition, the termination fee is not extra income for the investment bank as the full fee on completion of the deal would have been added on top of the termination fee. The termination fee was set so that it was not in the interests of the investment bank to abandon the deal while the company wanted to continue with it. While in general, there is such a problem and the investment bank might give up too easily, the termination fee was set such that this was not to happen. As much as the investment bank did not push for a completion of the deal which is not in the interests of the company, only to earn a higher fee. This was perfectly balanced with the termination fee that was agreed.*

Model(s) used: Ch. 6.3

Problem 11

Hortman plc. is a large construction company specialising in the erection of warehouses and storage facilities. It is considering to acquire Groundworks Ltd., with

which they have worked together on many projects and who focus on the preparation of work sites such that construction can commence, for example leveling sites, ensuring adequate drainage, and similar tasks. To facilitate the acquisition and due to the lack of financial expertise in the top management of Hortman plc., they have approached an investment bank to advise them on the acquisition, even though they are confident to know the other company and their owners well enough to ensure the acquisition proceeds. After initial discussions went well, they are presented with a standard contract that specifies that Hortman plc. pay 1.2% of the value of the acquisition to their investment bank on completion of the acquisition. If the acquisition does not go ahead the investment bank is paid a nominal amount for its time and expenses. While other board members are pleased with the detailed terms and condition, Philip Hortman, the CEO and largest shareholder, is critical of it. He points out that if they only pay on completing the acquisition, the investment bank will pressure them to pay any price or accept any conditions Groundworks Ltd. might want.

How would you convince Philip Hortman that his fears are unfounded?

Indicative answer: *Apart from the financial expertise, which presumably affects conducting the valuation, there does not seem to be much asymmetric information between the investment bank and Hortman plc. The contingent contract that has been offered aligns the interest of the company and the investment bank, unlike other contract forms, such as a conditional contract, where the incentive is for the deal to be completed at any cost as otherwise the investment bank does not get paid. With the contingent contract, the investment bank also has an interest in generating the highest surplus for Hortmann plc. as this increases the fee they receive.*

Model(s) used: Ch. 6.1.1

Problem 12

General Holdings plc. is a large globally active conglomerate with a wide range of interests in many industries and sectors. As such it is constantly looking for opportunities to add companies to its portfolio and integrating them into their business. Having wide ranging experience, their success rate on completing acquisitions is consistently high, but the number and size of acquisitions vary widely over time. As long-standing clients of Winner & Winner, an investment bank specialising in acquisition advice, they have negotiated a global contract in which they pay a fee of \$5,000,000 for each acquisition they successfully complete using their advice. Due to disclosure requirements from their listings, this contract is well known in the industry. When negotiating a contract with Winner & Winner for an upcoming acquisition of a supplier, CarPay plc., providing solutions for road charging, questions why they are not offered a similar contract to General Holdings plc. Instead they are offered a contract where they have to pay a fee of 0.78% of the deal value on its completion only. When raising their concerns about the terms of their contract,

their contact at Winner & Winner says, that in their circumstances this is the better contract as they do not even know if their target is willing to engage in talks, even though the company is confident about its success.

Is this claim correct?

Indicative answer: *The situation of General Holdings plc. is such that there is a lot of uncertainty about the volume of deals that is being made as they vary considerably over time, while the success rate seems to be relatively well known, given their experience. In the case of CarPay plc., this situation is reversed, the value of the deal would be relatively well known, but whether the deal will be possible seems rather uncertain from the bank's perspective. In this case a contingent contract is better for the customer as the conditional fee contract of General Holdings plc. would be more expensive given the uncertainty of completing the deal. The situation of General Holdings plc. is different as here the value of the deals is unknown and it would be more expensive to use contingent contracts.*

Model(s) used: Ch. 6.1.2

Problem 13

PrecGlass Inc. has been bought by PrecisionMeasure plc., both supplying laboratories with highly specialised glass and measurement products, respectively. Both, having taken advice from investment banks during the acquisition, are subsequently unhappy about the advice given. While not agreeing on much as the acquisition was not entirely friendly and tension between the business are still high, both feel they have been pressured by their investment banks into a deal that could have been much better. PrecGlass Inc. mainly complains about the way its main shareholders and senior managers have been integrated into the management structure of the joint company and PrecisionMeasure plc. thinks they have overpaid. Both blame their advisors for this situation. After the investment banks both suggested to reject the initial offer, in both cases they wanted to continue to negotiate and hope for a better offer, but the investment bank strongly suggested to accept the deal they finally agreed, on after the first revision.

Can it be that both parties can be aggrieved into accepting deals that could have been improved?

Indicative answer: *It is reasonable to assume that both companies had contingent fee contracts as this is standard and as such investment banks generally push companies to accept deals more readily than is optimal for the company in the circumstances. This could apply to both sides as they have different interests as shown here, such as the price paid and the integration of management structures, both affecting the merger benefits. With other contracts, such as conditional fee contracts or fixed fees, the investment bank would have advised them to accept the first offer, while here they suggested to reject an offer that was very likely to improve. While there is a clear*

conflict of interest, the contingent contract minimises it.
Model(s) used: Ch. 6.2

Problem 14

SpaceDrive Ltd. has been founded by a leading space scientist collaborating with an engineer, previously working in the defence industry on missile development, with the aim of developing new forms of providing propulsion for space exploration. Their ideas and prototypes have often been dismissed as not realistic, wishful thinking or not feasible in practice, but they also had some significant successes in improving the efficiency of existing propulsion mechanisms. Having been backed by a small number of venture capitalists, these seek to exit their investment and plan on floating the company on the stock exchange. The rather mixed success of their developments and many questions on commercial reliability have made finding an underwriter a challenge. After having been turned down as having no prospect of succeeding in attracting sufficient interest by investors, they finally find a newly formed investment bank that is willing to underwrite the issue. They are, however, making it clear that given SpaceDrive Ltd.'s past record, they will not guarantee to sell the full stake the venture capitalist are seeking to sell, nor will they commit to a minimum price, but will let the market decide what they are willing to pay.

Why are no major investment banks willing to underwrite SpaceDrive Ltd.'s Initial Public Offering and the investment finally found offering only to attempt to sell the shares, but not guaranteeing success?

Indicative answer: *SpaceDrive Ltd. is very difficult to value and hence the valuation uncertainty is large, making it unfeasible for most investment banks. The newly formed investment bank might have low risk aversion due to their aim of seeking to gain market share, so their threshold for accepting underwriting business might well be lower than those of more established investment banks. They are only offering what looks like a best efforts contract, indicating even they think the valuation uncertainty is too substantial and cannot be reduced sufficiently for a firm commitment contract that both parties would find acceptable.*

Model(s) used: Ch. 7.1.1

Problem 15

The CEO of Hammond plc., a national house builder, has been in very preliminary talks with the CEO of Paring plc., a competitor, about a possible merger. Both have signalled interest and decided to take things to the next level. Presenting this state of discussions to the board of Hammond plc., the board is critical about employing an investment bank for advice. Some members state that of course the investment bank

will advise us to go ahead with the merger, it's how they make money, whether it's good for the company or not.

Are they correct in their criticism of investment banks' incentives?

Indicative answer: *Investment banks have an interest in companies completing deals. To achieve this, they will advise to accept offers that a company itself would not want to accept but would prefer attempting to negotiate better conditions. They do so as with longer negotiations their costs increase, this might include having to decline giving advice on other deals as their resources are bound, while not obtaining higher fees, or even putting the currently agreed fee at risk if a better deal is not agreed and the merger abandoned. However, these conflicts of interest are minimized through the use of contingent fee contracts. Here the investment bank also benefits from increased merger values as their fees increase accordingly. While there are incentives to suggest to companies they accept conditions that could be improved on and where it would be beneficial for companies to hold out for them, the contingent fee contract limits the extent of this issue.*

Model(s) used: Chs. 6.1.1, 6.1.2, 6.2, 6.3

Problem 16

Modern Antiques Ltd. buys and restores used furniture and sell these online and in a small number of stores around the country. They have been a family business since they were founded over 30 years ago, but now some family members want to leave the business and in order to prepare for an envisaged expansion of their business, they seek a listing on the stock exchange. They are a well-recognised name in the furniture business with a solid outlook, steady income, and their expansion of the business is generally seen as a positive move. In preparing their forthcoming public offering, they have been meeting with their investment bank and been told the usual procedure is to gauge the market interest through book building, and based on the feedback returned there, set an offer price. This offer price would then be guaranteed by the investment bank. Thomas Asburton, the majority shareholder and CEO, is surprised by this procedure. Sounding a little bit annoyed he says to the investment banking team he meets with: "So, I pay you a lot of money to underwrite these shares, but you do only do so once you know that it will sell at that price? This sounds like a great business model for you, buy what you already sold and then charge a big fee on top. If you just sound out the market, you are not doing anything, I cannot see why that is good for us."

Being in the investment banking team, how would you respond?

Indicative answer: *Book-building is in the interest of Modern Antiques Ltd. as that way we can gauge the full market demand. If we do not know for certain the market demand, which we will not if we have to rely on our inferences of investor interest alone, we will have to set a price which guarantees to sell all the shares based on those inferences. We will have to deduct a safety margin from the price to cover any*

potential losses. This safety margin is not needed if book-building is used as we base this on actual demand. Therefore, you should receive more for your shares. The fee covers our work, which moves from analysing the market demand to trying to sell your company to investors and creating this demand. This involves much less uncertainty for us and you if we base this on actual demands. Thus your company benefits and the final firm commitment contract is your final insurance in case something unexpected happens in the market during the last few days between closing the book-building and taking actual orders.

Model(s) used: Ch. 7.1.2

Problem 17

BioPharm plc. has recently listed their shares at the stock exchange through an Initial Public Offering, that generally was deemed a success by market observers. On listing, the price quickly stabilised at \$56, after having been issued at \$45. At a debrief meeting a week after the listing the investment banking team presents to the board of BioPharm plc. how the entire process worked and where some challenges lay. They report in particular on the process leading up to the book-building where they thought they require a substantial number of meetings with potential investors, but this was not necessary as investors were more quickly sold on the merits of the company than anticipated. The board is of course pleased with this information, but also points out that they were confident about the prospects of their company as they had lots of interest from competitors to acquire them or to merge. In hindsight the board think that the underpricing was quite high and the value added by the investment bank in determining an adequate offer price was low. One board member goes even so far to suggest that they should have agreed a much cheaper best efforts contracts as the investment bank did pretty much nothing of value and they probably would have achieved a higher price on top of that.

Is the board member correct in his claim that a best effort contract would have been better?

Indicative answer: *If the analysis of the investment bank does not reduce the uncertainty of the value of the company significantly, the best efforts contract might indeed be optimal for the company. However, this will only be known afterwards and by going through the book-building process, the company was assured that all shares could be sold. With a best effort contract, no such assurance would be given. While the bank might not have added much to reduce the valuation uncertainty, the added value might have been in the certainty to sell all shares. With a best efforts contract, the price achieved could well have been higher, but taking into account the risk of not selling all shares, can easily lead to less revenue being raised.*

Model(s) used: Chs. 7.1.1, 7.1.2

Problem 18

ACorn Ltd. is seeking a listing on the stock exchange and to that effect looks into appointing an underwriter. For its CEO Stanley Hope it is obvious that they will contact a few investment banks and then choose the best offer among those bids, similar to any other procurement decision. Julianna Timbrough, who attends the board meeting in her capacity as future head of investor relations says that this move would be counterproductive. All the companies she has worked for previously had only approached one investment bank at a time and usually taken the first offer that was made. For that reason she thinks Acron Ltd. should follow a similar approach. On being asked how this way of appointing an underwriter can be better, she is not able to give a straight answer.

What should she have replied?

Indicative answer: *If investment banks know they compete against each other, they cannot be sure to be appointed to the role and hence will not put the full effort in to contact as many potential investors as they would otherwise. This will lead to some investors being left out and the suggested price being too low. Even if choosing the highest offer out of the competing investment banks, this would not compensate for the lower effort and price in the first place. It would also not be possible to attract the investors with the highest valuation overall once the underwriter has been appointed as investment banks offer the issue to their own investors primarily.*

Model(s) used: Ch. 7.2.1

Problem 19

Hoffmann Ltd. has appointed a lead underwriter who now seeks to assemble a syndicate to ensure a wider investors base can be reached. To this effect, members of the team at Hoffmann Ltd. pressure their lead underwriter to increase the size of the syndicate from the proposed five investment banks. They argue that by including more banks, they could reach a wider range of investors, making the issue more successful, even if it costs them a bit more to compensate for the larger number of investment banks involved. The lead underwriter resists this move and points out that this would be counterproductive to the issue. Hoffmann Ltd. is accusing their investment bank of refusing to increase the syndicate size so they can obtain a larger share of the fees and it is purely for the investment banks' own benefit, rather than improving the success of the issue.

Is the lead underwriter right in suggesting to limit the syndicate size to five members?

Indicative answer: *Increasing the syndicate size, also increases the moral hazard of investment banks in that they may not put the requisite efforts into selling the issue to potential investors. With their contribution to the success being small, they may want to free-ride on the efforts of others and as all banks think alike, the overall*

effort level will decrease. This can then well have the effect of the revenue raised from the issuance of the security to reduce.

Model(s) used: Ch. 7.2.2

Problem 20

Ramsey Inc. is a family-owned business mainly specialising in the production of pipes for chemical plants and power stations. Having grown significantly in recent years and seeking to expand overseas, they have decided to raise capital through a listing on the stock exchange. In preparing for the first steps in the process, the board, consisting of 7 family members, has to decide on the approach to appoint an investment bank as underwrite for their issue. Having very little knowledge of the procedures involved, never having had dealings with investment banks before, and a relationship with a commercial bank that does not offer underwriting services, they do not know how to approach an investment bank. During the discussion, quickly two factions emerge, one wants to appoint a single underwriter but have them compete for this business through a tendering process, while the other faction wants to approach an investment bank exclusively, which they have heard lots of good comments about, but because of their limited size, suggest this investment bank should form a syndicate with other banks.

Which approach is preferable?

Indicative answer: *Both approaches are not optimal. A single underwriter, as was noted, might not have sufficient contacts with investors and many potential investors might be left out, resulting in issuing the shares at a price lower than could have been possible. Here a syndicate, if not too larger to avoid moral hazard in making an effort, might well be beneficial. If putting the underwriting out to tender, the uncertainty for investment banks participating as to who obtains the contract, will result in sub-optimal search efforts and hence not all investors interested in the shares will be identified. This will also lead to a lower than necessary price for the issue. Hence neither approaches are optimal, though the losses from which approach is higher, cannot easily be determined. It is preferable to appoint an investment bank directly as lead underwriter and let them appoint a syndicate, avoiding both problems leading to lower search efforts.*

Model(s) used: Chs. 7.2.1, 7.2.2

Problem 21

Michael Learning is a wealthy but not very sophisticated investor and he relies on his broker giving him investment advice and is often participating in IPOs. However, he complains to his broker that whenever an IPO is not going well, he obtains a larger

allocation of shares, making very little profit on a large investment, while in very successful IPOs he is allocated only a small amount, even though he makes a lot of profits in these cases. He feels cheated in that his loyalty is not rewarded.

Is Michael Learning right to suggest his broker exploits his willingness to participate in IPOs?

Indicative answer: *We can reasonably assess Michael Learning as being an uninformed investor. If an issue is not well received, informed investors will not subscribe to it, leaving uninformed investors to pay a too high price for the issue and subsequently making losses or low profits from the issue. So, in this sense, his willingness to participate is exploited. However, he is compensated for that by being given an allocation in more successful IPOs. In these issues there is underpricing and this is used to reward investors like him with an allocation that gives him a high return. Investment banks could allocate the shares to other investors, so this allocation is his 'reward' for taking up the large allocation of less successful issues. Overall, his return should be fair.*

Model(s) used: Ch. 7.3.2

Problem 22

Longsoft plc. has recently gone public and generally the offering has been judged a success with high investor demand and a price realised at the upper end of the initial estimate. At the debriefing a week after the listing, Longsoft plc.'s team complain about the high level of underpricing. Having seen the allocation, they see that the investment bank benefitted a range of long-standing clients that have a known allegiance with their lead underwriter. Their stance is that those investors should have paid more and the investment bank has been giving them free money at their expense. The underwriter points out that while these investors are loyal clients of theirs, they are well informed and would not participate if they do not obtain adequate returns. On being prompted to justify how a return of nearly 30% would be adequate rather than excessive in a market where annual returns are about 10-15%, the investment bank representative looks around his team in search for an answer.

How would the lead underwriter justify the underpricing?

Indicative answer: *The underpricing is needed to provide an incentive for such informed investors to reveal their information correctly. Informed investors revealing their interest in the shares will cause the issue price to be higher. Thus, there is an incentive to not reveal the information they have and that way the issue would be priced lower and informed investors could then pick the shares up in the IPO at a lower price. The underpricing, and the allocation of shares that goes with it, is their reward for providing this information truthfully. It benefits Longsoft plc. as the issue price was higher than it would otherwise have been.*

Model(s) used: Ch. 7.3.5

Problem 23

Sterling & Co. is a boutique investment bank specialising in the issuing of fixed income instruments to issuers from smaller and emerging countries. It has a range of investor contacts, ranging from highly sophisticated hedge fund managers to wealthy, but not very informed, individuals. One such wealthy individual, Jorge Sobrano, has recently changed his broker to Sterling & Co. and on this broker's advice participated in a zero-bond issue by a large government-backed road construction company in a developing country and he was allocated a large amount, his full subscription. Shortly after the bond starts trading, it falls below its issue price and Jorge Sobrano complains to his broker about being used by Sterling & Co. as a dumping ground for bad issues. Also, he adds, he had never his full subscription being honored, only now when he makes a loss.

How can you convince Jorge Sobrano that this is an unfortunate start to their relationship and how will you seek to maintain his custom?

Indicative answer: *Some issues are turning out to be less popular than we think and in this case many of our traditional clients were choosing to not buy the bonds. This will then inevitably lead to customers who do not share that view being allocated a larger fraction of the issue, as in your case. While this might look like the bonds have been dumped, this is not the case, the investment bank believed in the value, but unfortunately was mistaken. However, there will also be more successful bond issues in the future, and those issues will be over-subscribed. This will allow the investment bank to allocate the bond also to Jorge Sobrano, allowing him to recover the losses just made.*

Model(s) used: Chs. 7.3.5, 7.3.2

Problem 24

Trianos LLP is a wealth management company set up with the sole purpose of managing the wealth of the Olawemu family. Having made forays into venture capital provision and not been very successful, it has been decided to withdraw from those activities and instead seek to invest into young companies as they are being listed. The aim is to take advantage of the underpricing of IPOs to generate good returns and then support the company for a time afterwards as a long-term, but rather passive investor. Looking into the IPO market, an analyst at Trianos LLP makes the observation that in Waading the underpricing typically stands at 12-15%, while for comparable companies in Reinging the underpricing is 17-20%. Reinging is well known for its very strict investor protection rules, resulting in stringent disclosure requirements and many adverse court ruling if requirements have not been followed meticulously, causing losses to investors. In contrast, Waading takes a much more business-friendly approach; while the rules are only slightly less strict than in Reinging, courts are much more hesitant to rule in favour of investors if they are broken.

The analyst believes that the stricter enforcement of rules in Reining results in investors requiring much higher returns and hence underpricing is higher. Is this a correct assessment?

Indicative answer: *The more strict enforcement of rules in Reining will make companies and investment banks potentially more liable for compensation if an IPO does not perform well. The investment banks and companies react to this by increasing the underpricing as this ensures that issues are less likely to cause losses in the first place and if this occurs, losses are smaller. Both reduce the expected compensation that needs to be paid. Hence, the higher underpricing is not the result of investors requiring higher returns, but due to investment banks reducing their liability for any compensation. This will of course be limited by the lower income from underwriting, making underpricing limited.*

Model(s) used: Ch. 7.3.3

Problem 25

SayIt Ltd. provides a popular online platform for discussions and sharing of information, covering all areas of interest. Since it was announced that the company seeks to list their shares on the stock exchange, a large publicity campaign has been started by some activists seeking larger control of the contents that is posted. Backed by a number of prominent figures, a movement has formed that seeks to buy shares in the IPO and then very quickly dump the shares in the market to make sure the stock price falls well below the issue price. While a target price has already been made public at the early stages of the IPO process, the investment bank seeks an urgent meeting with the aim to lower the target price. SayIt Ltd. is surprised and correctly remarks that this campaign does not affect the value of their shares and any drop in the price would only be temporary as they would soon run out of shares to sell.

While the investment bank agrees that any drop in stock price would probably be only temporary, why do they want to reduce the offer price?

Indicative answer: *Investment banks might fear the threat of legal action by investors if the market price falls below the offer price. Lowering the offer price hedges against this happening in that it firstly lowers the benchmarks at which losses occur and then losses are smaller. The lower issue price should attract investors buying the shares after they floated, reducing the impact of shares being sold at a low price.*

Model(s) used: Ch. 7.3.3

Problem 26

ControlRobo plc. has just been taken public. It was seen as the hottest IPO for quite a long time as the company holds a number of highly desired patents in producing and

navigating Nano-robots with potential medical applications, amongst many other areas. The company is generally seen as not being well run as it is controlled by two brothers, both of whom are specialists in robotics rather than business. After the IPO they have retained a share of 67% in the company. Despite these shortcomings in the management of the company, the IPO was highly successful and had a larger-than-average underpricing of 47%. Many professional investors in such businesses sought to buy shares in the IPO, but most were not allocated any shares. It emerges that a stake of at least 15% has been allocated to Alpha LLP, a hedge fund that is well known for its pro-active approach to companies it invests in. Its attempts to interfere in the running of the business is not much liked by companies, but the companies they invest in, all perform exceptionally well. The other investors complain that the high underpricing has been chosen such that Alpha LLP could be allocated a large part of the shares and as they are the favourite clients of the lead-underwriter, they have been given preferential treatment. ControlRobo plc. has also complained about this allocation as they had hoped for a more widespread shareholder base. Furthermore, they consider the underpricing to be too high and causing them significant losses, especially as the stock price is now higher than the top-end of the initial valuation of the investment bank.

Has ControlRobo plc. been given a bad service by the investment bank?

Indicative answer: *There are losses due to underpricing and only this excess demand probably allowed the underwriters to allocate the large holding to Alpha LLP. However, the company and other shareholder might actually benefit from this allocation as they might influence the company to perform better, making everyone better off. Their active approach of interfering in management decisions will increase the value to all investors; this might well be the reason for the share price to have increased beyond the initial valuation range.*

Model(s) used: Ch. 7.3.1

Problem 27

PharmDev plc. is a small pharmaceutical company that produces and develops medicines for use in developing countries. Their products are modified from main medicines such that storage and transport are less critical to maintain their effectiveness, such as the need for cooling or short shelf lives. To finance their research, they raised capital in an IPO. They agreed to have the issue underpriced by about 20% in order to ensure the success of the issue and the return on the first day was in line with that agreement. They had also agreed to allocate a sizeable fraction of the shares to a long-standing partner in research to fortify their strategic alliance. Once all documents have been disclosed, the stock price jumps by another 15%. The investment by their strategic partner has been interpreted very positively by the market. As this has always been the plan, PharmDev plc. feels that the underpricing was not 20% as agreed, but rather 35%, which they feel is rather excessive.

Are they correct to complain about this large underpricing?

Indicative answer: *The price increase once the investment of the strategic partner has become public, is due to the increase in value from this arrangement. Allowing such large investments, often requires substantial underpricing that is then recovered by the value these arrangements add. This is also the case here, if the investment bank had decreased underpricing, there would probably not have been enough discretion to allocate shares to the strategic partner, negating the gains of 15% we have observed.*

Model(s) used: Ch. 7.3.1

Problem 28

The IPO of GreenGas plc., a producer of biogas, was significantly oversubscribed and many investors were disappointed to not receive an allocation at all or an allocation significantly below their subscription. Comments in the financial press during the days following the IPO show widespread dissatisfaction with the lead underwriter. It had secured a Greenshoe option of 10% of the offer, but did not exercise their discretion on providing more investors with an allocation. In their defence the lead underwriter says they were surprised by the level of oversubscription, but would not want to increase the price above the initially announced target range as a fairness to all investors. They also claim that exercising the Greenshoe option would not have made a material difference and therefore had decided against it.

Is this explanation of the lead underwriter believable?

Indicative answer: *It is most likely that exercising the Greenshoe option would not have been profitable for the investment bank. If the demand is very high, and hence the underpricing severe, as seems to be the case here, it is only profitable to exercise the Greenshoe option if it is sufficiently large, which it seems not to be here. This will have prevented the investment bank from seeking its exercise.*

Model(s) used: Ch. 7.4

Problem 29

Looking at the trading in the first few days after an IPO, you observe that more underpricing is commonly associated with more trading volume, but also with stock prices that fluctuate less. As you work in the newly set-up department for investor relations of Abbott Ltd. and prepare for the upcoming IPO of the company, you suggest in a meeting with senior management that they should aim for very little underpricing. The benefits in terms of trading volume and less fluctuations for the stock price does not really affect the company at all, while underpricing costs money.

In addition, you question how there can be a relationship between underpricing and trading, as stock markets are difficult to predict. The investment banks that have joined the meeting, look down on their papers as you make this remark and hold back laughing.

Why are you wrong in your assertion?

Indicative answer: Firstly, underpricing and trading volume are connected. A high underpricing will result in many investors losing out on the allocation of shares, but many would be interested even at the higher price and seek to buy, while others that have been allocated shares do not value them highly and would be willing to sell. The higher the underpricing, the more such investors are found and hence the more trading occurs. This trading results in lower volatility, which reduces investor risk, and therefore investors will require a lower risk premium, which reduces the cost of capital of companies, making them more valuable. Thus companies benefit from it. Of course these benefits have to be weighed against the losses from receiving lower proceeds due to underpricing.

Model(s) used: Ch. 7.3.4

Problem 30

After an IPO, many investors have sold their shares very quickly to realise their gains from underpricing. Afterwards many of these investors are claiming that the underwriters selling more shares than they had initially claimed in the IPO has reduced their profits and only benefitted the underwriters.

Is this assessment correct?

Indicative answer: The Greenshoe option was exercised, but these shares were sold prior to trading commencing, so did not compete with their sales. Also, the underpricing is likely to have increased as the bank optimises their profits, which would have increased their profits, as would the bank taking into account the brokerage fee income from this trading. As more shares were allocated at lower prices, underpricing was higher, and so would have been the desire of investors to sell their allocation, but these two effects at least partially offset each other.

Model(s) used: Chs. 7.3.4, 7.4

Problem 31

You are an assistant to the CEO of Greenhill Ltd. and as the company considers a listing on the stock exchange, you have been asked to look into the characteristics of a wide range of investment banks with the aim to see which investment bank is most suitable for Greenhill Ltd. You observe that investment banks that are commonly

regarded as being the best have higher success rates in IPOs, but they also charge much higher fees than less prestigious competitors. You present this finding as being the result of good companies being able to afford the high fees charged by the leading investment banks. An experienced board member challenges this interpretation and says that given his experience it is that all companies want to be underwritten by top investment banks, but it is investment banks that turn down less good companies. No one worries about the fees.

Who is correct in their assessment?

Indicative answer: *Investment banks might find it profitable to underwrite only companies that they assess as being of high quality. The higher revenue from these companies gives them incentives to seek out more investors, increasing the price even further. The higher fee is charged to overcome the higher costs of searching for more investors and the loss of revenue from not underwriting low-quality offers. Thus we have two markets, one for high-quality companies paying high fees to investment banks investing heavily into finding potential investors, and the other for banks that charge lower fees and serve the remainder of the market. It is therefore that companies seek to be underwritten by the best investment banks, but only high-quality companies are accepted.*

Model(s) used: Ch. 7.5

Problem 32

Working for the investment bank of Harding & Son, Slavia Mycheslav talks at the opening of a new museum in the banking district to Heino Nymarken, who has recently joined Kleinmann Bank plc., a large lender with a small investment banking division, in which he works. Jokingly, Slavia Mycheslav says that of course her bank gets the much higher quality companies to underwrite, all Kleinmann Bank plc. will care about is, how the increased capital will affect their loans, they do not look at the quality of the company they underwrite and hence many IPOs will be of moderate success. Surely, everyone realises that and hence Kleinmann Banks plc. can only charge small fees, while Harding & Son provide a better service and charge the appropriate fee for that.

Is Slavia Mycheslav's brutal assessment of Kleinmann Bank's incentives accurate?

Indicative answer: *The moderate success of IPOs underwritten by Kleinmann Bank plc. is not necessarily because the quality of the company is smaller. It is true that the incentives for a universal bank are different in that they would take into account the ability to repay loans and if an IPO increases that, it provides a source of income that an investment bank does not have. Hence the universal bank would not seek so hard to find investors, settling for a lower price in the end and making the IPO less of a success. Harding & Son, however, only obtain income from the underwriting*

fee, thus will work harder to obtain a higher price, making the IPO more successful.
Model(s) used: Ch. 7.6

Problem 33

Baking Brothers Inc. is a leading bakery chain operating nationally and they have begun to expand in other countries as well. Its rapid expansion is seen critically by many market observers, but the management is convinced of its strategic planning. To finance a major expansion of shops and factories overseas, they seek to issue a bond. Having approached some reputable investment banks to manage the issue of this bond, they have been politely refused. Their long-standing lender, who has provided them with loans in the last few years, directs them to their small underwriting team for further consideration. It is only after they have consulted with their corporate lending department to exchange information on Baking Brothers Inc., that they indicate a willingness to underwrite the bond issue.

How can you explain these different decisions by the investment banks on the one hand and their lender on the other hand?

Indicative answer: *Investment banks can select only companies with good prospects, and given the doubt by market observers about their expansion plans, they are probably not falling into that category. The universal bank, however, will consider the impact the bond issue has on the ability to repay the loan. Their consultation with the lending department suggests that they see the ability to repay the loan probably improved, hence they are willing to underwrite a less good issue.*

Model(s) used: Chs. 7.5, 7.6

Problem 34

The Sameda Stock Exchange seeks to make itself more attractive to new listings, especially for innovative smaller companies. These companies had previously complained about finding it difficult to secure the services of an approved underwriter for their stocks, which used to be a pre-requisite for obtaining a listing. The new listing regulations now allow for a direct listing of a company and Sameda Stock Exchange has provided an auction-style platform that can be used to sell stocks to those investors willing to pay the highest price. To the surprise of the Sameda Stock Exchange and many of the companies seeking a listing through this new mechanism, investor demand has been low and the few companies that successfully listed their stocks, were soon delisted again; either taken private because of their poor performance, or taken over by other companies. The delistings usually occurred at prices well below the initial offer price.

Why was the innovation of a direct listing on the Sameda Stock Exchange not successful?

Indicative answer: *Underwriting provides an important screening mechanism. Investment banks will evaluate issuers and will only underwrite securities they assess to be of high quality. Investment banks will underwrite only such high-quality securities and signal to the market by their willingness to act as underwriters this assessment. In the case of the direct listing, as offered by the Sameda Stock Exchange, no such screening by an informed intermediary is conducted. This implies that companies listed through this mechanism might not be of the same quality and have poorer long-term prospects. We can even face an adverse selection problem in that only companies that investment banks assess as being of not sufficiently high quality, list themselves using the new auction-style mechanism. This would indicate to investors that they have been assessed as being of low quality and can therefore explain their reluctance to subscribe to any issues by these companies.*

Model(s) used: Chs. 4.2, 7.5

Problem 35

George Cooper frequently seeks to participate in IPOs and subscribes to issues underwritten by some of the leading investment banks. He does not get an allocation of shares often and if he does obtain an allocation of shares, the returns are usually lower than in other IPOs he has not been successful in. A friend suggests that he seeks financial advice from an investment bank instead of subscribing to any IPO, such that he can avoid those that perform poorly.

Would such advice improve his returns from subscribing to IPOs?

Indicative answer: *Financial advisors could provide additional information on each IPO and that way he might avoid subscribing to some low-performing IPOs. However, access to more successful IPOs is only possible if George Cooper establishes a relationship with the underwriter of the issue. In addition, the financial advice will most likely be biased in that any recommendations will be directing him towards subscribing to IPOs that have been struggling to attract sufficient interest. The prospects of selling the IPO fully at a higher price without having to rely on the goodwill of more highly valued clients, will drive these recommendations.*

Model(s) used: Chs. 5, 7.3.2

Problem 36

Spice & More plc. has recently acquired a competitor and while integrating this company into their own operations, they discover that there are significant problems

with the ability of their customers to pay outstanding invoices. The wide customer base was one of the main reasons for the acquisition. Given they have made it clear to the investment bank advising them that this was their main objective, they are unhappy with the advice given by the investment bank to proceed once they had conducted a due diligence assessment of their competitor in confidence. The CEO of Spice & More plc. in particular points out that the way the investment bank is paid, provides the investment bank with strong incentives for the acquisition to be completed. He points in particular to a clause where the majority of the fee is payable to the investment bank only if the acquisition is completed, while only a small break-up fee would be payable otherwise. He argues that the investment bank was driven by their desire to complete the acquisition such that they could obtain their fee, but instead should have either advised on abandoning the acquisition or negotiated a much lower price.

How would the investment bank respond to this complaint?

Indicative answer: *The investment bank should point out that while they receive the majority of their fee income only once the acquisition is completed, they do not have only an interest in such a completion. Firstly, a break-up fee was agreed and that would have allowed the investment bank to obtain some fee income regardless of the outcome of the acquisition. Furthermore, it is not that the investment bank only obtains a higher fee income if the acquisition is completed, but they will also face significantly higher costs. These costs for continuing with the acquisition after the due-diligence assessment are a dis-incentive for the investment bank to continue recommending the acquisition if they think it is not in the interest of their client. These two aspects are optimally balanced to ensure the advice the investment bank gives is honest and in the interest of their client.*

Model(s) used: Chs. 6.2, 6.3

Problem 37

Gerhard Bank AG has been hired by Inform GmbH to manage their initial public offering. During the first meeting between the investment banking team and the working group from Inform GmbH managing the process internally, the investment bankers explain in detail the process of going public from this point until the shares are listed on the local stock exchange. When explaining the book-building mechanism they seek to employ, the Chief Financial Officer of Inform GmbH interjects that this sounds way too complicated to him. Why does Gerhard Bank AG go to such great lengths of determining the price and share allocation if all that is needed is an auction platform for investors to submit bids. Similarly, why do banks buy the shares first and then sell them on just a few days later, this seems an unnecessary step.

How would you explain the advantages of the processes typically followed in underwriting?

Indicative answer: *The processes investment banks follow serve two purposes, firstly to minimize the conflicts of interests between investment banks and their clients and secondly to maximize the issue price, while still selling the full issue. Investment banks need to attract investors to subscribe to the issue and to this effect they make use of their contacts. Making use of their contacts will be costly and they need to ensure that investors provide any interest in the issue truthfully. The costs associated to investment banks when contacting potential investors can lead to a moral hazard situation where the investment bank will not exert the level of effort that is optimal for their client, the issuer of the security. The contractual arrangements ensure that the investment banks exert optimal effort levels from the perspective of their client, while at the same time the book-building mechanism has been shown to generate the highest issue price for the client.*

Model(s) used: Chs. 7.1.1, 7.1.2, 7.2.1, 7.2.2, 7.3.5, 7.3.2, 7.3.3, 7.3.4, 7.3.1, 7.4, 7.5, 7.6

Problem 38

The Competition Commission investigates the behaviour of investment banks in IPOs. They have heard the view of companies who have recently gone public that underpricing to them is equivalent to an additional fee they have to pay and which is not detailed in the underwriting contract. One company director suggested that investment banks should issue the stocks at their full value and instead charge a higher fee for their services. This way the costs of going public would become more transparent to companies.

Would this suggested transparency work?

Indicative answer: *Underpricing does not directly benefit the investment bank, but those investors that subscribe to the issue and are allocated shares. Hence, while it might be seen as a fee by companies, it is not a fee that is paid to investment banks. Of course, most shares are allocated to investors that have provided the investment bank with information during the book-building process and are duly rewarded with an allocation of shares. It can be argued that investment banks should pay these investors out of the underwriting fees they charged companies, rather than relying on underpricing. But underpricing has a number of additional benefits, it reduces the threat and costs of any legal actions against the investment bank and/or the company, enables a liquid market in the stocks from the start of the listing, and can attract investors to weaker IPOs that would otherwise not be successful. These benefits could be included into the fee investment banks charge, but they would be cumulative, rather than allowing them to occur concurrently. This reduces the overall costs to companies and thus underpricing is an efficient mechanism to ensure a successful IPO.*

Model(s) used: Chs. 7.3.5, 7.3.2, 7.3.3, 7.3.4, 7.3.1

Problem 39

The merger of Hamamoto plc. and Seco Industries plc. was hailed as the biggest and most important merger of an American and Japanese company. Having been widely promoted by the advising investment banks as a milestone for the future development of both companies, the merger turned out to be a failure. After only a few months, it became clear that the different corporate cultures could not be reconciled and the newly formed joined company is considering splitting along its original lines. Many commentators now see this failure, as well as many others before, as evidence of investment banks pushing for mergers to go ahead, presumably as they are then paid high fees for their services.

Is this a fair assessment of the motivations of investment banks?

Indicative answer: *While investment banks benefit from higher fee income if mergers go ahead, they also face higher costs as substantially more work is required to ensure that shareholders and other stakeholders agree to the merger. Furthermore, with break-up fees commonly being negotiated to provide investment banks with income if a merger does not go ahead, this incentive to go ahead with any merger is strictly limited. The contractual arrangements are still showing a bias in favour of a merger commencing, but this is moderated by break-up fees.*

Model(s) used: Chs. 6.1.1, 6.1.2, 6.2, 6.3

Problem 40

"If the money is right, investment banks will underwrite any stock, however bad its prospects are."

Is this statement true?

Indicative answer: *Investment banks might be willing to underwrite any security offer, but it is often beneficial only to underwrite high-quality securities, i. e. those securities of companies that have good prospects. The reason is that when it is clear that investment banks only underwrite high-quality securities, investors will have confidence in the quality of these securities, reducing asymmetric information and thereby the price of the securities actually underwritten by an investment bank. This will increase the proceeds available to the company and hence the fee generated by the underwriting spread will be higher, making investment banks more profitable. The reduced volume of underwriting can thus be compensated for by higher fees generated from high-quality security issues.*

Model(s) used: Chs. 4.1, 7.5

Problems sets for Part III

Problem 41

John Neumann is a fund manager, whose fund is a long-term client of your investment bank. As part of the agreement the fund has with us, he is given access to analyst reports. At a meeting to renew the agreement, John Neumann is highly critical of the quality of the reports provided. He points out that each and every report has been overly optimistic about the prospects of the company concerned, evidenced by the fact that the returns in nearly all cases are less than those implied by the analyst report. Representing the investment bank, you point out that this positive bias is inevitable and he should simply account for this in his decision-making. John Neumann replies that if you know about this problem, why don't you simply correct for this distortion.

How would you reply?

***Indicative answer:** In order to provide insightful analyst reports, we rely on information provided by the companies, so need to maintain a good working relationship with senior managers. However, companies prefer positive coverage and we have found that as we provide positive reports, they are more willing to provide us with additional information that informs our recommendations. So, in order to access more information, we need to remain overly positive about the company. We have to balance the improved information that allows us to access more precise information with the bias in our recommendation. This balance will include some degree of bias, but in our view this can be justified with the quality of the report this allows us to produce.*

Model(s) used: Ch. 8.1

Problem 42

Contex plc. is a leading provider of technology for contactless payments. Their business is going strongly and they have attracted a number of analysts providing positive coverage of their prospects. The head on the investor relations team that is also the first point of contact for financial analysts seeking information about the company, is overall very satisfied with the reports published by the analysts. There is, however, one analyst whose reports, although overall positive, are consistently much less upbeat than any other analyst report. He puts this down to some bad blood between the investment bank this analyst works for and the CEO of Contex plc. After a dispute over advice received in an acquisition a few years ago, he has made it clear

to that bank, they as long as he has any say, they will never again advise the company on any transactions.

Is it correct to attribute the less positive coverage to the dispute on previous advice?

Indicative answer: *The investment bank the analyst concerned works for has no prospect of obtaining future business from Contex plc. As usually companies prefer positive coverage and by giving future business to those most positive about their prospects, they incite analysts to be more positive to gain this business. In this case the incentive to seek future business from the company does not work as they have been excluded by the CEO from any such business. Consequently their reports will not be that positive as that of others seeking such business. Therefore, the less positive coverage of the analyst is not a revenge on Contex plc. but the consequence of not being considered for future investment banking business.*

Model(s) used: Ch. 8.2

Problem 43

Looking across analyst reports and comparing their recommendations as well as forecasts, you notice when comparing the affiliation of analysts with investment banks, that if investment banks had been advising a company on any transaction in the last few years, the reports were usually more positive than those that did not advise the company, even though these were still more positive than would be justified by subsequent performance.

Are you right to attribute this observation to the fact they have been advising the company recently and the overall positive, although less positive, coverage of all the other analysts to their hope of advising the company in the future?

Indicative answer: *It is not the past business that drives this result, but the future business that might be gained. Investment banks that have been used in the past are most likely investment banks that will be chosen in the future again. Hence, to make themselves attractive to the company, these banks issue reports that are overly positive. This would be the case whether they had advised the company in the past or not. Thus any investment bank seeking the business of the company should be submitting overly positive reports. In addition, all analysts rely on access to the company to gain more information for a better assessment of the company. If such access is more easily given by companies if the coverage is positive, they will bias their reports accordingly. This will bias the reports of all analysts, while those seeking, or having a realistic chance of gaining future investment banking business from the company, have an additional incentive to provide positive coverage, leading to an even more biased view.*

Model(s) used: Chs. 8.1, 8.2

Problem 44

ConTech plc. has been found to fraudulently increase its revenue numbers over the last few years. While many had suspected that their financial reporting and disclosure statements were too good to be true, none of the financial analysts has taken up these rumours and even questioned their disclosures. All analysts had published positive reports, but it now transpires that some, mainly junior, analysts had raised some concerns in internal discussions, but did not make them public. At an inquiry into the failing of ConTech Plc. and the role financial analysts played in covering their misconduct up, one member of the inquiry panel quotes John Maynard Keynes at a financial analyst, who said: "Worldly wisdom teaches that it is better for reputation to fail conventionally than to succeed unconventionally."

How does this quote relate to the position the financial analyst found himself in?

Indicative answer: *Junior analysts are usually not that well qualified yet and may well have less confidence in their ability. They would not want to expose themselves as having lower quality than other colleagues and thus tend to apply the consensus, in particular if the likelihood of being right to an outside observer is small. Even if this consensus is wrong, they would be wrong with many of the more experienced, and commonly seen as higher ability financial analysts, thus being able to mask their lower ability (failing conventionally). If they were to publish their concerns, and if these concerns were wrong, they would be more readily identified as being of lower quality. Even if they were found to be correct (succeed unconventionally), they would not necessarily improve their standing significantly as much of this success would be attributed to luck and by deviating from the consensus there is a reasonable chance that they were of lower quality, but just got lucky.*

Model(s) used: Ch. 9

Problem 45

Priska Romain is the CEO of SwissMade Plc., a holding company with a portfolio of Swiss-based producers covering the high-end of the market, such as mechanical watches, medical equipment, and specialist construction machines. During a rather informal meeting with financial analysts and journalists at the reception held for the opening of a new headquarter, she responds to questions how it is that her company is consistently underperforming the predictions of analysts. In her reply she embarrasses the present analysts by stating that if their employers would not tout for business by trying to please her with ever more upbeat public statements, they might be a bit more realistic in what can be achieved. Another problem, she says, is not only that they try to be unnecessarily positive, but that many analysts seem to have very little understanding of the company and do not understand much of the industry she operates in. So going back to study those finance and strategy book might improve things. A junior analyst says that they are not paid for the business

she gives to his bank, but his and other pay packages are purely based on the quality of their reports. Priska Romain, laughs and says that in that case he probably should pay the bank to work there. Before turning away, she says, in the old days it was analysts like you openly vying for business and I am sure you were on a bonus if I signed up, but things have not really changed since then.

Can you explain why the quality of reports seems unchanged despite the changes that have occurred?

Indicative answer: Banks used to base the pay of analysts on their contribution to gaining investment banking business through positive reports that attract companies. The change that is referred to, is that payment can now only be based on the performance of the financial analyst in producing reports. However, banks have changed the way contracts are structured such that while formally they are only based on the quality of analyst reports, they provide exactly the same incentives as the old contracts, so the quality of financial analysts has not improved.

Model(s) used: Ch. 10

Problem 46

During a meeting to discuss the extension of brokerage contracts, Adelphi Funds Group, managing a large number of individual investment funds, discuss the conditions for access to analyst reports to their individual fund managers. Ita Vayassani, as the CEO of the group, finds the price that has been charged in the past as too high. He points out that all he gets, more or less, are reports that say what everyone else already in the business knows. There have been many instances of events that have not been picked up in these reports, even just mentioning them as possible scenarios would have helped investment decisions. He thinks the reports are overall of poor quality. Leading the brokerage division, Vaclav Racinski says that they have overhauled their analyst division and now he can get more detailed information on the remuneration of each analyst and as clients are now more informed how they are viewed internally, they have more incentives to improve the quality of their reports as that will be reflected in higher pay and a wider recognition of the quality they produce. Ita Vayassani points out that improving quality is good, but if he just gets more detailed analysis of things he already knows there is hardly a point as he will not learn anything new, he wants to hear alternative views. Therefore he does not think that the reports will become more valuable to him just because they changed some contract terms.

Is Ita Vayassani correct to dismiss the changes the analyst contract has undergone as being of limited value to him?

Indicative answer: With information on the analysts' quality being publicly available they and the bank have an increased interest in producing high quality reports. They are readily identified and clients of the banks would prefer to interact with analysts, and generally investment banks, that show higher levels of competence,

hence the banks will provide stronger incentives to analysts to improve the quality. This, however, does not directly affect the second problem, that reports tend to reflect the general consensus with very few deviating opinions being voiced. Indirectly, the overall increased quality of reports should reduce the tendency to write reports reflecting this consensus. The reason is that even less good analysts will have improved their quality and can now be more confident about the information they have obtained and include this in their reports. The likelihood of this information being wrong is reduced. Hence, we should see an overall increase in the quality of reports, but also more confidence to voice deviating views.

Model(s) used: Chs. 9, 10

Problem 47

As head of a group of junior analysts your role is to assess their performance over the last few years and make recommendations for promotions. Part of the assessment is to determine the quality of those reports they completed alone or under supervision, but also the contributions each has made to joint reports. Although not the only criterion, one aspect is to look at how their recommendations and target prices compare to the actual events. While the results naturally will be mixed, you spot that in most cases junior analysts' report were consistent with what most reports from competitors showed, even if this turned out to be very wrong. You find only a few instances in which deviating opinions were voiced and in many cases these were shown to be correct. The same analysts, though, in most other reports were not deviating from the consensus, even if this was shown to be wrong. You find that where the consensus was wrong, sometimes internal notes suggested that different scenarios had been considered, but then dismissed without further explanations.

How can you explain that in some cases the deviating scenarios are included, while in other cases they are not?

Indicative answer: *If a deviating scenario is unlikely to be realised, then for junior analysts the risks are too high of voicing these. They will damage the standing of the analyst and show him to have too little knowledge and experience, harming his future prospects in the industry. In the unlikely event that the scenario is actually happening, this will to a large degree be attributed to luck rather than the skills of the analyst. Thus overall the net-benefits of showing a deviating opinion will be negative and he will remain with the consensus opinion. If the probability of this deviating scenario is sufficiently high, though, the benefits turn out to be positive and they will be voiced. Therefore, it suggests that in cases where alternative scenarios were dismissed and not included into the report, the likelihood of them occurring was assessed by the analyst as being too low and hence he retained the consensus point of view in his report. Only in cases where the analyst was believing the probability of this event to be sufficiently high, would he issue a report to this effect and this seems to have happened in the few cases found. As the probability of events occurring was*

high, the junior analysts will be correct in many instances. In those instances that had been dismissed, the likelihood of being right would have been lower, but might have never been observed.

Model(s) used: Ch. 9

Problem 48

Constantin Bulgakin is a financial analyst providing coverage for a range of companies in the pharmaceutical industry. Due to regulatory changes, his employment contract has been amended and rather than obtaining a fraction of the revenue the companies generate for his employer, he will only be rewarded for the accuracy of his reports. He fears that this new arrangement will lead to a reduction in his remuneration and he will lose access to companies that he relies on to provide him with information for his reports.

Are these concerns justified?

Indicative answer: *The investment bank can structure his contract such that his remuneration will not change overall. Using a high base salary that is commensurate with his current remuneration based on the amount of revenue his contacts to the companies generate, he will not be worse off. He will not lose access to companies as they would still want to relay information to the analysts covering them, in exchange for positive reports; this will also ensure that he obtains sufficient information to provide reports that are as accurate as previously.*

Model(s) used: Chs. 8.1, 10

Problem 49

Joyce Banowolo has been accused of providing low-quality reports on companies she covers as financial analyst. A number of clients of the investment bank that employs her have mentioned that her reports are all overly optimistic if compared to the actual outcomes and she never anticipates any unexpected developments, even though in retrospect it is obvious that with access to information she has been provided with, this should have been possible.

Given this negative feedback from clients, Joyce Banowolo is asked to meet her manager to explain the quality of her reports. After this meeting she has to write a brief note to him addressing the concerns. What would she put into this note?

Indicative answer: *The reports are more positive than they should be, but this is because as a financial analyst I rely on gaining access to information held by the companies I cover. This access is usually only granted if my reports are sufficiently positive, otherwise the company is less likely to provide me with such information in*

the future. I balance the accuracy of the report with the need to access information. Thereby I ensure that while the information might be overly positive, it is nevertheless more accurate than it could otherwise be. With respect to the significant events that I do not mention in my report, I will have identified many of them, but will not have reported them as I thought the likelihood of their occurrence to be too low. The reputation of our investment bank would not be helped if these events would not materialise. 'Crying wolf too often' comes to mind as an analogy. It is for this reason that I have not included such possible events into the reports.

Model(s) used: Chs. 8.1, 9

Problem 50

Hiroki Mayosama has obtained excellent contacts with companies that he covers as financial analyst. His contacts have allowed his employer to gain numerous advising contracts in mergers and acquisitions these companies have been involved in. The price for his ability is that his analyst reports are seen as being of questionable quality by his clients in the investor community. They seem to mostly ignore his reports and see them as not much more than an advert for the company subject to the report.

With Chinese Walls being introduced, will this affect his recommendations and remuneration?

Indicative answer: *His remuneration should not be affected. While it will be based on the accuracy of his reports, rather than the revenue he generates for his investment bank, this can be structured such that he sees no change overall. While there is no direct incentive to provide overly positive recommendations anymore, given that his remuneration is not based on revenue generation for the investment banks anymore, he might improve his accuracy in order to improve his remuneration. However, the bank might adjust his base salary to take this into account and overall the quality of his reports remain unchanged. He will also maintain a positive bias to retain access to companies for additional information.*

Model(s) used: Chs. 8.1, 8.2, 10

Problems sets for Part IV

Problem 51

Computech Inc. has grown considerably over the last few years. It has acquired many subsidiaries in various countries and partnerships across the globe, requiring ever more sophisticated processes and structures to navigate the often complex local regulations and tax rules. These more complex needs have lead Computech Inc. to review its policy with respect to investment banking relationships. Thus far they have sought ad-hoc advice from the investment bank that seemed most appropriate for their specific needs, such as investment banks that specialise in specific countries or types of transactions, such as hostile takeovers. To this effect they have relied on small and specialised investment banks, who would not be suitable for a wider range of advice that is needed. One drawback they have using this strategy is, while specific advice on transactions is of high quality, they would often require solutions that require the development of securities with specific features to meet regulatory constraints. In many cases they are only aware of this after the transaction has been completed, but the investment bank advising them does not provide them with such securities.

Would changing to a mainstream investment bank for all their needs be beneficial?

Indicative answer: *Of course, they would potentially lose the specialist advice they currently get, but if they are regular customers of the investment bank (relationship banking) they might be more willing to provide the financial innovations needed. This is because the return business allows them to recover any costs associated with the development of the securities from other business Computech Inc. will provide them with.*

Model(s) used: Ch. 11.1

Problem 52

Jérôme Cheniers is the head of the treasury department of an internationally operating company. In response to ever more restrictive practices in many countries to increase the tax businesses pay, he has relied on new financial instruments developed by their investment banks to shift revenue and profits between jurisdictions and across different time periods legally. As the company has grown considerably in the last few years, thought is given to establish a link with larger investment banks to reflect the wider needs of the company. Jérôme Cheniers objects to this suggestion, remarking that the smaller investment bank they currently deal with are providing them with

excellent service for his department. In his experience, larger investment banks are much less innovative, having less of a big vision, and instead develop any innovations only slowly and in a piecemeal fashion in many steps, depriving them of a lot of the benefits the full innovation would have had.

From his perspective, is Jérôme Cheniers right to object to engaging larger investment banks?

Indicative answer: *Larger investment banks more often than not divide innovations up as that maximizes their profits. This is because larger investment banks do not seek to attract that many new customers through their innovations and can therefore seek to extract more surplus from their customers. Thus the company has to constantly update their instruments to take full advantage of the innovations, which makes them more costly. However, large investment banks also buy innovations from smaller competitors and as such might be able to offer innovations that other banks have developed and to which the smaller current investment bank would have no access. Thus the costs to the company might well increase and benefits be more staggered, but it also opens up the possibility of gaining access to a wider range of innovations. Model(s) used: Ch. 11.2*

Problem 53

Nisa Chanda has taken over the family business, EduChan Ltd., providing outsourcing solutions to education providers, such as schools and colleges, but in some cases also universities. To improve knowledge of local requirements, EduChan Ltd. has set up a network of subsidiaries in its main markets. This has complicated the management of the company considerably as now many rules and regulations have to be followed, but it also allows innovative ways to finance their business by tapping into local resources that had thus far not been available. Given the complexity of the issues on hand, advice would be required on these issues. For this reason and an immediate need to hedge the revenue from a large new contract, Nisa Chanda has thought about seeking more advice with an investment bank. From her family, many sitting on the board of EduChan Ltd., she gets conflicting advice. Some suggest that she should always go to the investment bank that is best for the specific circumstances as they all have different expertises, others say that having a single investment bank to go for is better. There are also those advocating to use a small boutique investment bank as they provide better service and EduChan Ltd. is not big enough to be of interest to the market leaders, while others suggest to at least try the market leaders as they have better all-round knowledge.

Focussing on the current needs of EduChan Ltd. in the area of seeking innovative solutions in managing the financial and regulatory aspects of their expansion, how would you advise Nisa Chan?

Indicative answer: *Different aspects need to be separated here. Firstly the question of transaction banking compared to relationship banking and then the question of*

small or large investment banks. On the subject of relationship banking, we know that banks who engaged in relationship banking extensively will in general be more innovative. The reason is that the relationship with customers allows them to recover the costs of developing innovations from other business these customers provide and also makes the loss of a customer to a competing bank more severe. Hence, while EduChan Ltd. could engage in transaction banking, it would be beneficial to seek out banks that otherwise are mainly engage in relationship banking. In terms of the size of the investment bank to choose, smaller investment banks might introduce innovation faster rather than stagger them to extract more profits from their customers. They do this as their size makes gaining new customers less likely than for small banks. But on the other hand, they might be able to buy up innovative solutions from other smaller banks, so can potentially have access to more innovations they can offer their customers. Thus the answer is not straightforward and these two aspects need to be balanced.

Model(s) used: Chs. 11.1, 11.2

Problem 54

Having inherited a considerable amount of cash from a relative, Anders Andersson seeks to invest these into shares. He has some experience and knowledge of the stock market and is confident that with some basic advice from an advisor of his bank, he can manage his new-found wealth independently. As he looks for some advice on his investments, he is not considering discount brokers, but instead focuses on the brokerage divisions of some reputable local banks. Just by investigating their standard fee structure, he is quite amazed how they differ between banks, but also the different schedules banks have for different types of stocks. Looking at the European stock market only, he finds the following information for two banks he picked out:

	Trade size	Grimu Bank	Flora Bank
Main index	\$0-\$10,000	2%	1.8%
	\$10,000-\$100,000	1%	1%
	\$100,000 +	0.5%	0.6%
Wider index	\$0-\$10,000	2.5%	4%
	\$10,000-\$100,000	1.5%	3%
	\$100,000 +	1%	2%
Small caps	\$0-\$10,000	5%	2.3%
	\$10,000-\$100,000	3%	1.5%
	\$100,000 +	2%	1.2%
Other	\$0-\$10,000	2.5%	2.5%
	\$10,000-\$100,000	1.5%	1.3%
	\$100,000 +	1%	1.3%

'Main index' includes all companies that are in the lead index of a European country, such as the FTSE100, DAX30, CAC40, SMI, and similar. 'Wider index' includes all shares that are not included in the leading indices but wider indices, such as the FTSE 250, or in leading industry indices, while 'Small caps' includes all stocks that are included in small cap indices.

Anders Andersson is puzzled by the fee structure. While he understands that for larger trades the fees are reduced, the differences between the stocks in a wider index and small caps seem to make no sense. Can you explain these brokerage fees?

Indicative answer: *The two banks are specialising in different areas. It seems that Grimu Bank can provide better advice on small caps and thus add more value to customers trading these, resulting in higher brokerage fees, while Flora Bank has more value to add for companies that fall outside of the main indices. They both seem to add less value to companies in the main indices and those entitled 'Other'. Companies in the main indices attract wide coverage in the media and hence the value added of the advisor is not much more than what is already in the public domain and both banks seem not to have much expertise in the 'Other' stocks.*

Model(s) used: Ch. 13

Problem 55

Connor Strange has grown up in a family of considerable fortune from a number of businesses. Having shown neither aptitude nor interest in running these businesses, he has happily agreed for his sister to take over once their father retires. In return for this arrangement, he has been given a lump sum to provide him with a good living. Having no experience of investing and on the advice of his father, he has instructed Forlong & Sons with the management of his wealth. Having his annual meeting to discuss the arrangements Forlong & Sons have made and any changes for the future that might become necessary, Connor Strange is surprised to hear that the last year had been rather difficult in investment terms and while his wealth did not decline, the return generated was very low. When questioning that, he is told that in the interest of long-term growth, they had invested into some more risky stocks, and this did not pay off as many lost value this year, but, so the advisor re-assures him, this is likely to reverse. Connor Strange looks at him puzzled and says that he remembers well from last year that they agreed to not take any unnecessary risks as that was not to his liking. He tells his advisor to reduce the risk for the coming year, but is assured that his perception of the risk is exaggerated as they have much better information on these stocks and it appears much more risky to him than it actually is.

Unconvinced, Connor Strange leaves the meeting to think about his response. Is it that the higher risk he perceives is due to him having less information or does the bank take excessive risks?

Indicative answer: *If the bank has more precise information, they will invest a larger fraction of the wealth into these risky assets than an investor without such*

information has and the investment would appear to be more risky, even though it is not. However, banks generate their income from the performance fee they charge customers. Thus they are interested in a high return, which is associated with a higher risk. Therefore, banks have an incentive to increase the risks of investments they manage. His perception of the risks taken is higher than it is to the informed bank, but in addition they take on more risk such that risk ntaken, even adjusting for the superior information, is higher than he feels comfortable with.

Model(s) used: Ch. 12

Problem 56

Having taken responsibility for the investment of the family trust from his uncle, Sibolu Arassawake considers next steps. His uncle had over many decades managed the investments successfully and had considerable knowledge in such investments, but his ill health does not allow him to continue this role, nor to teach his nephew the required skills. Therefore, Sibolu Arassawake's first thought is to seek out an experienced asset manager to perform most of the duties, allowing him to focus on developing the general principles on which investments should be based, such as the family's commitment to environmental concerns and human rights. In a discussion with his uncle on handing over the role, he remarks that Sibolu Arassawake could instead manage the investments himself, he always got tips from his bank when buying or selling assets. That way he would retain much more control and it would be cheaper, too, as the advice comes free.

Investigating the brokerage fees a full-service broker would charge, and comparing this with the fees of asset managers, shows that based on average returns, the asset manager is actually cheaper. Why are the broker fees more expensive and is it therefore better to engage the asset manager?

Indicative answer: *Brokerage fees of full-service brokers will include a surcharge for the value of the information they provide, making the information they provide not free, but paid for by a relatively high broker fee. This higher fee is not paid by the asset manager as he does not require this information, having conducted his own analysis. While the asset manager may look cheaper, they will manage the assets as to maximize their own profits, that is the fee income. This leads to an asset allocation that is more risky than the customer usually would find acceptable. Hence the lower costs will come at a price. Seeking the advice of the bank and then conducting the investment separately, Sibolu Arassawake could obtain a level of risk suitable for the family's preferences.*

Model(s) used: Chs. 12, 13

Problem 57

Your investment bank has agreed to be added as market maker for a few well established but small stocks and has assigned you to set up the processes to enable quoting prices from next month. Looking into the stocks concerned, you observe that the spreads quoted in the market are surprisingly narrow and prices move very little over a trading day. Looking at the costs you would face as market maker you quickly come to the conclusion that given the spreads quoted in the market, it is impossible to cover the costs. You feed your assessment back to your manager and ask if he is willing to go ahead even if this would incur losses to the investment bank.

Your manager replies that market making is not not very profitable but never loses money. Is your manager right and you have assessed the costs wrongly?

Indicative answer: *If there are more than 3 market makers already in the market, then the market spread will be below the spread that any individual market maker would be able to quote. This is because the costs they face are different. However, it is not necessary to quote prices that match this narrow spread, instead you would quote a spread slightly above your own reservation spread. While this means that you do not get to facilitate that many trades, once you are trading, it will be for a small profit.*

Model(s) used: Ch. 14.1

Problem 58

You are overhearing two junior traders at a fund management company complaining about the price setting of market makers in some of the major stocks listed on the stock exchange. They specifically complain that in times before major announcement, when rumours are rife and not many facts are known, the spread increases significantly. Often the increase is such that profitable trading opportunities are rare until after the announcement. They quickly agree that this must be the greed of investment banks and their market makers that increases the spread to make more profits as they know traders are keen to adjust their positions.

Are market makers increasing spreads to raise their profits?

Indicative answer: *An alternative explanation to market makers increasing profits is that the uncertainty around such announcements are substantial. With major stocks, usually private information about the prospects of the company is rare as most information easily becomes publicly available and hence the fraction of informed traders will be small. Around such announcements, however, it is quite likely that there will be some traders that have superior information, increasing adverse selection costs to market makers. This will then in return increase the spread as market makers protect themselves from such losses to informed traders.*

Model(s) used: Ch. 14.2

Problem 59

Looking to expand the scope of your investment banking business, you consider entering market making. While acknowledging that it is not a highly profitable business, it seems to be safe and a good diversification to your other business lines. Considering a range of stocks, you think that the business might be more profitable than you had initially believed. You observe market spreads that seem to be rather higher than what you expect them to be when trying to balance the order flow and not building up a large position in the stocks. In addition, prices seem to move more than you would expect them to achieve such a balance.

Are these observations an indication of market making not being competitive?

Indicative answer: *You seem to only consider inventory costs. However, in addition you will also face informed traders and an additional adjustment to prices in response to their trades, and the spread has to take into account any potential losses you make when trading with them. This will on the one hand increase the spread, but also make prices move more than with pure inventory control. While inventory control adjusts the prices such that market makers are compensated for any costs of building up large positions, in the presence of adverse selection an additional adjustment is needed, namely updating your belief on the true value of the stocks. This will increase any price adjustments. In addition, you have to consider that you will not be involved in every trade that reaches the market, but will only do so, and hence make a profit, if you are quoting the most favourable price, reducing your profits considerably. Furthermore, if there are only two market makers, then the observed spread due to inventory control will indeed be wider than the reservation prices imply, but you entering will reduce this spread and hence potential profits considerably.*

Model(s) used: Chs. 14.1, 14.2

Problem 60

You are working at the trading desk of a leading investment bank and have performed well for many years. During your annual review, the topic of additional training requirements comes up. Having gone through lots of training since starting in your role many years ago, you have not seen that your performance has increased. Nor is there evidence that traders at other banks have caught up with your skills. Therefore you suggest that no training is required, benefitting the bank in saving money for these expensive courses and gives you a few more days to generate profits for the bank.

Your manager rejects your suggestion and says that if you do not maintain your skills, you will soon generate less profits for the bank. Is he right?

Indicative answer: *With additional training probably sought by all traders, the benefits of such training will be low, probably outweighing the costs. However, not keeping your skills up while other traders do so, will expose you to fiercer competition*

and you will generate less profits. Overall this is a race for skills in which no one wins, but not participating will ensure you lose.

Model(s) used: Ch. 15.1

Problem 61

Peter Hillier and Nijs van Steen are traders and were hired together by Bell Bros. after graduating from university. While Nijs van Steen has been specialising in trading small companies in emerging markets, Peter Hillier has been allocated to trade US bonds. Having both been successful in their careers, Nijs van Steen has been moved to a contract that sees him receiving a much lower base salary, but also a much higher component of performance related pay, mostly based on the returns he generates. Peter Hillier, however, has not seen a change to his contract and remains on a largely fixed wage with a small performance component only. During one of their after-work meets Nijs van Steen quips that he is clearly much better than his friend and therefore given a better contract.

Is Nijs van Steen right to claim that he must have superior performance to be moved to his new contract?

Indicative answer: Peter Hillier trades bonds and thus faces much less uncertainty from which he can generate profits than Nijs van Steen, who trades quite high-risk shares. Thus he will be much less able to generate profits, even if having the same skills. Therefore, his skills will generate less profits if he were to leave the trading desk and set up his own trading, allowing the bank to pay him less than Nijs van Steen, who faces high uncertainty and hence high potential profits from trading. These high profits allow investment banks to pay performance-related wages to their staff as that way they only reward highly skilled traders. In low risk markets, such as government bond markets, the profits are too low and hence fixed wages are used, as otherwise highly-skilled traders would not join the trading desk. In addition, finding skilled traders for small cap markets will probably be more difficult than for government bond markets, where much more information is generally available. This reinforces the use of fixed-wage contracts in government bond markets. The small number of low-skilled traders in these markets can be tolerated in a fixed wage contract while with more low-skilled traders, this would be too costly for the bank. Thus, the different contracts are not a reflection of the skills of the two traders but only the different characteristics of the markets they operate in.

Model(s) used: Ch. 15.2

Problem 62

Constantin Navonin has received extensive training over the last three years to change trading desks from trading exotic derivatives to fixed income. His move was motivated by being able to adhere to better working hours after the birth of his first child. After a year in his new role, his existing contract is renewed, as agreed, but he is surprised to find that his new contract only has a small bonus component related to his trading performance, while this was previously a main part of his salary. He feels that during his first year his performance was comparable to his previous role, even though profits generated were less, but he feels the market environment is much more difficult. In addition he has extensive training even during his year and he feels this has improved his skills. He sees his new contract as a punishment for seeking to change trading desks.

Is he right in his assessment of the motivations of his employer?

Indicative answer: *The training Constantin Navonin received, apart from him gaining skills on the new trading desk, will have little effect on his performance and hence remuneration as this is the usual race to upskill by all traders and does not affect the performance overall. Having moved to a trading desk that is much less profitable due to the nature of the instruments traded, there will be less profits to share with traders. Rewarding only highly-skilled traders through bonuses, would not be sufficient to attract these traders in the first place, given the costs of monitoring. Therefore traders at this trading desk will mostly be paid fixed wages, which negates the need for monitoring their performance and verifying it.*

Model(s) used: Chs. 15.1, 15.2

Problem 63

Selkirk & Co are a long standing investment bank that have suffered a substantial loss due to the losses accumulated by a rogue trader. He had secretly accumulated losses that were for a time threatening the survival of the bank, but through a lucky turn in the market, this could be avoided with some losses recovered as positions were liquidated. The banking regulator has asked for a complete audit of the internal processes of the trading desks at Selkirk & Co, but nothing was found to suggest that controls were more lax than at other investment banks. The regulator is quite surprised by these findings as they expected to find deficits in the internal processes and in response suggests that banks overall should improve their monitoring of traders by their managers. Having put the suggested improvements out for consultation, the overwhelming response is that the new rules are mainly burdensome but would not change the risk of future rogue traders emerging.

Why is focussing on the monitoring of traders unlikely to succeed and what would have been a better approach?

Indicative answer: *Managers of traders are commonly rewarded for the performance of the group of traders they supervise, thus the incentives to managers and traders are very similar. Monitoring traders to ensure they adhere to rules are not in the interest of managers in this situation as long as breaking any rules will also benefit managers. To provide incentives to monitor their traders, and hence ensure a better compliance, managers themselves need to be monitored. Such an audit of the managers and their efforts in monitoring would align the incentives of managers more with that of the bank as a whole. Even though the managers will still retain an incentive to allow traders to bend rules, this will be much more limited. Thus changing rules on monitoring of traders would not be very helpful, but instead provide incentives to managers to actually conduct their task by monitoring their activities, would reduce the likelihood of future rogue traders emerging.*

Model(s) used: Ch. 15.3

Problem 64

As the head of Internal Audit at Halfing Bank plc. you have seen through internal communications at trading desks and followed up many leads of potential rule breaking at your trading desks. You found a number of occasions where the heads of trading desks have turned a blind eye to breaking rules and in other cases helping to cover up the consequences of such rule breaks. There was no evidence that the bank suffered any losses arising from these violations of rules and so in individual meetings with the relevant managers, they pointed out that no harm was done. Putting together their findings in a report, the committee you are heading gets into an argument about the proposed remedies. You propose to tighten the rules for those heading the trading desks, effectively ruling out that they could interfere with any decisions after the fact. Making sure they cannot cover up any rules breaking should ensure that they happen less, is your thinking. Another group on the committee, though, suggests that rather than changing rules, the committee should appoint a group of staff from their department to closely monitor the activities of traders instead. You dismiss this being too costly and just duplicating the work that the heads of the trading desks should do anyway.

Is there a better proposal to improve the compliance of traders with rules?

Indicative answer: *It is correct that supervising traders directly would duplicate tasks that managers should be doing anyway. But only changing rules is meaningless if there are no additional incentives to apply them correctly. A more effective way for the internal audit might be to monitor the heads of trading desks instead and ensure they are actually monitoring their traders effectively. By doing so, and applying appropriate sanctions, this provides managers with incentives to monitor their traders and thereby increase compliance.*

Model(s) used: Ch. 15.3

Problem 65

Looking at the market, you notice a peculiarity in price movements. After each trade, orders in the market are updated and bid and ask prices change in line with the order just executed, thus prices tend to increase after a buy order and decrease after a sell order. However, you notice that the extent of these price adjustments are different and seem to cluster around two values. They tend to move either by \$0.02 or \$0.04 for the most common order sizes of 1,000 shares. The larger movement is more common than the smaller movement, and other movements, like \$0.03, are very rare.

You wonder whether these movements are just randomly or is there a reason for it?

Indicative answer: *The difference can be explained by dual capacity of brokers. If they can provide information about order flows to their trading desks, they will take that information into account in their trading. If they know that a trade is not being submitted by an informed trader, they will not react to it as much as if it is from an unknown source. Knowing that a trade is not informative, it is optimal to adjust prices by only half the amount of other trades that are not known.*

Model(s) used: Ch. 15.4

Problem 66

The Raminga Stock Exchange, together with the Financial Supervisory Board as regulator of securities firms, has introduced stringent new rules on the activities of investment banks. A particular concern of many institutional investors has been that investment banks use information on their trading plans, that they share with them to optimally submit orders to the market, to benefit their own traders. Stringent rules have been put into place that prevent any communication between traders and any other parts of investment banks. Since this rule has been brought in, the market has become overall more volatile, which has raised concerns about the market quality. Institutional investors are pleased with the decision, as they report higher profits than before, which they attribute to banks not being able to siphon off some of their profits.

How can you explain these findings?

Indicative answer: *The rule changes have ended dual capacity and with bank traders not being able to distinguish orders from informed and uninformed traders, they are no longer able to react less strongly to those orders originating from uninformed traders, causing the overall volatility to increase. This increased volatility allows informed traders to extract higher profits from uninformed traders, who will make higher losses. The higher profits of informed traders, the institutional traders, are not only the result of banks making no profits anymore from the information on the order flow, but they are also increasing them from uninformed traders.*

Model(s) used: Ch. 15.4

Problem 67

Colerne Agricultural Bank has developed a bond whose interest payments depend on the average crop yield across the county they are mainly operating in. Being a bank which specialises in providing services to the agricultural sector, as well as those working in it, their new offering has received widespread interest from farmers in particular. The development of the bond was triggered by the Department for Agriculture seeking out Colerne County as an area in which they monitor the impact of weather and climate change on crop yields. As part of this monitoring, they collect data on the harvest of all farms in the county, which is then published as an index using the year 2020 as the base year. The bond has proven to be very popular with farmers, but also in other areas of agriculture. Farmers in neighbouring counties have also expressed their interest in such bonds, but as due to their location, no information on crop yields is available, and they fall outside of the geographical area covered by Colerne Agricultural Bank, have been referred to their own banks. While one other bank has introduced a similar bond recently, banks in other areas are reluctant to support the issuance of such bonds. They cite the uncertainty that investors would be willing to subscribe to such bonds. Indeed, Colerne Agricultural Bank had to approach investors in more urban areas to sell the bonds and while they have managed, they found it challenging to sell them completely, although they were successful in the end.

Colerne Agricultural Bank finds it strange that their innovation has not been copied more widely, especially by banks that have more and better contact with investors. How can you explain this reluctance to copy the innovative bond developed by Colerne Agricultural Bank?

Indicative answer: *There are substantial costs in using a bond as developed by Colerne Agricultural Bank. Colerne County has an index on crop yields provided by the government and banks operating in other counties would have to develop their own index, which can be costly. In addition, the bonds are not easy to sell, thus requiring substantial effort by investment banks to attract sufficient interest by investors. The risk of failure of a bond issue seems therefore high as the product is new and the market is only developing. Therefore, other banks will wait to gain more information about the success of those banks offering such bonds to see if it is profitable to enter this market. Once the early adopters, like Colerne Agricultural Bank itself, have shown that it can be successful, other banks, which will face the additional cost of developing crop yield indices, might enter this market.*

Model(s) used: Ch. 11.3

Problem 68

A few years ago, Hameed Bank has developed a new method to authenticate large payments between companies, governments and institutional investors. Many such transactions are often held up for considerable time by banks or government agencies to investigate the potential for fraud, corruption, money laundering, tax evasion and many other possible criminal acts. The new authentication system allows the money transferred to be traced at any time and the government has agreed to not put payments on hold if this system is used by the bank sending and receiving the money. While the authentication system would be highly beneficial to all payers and payees, it was initially very slow to be taken up by other banks, even though the protocols required were made available for free. Other banks cited the costs in setting up a parallel system for making payments, in addition to the conventional payment system, and reported that customers saw the requirement of monies to be sent on having to use the same protocol as overly restrictive. They thus doubted that it would be profitable for them to introduce this system. It was only after Hameed Bank and a small number of other banks were successfully operating this protocol with high demand by customers, that most banks followed very quickly the lead of Hameed Bank to introduce this protocol. Now there are only a small number of banks left that have not adopted this protocol.

How can you explain the sudden adoption of the protocol after the initial reluctant uptake?

Indicative answer: Banks faced the uncertainty of the benefits of the new protocol. They feared a reluctance by companies and investors to use it due to the restrictions that come with it. As the initial adopters showed that payers and payees seemed to value the speed of payments over the inconvenience of these restrictions, it became clear that the benefits were higher than initially thought. This set in motion a quick learning process that resulted in a quick adoption of the new protocol.

Model(s) used: Ch. 11.3

Problem 69

Jerôme Hinault is head of trading at Legrande Banque SA and noticed that those trading in securities of countries that allow dual capacity seem to anticipate investor behaviour better than those in markets without dual capacity, but have a lower understanding of the market dynamics itself.

How can you explain this observation?

Indicative answer: Dual capacity allows brokerage departments to provide information on order flows to their proprietary trading desks. This allows traders to extract additional information they can use to generate profits at the expense of other informed traders. Those traders operating without dual capacity do not have this information source and hence need to obtain a deeper understanding of the

markets they are trading in, competing with other informed traders. Hence they need to show a higher degree of expertise than those relying on dual capacity to compete with them.

Model(s) used: Chs. 15.1, 15.4

Problem 70

Leman & Cie have developed a new security that allows clients to re-allocate financing costs across different jurisdictions through the use of innovative interest rate swap agreements. This security has been offered to clients for a while and the uptake has been slow. Initially clients were not convinced about the benefits and whether the arrangements would be accepted by national tax authorities. With no ban of this security in sight, the uptake of this security has increased recently and it becomes more widely known in the field. Given the slow uptake of the innovation Leman & Cie is reluctant to support the development of another innovative security. It anticipates that it would be more popular with clients, but is likely to be looked at negatively by regulators with a high possibility of it being banned after a short period of time.

Is Leman & Cie right to shelve the further development of the latest innovation?

Indicative answer: *The slow uptake of an innovation is expected if the benefits are not clear to clients; they will wait to learn from the experience of others before starting to use this innovation. This is not an indication that the innovation is not beneficial, only that its value is difficult to assess. The new innovation is more controversial and clients might not be able to wait for long before adopting it, if it is regulated quickly. This would allow the investment bank to recover their costs more quickly and introducing the innovation might well be highly profitable.*

Model(s) used: Chs. 11.1, 11.3

Problem 71

Kalimantan Bank is unusual in its approach to compensating their proprietary traders. They pay them a fixed wage, which is supplemented by only a small amount of performance-related pay; this is very much in contrast to all other banks who pay most of the compensation based on the performance of a proprietary trader. Kalimantan Bank has been justifying their approach with the fact that they are very good at identifying able traders and for that reason can afford to pay high fixed remuneration. Furthermore, their engagement mostly in markets with low volatility does not generate large profits to individual traders that can be used to pay them according to their performance, thus making a fixed wage easier to administer. Their remuneration policy has become more widely known when a number of competitors

were exposed to significant losses in their proprietary trading as the result of traders hiding losses from their employers. Subsequent investigations showed that traders were able to hide their losses mainly due to poor oversight by managers and a failure of internal control measures.

It is now suggested by the financial regulators that all banks follow the remuneration policy of Kalimantan bank to eliminate incentives to defraud the bank with the aim of obtaining larger bonuses. Would such a compensation policy be optimal for all banks or should other measures be employed to prevent any future losses from fraudulent proprietary traders?

Indicative answer: *The ability by Kalimantan Bank of identifying highly capable traders and them operating in low-risk markets, makes it optimal for traders to be compensated by a fixed remuneration in this bank. Other banks that operate in markets with higher uncertainty and/or find it more difficult to identify capable traders, would find a performance-related compensation preferable. In order to reduce the threat of fraud that arises from such remuneration policies, an effective auditing system should be put in place that will allow to reduce, but not eliminate, any such fraud. The fact that it has not been brought in previously can point to high costs or low abilities in implementing such a system and adequate training as well as other measures increasing transparency within the proprietary trading desk may have to be considered. As not all fraud can be prevented with monitoring and auditing, the threat of such losses need to be weighed against the benefits of retaining performance-related wages.*

Model(s) used: Chs. 15.2, 15.3

Problems sets for Part V

Problem 72

Olesa and Jorge have known each other since becoming neighbours during their school years, have attended the same school and studied the same subject at university. Even though they attended different universities, both were seen as providing an education of similar quality. Having lost contact during their student days they are very surprised to see each other again on their first day at work at the same bank. Olesa had secured a role within the investment banking division, while Jorge was assigned to corporate clients in the lending division of the bank. Having both successfully completed the graduate training programme in different locations, they find themselves once again working in the same building, just four floors apart. Catching up after work, it becomes very obvious that Olesa must earn significantly more than Jorge, judging by the flat she rents, the car she owns, and the holidays she has taken in the last year. As the evening progresses, Jorge complains that he believes the bank does not really value him and his work, he feels he contributes much more than what he is paid. And while it is good pay, so he concludes, and others are unlikely to be paid much more than him, he is looking to find employment elsewhere. Olesa suggests he might want to join her side of the business. While she thinks that the hours can be long and the pressure extremely high, the pay more than makes up for that. During this conversation they have been joined by a common acquaintance, who has completed training as a lawyer and been advising banking clients. He throws in that investment bankers do not do really much, they merely take money away from each other or their clients, not adding much value. In corporate lending there is, however a lot of skills involved to manage the loans and indirectly the investments of companies that generate actual profits for the company and bank, without taking it away from someone else. So he cannot understand why banks pay investment bankers so much more.

What is an explanation for this discrepancy of pay between investment bankers and other parts of the bank?

Indicative answer: *Investment bankers and those in lending divisions both create value to the bank by applying their skills to generate profits. The difference is that those in lending divisions do not only benefit their bank, but also other banks and their borrowers. If loans they originated are monitored well and this leads to the investment being more successful, the bank benefits through higher repayment rates but the borrower does so by retaining a larger fraction of the investment outcome, too. Also if the loan needs to be sold, the value created is not fully recovered as the full value of the loan is unlikely to be realised. Thus, not only does the effort of an employee only partially benefit the bank, it could well be reduced if the loan is sold at less than full value and the fruits of the effort only partially recovered.*

Furthermore, employing additional staff might well cause other banks to face a staff shortage and reduce the quality of their loans. If a bank were to buy these loans, they would make less profits from doing so, limiting the benefits of hiring additional staff. The bank will take these aspects into account and hence not be able to fully reward the banker. In contrast, investment bankers fully benefit from putting efforts into their activities. Not only can they increase their profits by having better information than their competitors, but by hiring additional staff they deprive other banks of obtaining improved information, increasing the benefits to the bank of hiring additional staff. Taking this into account, the banks are willing to pay more for investment bankers as they benefit from their skills and from depriving other banks of these skills.

Model(s) used: Ch. 16.1

Problem 73

Andrea Salieri has been appointed as the head of Human Resources of TLC Bank LLP, a small but well established investment bank. Having started his career in the banking industry, but for a leading lender, before moving into positions in car manufacturing and lately energy generation, he is rather surprised to notice that recent graduates are been given leading roles in large deals or allowed to trade large positions in securities. Despite them having limited experience and more established colleagues having a higher performance, this practice seems to be widespread as he discovers while looking through the employment practices of the bank. At a regular meeting with heads of division to discuss plans for recruitment, retention, and redundancies, he suggests to look at these practices and make sure all employees are sufficiently trained before taking on responsibilities, while at the same time ensuring that those with more experience and better performance take a more leading role. He finds it unusual that recent graduates are located routinely in the front office rather than the back office or middle office to gain experience. After voicing this suggestion, the division heads look at each other half in disbelief, half in contempt for their new colleague. Finally, the head of trading says: 'This is how we do things here and everywhere else.' It is clear that this point is not to be discussed, but Andrea Salieri is puzzled by their response.

Back in his office, he meets other senior members of the human resources team and asks why his suggestion has received such a dismissive response. What are the responses he should receive?

Indicative answer: *Investment banks rely on the unique skills of their employees and their willingness to deploy these, often at significant costs to their private life. In order to provide incentives to work as hard as possible, investment banks allow their new recruits to take responsibilities very soon. By proving they are able and willing to perform well, investment bankers can obtain high salaries, which are often lost if they underperform subsequently. This provides them with strong incentives to work hard from the outset and the accumulated salary will give them incentives to maintain*

or even increase their efforts in the first place. The threat of being demoted to front and back office duties, with the salary cut this entails, gives stronger incentives than the prospect of promotion if they perform well in those roles initially. The reason is that they have much less capital built up than in the front office and would therefore not exert the same amount of effort. Overall, this benefits the banks as all employees work as hard as possible.

Model(s) used: Ch. 16.2

Problem 74

'Whether you make a career in investment banks is more down to luck than ability and hard work. I know of many people that work very hard and very quickly were side-lined from the well-paying client-facing roles, while others seem to be doing the bare minimum and are rewarded with ever higher positions and salaries. I agree that those who made a career have all performed well, while those that did not get promoted were at the lower end of expectations. In both groups, though, are some that worked hard while others did not put a lot of effort in. It therefore just comes down to luck, being involved in the right deal or avoiding deals that later turn out to be bad.'

This statement is made during a careers talk at university given by a student and addressed to a recruiter from a leading investment bank. Apart from luck, is there another explanation for the observations the student reports?

Indicative answer: *Of course, luck is an element of making progress, as being involved in good deals and avoiding bad deals is even with the greatest foresight not perfectly achievable. However, inherent ability is a strong component as well. In order to succeed in any role, employees need to exert efforts and will do so in an optimal way, balancing the costs of this effort and the benefits it will bring. More effort in investment banks would increase the likelihood of being successful and successful employees are typically advancing their careers. The benefits to the employee is the remuneration the investment bank pays. If an employee needs to put a lot of effort in to achieve an improvement in his success rate, he will typically not obtain a high success rate as the costs of doing so outweigh the benefits. This could be the situation of someone who has a low ability for the role and needs to work very hard to increase his success rate. Hence employees with low ability would not have high success rates and would therefore unlikely to make career progress. On the other hand, those with a high innate ability for their roles would have to put very little effort in to achieve a significant improvement of their success rate. This would then imply that even though they do not work hard, they are performing well and thus are more likely to make a career. Thus hard working employees might lack the ability for their roles and despite the hard work, the costs of doing so is too high to achieve the required success rates, while those with high ability do not need to put much effort in to achieve their target success rate. This would also explain that those*

not working hard are more likely than not to make a career in investment banking, it would only those unlucky to fail to make progress. On the other hand, those working hard will struggle to achieve the success rates possible and often fail in their career ambitions.

Model(s) used: Ch. 16.2

Problem 75

Facing a downturn of the economy, trade unions in Thuringistan demand legislation to protect employees from redundancies, unjustified pay cuts and generally a fairer treatment of all staff. Special attention has been given to investment banks, who serve the entire region as a financial hub and thus are an important part of the economy. Trade unions bemoan the differences between those directly involved in banking activities and other staff in banks and elsewhere. They notice that, compared to their productivity, investment bankers are paid more than other professions, and get paid such salaries from an early stage in their career. They feel their pay should be limited in line with their productivity as in other sectors and the money the investment banks save be used for a pay rise of those who are paid less. Investment bankers are also, however, easily made redundant if the bank feels they are not performing sufficiently well. The trade unions suggest that this is due to a lack of training in the early stages of their career and demand enhanced training in all aspects of their future roles, combined with protection from redundancy for under-performance. Only once employees have shown that they are capable of performing tasks should they be allowed to take these up.

Representatives of investment banks dismiss the demand by trade unions and point out that it would make them unable to compete with investment banks elsewhere and in general harm the performance of the banks and ultimately their ability to provide jobs. What is the basis for their claim?

Indicative answer: *Investment banks have to pay more than the productivity (marginal product) employees produce as competition for high-ability employees means that banks do not only benefit from the ability of the employee, but also reduce the ability of other banks. Other banks could thus benefit from increasing the quality of service they provide, increasing revenue, and reduce the quality of service the original bank could provide, giving them an additional advantage in the market, potentially increasing revenue even further. Not being able to pay employees above their productivity would mean that foreign banks could easily outbid us and the best employees would leave. Similarly, additional training and therefore limited salaries, makes investment banking in Thuringistan less attractive. The reason is that giving employees responsibilities early on allows them to show their ability and work hard to generate income for the bank, but they are also highly rewarded for this. Joining an investment bank without taking on these responsibilities and instead relying on being promoted to them, makes employees exert less effort and the bank*

overall will perform less well. This will limit the ability of investment banks to pay well in international comparison, but also make employment in other countries more attractive as early career employees can earn higher salaries. The downside is that unsuccessful employees cannot continue in their roles, but this provides an incentive to work hard and as mentioned, is adequately rewarded.

Model(s) used: Chs. 16.1, 16.2

Problem 76

Jinpeng Hwang has been a highly successful investment banker with over 20 years experience at various global investment banks. Building on his extensive network of contacts to companies he has advised over the years, he has decided to set up his own investment bank with the help of a number of financial backers. While his initial plan had been to take an entire team of people with him to his bank, this proved more difficult than he thought. He has worked with a number of very able colleagues over the years and always had a good working relationship with them, often collaborating on deals, even across banks if this was allowed. However, very few of these colleagues were willing to follow him to his bank and so he had to rely on younger and less experienced colleagues instead. Having had particular success in deals that many colleagues would turn down due to many difficulties, such as complex regulatory requirements, hostile shareholders, or industries in challenging circumstances, he is confident that his reputation will allow him to recruit these former clients and clients in similar circumstances to his bank. This proved, however, to be as much of a challenge as convincing his former colleagues to join him at his bank. While his reputation has allowed him to attract a number of low-profile clients in the first few months, none of the more profitable clients of past deals have sought his bank's advice and his profitability is significantly lower than he and his financial backers anticipated.

Jinpeng Hwang is surprised by these difficulties in starting his own bank. What might be the problem he faces?

Indicative answer: *Jinpeng Hwang has extensive experience and judging by his past, high ability. However, he was not able to recruit staff of a similar calibre and relying on more junior staff will overall reduce the ability of his bank to provide advice. He targets companies that have the potential for a high surplus, but to extract this surplus need the advice of a high-quality investment bank. These companies will have doubts on the overall ability of his bank to achieve this and therefore remain with his former employer and comparable banks with proven track records. It is only companies with less potential benefits from advice that are turned down by more able investment banks that are attracted to his bank. As there is less surplus generated from the advice, the surplus the bank can obtain will be lower than with the clients he had anticipated to attract, and therefore his profitability is lower than expected.*

Model(s) used: Ch. 20.2

Problem 77

Senior members in the treasury department of GardenTools Ltd. are discussing ways to finance overseas expansion plans and their financing with Hoover Brothers, a leading investment bank they have not dealt with previously. Previous interactions with investment banks have been very limited as the financing of their business in a domestic setting had always been straight forward, although with the overseas expansion that has now changed. During lunch break, the team by chance come across another treasury team from Metallurga plc., who are also at Hoover Brothers to discuss financing options. As the heads of Treasury know each other well from attending meetings at industry conventions and conferences, the teams share a table in the restaurant. Of course, the conversation quickly drifts towards their experience with the Hoover Brothers. It transpires that those with GardenTools Ltd. find the bankers they are dealing with, have rather limited knowledge, in depth and breadth. The Metallurga plc. team, on the other hand, think the team they are interacting with has an adequate breadth of knowledge, admitting they do not know everything, but that overall they know more than merely their primary area, and, in addition, their specialist knowledge is really good. They point out that they have dealt with various teams over many years and the experience has been pretty consistent. GardenTools Ltd. hopes that they have not just been given access to a less knowledgeable team as they are a new customer that might not have much future business.

Assuming the investment banking teams the two companies have been assigned to are not uncharacteristic for Hoover Brothers, how can you explain the differences in opinions by two highly experienced treasury teams?

Indicative answer: *It can be assumed that Metallurga plc. have a long-term relationship with Hoover Brothers and for that reason banks will compete with each other for their business by showing a high level of expertise, but also a breadth of knowledge that allows them to provide good advice all around. As new, and potentially not returning customers, GardenTools Ltd. the investment banks are less investing into the expertise of their team as they mainly seek to provide a specialism that attract customers to them for the deal they seek to conduct. Therefore the breadth of knowledge in the investment banking team for GardenTools will be more limited, they address mainly the problem on hand.*

Model(s) used: Ch. 20.1

Problem 78

Technological advances have made the collection and processing of information much more efficient and less reliant on the work of junior analysts. In addition, the

outsourcing of routine work such as the preparation of reports, filing of documents, and drawing up of contracts has reduced the burden of these duties in investment banks, who now buy these in as services if they are needed. At the same time, the homogenization and increased accuracy of reporting standards and requirements, as well as the availability of most information a company would provide to investment banks in standardised electronic form, facilitates the work of investment banks and requires less specialist knowledge about specific industries or companies. These increased efficiencies had only a very limited impact on the fees charged by investment banks, who have remained stable throughout and the number of investment banks has reduced. Those critical of investment banks see this as evidence of collusion amongst investment banks to maintain their high profits and demand a tighter regulation of the sector.

Other than banks colluding, how can these observations be explained?

Indicative answer: *There are two primary effects in play. Firstly, the outsourcing of many routine tasks should reduce the costs of investment banks maintaining a reserve workforce to process deals arriving unexpectedly from loyal customers. This should reduce the costs of banks maintaining relationships, which should reduce the fees they charge. On the other hand the more homogeneous information banks have now available in standardised electronic form, should reduce the costs a customer faces on switching investment banks. These reduced costs make it necessary for companies to reduce the number of relationships they maintain, as banks will face increased competition from the threat to switch banks. Reducing the number of relationships, increases bank profits and gives them strong incentives to avoid a bidding war for customers. Overall this increases investment banking fees to maintain their profitability. Combined with the effect of lower costs to maintain relationships, the fees remain unchanged, suggesting that these two effects are roughly balancing each other out. The observation that the number of investment banks has reduced is easily explained by the lower costs of customers switching banks. The lower costs of switching for customers increases competition between banks, who overall share the value of deals. With higher competition, profits are reducing and in order to maintain their profitability, the number of banks in the market has to reduce, offsetting this increased competition. There is no direct collusion between banks to maintain high investment banking fees, but merely an incentive to do so.*

Model(s) used: Ch. 19

Problem 79

EmployTech Ltd. is a recruiting specialist for roles in the technology sector, mostly covering computer specialists. Over the last few years they have seen a significant increase in their business and have acquired a number of smaller competitors. Now they have reached a size that makes them a serious player in the recruitment sector and a further expansion of the company is expected to diversify their offerings and

be a partner of companies in the technology sector for a wider range of recruitment. During past acquisitions they have employed the same investment bank, but have had mixed feelings about the quality of service they offered. They found that often the investment bankers were not that well informed about their market and competitors as they would have expected and their expertise was often rather narrow, having been working with teams that did not offer a good breadth of knowledge. In the recent merger with a competitor this has changed, though. Their impression was that the team they worked with was very knowledgeable and the team members did complement each other well, offering a broad spectrum of knowledge.

During the drinks reception celebrating the merger, some board members reflect on the recent experience and come to the conclusion they were either just lucky for once with the investment banking team or it is because now they are bigger and investment banks take them more seriously. Were they merely lucky or is there a good explanation for the improved experience?

Indicative answer: *EmployTech Ltd. has grown significantly, and it might well be that now their deal volume has reached a level that makes it profitable for investment banks to engage in relationship banking and bear the costs to retain them as customers. Once they have entered the realm of relationship banking, investment banks will be investing more into their expertise to retain them as customers, thus allocating them teams that are more suitable for their needs. This is to prevent them from taking their now quite profitable business to other banks who might compete for their custom. Previously, the incentives to provide expert teams was limited as the profits they could achieve were too low. They instead focussed on providing narrow services at high quality, that met not the exact requirements of the company.*

Model(s) used: Chs. 19, 20.1

Problem 80

Norris & Partners is one of the oldest investment banks, having been established in 1758 as a merchant house importing tea, coffee and spices from all over the world. It quickly expanded to finance the import of such goods by other merchants and in the early nineteenth century gave up the importing of goods focussing on financing other merchants. In the mid-1800s their business changed again in light of the industrialisation and they commenced activities that today would be described as investment banking. It was not until about five decades ago that the bank was re-organised as a partnership to include non-family members in an expansion drive. This era has now come to an end and it has been decided to transform Norris & Partners into Norris Bank Ltd., abandoning the partnership structure. This move has surprised many industry insiders as Norris & Partners has not been expanding its business and is thus not in need of fresh capital to require this move. The reasons they give is that recently they have struggled to attract high-calibre applicants to their bank, despite having an excellent name in the industry and offering competitive

salaries for these more junior roles. While applicants are in no short supply and many of these looking promising recruits, very few fulfilled the high expectations, despite additional support and training put into place. In addition, of the five staff members that were offered partnerships, only two accepted the offer, both of which were not their first choice candidates. In light of these problems, they decided to abandon the partnership structure.

What is the rationale for Norris & Partners to abandon the partnership?

Indicative answer: *The current situation suggests a twofold problem. On the one hand, they seem to have problems in recruiting staff that is able to generate high profits to the bank. This has a direct effect in diminishing the differences between those able to generate high surpluses and those generating low surpluses. By making these differences lower, the bank will struggle to maintain the quality of partners as evidenced by not appointing their first choices. This will in the long run be detrimental to the quality of the work the bank can offer. A second effect is that the costs of training and development of new staff members have increased. This means that facing such costs, many potential partners may refuse the offer of joining the bank as partners, as the costs they have to bear training new recruits might be too high. The lower skills of the newly appointed partners will also have the effect that the resources available to generate profits and fund the requisite training will be reduced, reducing the threshold in term of costs that can be incurred in this training. All these points taken together suggest that Norris & Partners will in the future struggle to maintain the quality of partners at the current level. The lack of truly high-quality applicants suggests that the prospect of becoming a partner is much less enticing than before, further deteriorating the situation.*

Model(s) used: Ch. 17.1

Problem 81

Remo Suter is the CEO of Suter Mechanics Ltd. a specialist provider of precision-machined parts used in a wide variety of applications requiring low tolerances, including space exploration, submarines, but also medical apparatuses. Over the years he has expanded his business through the acquisition of a few competitors but also bought into suppliers of tools his company needs. The specialist nature of his business is not well understood by many and the small market in which he very successfully operates in, is often not considered to be sufficiently different from other markets that provide specialist parts to industries like train or car manufacturers. Having sought advice on structuring and financing previous acquisitions, he has become frustrated by their lack of skills and knowledge that he needs to make most of the advice they provide. He appreciates that in his line of business a lot of random factors might influence decisions that are generally not foreseeable and any advice might easily be outdated by events. When he approached some of the leading and even second-tier investment banks, he often has been turned down

with the unconvincing argument that his business does not fit their expertise. A friend suggests to try a boutique investment bank instead, he would deal with senior partners who actually own the business rather than employees generating money for anonymous shareholders. Remo Suter points out that he has heard that these type of banks are usually more expensive and he doubts they will be any better, if they even take him on.

How would you argue that he nevertheless gives these boutique investment banks serious consideration?

Indicative answer: *The boutique investment banks in question are partnerships, while previous investment banks used were shareholder-owned. Partnerships usually provide better services as the staff hired is overall more highly skilled than in shareholder-owned investment banks as they have larger stakes in their banks and thus ensure higher quality services. They will charge a higher fee for these services, but this is justified by the service quality. Furthermore, boutique investment banks might not turn down businesses that are operating in unusual markets and markets that are more subject to random fluctuations. The reason is that the higher service quality will still allow them to remain profitable and offer advice, even if often the quality of their advice is not easily appreciated and they can only charge a relatively low price for that reason.*

Model(s) used: Ch. 17.2

Problem 82

Laura Sanchez had been in charge of completing the acquisition of two major competitors of Warehouse Inc., a logistics firm that provides temporary storage space for companies, who require additional storage due to seasonal fluctuations, renovations, or damage to existing facilities. When given the chance to enter a new business that provides self-storage facilities to individuals and small firms, she left Warehouse Inc. and joined the new company Store4Me Ltd. as CEO. Under her leadership the company has grown considerably and is now in a position to take over other, similar, companies. Even though the assessment of competitors is much easier in the self-storage business than at Warehouse Inc., she uses her contacts from that time and approaches the same two investment banks that she had been dealing with while in her previous role. Both investment banks turn her down, citing that they are too busy at this time. With both investment banks being market leaders, she is forced to approach lower-ranked investment banks to provide her with advice on the acquisition. During the first meeting with an investment bank that has indicated its willingness in principle to advice on the acquisition, Laura Sanchez quips that clearly her business is too small for the bigger investment banks to bother with her. In a surprise response, one investment banker shoots back and says that when she was working at Warehouse Inc., she would not bother with small investment banks like his. Only then does she realise that the investment bank she is now negotiating

with had offered their services in her last acquisition at Warehouse Inc. but she had turned them down rather briskly.

Can you explain the rationale for each decision?

Indicative answer: *Store4Me Ltd. is a much smaller company than Warehouse Inc. and such will provide less revenue for the investment bank, making the profits generated to investment banks smaller. At the same time, the benefits of investment bank advice in the acquisition will be much lower as the assessment of competitors is easier, thus limiting the amount of fees investment banks can take. As such the joint surplus that could be divided between investment bank and Store4Me Ltd. is much smaller. With the reasonable assumption that larger investment banks can provide better advice that is more valuable to the company, these banks will find it more profitable to provide services to companies that are bigger and thus provide a potential for larger fee income or have more complex requirements that allows the investment banks to add more value. The same rationale applies to Warehouse Inc. turning down the smaller investment bank as advisor. They will generally provide lower quality service, resulting in less benefits to the company. Given they had access to larger, and hence better, investment banks, they would seek their advice as even with higher fees, the net benefits would be higher.*

Model(s) used: Ch. 20.2

Problem 83

Commercial Bank plc. has in recent years expanded its business by acquiring a number of smaller investment banks and has grown this part of the business through promoting their use with its existing borrowers. Part of the investment banking business is a trading desk that has been the backbone of the investment banking division by providing the majority of profits as the business grew. Now, however, it has accumulated large losses that, although not threatening the survival of Commercial Bank plc., have lead to the board questioning the strategy of engaging in investment banking at all. While many arguments for and against this strategy have been made during this discussion, a non-executive director without any meaningful banking experience, Constantin Ionu, remarked that banks in any case should not be run in this form. On receiving looks that show no one understands what he means by that, he elaborates that he thinks banks should not be owned by shareholders, but senior management should take more personal responsibility for their actions. He continues that the biggest mistake was that in the mid-nineteenth centuries banks were allowed to be set up as joint stock companies rather than as partnerships run by senior managers with significant stakes in the bank. After all, he kind of concludes, investment banks used to be run like this until recently, and were very successful with that model. His remarks are mostly ignored and the discussion carries on.

Would a return to partnerships for commercial banks be a good step?

Indicative answer: Leaving apart the capital requirements of modern commercial banks that would require a very large number of partners to be viable, there are merits in having a bank organised as a partnership. The stakes of the partners ensure they are providing higher quality services to their customers. While this might not directly affect loan and deposit rates in commercial banks, the other services might be improved and thereby higher fees might be charged. However, whether this leads to an increase in profits is debatable. Investment banks usually provide advice on transactions in a highly volatile environment, making it often difficult to judge the quality of advice received as the environment can change unpredictably. On the other hand, commercial banks will provide services such as payment facilitation, access to funding, and similar that are much easier to assess. In such a situation, the value of services is apparent to customers and the fee they can be charged can be close to the value it provides, giving banks high profits even if the quality of service is not very high. The fees of investment banks however, will take into account the uncertainty on their quality and to generate profits they will have to rely on the higher quality of services in general to generate profits. Thus the lower cost base of commercial banks due to lower capital held, should give shareholder-owned banks an advantage over partnerships. Given the uncertainty of the quality of investment banking advice, the higher quality might be needed to achieve profits and partnerships might be more profitable. In contrast to that, we could argue that training investment bankers is much more time-consuming and hence costly than training commercial bankers as the environment they operate in is much more stable and less aspects are to be considered. These higher costs of training employees in investment banks might make them less attractive for partners and could be behind their demise. The lower costs would make partnerships in this respect more viable in commercial banking. But then, given the lower level skills generally required, the benefits of having this training and being highly skilled might not be sufficient to maintain partnerships with high-calibre partners.

Model(s) used: Chs. 17.1, 17.2

Problem 84

Tomas Nagy has for a few years worked in his role as a credit analyst assessing the risks of borrowers of Antal Bank, a commercial bank. He has recently been hired by Horvath Bank, a leading investment bank, to fill a similar role in its underwriting division, which is newly expanding into bond underwriting. During his time at Antal Bank, Tomas Nagy had achieved two promotions and was considered highly skilled in his role. He worked closely with his head of department and they frequently exchanged views on the assessment of borrowers, but when making changes to the way credit risk was assessed, he had always to get approval from his head of department. Looking at the procedures that exist at Horvath Bank, he finds them to be deficient in many ways. Seeking a meeting with his team leader, his effective supervisor, he is briskly told to 'do it then, that's your job', and no further discussion

is entered into. He finds this surprising and very different to his experience at Antal Bank, where his suggestions would be scrutinised by his superiors and often dismissed or significantly amended, sometimes against his explicit wishes. Initially Tomas Nagy puts this approach of his team leader down to the fact that he is not much more experienced in corporate bond underwriting than him, having moved from equity underwriting into his new role just months before. In contrast, his superiors were vastly experienced with deep knowledge of credit risk assessment in theory and practice. On the one hand he enjoys the freedom to work on his own ideas at Horvath Bank, but is also concerned about the lack of checks and balances of his proposed approach.

How can you explain the differences in the management style between Antal Bank and Horvath Bank?

Indicative answer: *There is a significant mismatch in the expertise between Tomas Nagy's superiors at the two banks. At Antal Bank, they seem to be much more knowledgeable than him, while at Horvath Bank the knowledge seems to be much more comparable. Having much better expertise, managers at Antal Bank can improve the outcomes generated when imposing their own amendments to any suggested changes. This is not the case at Horvath Bank, his superior seems to have no higher expertise than him. Imposing a change that is not supported always carries the risk that staff will not be behind the new methodology and their implementation will not be taken forward as enthusiastically as if they were developed by the staff themselves. This imposes additional costs to the bank, either in the form of an incomplete introduction or the requirement to provide additional incentives to employees. Balancing these costs against the benefits of implementing the solution, Antal Bank clearly believes that the benefits of the higher level of expertise of the superiors will outweigh the costs, while at Horvath Bank this is not the case. Due to the lower difference in expertise, at Horvath Bank more decisions are delegated to individual staff members. Model(s) used: Ch. 18.2*

Problem 85

Siversky Bank, an investment bank specialising in companies in the defence industry, has lost a number of senior managers on the back of a few years making significant losses in proprietary trading operations and the subsequent lack of bonuses at higher levels. The departure of the most senior managers, who were all highly regarded in their areas of expertise, has also led to many less senior managers leaving the bank. With the injection of fresh capital, Siversky Bank has been able to hire a number of new senior managers, however, they are much less experienced overall and have less knowledge about the markets that Siversky Bank mainly operates in. One of the first tasks of the new management is to re-organise the bank's management structure. They replace the old system in which at all levels managers were highly involved in any decisions and deals, to one in which teams of employees work together with

clients and senior management does not interfere in the process. Many intermediate management positions are not being replaced in the process and the new senior management team sees itself as ambassadors of Siversky Bank and their role as that of acquiring new clients.

What might have caused this re-organisation of Siversky Bank?

Indicative answer: *The expertise of the old senior management made their contributions to client advice highly valuable, but the lack of experience by the new managers with the specific type of clients, would make their contributions much less valuable. It is even reasonable to suggest that the staff working with clients is more knowledgeable in these specific roles than senior managers. Therefore, excluding senior managers from client work will not reduce the quality of the work, but might give the more knowledgeable staff a greater say in the advice they provide to clients. This therefore will result in a flatter hierarchical structure as previously.*

Model(s) used: Ch. 18.1

Problem 86

Angeley Bank Ltd. is a new investment bank that has been set up by a small group of investment bankers from various leading investment banks. They have assembled teams of staff that have been selected carefully from the owners' previous roles and that largely share their outlook as they have been former or very recent mentors of the staff they hired. In the industry, Angeley Bank is very quickly highly regarded in their niche of advising clients in developing countries due the standing of their owners as well as the similar calibre of the more junior staff they could convince to join them. Despite their outstanding reputation from the start, the number of deals they advise on in the first months after setting up, is relatively low. At various stages of advising the few clients, the founders and other employees appointed to more senior positions at Angeley Bank are all involved in developing such advice. Having been carefully selected, junior staff respect senior managers and the founders highly, keen to learn from their suggestions and ideas to improve their own skills. Seeking to recruit more widely and expand their expertise, potential junior staff are reluctant to apply once they learn more about the way Angeley Bank operates.

Why is Angeley Bank less attractive to junior staff than other investment banks?

Indicative answer: *It seems that senior management is highly skilled and their suggestions is valuable when developing advice to clients, making their involvement beneficial. This is because they have the expertise in the narrow area of knowledge that is required in their market, which is in contrast to other investment banks. At most investment banks, senior management will lack the subject specific knowledge required to provide good advice to clients and hence their involvement will be much less beneficial. Granting more autonomy to junior staff is justified in those cases, but here a more centralised structure will be preferable. With the devotion of the current junior staff to senior managers, there will not be much reluctance to implement any*

suggestions they make, meaning there are virtually no conflicts of interest that would hamper implementation of advice not developed by junior staff. Additional hiring will be outside of the confines of staff having a close relationship with the existing management, meaning that they would feel reluctant to accept decisions that have been made by management. In most investment banks, for this reason, junior staff are given freedom to develop and implement their own advice. That this is not possible to the same extent at Angeley Bank, will make it less attractive to new staff members, unless additional rewards are offered.

Model(s) used: Chs. 18.1, 18.2

Problem 87

Walton plc. is a mid-sized investment bank that until recently enjoyed a good reputation in advising smaller companies in going public. Companies seeking their advice always liked the close involvement of a number of senior managers in the development of their IPO strategy. However, over time clients became less and less satisfied with the outcome of their IPO, often citing that the advice given by senior managers was not good and many have been recorded mentioning that more junior staff members were often overheard discussing alternatives that, in retrospect, would have been preferred. In receiving such feedback, Walton plc. changed their business practice and have since removed the active involvement of senior staff in most cases. Since then, the satisfaction of clients has increased. Staff were allocated into teams and great care was given to ensure that each team is balanced in terms of their expertise and the team leader is supposed to act as *primus-inter-pares* rather than a manager and this role should rotate regularly. There are, however, two teams that show consistently low satisfaction by clients. In both cases you find that the team leader takes a much more dominant position, imposing its suggestions on the team. It is generally accepted that the suggestions made by these two team leaders are slightly better than those developed in other teams, but the implementation of this advice is often lacking quality.

How can you explain this result?

Indicative answer: *The team leaders in these two units act as managers and having no superior ability, the reluctance of other team members to implement suggestions they disagree with, will reduce the performance overall. While the other teams do not face this problem, they have no implementation problem; this will give an overall better satisfaction of clients.*

Model(s) used: Ch. 18.2

Problem 88

Helen Sørberg is the CEO of Aften AB and about to embark on a major expansion through the planned acquisition of a few companies. To facilitate this process, she seeks to appoint an investment bank as advisor. During a board meeting to discuss this appointment, some board members suggest to use one of the largest investment banks as they must be the best, given that everyone uses them. On the other hand an alternative proposal is to appoint a small investment bank, ideally a small partnership, as they are always better because the owners themselves put their reputation on the line.

Which strategy of appointing an investment bank as advisor would be best?

Indicative answer: *It is true that partnerships typically show a higher degree of expertise than larger incorporated investment banks. However, we seek an investment bank to advise on a number of acquisitions and would thus have to ensure the investment bank chosen can cover the full range of our requirements. This is generally achieved by choosing an investment bank that generates the highest joint surplus across all acquisitions we are anticipating. Whether a small partnership has the capacity and requisite knowledge in all areas we require advice, needs to be evaluated.*

Model(s) used: Chs. 17.2, 20.2

Problem 89

Perot & Cie is a small investment bank specialising in advising companies operating in mechanical engineering, organised as a partnership. They find it increasingly difficult to identify suitable future partners of high calibre and bemoan the lack of quality in applicants they receive for entry positions. Larger investment banks do not report such problems. On discussing the attractiveness of their investment bank with newly recruited staff, Perot & Cie discover that the extremely high workload as partner is unattractive, especially the requirement to not only work on investment banking deals, but mentoring staff and general administrative responsibilities. At a meeting of partners it has been suggested to restructure the investment bank by introducing one or two additional layers of management and only mentor staff that have been promoted to such senior positions.

Would this proposed restructuring improve the recruitment of high-calibre staff at entry levels positions?

Indicative answer: *Partnerships thrive on the ability to be promoted to partner, providing an incentive to exert high levels of effort that allow partnerships to provide higher levels of expertise to clients than incorporated investment banks. Adding layers of additional management will slow the promotion of able junior staff and thus not make Perot & Cie more attractive, but would also negatively affect the effort exerted by junior staff. In addition, introducing additional management layers might*

affect the incentive of staff and the quality of advice provided. If management are less knowledgeable than those allocated to work on the deal directly, the quality of the advice provided might reduce, making the investment bank less attractive to clients. While the proposed changes to the organisational structure might relieve the workload of partners, it has negative side effects on the motivation of junior staff to exert effort and the quality of advice the investment bank provides to clients. These aspects need to be balanced against each other.

Model(s) used: Ch. 17.1, 18.1

Problem 90

During a discussion on employment rights, the discussion has drifted towards the level of compensation employees receive, especially in the financial services industry. Simon Baker, advocating the rights of manual workers, cites a study in which investment banking pay is highest for those working in mergers and acquisitions advisory as well as proprietary trading, while the lowest pay is in underwriting, when measured against the revenue generated. He uses this finding as evidence that pay in investment banks is heavily skewed in favour of those adding no value but just buying and selling companies, while value-enhancing roles are not rewarded accordingly.

How could a representative of the financial industry justify this difference in pay?

Indicative answer: *Proprietary trading as well as advice in mergers and acquisitions is a zero-sum game between investment banks. If a higher price is paid by one bank, or their clients, another investment bank reduces profits by having to pay a higher price, be it in proprietary trading or if the company advised by the investment bank is a bidder in a merger. As information and expertise in interpreting this information are a central element to generate profits, investment banks would not only lose that expertise if an employee takes up a position at a competitor, but would then also be in a worse position if that employee uses his expertise against his previous employer. To prevent such defections to competitors, investment banks pay high compensation. In contrast, in underwriting, no such situation arises. The expertise, if lost to another investment bank would result in a lower level of expertise at that investment bank, but it would not be used against them by their former employee. Therefore, these additional costs do not need to be considered when setting the compensation of their employees in underwriting, resulting in lower compensation.*

Model(s) used: Ch. 16.1

Problem 91

You observe that in recent years companies maintain a smaller number of relationships with investment banks. While previously it was common for larger companies to maintain relationships with 4 or 5 investment banks and using their services either concurrently or rotating the award of business between them, this has now reduced to 2 or 3 investment banks. An experienced investment banker tells you that over the last decades the rules on information disclosure have been tightened and generally the transparency of market as well as companies has improved significantly.

How can this statement explain your observation?

Indicative answer: *If information about companies and markets is more readily available, it is easier for investment banks that had no prior dealings with a company, to provide advice. They will not face as high costs as previously to collect and process information, which would be charged to their new client through increased fees or result in reduced profits for the investment bank. This implies that the costs of switching investment banks have reduced and companies do not require as many relationships with investment banks as the outside competition ensures that the currently used investment banks cannot exploit their informational advantage as much as this was possible previously.*

Model(s) used: Ch. 19

Problem 92

Conrad & Co have suffered substantial losses from their trading desk that have endangered the survival of the investment bank. They were eventually bought by a competitor to avoid its potential collapse. During a parliamentary inquiry into the circumstances of the demise of Conrad & Co, members of parliament are questioning Georgios Saragiannis as a representative of an investment banking lobby group. It is put to him that investment banks are taking excessive risks and that this is the result of a practice that gives high responsibilities to inexperienced staff, giving them high pay to incentivise them to take such risks, and generally providing very little oversight of their activities.

How would Georgios Saragiannis defend the practices of investment banks?

Indicative answer: *Investment banks rely in the expertise of their staff as they need to acquire and process a large amount of information to provide the best advice to clients and also trade on their own account. To acquire this expertise and exert the requisite effort, staff members need to be highly motivated and giving them responsibilities early on in their career, allows the investment bank to assess their abilities. Given the soft skills in analysing information, it is only when taking on responsibilities that their abilities can be assessed adequately. The high pay serves as a motivation to exert this effort and compensates for the high work load, stress, and long working hours. Investment banks generally have a flat organisational structure*

and decisions are made decentral. This is due to the nature of the business, where specific information is required in decision-making, any managers supervising staff would not have the same information and it would therefore be difficult for them to provide guidance and feedback. It is therefore that extended management structures and long decision-making processes do not exist and are not feasible.

Model(s) used: Chs. 16.1, 16.2, 18.1, 18.2

Problem 93

Salcombe Ltd. are looking at a listing on the stock exchange and seek to appoint an investment bank as advisor for this transaction. The CEO of Salcombe Ltd., Carl Salcombe, suggests to investigate only boutique investment banks as they are usually providing better advice. He links this to the fact that the senior management are commonly partners in the investment bank and as such have an inherent interest in providing high-quality advice. Furthermore, their small size makes it necessary for them to specialise in an specific area, such that their level of expertise will be more focussed than that of the larger bulge-bracket investment banks. His son, Simon Salcombe, is against this suggestion and argues to foremost consider larger investment banks as they are able to provide them with not only advice in the planned listing, but in most other future needs they might have.

Whose argument can you support?

Indicative answer: *It is true that boutique investment banks are often organised as partnerships and this provides incentives for a higher level of expertise due to the direct participation of partners in the profits generated, as well as the desire of associates to be promoted to partner. As noted, these investment banks are often specialising in a niche market while larger investment banks will cover the entire spectrum of services. If the future needs of Salcombe Ltd. are different to those currently, the chosen boutique investment bank might not be able to meet their needs and they would have to seek the services of another investment bank. This imposes switching costs on the company, such as the need to build a new relationship with a new investment banking team, proving additional information, or delayed decision-making by the investment bank as they are unfamiliar with the company. These costs have to be balanced against the better advice that might be provided for the current transaction.*

Model(s) used: Chs. 17.1, 17.2 19, 20.1

Problems sets for the Prologue and Epilogue

Problem 94

You work for an investment bank and at a family gathering get to sit next to your uncle, who has a very negative view of investment banks. After a few beers, he tells you that investment banks are simply money-making machines for those working there, extracting any money out of ordinary people and good manufacturing companies alike. They attract the most ruthless individuals that are only caring about making as much money as possible for themselves and to get this money they exploit that the average person knows very little about the financial world.

How would you politely try to counter his negative views of investment banks?

Indicative answer: While investment banks seek to make money for themselves and their employees, like any company, they are also providing valuable services to their clients, mainly in the form of advice. This advice will in the long-term benefit their companies and make them more competitive. While investment bankers know more than most people about such transactions, their ability to exploit this advantage for their own benefits is limited twofold. Firstly, before giving advice, contracts are drawn up with their client and this contract will specify the fees they charge. Over time practices have evolved that align the interests of investment banks and their clients; this means that only if the interests of clients are taken into account sufficiently, will the investment bank receive a high fee from their advice. Secondly, while investment bankers might be able to exploit the informational advantage they have, they rely on their reputation of giving good advice for future business. Therefore, investment banks would not provide poor advice only to make additional profits; their concern for reputational losses would limit their ability to exploit their clients' disadvantage.
Model(s) used: Prologue

Problem 95

A comment put to you as an investment banker at a recent meeting with old school friends was "Investment banks work for large companies and their shareholders, but the general public sees no benefits from their presence."

What would you have answered to counter this view?

Indicative answer: While in most cases investment banks are hired by large companies, the general public benefits nevertheless. Firstly they provide services from

which the general public benefit, such as brokerage services or asset management. But even where there are no direct benefits visible to the general public, the general public can take advantage of the work provided by investment banks, most significantly from the reduction in asymmetric information. Investment banks have a high level of expertise and while the information they gather is primarily produced for their client, the general public benefits as much of this information is made public. The aim of releasing information is to sell securities of a company, for example, but as a secondary effect, the general public become informed and based on that information might find it beneficial to invest into these securities. Without any such information, this beneficial investment might never have happened.

Model(s) used: Prologue

Problem 96

The government of Kampania seeks to promote competition in the economy in general and the financial sector specifically. To this effect it has established a working group addressing competition between investment banks. During the deliberations, it has been suggested that investment banks should be broken up along their business lines. The argument brought forward was that investment banks offer a number of different services that have very little common grounds and by breaking up investment banks, cross-selling these distinct services would be prevented, making clients more aware of alternative investment banks offering these services and thereby enhancing competition.

What arguments can be brought up against breaking up investment banks?

Indicative answer: *While the services investment banks offer are distinct and could stand on themselves, there are significant benefits from having the different business lines combined. On the one hand, it allows the re-use of information, preventing the high costs of collecting and analysing information about the client and client-specific aspects of the market. Re-using information in this way reduces costs to investment banks that would allow for lower fees to be charged, benefitting their clients. Furthermore, to provide advice, investment banks need access to information that is often only available through contacts with other clients, such as investors. These contacts are commonly established and maintained through other parts of the business, such as brokerage, financial engineering, or asset management. Should these links be broken, it will be difficult for investment banks to make use of this information source, for example when underwriting securities, reducing the quality of the advice given.*

Model(s) used: Prologue

Problem 97

“Talk with me” is a weekly talk show that seeks out controversial individuals and invites them for a moderated discussion of their opposing views. At times these discussions are very polemic, but other discussions are conducted at a high level of sophistication, using arguments soundly based in science or philosophy. The discussion in a recent edition of this show drifted towards investment banks. One participant in the discussion said that investment banks do not follow any ethical rules at all, they only care about making money at the expense of their clients and any other person affected by their actions.

Can you argue that this behaviour is ethical?

Indicative answer: *By saying that investment banks pursuing profits as their primary or only objective is unethical, the participant seeks to impose its ethical view on others. If investment banks subscribe to the teleological view of ethical behaviour, such as utilitarianism, their actions can be regarded as ethical. It is only once their motifs are questioned, for example using a deontological approach, their actions might be interpreted as unethical. It is however important to lead the discussion of ethical behaviour from a common approach to ethics, otherwise an action seen as unethical by one person might be seen as ethical by another person subscribing to a different ethical system.*

Model(s) used: Epilogue

Problem 98

During an interview with a newspaper, the retiring CEO of Volkert AB, a leading investment bank, is accused of exploiting his clients by charging them exorbitant fees that provide the investment bank with huge profits. In a flipping remark, he responds ‘If they agree to pay it, it must be worth it’. In comments appearing in the online edition of the newspaper, his reply is seen as an example for the unethical behaviour of investment banks.

Is the approach taken by the retiring CEO unethical?

Indicative answer: *This can be approached from a teleological point of view in that as long as both parties agree to it, we can assume that they are both better off from the transaction. Even if most of the benefits accrue to the investment bank, it suggests that the client is not worth off, making the agreement ethical. On the other hand, we might approach this from a rights and duties approach and argue that while the investment bank has a right to make profits, it also has a duty to provide a service that allows their client to make sufficient profits after paying the fee to the investment bank. Hence, whether the behaviour of investment banks is seen as ethical, will depend on the ethical framework applied.*

Model(s) used: Epilogue

Problem 99

'Our investment bank should focus on its traditional core business of corporate finance, which is also highly profitable, and not expand into other areas and provide additional services.' This statement comes from a non-executive board member of Banca Pezzoli SpA, a highly respected but small investment bank, during a meeting discussing the further development of their business strategy.

What arguments can be brought in favour of expanding into other business lines that many competitors already cover?

Indicative answer: *Clients often demand a wide range of services and will expect us to provide them with these and failing to offer all services might well lead to us losing such clients, reducing our client base and ultimately affecting profits. While other areas of investment banking might not be as profitable, it allows us to maintain valuable contacts with investors that could benefit our clients in the core business, apart from cross-selling opportunities, such as access to investors during book-building.*

Model(s) used: Prologue

Problem 100

After the financial crisis 2007/8, the blame for the spread of the initial failure of Lehman Brothers has been put on the widespread use of mortgage-backed security and derivatives on these. In an essay, a student analyses the financial crisis from the perspective of ethical behaviour. In the student's view, it was obvious that financial innovations have contributed to the fragility of the financial system. She acknowledges that these innovations, such as Collateralised Debt Obligations, met the demands by investors and issuers alike, but argues that their development and sale was nevertheless unethical.

What would be the argument in favour of this view?

Indicative answer: *Investment banks have the right to develop financial innovations that meet the demands of their clients and the clients have the right to use such financial innovations. But investment banks also have the duty to consider the stability of the financial system and as their financial innovations increased the risks to the financial system, it was a violation of their duties to make them available to their clients. It is for this reason that the development of these financial innovations was unethical.*

Model(s) used: Epilogue

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Theoretical Foundations of Investment Banking

This is an accompaniment to the textbook 'Theoretical Foundations of Investment Banking' by Andreas Krause, published with Springer Nature. It gives indicative answers to the problems sets used in that textbook and provides an overview of which problems can be solved with a given model or set of models.