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Capital structure

- It is conceivable that the way a company finances itself will affect its value. We will explore whether this is the case.
- Furthermore, we will see how the way a company finances its investments can reduce or increase moral hazard.
- The financing of companies can also provide information about the value of the compny or the investments it is making and to which companies have access, but investors do not.

Moral hazard and adverse selection

- Capital structure encompasses the decision on the financing of a company or specific investment
- The decision concerns whether additional funds are obtained from equity or a loan
- Such decisions are made by managers and their motivations are to maximize their own utility, not the company value (moral hazard)
- Managers might also have better information than outside shareholders or lenders about the company or the investment, which they might exploit (adverse selection)

Moral hazard and adverse selection

→ Markets are not perfect and investors are subjected to adverse selection and moral hazard; we will seek to explore how these affect the capital structure of companies.

- Capital structure decisions are about the decision how to finance investments of a company.
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  - Additional funds that are required can be raised either as equity (shares)
  - or in the form of a loan.
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  - Decisions about investments and their financing are not made by 'the company', but instead by managers.
  - Managers have their own motives and will seek to maximize the outcome for them, such as the remuneration they will receive.
  - Their objective often is not to maximize the company value, which is their role as they are appointed by shareholders for this purpose. This conflict of interest gives rise to moral hazard.
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  - Managers might also have better information about the prospects of the company than investors or lenders; this is due to their privileged access to information within the company.
  - Managers might exploit their informational advantage to their own advantage, which is called adverse selection.

→ We will see how capital structure decisions can help to alleviate these problems of moral hazard and adverse selection.

Conveying information

- While the company holds better information, this information cannot be reliably communicated as verification as difficult as obtaining the information itself
- Disclosing more information to investors might undermine a company's competitive position
- Companies might resort to indicators that can reliably convey the information
- The incentives must be such that positive information cannot be mimicked by companies holding negative information
- One way for companies to convey this information is through their choice of debt and equity to finance investments

Conveying information

→ We will see how decisions on using debt or equity can be used by companies to convey information about their assessment of the prospects of the company.

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  - A company or its managers, might hold superior information about the prospects of the company, but this information cannot be communicated effectively.
  - The information itself often cannot be made available, so any information given by managers cannot be verified.
- Disclosing the information itself on which the assessment of the prospects of the company is based, could benefit competitors as revealing their strong and weak points, but also future plans.
- As a way to communicate the information indirectly, they may resort to indicators which reliably relay this information. Such indicators can be used, even if the information itself cannot be disclosed as it only conveys the overall result of the information and not on what it is based.
- For such indicators to relay the information effectively, we need to ensure in particular that actions implying positive information cannot be easily copied by those holding negative information; there must be a cost to companies or managers in providing this wrong information.
- We will see that the choice of debt or equity can convey information effectively.

→ We will look at these aspects after having looked at the optimal capital structure in the absence of either moral hazard or adverse selection by focussing on the cost of capital.

Debt and equity costs

- Equity and debt are both sources of funds for companies, but as they attract different risks, their costs to companies are different
- With loan rates usually lower than stock returns, it suggests that loans are cheaper
- We could therefore expect debt to me more attractive than equity when financing companies
- Having lower financing costs with debt should increase the value of the firm

Debt and equity costs

- → Debt costs to companies are the loan rate the lender charges and the cost of equity will be the expected return on the equity as determined by an appropriate asset pricing model.
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    - Issuing shares and obtaining a loan can both be used to raise funds needed to make an investment, the investment outcome itself will be unaffected by the choice of financing.
    - However, the two funding sources expose the shareholders and lenders, respectively, to different risks and hence there will be different costs for the two funding sources.
- The loan rate is normally lower than the expected return of the equity, implying that loans are a cheaper form of finance than issuing equity.
- Therefore, we would expect loans to be more attractive to finance investments than raising equity.
- Finally, the lower loan costs and hence the lower overall costs, should increase the value of the company.
- → We will see why this simple assertion is not correct.

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The irrelevance of capital structure decisions

→ We will now show that in the absence of moral hazard and adverse selection, and other market distortions like taxes, the choice of funding does not affect the value of the company.

Financing choices do not matter

- The way a company is financed does not affect the value of companies
- While the cost of equity increases the more debt is taken on, the lower proportion of equity ensures the weighted average cost of capital remains constant

? Why are the equity costs increasing as the debt level rises?

! If the total investment remains constant, the total risk will remain the same; but this risk falls mainly on the equity holders, of which there are less and less, increasing their risk, for which they require compensation

Financing choices do not matter

- → We have thus seen that under idal circumstances, the capital structure does not matter.
- ▶ We have seen that how a company is financed, that is the combination of debt and equity, does not affect the value of the company.
- ▶ The cost of equity increases as the amount of debt increases, but the lower proportion of debt ensures that the overall costs of the finance choice remains constant.
- ▶ [?] Equity costs increase as the amount of debt increases, why is this the case?
- ▶ [!] Assuming the total amount needed for an investment is given, the total risk arising from the investment will not change, regardless of the financing choice. This risk is now divided between debt and equity. The main risk falls on the equity holder as the loan is repaid as fixed amount. The more debt there is, the more less equity there is; but the total amount of risk allocated to the equity remains the same. Thus the amount of risk per 'unit' of equity is increasing, necessitating a higher compensation for this higher risk.
- → We have thus established that in perfect market condition, the chosen capital structure does not affect the value of the company. We will now continmue to see how this result changes in the presence of moral hazard.

Delegated decision-making

- Decisions in companies are made by managers, not equity holders directly
- Managers have their own incentives to exert effort while managing companies
- We will see how financing decisions affect their choice of effort and then indirectly the value of the company

Delegated decision-making

→ In economics we often assume that companies make decisions, but in reality such decisions are delegated to managers acting on the company's (or the shareholders') behalf; this has the potential to lead to moral hazard in the decision-making of managers.

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  - Often it is assumed that the company makes decisions about investments or their financing; however, the decisions are not made by the company but managers making the decision in their name.
  - If the decisions were made by equity holders directly, then the assumption of the company making the decision would be a reasonable approximation as the interests would be aligned; the equity holders would seek to maximize the value of the company.
- However, managers will have their own objectives, based on the way they are remunerated and the costs they face when conducting their duties. One of the duties would be to exert efforts in managing the company, such as ensuring that the investments they have made are conducted successfully and generate high outcomes. Exerting such effort would be costly to managers as they could increase their utility by having a lower workload and/or lower working hours.
-
  - How much effort is exerted can be affected by the way a company is financed as we will see.
  - This effort, combined with the costs of financing, will then affect the value of the company.

→ We will now explore these aspects,a s well as the impact such decisions have on the risk companies are taken.

Moral hazard in capital structure decisions

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→ The presence of moral hazard will make the choice of funding investments relevant.

Effort and risk-taking are affected by debt levels

- Raising equity dilutes the equity stake of managers and reduces their incentives to exert effort, making debt preferable
- Due to limited liability, debt has also the property to induce managers to seek riskier investments if these are financed by debt

? Managers often only hold small stakes in large companies, is the dilution of profits a main concern for them?

! This statement is not true for smaller companies, but for larger companies the dilution might be the voting rights of positively inclined shareholders that allow managers to pursue their own agenda

Effort and risk-taking are affected by debt levels

→ We have seen that in the presence of moral hazard, the capital structure will affect the value of companies.

- If equity is raised, existing shareholders'/managers' stakes are reduced, which reduces their incentives to exert effort, which makes debt preferable to increase the value of the company.
- However, when increasing debt levels, this provides incentives to increase the risks the company is taking with investments; this arises from the limited losses in case the investment fails, while the profits from successful investments are accruing to the company fully.
- [?] In most companies, managers do not hold a large proportion of the shares, this mostly the case in small companies only; is the effect the dilution of their holding has still relevant in that case?
- [!] The dilution might not be directly for the stake of the managers, but affect those of shareholders backing the managers. It is usually a small number of larger shareholder that back the decisions of the management and managers might take the effect on their holding into account to retain their backing.

→ Moral hazard causes the capital structure of a company to affect its value and we will now see that the same is the case if adverse selection is a concern.

Adverse selection from raising equity

- Companies have a better knowledge of their own value due to having access to better information
- This can lead to adverse selection in that they can sell over-valued equity to raise funds
- We will see how companies seek to signal the high value of their company by using debt

Adverse selection from raising equity

→ Adverse selection is a concern between companies and their investors as companies are usually better informed about their own future than investors.

- Companies have access to information that investors and also lenders (banks) usually do not have access to; this makes them better informed about the future prospects of the company.
- This informational advantage of the company, or its managers, can be exploited as the company could seek to sell additional shares if these are over-valued. This causes adverse selection as investors are sold shares at a too high price, causing them to make a loss.
- Companies avoid this adverse selection by using debt to finance their investments.

→ We will now show that using debt is an optimal choice and allows investors to distinguish companies that are high-value from those that are low-value.


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Adverse selection and financing choices

→ We will now show in a model that the presence of adverse selection affects the choice of financing investments.

Using debt shows a company having a high value

- If the information asymmetry between companies and investors is not too extreme, using debt can convey a high value and using equity a low value of the company
- The choice of financing sources can convey information about the type of company

? If a company raises equity, does this always indicate it has no confidence in its own value?

! Lenders might not be willing to provide loans, not because they disagree with the assessment of the company, but they might have their own restrictions on risk-taking or reserve requirements

Using debt shows a company having a high value

→ We have seen that companies with a high value choose debt to finance investments.

- - As long as the adverse selection between companies is not too high or too low, high-value companies choose debt to finance new investments and low-value companies choose equity.
  -
- We can thus use the choice of debt or equity to finance new investments as a source of information that conveys us the value of the company as the company itself sees it.
- [?] Assume you see company raises equity for an investment, can you therefore automatically conclude that the company is negative about its future development?
- [!] It might not be the company that chooses to raise equity, they might not be able to obtain loans because banks are not willing to give loans. Even if they agree with the assessment of the company, there might be limits to their ability to grant any loans, for example limited deposits, capital requirements and similar constraints.

→ We thus see that the choice of debt or equity can reveal information about the company's own assessment of their future prospects.

Information about investments

- Companies are in a better position than outside investors to assess investments they are conducting
- This information can not easily be conveyed, but we will see how the use of high levels of debt signals confidence in their investment
- By using debt, companies can provide information to the market that cannot otherwise be provided credibly

Information about investments

→ The choice of funding can also convey information about the invest that the company seeks to finance with it.

- Companies are not only better positioned in assessing their current state compared to investors, but also the investments they are seeking to conduct
-
  - This information cannot easily be conveyed credibly,
  - but we will learn how thew choice of debt and equity can convey the information.
- Using high levels of debt to finance an investment, the company can convey its confidence in the prospects of the investment.

→ We will now develop a model to show how this information can be conveyed.

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Signalling through raising debt

→ We will see how raising a high level of debt will signal to the market that the companies believes in the investment to have a high outcome.

Using high debt levels to signal confidence

- Using a high level of debt a company can set itself apart from companies that would not be able to repay such debt due to them being of lower quality
- The incentive for this behaviour arises from the remuneration of managers, who consider the market assessment of an investment, and not only its true value

? Will taking on high levels of debt always signal confidence in the prospects of the company?

! Equity holders might not be willing to provide additional funds, it is more time consuming raising equity, and dilution of stakes by managers are also to be considered

Using high debt levels to signal confidence

→ High levels of debt shows that the company believes in the prospects of the investment

- Using a high level of debt allows the company to differentiate itself from other companies that are less confident in the prospects of their investments; the other companies would not take on such a high level of debt as they cost of doing so would be too high; instead they rely more on equity funding.
- Managers are rewarded for the market perception of the value of the investment, not its actual value, this gives incentives to misrepresent the true value of the investment; however, the loss from the default of a low-performing investment limits the ability to misrepresent their own assessment of the investment.
- [?] If a company is highly leveraged, will that always mean they believe in their own prospects?
- [!] The model assumes that shareholders are always willing to provide additional funds, but this might not be the case. Raising equity is time consuming and dilutes the stake of investors not wishing to participate in the share offering, for example for reason of portfolio selection. Hence the reason to use debt might be in the unavailability of equity.

→ High levels of debt usually signal to the market that the company is assessing the investment as generating a high value.

Summary

- Using debt has the property of accumulating the surplus with a small number of equity holders
- This induces managers to exert high efforts to increase the surplus accumulating for them, but it also signals confidence in the prospects of the company

? Is taking on debt always positive for equity holders?

! Companies are also becoming more risky with higher leverage as the volatility of equity increases, but also the shifting towards more risky investments, offsetting some positive aspects

Summary

→ We can now summarize the key results we have obtained about capital structure decisions.

- Using debt has the advantage that any surplus from investments accrues to the small number of equity holders, increasing their profits, while losses are limited; this makes debt attractive to companies performing well.
-
  - Managers will exert high effort levels to ensure the surplus is actually realised.
  - It also signals confidence in their investments as high levels of debt require large interest payments and the company faces the threat of bankruptcy.
- [?] A simple conclusion could be that taking on more debt is always a positive decision.
- [!] It has to be considered that companies with higher debt levels are also having an incentive to choose more risky investments, which will offset some of the positive aspects. Thus a balance needs to be found between the competing aspects.

→ We have seen that high levels of debt can be interpreted as a sign of confidence in the future prospects of the company. However, it can also signal a company in distress that is unable to raise additional equity and relies on loans to maintain operations.

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