

Transparency

~ The influence of transparency of the financial statements of private equity funds ~

~ **The Eurozone** ~

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Executive summary

This master thesis will cover financial statement transparency and its influence on firms. To be more specific it will be researched whether the financial statement transparency of private equity funds influences target firms.

The allocation of savings to investments is said to be a challenge. Due to information asymmetries it can be difficult for firms to obtain funds. Firms that opt for private equity funding are on the whole companies which cannot attain funding on the regular lending market. These firms are considered a risk to regular lending institutions.

Private equity funds are funds who invest in high risk companies. Companies that burst of potential but cannot obtain regular funding. Private equity funds invest in these companies; they often take public companies private. Depending on the stake they acquire, they manage the company and in return expect a profit when the company is declared profitable and ready to be taken public again.

As mentioned above the optimal distribution of savings to investment opportunities can be a struggle in any economy. Financial statements can serve as an information tool, they can solve for information asymmetries between the firm and outside parties. Nevertheless it is important that this information is of a high standard, such that it is usable for its users.

This master thesis has established financial statement transparency as the quantity of financial statement items published by the firm. Thus if a firm, even though it is not required to do so, voluntarily publishes more information it is said to signal high quality.

However one might wonder in the competitive private equity market, where companies struggle to gain funds, if target companies also screen their potential investors. Private equity investors have long had a shady image; known for their involvement in hostile takeovers and splitting up companies. One might question whether companies seeking private equity also select private equity funds on the base of the transparency of their financial statements.

Two scenarios can be sketched; firms are either in such a desperate need to obtain funds, they will accept each form of funding and will thus not regard the financial statement transparency of a private equity fund. The second scenario might be that firms are hesitant towards the intentions of the private equity fund and will closely inspect the financial statements of the private equity fund.

The research question of this master thesis is thus: Do European target firms take the financial statement transparency of European private equity funds into account when seeking for funds?

It has been opted to only research the Eurozone from 2004 until 2008, since the influence of judiciary, regulatory inflictions and exchange rate fluctuations can be averted as such.

In order to research the financial statement transparency of private equity funds a disclosure index is built. The index compares the number of pre-identified items to the financial statement items of the private equity fund. Even though research has indicated that transparency does not merely depend on the quantity of items reported by the firms, it is the clearest way to do so. The debt level of the target firm is measured by means of the debt variables used by Aggarwal and Aung Kyaw (2009). It has been opted to incorporate these debt variables because they represent the capital structure of the firm, which is deemed important to the firm. It is assumed that different leverage levels of firms represent different needs for financial statement transparency.

A panel data regression is run in order to research whether the financial statement transparency of private equity funds influences target firms. The results are not significant, indicating that target firms are not influenced by the financial statement transparency of the private equity fund in their decision to apply for private equity funding. Although a slight effect of the financial crisis can be seen.

Even though target firms might not be affected by the financial statement transparency of the private equity fund, there have been cries for more private equity transparency. The European Commission has bowed itself over a new directive for more private equity fund transparency.

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1. Introduction

The optimal allocation of savings to investment opportunities can be a challenge to any economy. Traditionally the lack of information explains the difficulty of finding funds for solid investment opportunities. Financial statements can be used as a tool to solve for information asymmetries between the firm and outside parties. However it is important that the quality of the financial statement is of a high standard. The quality of the financial statements differs between public and private firms.

In this master thesis the quality of financial statements is resembled through the transparency of the financial statements. Transparency is defined as the accessibility of firm specific information to outside parties. Even though it is never possible to fully solve for the information asymmetry, it is assumed that through providing more financial information, the information asymmetries that undermine certain investment opportunities may be decreased. Therefore through supplying high quality financial statements, business opportunities can be fairly valued by the market and the allocation of funds becomes more efficient.

The private equity market especially can be characterized by high agency and information problems¹ (Lerner 1995, and Klausner and Litvak 2005). Private equity investors require sufficient insight in a company's financial statement before deciding on their potential investment. In contrast, target firms² are often unaware of the activities of the private equity funds. Not all private equity funds disclose their investors, their current activities or their strategy. On occasion they do not provide any financial information. This is especially the case for United States private equity funds. Target firms might, therefore, be unaware of the intentions of the private equity fund, which could lead to unwanted outcomes. These outcomes could be that the target firm is split into pieces and sold off, or management is replaced and so on.

Evidently this leads to a demand for higher financial statement quality by both private equity funds and target firms and thus a demand for more financial information. Due to the fact that the demand by private equity funds for more financial statement transparency has yet been researched, this master thesis will focus on the demand for financial statement transparency by target firms.

¹ Definitions will be explained in the section "financial disclosure transparency"

² Firms that are targeted by private equity funds

Private equity funds have received tremendous attention in the past decade. Opponents accuse private equity investors of greed, stating that they are only after short-term profits and strip companies of their assets. Proponents of private equity state that these investments create firm value and offer investment opportunities to start-up businesses. Moreover the involvement of private equity investors in public companies initiates a larger concentration amongst shareholders. This solves part of the agency problem, which assumes that shareholders are not concerned in monitoring the firm when their stake in the firm is small. This concentration among shareholders might possibly even enable shareholder activism.

Beuselinck, Deloof and Manigart (2008) have already researched the role of disclosure around private equity participation. Moreover in a different paper they find that the influence of financial statements of private equity backed companies has a positive influence on earnings quality. Both papers will be discussed in the chapter “financial disclosure transparency”.

Beuselinck, Deloof and Manigart (2008, 2009) use financial statements and voluntary disclosure to establish an estimator that solves for the demand for high quality financial information.

These papers and several others that discuss private equity all research the influence of private equity investments on target companies; however private equity funds themselves have not been thoroughly investigated yet. To be precise the transparency of the financial statements of private equity funds has never been investigated.

It is hypothesized by Beuselinck, Deloof and Manigart (2009) that, through voluntarily disclosing financial statements, companies signal high quality. However one might wonder in the competitive private equity market, where companies struggle to gain funds, if target companies also screen their potential investors. Private equity investors have long had a shady image; known for their involvement in hostile takeovers and splitting up companies. One might question whether companies seeking private equity also select private equity funds on the base of the transparency of their financial statements.

Two independent scenarios can be drawn as to whether target firms screen the financial statements of the private equity fund. First off, the target firm could be in desperate need of funds. The investment could be necessary to either further develop a product or to expand certain production lines. Banks set high criteria for firms requiring a loan. Firms could have

sought retreat to private equity funds. Simply, begging the private equity fund for financing without incorporating the consequences of private equity financing. However it might also be very well possible that a target firm does screen the financial statements of the private equity firm. The target firm might screen all possible investment partners in order to find its most compatible match.

In seeking a reliable investment partner, financial statements could be an indicator of the risks involved for the company looking for capital. Depending on the type of company, different levels of quality in the financial statements might be acceptable for a company in desperate need of funds. The research question of this master thesis is thus: Do European target firms take the financial statement transparency of European private equity funds into account when seeking for funds?

This research will focus on European target companies that have been subject to the influence of European private equity in the period of 2004-2008. Even though many effects of private equity financing have been researched, it has not been researched so far whether target firms are influenced by the financial statement transparency of private equity funds. In order to research the effect optimally and to prove if European target firms are affected or are not affected by the financial statement transparency of European private equity funds, the geographical area “the Eurozone” is selected. The original Eurozone³ was opted for, because the influence of judiciary, regulatory inflictions and exchange rate fluctuations can be prevented as such. All countries are under the European code of law and have had a common currency since 2002.

To compile a list of private equity events, searches will be performed in databases providing information on private equity events (Zephyr). To measure the financial statement transparency of private equity funds, a disclosure index will be constructed. This index will be composed out of a number of financial statement and informational items.

In order to estimate whether firms are in desperate need of funds, the debt level of target firms will be studied. This will be according to the debt variables used to analyze the capital structure of firms set by Aggarwal and Aung Kyaw (2009). This paper researches the impact of national transparency regimes on corporate capital structures. They state that the leverage

³ Eurozone countries are: Austria, Belgium, Cyprus, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, The Netherlands, Portugal, Slovenia and Spain.

structure of firms is affected by transparency. Aggarwal and Aung Kyaw (2009) estimate the determinants of the corporate capital structure to conduct their research. Since we assume that different leverage levels of firms represent different needs for financial statement transparency, we use the debt variables of Aggarwal and Aung Kyaw (2009).

Finally the model is estimated through running a panel data regression, which estimates the relationship between the debt level of target firms and the financial statement transparency of private equity funds over time. A number of interaction variables are included in the model, to account for the possibility that the effect of transparency changed over the time period. The regressions and composition of the variables will be explained in the chapter “model”.

It is assumed that private equity funds with low financial transparency will attract high debt level firms, this because it is potentially difficult for these firms to raise funds in the capital market. These target firms thus accept the low quality of financial statements of private equity funds, to obtain funds. These high debt level firms approach private equity funds with lower levels of transparency from whom they are less aware of their intentions and are therefore exposed to a riskier environment. Firms with low debt levels will find it easier to obtain capital market funds and will thus refrain from approaching the more risky private equity funds.

The remainder of this master thesis is organized as follows. In chapter 2 private equity funds will be discussed in detail. Chapter 3 will elaborate on financial statement transparency and the consequences to companies. It will discuss why transparency is important to overcome information and agency asymmetries, as well as discussing the link between the cost of capital and earnings quality to financial statement transparency. More importantly it will discuss research that has already been carried out in with regard to private equity transactions.

Chapter 4 will present the model. The disclosure index that is set up to measure the transparency of financial statements is discussed; furthermore the debt variables and finally the panel data model are presented. The research model, the methodology of the used model and the results of the analysis will be discussed in chapter 5. Chapter 6 will provide an analysis on our research and research carried by others. Finally, chapter 7 will provide the conclusion.

2. Private equity funds

2.1 Introduction

This chapter will provide a short overview on private equity funds. It will present the different forms of private equity, the characteristics, activities, goals and fund reporting of private equity funds.

Private equity funds provide funds to among others start-up companies, firms facing high R&D costs or for management buyouts, corporate restructurings and leveraged buyouts. Private equity investors attain detailed knowledge of their target firms, which is why they can provide financing to young businesses that otherwise would not receive external funds. The target firms are researched extensively in order to estimate the returns that can be obtained through providing finance. It has been found that on average, of each 100 firms applying for funds from private equity investors, 10 companies actually receive funds. (Beuselinck, Deloof and Manigart, 2008). Competition is thus fierce; firms compete heavily to obtain funds.

2.2 Types of private equity funds

Fenn et al. (1995) identified four types of private equity markets: Organized, angel, informal and Rule 144A private equity markets. First off, the organized private equity market is the market where professionally managed equity investments and unregistered securities of private and public companies are traded. Organized private equity investors are specialized intermediaries who provide monitoring and advice to the portfolio company⁴. Second, Angel market capitalists make small investments in closely held companies by wealthy individuals. Moreover they do provide monitoring but not as actively as organized private equity investors. In addition they usually do not exercise power, such as organized private equity investors. Third, at the informal market unregistered securities are traded which are sold to institutional investors and accredited individuals. Finally, at the Rule 144A private equity market, private securities are freely sold amongst certain classes of institutional traders. The 144A rule was installed by the Securities and Exchange Commission⁵.

This master thesis will refer to organized private equity investors when private equity is discussed. This because this master thesis will discuss the consequences of the investments made by private equity investors to public and private companies.

⁴ Companies with either current or previous private equity ownership

⁵ Specific for United States

2.3 The characteristics of private equity funds

Private equity funds are not a recent phenomenon; they have existed since the 1970's and dominated the business environment since the 2000's. Policymakers have often feared private equity funds stating that these funds are only after short-term profits. The impact of private equity investments, according to policymakers, on long term R&D investment, new technology, employment and working conditions, investor protection and systemic risks to the stability of the financial market is substantial.

However McCahery and Vermeulen (2007) argue that the advantages offered by private equity funds will stimulate long-term wealth creation. The advantages of taking a firm private namely, cost reduction and operational efficiency, outweigh the potential loss of liquidity in the equity markets. Many others point out that the increase in efficiency is caused by the transfer of effective control to a team of specialists initiated by private equity funds.

Private equity funds are primarily after firms where medium-term value can be created through reconstruction and refinancing. Private equity investors acquire stakes in firms, which are intended to be sold for profit after a certain time period. On average the private equity fund sells its stake after three to five years⁶. The control that private equity investors can exercise on a target firm's management and the value a private equity fund adds to the target firms depends on the size of the stake a private equity fund purchases.

2.4 Goals of private equity funds

As mentioned organized private equity funds primarily invest in unregistered securities. However these funds also take public firms private through private equity buy-outs. Fidrmuc, Roosenboom and Van Dijk (2007) find that UK private equity funds are above all interested in undervalued firms and synergy possibilities. Private equity funds invest in undervalued firms, simply because they believe the firm is worth more. These undervalued firms are often the subject of poor management, who impede the growth opportunities of the firms. Through improving efficiency and providing better management, private equity funds can gain enormous profits. It is estimated by analysts that the industry norm is to obtain a 20 percent increase in the value of the portfolio firm.

Next to undervalued firms, synergy possibilities are the most important reason to invest. Private equity investors search for synergies between firms and the private equity funds'

⁶ McCahery and Vermeulen (2007)

portfolio firms. This way the target firm and the portfolio firm cooperate advantageously for a profitable outcome.

It can thus be stated that it is the premier goal of private equity investors to add value to their portfolio firms.

2.5 Value creation through private equity funds

On the whole the value of companies rises exponential after the investment of a private equity fund (Armstrong, Davilla and Foster 2006). Private equity funds rarely have information on the cause of the changes in the stock price of the portfolio company, since the portfolio company is not publicly traded. The valuation of a private equity backed company's stock is therefore difficult. Hand (2005) and Armstrong, Davila and Foster (2006) are the first to research the relationship between financial and non-financial statement information and private equity value.

Hand (2005) observed valuation changes, induced between successive rounds of private financing. He found that the equity returns between financing rounds are positively related to book-to-market ratios. Financial statements do prove relevant in the venture capital sector. However, Hand (2005) only investigates a specific sector in the venture capital market, which is a specific subsector of the private equity market on which this master thesis will not elaborate. Therefore Hand's conclusion might not hold for the entire sector.

Armstrong, Davila and Foster (2006) do calculate the valuation changes of the portfolio firm through the change in valuation caused by the sequence of private equity investments. They argue that private equity funds play a value enhancing role to the portfolio company. Evidence is found that financial statement information clarifies the portfolio companies' valuation changes in the pre- and post- private equity period. Armstrong, Davila and Foster (2006) base their research on equity market valuation and three sets of financial information; financial statement, non-financial statement information and capital market information. The researchers estimate that financial and non-financial statement information has a role in equity valuation. Capital market information is included, because it has been proven to be a significant variable in prior research. Overall it is found that financial statement information explains the differences in the value of portfolio companies before and after the private equity investment.

2.6 Fund reporting

Recently, the debate regarding private equity regulation has been lit again. The European Commission has set its first steps towards more supervision on private equity funds. The Commission states that the financial crisis of 2007 has shown the impact of private equity funds. In several public debates the European Commission has expressed its concerns on the impact of private equity on financial stability. Private equity funds are considered a part of the systemic risk that affects a country's financial system.

Especially during and after the recent financial crisis of 2007, private equity funds have been accused of acting in a pro-cyclical⁷ way, exacerbating the financial stability problems. Recent leveraged buyout activities undertaken by private equity funds resemble and reinforce the downturn of the subprime mortgage market. Moreover it has been said that there has been no learning curve with respect to the over-leveraging of companies, the extreme use of debt and greedy executive fee structures.⁸ According to the European Commission, these problems ask for stricter regulation of private equity funds and the financial crisis stimulated and accelerated need for this private equity fund regulation.

Private equity funds have been enfolded in mystery since their existence. There are hardly any documents which officially document a fund's investors. Nor is it known whether investors are wealthy private investors or public institutions. Private equity funds are not obliged to publicize their investors, nor do they intend to. Regulation varies especially in the United States. Several states maintain different open record laws regarding regulation on private equity information disclosure. Private equity fund managers in response to differing regulations consider various strategies to avoid public disclosure of sensitive private equity fund data by their public investors. They, among others, contact each investor to strategize on how public disclosure of sensitive data can be prevented. Moreover fund managers constantly re-evaluate which types of information should or should not be disclosed and the way the information should be disseminated.

Fund reporting can be differentiated in statutory and additional reporting. In theory it is mandatory for private equity funds to report the balance sheet, a profit and loss statement, statement of changes in equity, a cash flow statement and additional notes. Private equity funds are however not required to report to fund investors. In case they do report to their

⁷ Managers liquidate assets in reaction to a fall in the value of the investment.

⁸ Poul Nyrup Rasmussen, 2009, Commission conference on private equity and hedge funds

investors, it is seen as additional information and is purely meant to fulfill the investors' specific information needs.

Even though it is necessitated that private equity funds report and in some cases publish these constituent parts, they have no desire to provide any additional information regarding their investments or their profitability.

In essence it is not completely clear, what types of financial statement information private equity funds have to publish. Private equity funds frequently refer to the rules to ensure that they are not obliged to publish information. The IFRS reporting guidelines, IFRS for small and medium sized entities, concern accounting standards for private companies and firms who cannot be held publicly accountable. These "no public accountability" firms are financial institutions⁹. However the definition of financial institutions does not beheld private equity funds. It is often a possibility to view them as, indicated by the fourth European company law directive¹⁰, small/medium sized companies. European private equity funds frequently satisfy two of the three "small/medium firm" criteria, on account that the fund is permitted to supply limited financial information. These criteria were set in the fourth European company law directive, which states that a firm is categorized as a small firm, when it satisfies at least two out of the three following criteria:

- Balance sheet total: EUR 4 400 000;
- Net turnover: EUR 8 800 000;
- Number of employees: 50.

A firm is stated to be a medium sized firm when it satisfies two out of the following three criteria:

- Balance sheet total: EUR 17 500 000;
- Net turnover: EUR 35 000 000;
- Number of employees: 250.

⁹ Rien van Hoepen, 2007, Beperkte aansprakelijkheid en openbaarheid

¹⁰ European Commission, Fourth Council Directive [78/660/EEC](#)

The right to enlighten the obligation of publication of the annual accounts is granted to the member states¹¹. Moreover they may dispense small companies from the requirement to defer auditing of the annual accounts.

In order to reduce the number of information requests by third parties, industry associations for private equity have developed guidelines for private equity funds, to generate a more complete picture to investors. These guidelines set out detailed recommendations for private equity funds outlining content and how the content should be disclosed to investors. The guidelines are intended to prosper the relationship between private equity funds, their investors and the public eye. These guidelines are intended ensure confidence and trust amongst all parties. At best however, guidelines present best practice, but also aspire increasing regulation and pre-empting regulation. In order to ensure transparency the European Commission has proposed and insisted on guidelines for all fund managers.

Private equity funds feel that if confidential information is made public, it will mark the beginning of a slippery slope. Disclosure of information regarding investments and portfolio companies could have an adverse effect on the portfolio companies. Moreover identifying the strategy of private equity funds could result in a serious competitive disadvantage.

Nevertheless steps to introduce new private equity regulation seem to have reached a point of no return. All fund managers are urged to record and submit key information. The amount of information and the rules to be complied will be scaled to the size of the private equity fund size and their incurred risk.

Accordingly, the European Commission proposes legislation that is based on two guiding principles. The first guideline indicates that a secure and harmonized EU framework needs to be set up, one that supervises the risks that private equity funds pose to their investors, counterparties, other financial market participants and to financial stability. Managers of private equity funds will have to reveal information on borrowing to regulators and inform authorities about the markets and assets they aim to invest in. The second guideline is a permit that needs to be obtained in order for private equity funds to provide services and to market their funds across the European internal market. This permit entails that managers of private equity funds register with their home member state authorities.

¹¹ An overview on national publication rules can be found in appendix C.

The European Commission hopes to prevent a compilation of risks that could potentially destabilize financial stability.

The proposed guidelines have stumbled on a lot of resistance. The guidelines are deemed a form of protection; moreover policy makers fear that private equity funds will trade in the European Union for Asia, the Middle East or Switzerland, where regulations do not require funds to disclose sensitive information. In addition it will be a large set back to the United Kingdom as most large European private equity funds are located in the United Kingdom. In case the funds do leave it will mean a great loss to one of Britain's most prospering financial industries.

Despite all the plans of the European Commission and the guidelines from the private equity industry associations, at the moment the proposed stricter guidelines for private equity funds are not in place. Funds are still subject to national regulation and reporting which is very limited as mentioned before. The current situation allows a measure of transparency based on the basic information in financial statements, because funds can abstain from providing this information.

In chapter 5 a disclosure index is created, to measure private equity fund transparency. Numerous financial statement items and informational items are taken up, in order to measure financial transparency. The financial statement items that are included are selected on base of the requirements set by the European Commission in the Fourth Directive and IFRS guidelines.

Overall it is assumed that private equity funds report these constituent parts, nevertheless in many cases there are no data available. This is either because the funds were able to legally circumnavigate the publication of their annual accounts or because they did not supply the necessary financial documents. Research carried out by BDO accountants shows that medium sized companies often do not follow the member state guidelines with regard to the publication of the annual accounts. Medium sized companies often neglect to file the financial reports to the chamber of commerce on time. In addition, they frequently fail to draw up a cash flow statement or to report executive compensation.¹² As will be further elaborated on below, private equity funds in particular do not have any incentive to reveal financial information. Therefore the disclosure index constitutes for a great part of financial statement

¹² BDO: Veel middelgrote bedrijven mijden regels publicatie jaarrekening (2008)

items. The basic constitution of the disclosure index is that a fund that voluntarily provides financial information, even though it is not required by the member state it reports to, is transparent. The disclosure items identified to measure financial transparency will be discussed in chapter 5.

2.7 Conclusion

This chapter has attempted to explain the several aspects of private equity. It has discussed the different forms of private equity; Organized, angel, informal and Rule 144A private equity markets. The differences between the forms of private equity have been explained. Secondly, the views expressed by both the opponents and proponents of private equity funds were discussed. Opponents state that private equity can be detrimental to welfare, due to the fact that private equity funds often do not take the well being of employees or working conditions into account, nor do they consider long term R&D investment, new technology and so on. Proponents state that private equity funds contribute to cost reduction and operational efficiency. Though, this is purely seen from a capital market perspective.

Overall private equity investors are medium-term investors who strive to add maximum value to their portfolio companies. However the increase in value of the portfolio company appeared to be difficult to measure. Armstrong, Davila and Foster (2006) found evidence that the financial information of the portfolio company and capital market information explained the increase in valuation. It is important that this financial information is transparent in order to correctly estimate the increase in value. The last chapter discussed the regulations and guidelines regarding private equity fund reporting. Even though it is mandatory for private equity funds to report financial statement parts, data are often not available.

The next chapter will discuss the transparency of financial statements and their influence on the cost of capital and earnings quality.

3. Financial statement transparency

3.1 Introduction

This chapter will deal with transparency of financial statements. It will first provide a more general definition of transparency of financial statements. Bushman, Piotroski and Smith (2004) define transparency as corporate transparency, which in turn can be subdivided into financial and governance transparency. Financial statement transparency, in particular, influences a number of factors, such as; the cost of capital of firms and earnings quality. The first section will provide a brief overview on the paper of Bushman, Piotroski and Smith (2004) and the point of views of others regarding the transparency of disclosures. Bushman, Piotroski and Smith (2004) have specifically researched the effect of transparency in an accounting regulation setting, where the focus lies on the transparency of the financial disclosures for outside users. This makes it extensively useful for our research, since we want to focus on the transparency of financial statements of private equity funds.

This master thesis though will only concentrate on financial transparency. Due to the fact that to us it is merely important how the information by the private equity fund is perceived by third parties.

Increased financial information is especially important in the private equity market because it may reduce information asymmetries between private equity seeking firms and private equity funds. Hence serve to reduce the average cost of capital and enhance firm investment and growth. This chapter will not elaborate on this topic, because a rather extensive overview is provided by Botosan (2006).

Sections 6.3 and 6.4 will discuss the influence of financial transparency on the cost of capital and earnings quality. The last section will provide a small conclusion on this chapter. An overview of the literature presented in this chapter is captured in a table in appendix A.

3.2 Transparency

Bushman, Piotroski and Smith (2004) define transparency as corporate transparency, which is best described as the availability of firm specific information to those outside publicly traded firms. Most of the research conducted on transparency has been within the fields of economics and finance. This research has been conducted on the resource allocation decisions

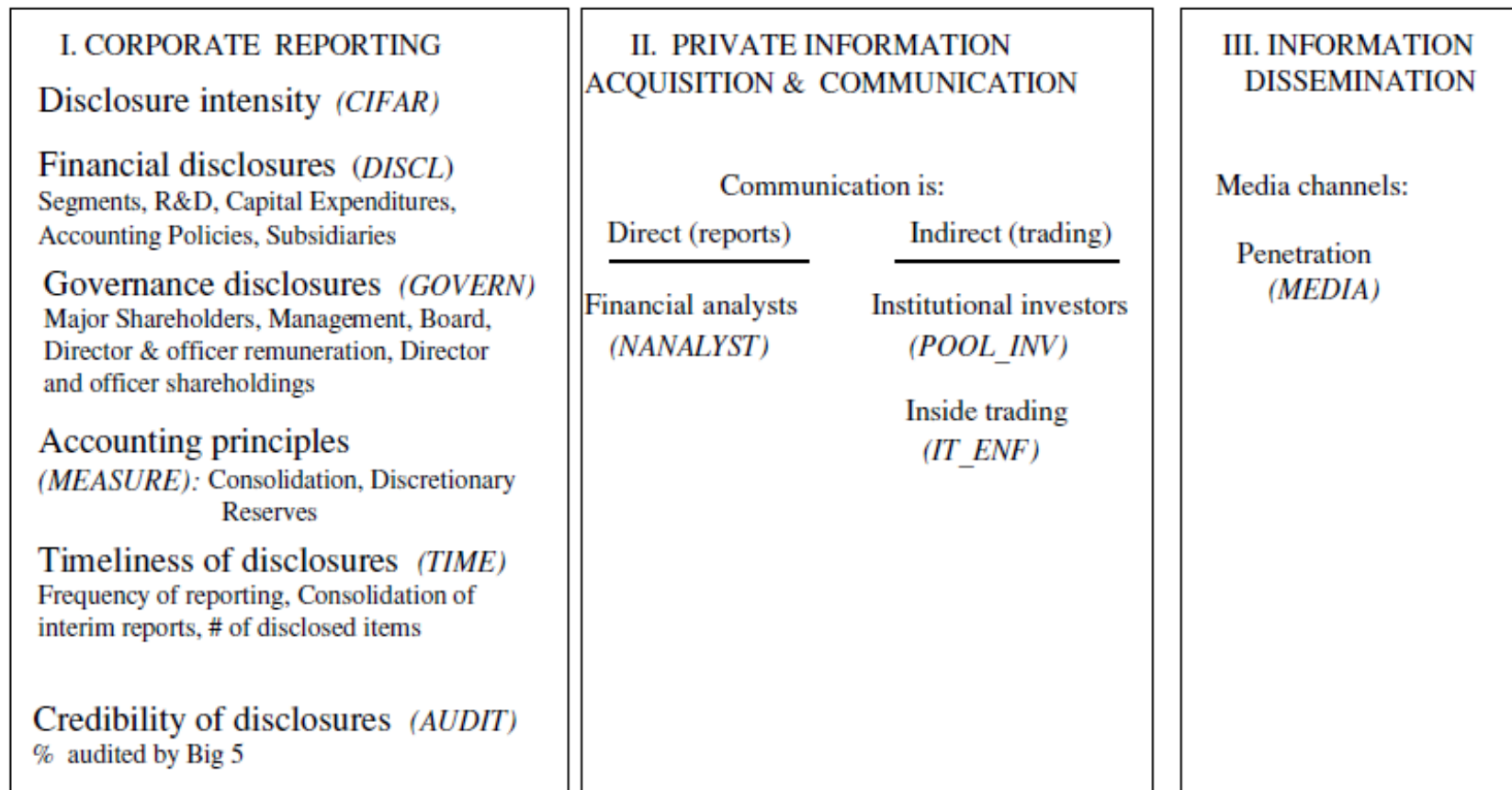
and growth of an economy. The literature within the areas of economics and finance mostly focuses on the development, growth and efficiency of the business environment institutionalized due to transparency. In the field of accounting, the literature concentrates on the timeliness and the intensity of financial disclosures. Moreover an important focus lies on the transparency of the financial disclosures for outside users.

As mentioned above Bushman, Piotroski and Smith (2004) define corporate transparency as the accessibility of corporate information to users of financial statements. The authors categorize corporate transparency into financial and governance transparency. Financial transparency captures the interpretation and dissemination of financial information by analysts and the media. Governance transparency is defined as the intensity of governance disclosures used by hold officers, outside investors and directors accountable.

In order to conceptualize corporate transparency Bushman, Piotroski and Smith (2004) have created a framework that measures information systems that add to corporate transparency. The researchers cross-sectionally research countries, to identify why financial information varies across countries.

Information systems are subcategorized into three sections: the corporate reporting regime, the intensity of private information acquisition and information dissemination. The framework measures the components of the information system that jointly produce, gather, authenticate and diffuse information to users of financial disclosures outside the firm. Figure 1 represents an overview of the components of corporate transparency as determined by Bushman, Piotroski and Smith (2004).

Figure 3.1: Three determinants of corporate transparency



Source: Bushman, Piotroski and Smith (2004)

The first section of the framework by Bushman, Piotroski and Smith (2004) resembles previous research conducted by Healy and Palepu (2001). They provide a framework for analyzing, reporting and disclosure decisions of managers in a capital markets setting. Healy and Palepu (2001) distinguish between agency and information asymmetry problems.

Information asymmetries are due to the information differences and conflicting incentives between companies and savers. The information asymmetry arises because entrepreneurs have better information on the value of business opportunities than savers and tend to overvalue their business opportunities. It will therefore be difficult for savers to estimate the value of business opportunities.

Agency asymmetries exist because of the neglect of savers to perform an active role in the management of the company. In turn entrepreneurs have an incentive to expropriate the savings of savers; an agency problem is thus created.

A proposed solution to both asymmetry problems would be to disclose relevant information that will assist savers in monitoring the company's management.

The former reflects the need for additional corporate information and financial disclosure transparency. The importance of high-quality, verifiable information in contract design has long been emphasized in preventing information and agency related problems. Moreover high quality information can be inferred as more transparent financial statements.

The willingness of outside investors to provide capital depends on the protection of their contractual rights. It is expected by Bushman, Piotroski and Smith (2004) that the demand for financial and governance transparency is high in regimes where investors' rights are not sufficiently protected.

The second section of the framework, the intensity of private information acquisition, by Bushman, Piotroski and Smith (2004) is based on the importance of information gathering in an economy. The section measures the relationship between public information disclosure and the private information gathering and processing activities of investors. The last section of the framework is information dissemination. The latter is included due to the fact that a poor-developed information system may obstruct the flow of information reported by firms and thus restricting the availability of information to agents.

Much literature has been dedicated to the subject of shareholder protection rights. The papers by La Porta et al. (1997-2001), Beck Demirguc-Kunt and Levine (2002, 2003) examined the effects of different legal families on shareholder rights and activism. Bushman, Piotroski and Smith (2004) have extended this literature through recognizing that governance transparency

is closely related to legal structures. As found in the previous mentioned literature common law countries provide better shareholder protection than other legal regimes. It is therefore expected that financial reporting will be more transparent in common law countries.

Bushman, Piotroski and Smith (2004) conclude that governance transparency is closely related to the legal tradition, whereas financial transparency is related to a country's political regime. The first conclusion is coherent to the political cost hypothesis of Watts and Zimmerman (1986) who state that if the government is less involved, companies are more transparent.

The paper by Bushman, Piotroski and Smith (2004) has been the first to discuss transparency in the area of accounting. Even though the paper provided a framework to capture corporate transparency in an accounting setting, it has been criticized extensively.

The focus is laid on the availability of firm specific information of publicly traded companies to outside users. The researchers did not take into account the difference in financial disclosures between private and publicly traded companies. There is relatively little known on the financial disclosure transparency of private companies. However the largest criticisms on the paper by Bushman, Piotroski and Smith (2004) have been on the relationship between law and political factors. Miller (2004) stresses that the financial and governance factors are each respectively related to the political and law variables. Bushman, Piotroski and Smith (2004) thus ignore the correlation between the variables political and law and impose as such classification restrictions.

Moreover the attempt made by Bushman, Piotroski and Smith (2004) to classify information system variables cross-sectionally across countries is likely to create noisy variables. This may not provide results on which a conclusion can be based. Endogeneity is likely to exist at the country level in the variables set by Bushman, Piotroski and Smith (2004). A bias in the variables is created through the homogeneity of the dataset, because the dataset mainly contains data of developed countries and thus rather homogenous. This bias can cause supposedly independent variables to be dependent on the value of other independent variables, which generates endogeneity of variables.

3.3 Financial transparency and the cost of capital

The literature that has been discussed so far investigates the transparency of a company's financial disclosures. The paper by Barth, Konchitchki and Landsman (2006) discusses the

influence of financial statement transparency on the cost of capital. The researchers state that companies benefit from transparent financial statements through lower cost of capital. Aboody, Hughes and Liu (2004) find that information asymmetry is decreased through transparency and thus the cost of capital is reduced.

Barth, Konchitchki and Landsman (2006) attempt to show through the three Fama-French¹³ factors that transparency of financial statements diminishes the cost of capital.

They define financial transparency as “the extent to which earnings and change in earnings co-vary contemporaneously with stock returns” (p. 2). In addition the researchers demonstrate that financial transparency is an additional priced factor to the three Fama-French factors. This is estimated through measuring the effect of financial statement transparency on stock returns. Stock returns are used, because Barth, Konchitchki and Landsman (2006) to identify timeliness as a crucial factor of transparency. Financial transparency is tested for firm specific variations and firm portfolio variations.

The financial statement transparency variable is constituted through earnings and the change in earnings, due to the fact that a company’s earnings summarize the income statement and the balance sheet statement.

Overall it is found that a negative relation exists between financial statement transparency and the cost of capital. In addition the variation and mean differences in stock returns can be explained through financial statement transparency. The extent to which the stock returns vary depends on the information provided in the income statement, balance sheet statement as well as the financial footnotes of the company’s yearly report.

Francis et al. (2004) research the relationship between earnings and the cost of equity capital. The research is based on the cost of equity and the properties of firm-specific information. They presume that earnings are a premier source of firm-specific information. It is assumed that information on earnings diminishes potential information asymmetries and will thereby result in a perceptible capital market advantage.

¹³ Fama and French (1992) developed a model which uses three factors to estimate the optimal stock portfolio. They estimate the return of a stock portfolio, through using the CAPM model and estimating two additional factors affecting the stock’s return: stocks with a small market capitalization and stocks with a high book-to-market ratio.

Evidence is found that the largest effects are found in the accounting proxies. In order to come to this conclusion the relationship between financial statement transparency and cost of capital is estimated.

3.4 Financial statements and earnings quality

Not just Barth, Konchitchki and Landsman (2006) and Francis et al. (2004) use earnings to measure whether the financial statements reduce the cost of capital. Beuselinck, Deloof and Manigart (2009) estimate the effects of private equity ownership on earnings quality.

Private equity investors can often be characterized as active monitors who reorganize and observe the financial reporting process and so positively affect earnings quality. It is underlined that the financial reporting process of private firms is of a significantly lesser quality than of public firms. This is mostly due to the fact that the financial reporting process of private firms is much more characterized as an insider process in which information and agent asymmetries play a large role. Ownership structure is often submitted as a possible explanation, private firms often possess efficient internal communication channels, thus making external accounting parties redundant.

The effects of earnings quality on private firms, as mentioned previously, was pointed out as one of the main flaws of the paper by Bushman, Piotroski and Smith (2004), who do not distinguish between public and private firms. As pointed out the quality of financial reporting is much lower in private firms, which could thus indicate lower transparency.

In order to solve for the high levels of agent and information asymmetries that exist in private firms, private equity investors may have a higher internal demand for quality financial information, to align both the expectations of the private equity investor and the acquired firm. Second the demand for higher financial disclosure quality may too arise, because of the exit strategy of the private equity investor. Most private equity investors have a medium-term investment horizon and aim to sell their stake whenever they prove profitable. High quality financial reports signal financially healthy firms towards investors.

Beuselinck, Deloof and Manigart (2009) find evidence that the ownership structure of a private firm affects earnings quality and the quality of financial statements. They hypothesize that earnings quality is higher when private equity investors have high ownership stakes. In

the case private equity investors have low equity stakes; they might be unable to exercise too little control to coerce high accounting quality.

It is indeed shown that monitoring of private equity investors leads to higher quality financial reporting after the private equity investment. The results of Beuselinck, Deloof and Manigart (2009) are crucial for banks, suppliers, customers, employees, credit rating agencies and acquirers.

In a prior study Beuselinck, Deloof and Manigart (2008) find evidence that private equity investors positively influence the financial disclosure decisions of the portfolio firm. Moreover higher private equity intensity leads to higher financial disclosures. In this paper Beuselinck, Deloof and Manigart (2008) hypothesize that private equity financed firms will have higher financial disclosure levels, for a number of reasons. First of all portfolio firms may decide to disclose financial information in the pre-private equity investment stage to signal financial viability. Secondly, as discussed above, private equity investors might demand higher financial disclosure to mitigate information and agency problems and to attract future investors. Third, private equity investors advise portfolio firms on all cores of the firm, including financial disclosure.

In general no evidence is found that firms increase their financial disclosures to attract private equity investors. However during the private equity investment stage the financial disclosures of a portfolio firm do increase, suggesting intense monitoring and business environment changes induced by the private equity investor. In addition higher private equity ownership stakes lead to higher financial disclosures. At high ownership levels financial information will be important to private equity investors in order to signal the quality of their investment to outside directors.

In order to research the financial disclosure levels of private equity portfolio companies and non private equity companies, Beuselinck, Deloof and Manigart (2008) investigate whether the companies voluntarily disclose financial information. It is found that ten percent of the non private equity companies voluntarily reveal financial information. Furthermore some private equity portfolio companies also fully disclose, while others do not.

It is surprising that companies voluntarily opt to provide more clarity on their financial statements. Clarity is usually provided, because of certain alternative motives, such as to

reduce the cost of capital or to signal financial quality. It would certainly be interesting for future research to investigate this observation.

3.5 Conclusion

Financial statement transparency offers a good representation of the quality of the firm. The value of the firm is reflected through the level of a company's financial information. As was shown in this chapter a company can signal its viability through disclosing full financial statements. Increasing financial information will reduce the level of information asymmetries. This will lead to a decrease of the cost of capital, a boost in investments and thus enhance company growth.

However it has become clear from prior research, that financial statement transparency is difficult to measure, due to the fact that it varies over time and across firms.

Bushman, Piotroski and Smith (2004) were the first to discuss transparency from an accounting perspective. Transparency is a rather wide concept. It is treated differently in the field of accounting than in the field of economics. Bushman, Piotroski and Smith (2004) defined transparency as corporate transparency, which could be subcategorized into financial and governance transparency. Transparency is important to prevent information and agency problems from arising. These problems are an important matter in the business environment firms operate in. Especially the private equity setting can be characterized through information and agency asymmetries. Financial statement transparency is therefore especially important in this context. Private equity investors need to filter the 'lemons' out, in order to prevent below costs benefits.

At first sight it would appear the natural course of action to extend the research carried out by Bushman, Piotroski and Smith (2004) and to use their framework to measure the transparency of private equity fund disclosures. Unfortunately the database used by Bushman, Piotroski and Smith (2004) was not available to us, therefore we decided on a different approach with regard to measuring the transparency of financial disclosures.

The next chapter will discuss the research setting. It will present the disclosure index to compute private equity fund transparency. Moreover it will show the several variables used to measure the hypothesis: "Do European target firms take the financial statement transparency of United States private equity funds into account when seeking for funds?" Furthermore the

research sample will be presented and discussed. This master thesis will further refer to transparency as financial transparency.

4. Model

4.1 Introduction

This chapter will introduce the model that will be used in order to research whether target firms consider the financial statement transparency of private equity funds. As described in chapter 3, corporate transparency is the accessibility of corporate information to users of financial statements. In order to measure corporate transparency Bushman, Piotroski and Smith (2004) used the CIFAR¹⁴ index. Unfortunately this index cannot be used, to measure the financial statement transparency of private equity funds, since financial institutions are not incorporated in the index. Various other manners to measure transparency are described in the “financial statement transparency” chapter; however none of these methods are appropriate to investigate the transparency of private equity funds. Therefore a disclosure index is developed, to measure a predefined number of items that are recorded in the financial statements of private equity funds.

Before moving to a complete description of the research and empirical proxies for transparency, several manners to set up a disclosure index and characteristics of the used disclosure items in this research will be discussed first in section 4.2. The disclosure index is created through collecting various financial statement and informational items from Amadeus. The disclosure proxy will be presented in section 4.3. This chapter will also present the corporate debt variables used to estimate the debt level of target firms. Finally, the model that will estimate the influence of the financial statement transparency of private equity funds will be introduced and explained. A brief conclusion will be provided in section 4.6.

4.2 Disclosure indices

It has already been identified, in the previous chapter, that it is utterly difficult to measure the transparency of financial statements. Therefore disclosure studies assume that the amount of disclosure on specified topics serves as a proxy for the quality of disclosures. The external parties are so more aware of the firm’s business activities and thus have an informational advantage.

Therefore it is assumed that through providing information, private equity funds will reveal more information on the fund. Funds are categorized as “highly transparent” when they disclose more informational items.

¹⁴ Center for Financial Analysis and Research

Subjectivity is a severe limitation to these disclosure studies. Most of the studies rely on attitude surveys among user groups, grouping the relevance of each item according to the statements made by these users. However it has been shown that weighted and unweighted scores do not vary as much as was originally estimated. So although disclosure indices are inevitably subject to subjectivity, they do serve as an essential and useful research tool.

The quality of the financial statements is measured through the quantity of disclosures provided in financial statements. One of the most common measures to capture financial statement quality is through scoring disclosure items. To exemplify, scoring can be subcategorized into binary and ordinal scoring.

First, a binary coding scheme measures the presence or the absence of an item in the financial statement. Second, an ordinal coding scheme assesses quality of the disclosures through three levels¹⁵. These three levels can be either weighted or unweighted (Beattie, McInnes and Fearnley, 2004).

Another method is to perform a thematic content analysis. These studies research the content of accounting narratives. The words used are reviewed or a content analysis on either the corporate annual statements or voluntary disclosures is performed. The intention of a readability study is to quantify the cognitive difficulty of text and to compile a readability formula to analyze the financial statements. The difficulty of the text is evaluated according to a number of benchmarks. Finally there is the texture index, which captures a richer set of text characteristics and evaluates financial statements by means of text characteristics.

4.3 Financial statement transparency disclosure index

A self constructed disclosure index is used in order to measure financial statement transparency of private equity funds. A firm is categorized as “highly transparent” when it discloses financial statement items and the requested informational items taken up in the constructed disclosure index. An overview of the quantitative and qualitative disclosure items are taken up in the disclosure index depicted in appendix B. The different items are divided in different clusters, representing different parts of the financial statement and voluntary information provided by the private equity fund. Information is categorized as voluntary, when it is an additional offer of information to compulsory international referential of

¹⁵ Level 1: Quantified disclosures, level 2 qualified disclosures and level 3 no disclosure score.

business reporting. The disclosure index is based on IFRS guidelines and European company law, the additional national rules set by the member states will be left out.

All clusters will be equally weighed; it is assumed that each cluster is equally important. As mentioned previously it has been shown, that weighing numerous items provides approximately the same outcome as not weighing the index items. The purpose of using an unweighted index is to diminish subjectivity. In order to give every cluster equal weight, the total score within a cluster will be standardized. The total score of the cluster will be divided by the total number of items within that cluster, resulting in a specific ratio for each cluster (CR). Consequently the weighted average of the cluster ratios is taken. This ratio represents the total disclosure (TD) of the private equity fund.

A limitation might be that not all items will appear suitable for certain funds. However, it could distort the analysis through disregarding certain items because they are relevant to the fund or whether the fund inappropriately excludes the item. The items that could not be stated clearly, whether they are relevant or not to the fund, are removed from the index.

The disclosure proxy is a binary dummy variable, an item scores one if it is disclosed and zero if the item is not disclosed.

Equation 4.1

$$CR_i = \left(\sum_{i=1}^N d_i / N \right)$$

$$TD = \left(\sum_{i=1}^{C_i} CR_i / C_i \right) \times 100\%$$

Where

$d_i = 1$ if item is present

$d_i = 0$ if item is absent

$N =$ Number of items in cluster items

$C =$ Number of clusters

$CR =$ Cluster ratios

As mentioned, the clusters and items that were identified are presented in appendix B. The items were selected according to the private equity fund informational items identified by

Müller (2008). Müller (2008) researched the financial statements of private equity funds according to 114 qualitative and quantitative items. Not all items were appropriate for this research, since Müller (2008) also incorporated statements of portfolio companies; this research focuses on the statements of the private equity fund itself and therefore focuses on 40 items.

4.4 Corporate debt variables

As mentioned earlier, the debt variables by Aggarwal and Aung Kyaw (2009) are used, this because this paper estimates the relation between variations in national transparency regimes and their influence on corporate capital structures. Aggarwal and Aung Kyaw (2009) state transparency affects the leverage of firms, they seek the determinants of the firm's capital structure to carry out their research. We assume that target firms with different leverage structures require different levels of private equity fund transparency. Therefore we opted to use the debt variables of Aggarwal and Aung Kyaw (2009). We have slightly adjusted the variables to better fit the model. Five ratios by Aggarwal and Aung Kyaw (2009) will be used to estimate the debt levels of target firms and two additional ratios will be added to replace ratios only valid for public entities. Even though the debt variables will be presented below, an additional overview of all debt variables will be provided in appendix B.

In examining the impact of transparency on capital structure, Aggarwal and Aung Kyaw (2009) identify seven firm level variables of which we used five. The variables are chosen for their influence on a firm's debt level. A rationale for each variable will be provided below.

- a) Leverage: Leverage is estimated as the long term debt ratio. The book value of debt is used, because it is subject to less market volatility.
- b) Tangibility: The level of fixed assets. This should be associated with higher debt levels as such assets can serve as loan collateral.
- c) Profit: Even though there are conflicting theories of the effect of profitability on a firm's debt level, Jensen's (1986) positive relationship between profitability and the firm's debt level is assumed.
- d) Size: Size is proxied to have a positive relationship with debt ratios.
- e) Tax: Taxes have influence on the debt structure of a firm. Debt can serve as an interest tax shield.

A panel data regression is estimated, because data over different time periods and across numerous target firms and private equity funds best approximates the relation between the transparency of a private equity fund's financial statements and the debt level of target firms. The next section will present the model and the regression that will be run in order to approximate the relationship between the financial statement transparency of private equity funds and the debt structure of target firms.

4.5 Model

To capture the aforementioned relationship across time a panel data regression needs to be estimated. A cross-sectional analysis over time will not suit the model, due to the fact that for large datasets a correlation of the error terms is likely to occur. It is possible to find a relation across time between the disclosure proxy, estimated for private equity funds, and the debt variables, identified for target firms, through a panel data regression. This section will present the regression. First the level of debt for the different target firms needs to be estimated yearly, through setting a regression for the debt level of the target firms. As mentioned in section 4.4, debt is estimated through using five proxies.

Equation 4.2

$$Debt = \beta_0 + \beta_1 Lev + \beta_2 Tang + \beta_3 Profit_{t-1} + \beta_4 Size + \beta_5 Tax + \varepsilon$$

Where

Debt = Debt level of the target firm

Lev = Long term debt/total assets

Tang = Ratio of net fixed assets to total assets

Profit_{t-1} = Operating income on total assets

Size = Natural logarithm of total sales

Tax = Income taxed/earnings before interest and tax

The level of debt for target firms is the dependent variable in the main regression of the research. The debt level is linked to the disclosure index of the private equity funds and some control variables concerning the private equity fund and the environment. In order to account for the possibility that the effect of transparency changed over the used time period, the regression includes interaction variables for the different years of the research.

Equation 4.3

$$Debt = \beta_0 + \beta_1 Y_{05} + \beta_2 Y_{06} + \beta_3 Y_{07} + \beta_4 Y_{08} + \beta_5 TD + \beta_6 Y_{05} * TD + \beta_7 Y_{06} * TD + \beta_8 Y_{07} * TD + \beta_9 Y_{08} * TD + \varepsilon$$

Where

Debt = Debt level of the target firm

Y_{05} = Year 2005

Y_{06} = Year 2006

Y_{07} = Year 2007

Y_{08} = Year 2008

TD = Total disclosure index of private equity funds

$Y_{05} * TD$ = Change of effect of TD in Y_{05}

$Y_{06} * TD$ = Change of effect of TD in Y_{06}

$Y_{07} * TD$ = Change of effect of TD in Y_{07}

$Y_{08} * TD$ = Change of effect of TD in Y_{08}

The results of this regression will either confirm or reject the main hypothesis of this master thesis, which is that target firms do consider the financial statement transparency of private equity funds. If a significant negative value for β_5 is found, the hypothesis is confirmed. The interaction variables can indicate whether the effect changed over time if the effect is found to be significant. As will be explained in more detail later, a fixed effects analysis will be run. A fixed effects analysis incorporates the effects of unobserved variables, which means that there is no need to include control variables in the regression. Control variables would simply be ignored in the model and are therefore not included.

4.6 Conclusion

This chapter introduced the model that will be used to estimate the relationship between the debt levels of target firms and the financial statement transparency of private equity funds. More specific to research whether target firms take the financial statement transparency of private equity funds into account when seeking funds. The created disclosure index has been introduced and the different debt variables that will be used have been presented in this chapter. The next chapter will present the research sample, the methodology of the fixed effects analysis and the results of the analysis.

5. Results

5.1 Introduction

The next chapter of this master thesis will describe the different outcomes of the simulated model. The model was described and discussed in the previous chapter. It was stated that the influence of private equity fund transparency on target firms should be measured through performing a panel data analysis. A panel data set has both a cross-sectional and a time series dimension and allows the same target firms and private equity funds to be followed across time.

A panel data set on various debt indicators and a disclosure index, constructed from several previous selected disclosure items, is collected through randomly selecting firms from a population at a given point in time. The population consists of firms which have been active on the private equity market. These data are gathered for the firms at subsequent points in time, for the timeframe of this thesis from 2004 until 2008. This provides data on the debt indicators and the disclosure index for the same group of target firms and private equity funds in different years.

First the sample will be described in section 5.2. The linkage of the data and making the data panel data ready will be described in section 5.3. In order to show the significance of our findings we have sampled three indicators of a target firm's debt level. These different indicators will be described in section 5.4. Section 5.5 will provide the summary statistics of the research. The selected panel data model and the results will be described in section 5.6. Section 5.7 will present some concluding remarks.

5.2 Sample description

It has not been researched thus far whether European target companies have been subject to the influence of European private equity. It has been opted to link European target firms to European private equity funds, because the influence of judiciary, regulatory inflections and exchange rate fluctuations can be controlled for as such. The time period will be between 2004 and 2008.

It is assumed that the true effect of financial statement transparency on target firms can only be measured through private equity events that have not suffered from intercontinental regulatory debate and that are between firms which are within the same jurisdiction.

Moreover the exchange rate fluctuations, caused by a deteriorating dollar-euro relationship, might have damaged intercontinental private equity transactions. It is thus interesting to focus on events that have occurred within the Eurozone, because it is perceived that the Euro financial markets are not affected by these exogenous factors.

The assumption is that private equity financing within the Eurozone countries has encountered similar hindrance from changes in the regulatory environment, judicial amendments or exchange rate fluctuations, since all events occurred within the same trade zone. Due to this fact all private equity events within the Eurozone have been commonly affected by these factors. Thus the results of the research will not be tainted by the exogenous factors. Consequently a linkage between European target firms and European private equity funds will indicate the true influence of financial statement transparency on private equity investment decisions.

The private equity events were identified in Zephyr. Private equity funds and target firms were selected on base of their BvDep number. This is a unique number granted by Bureau van Dijk. The number identifies each private equity fund and target firm. Each target firm and private equity fund are linked to the private equity event according to their BvDep number. Due to the data collected from the Amadeus database the disclosure index could be constructed.

In order to estimate the target firm's debt level, five of the corporate debt variables estimated by Aggarwal and Aung Kyaw (2009) are used.

To research whether target firms are influenced by the transparency of a private equity fund's financial statements, corporate debt data from target firms and the several informational items on private equity funds are collected between 2004 and 2008. The Amadeus data will then be linked to the zephyr identified events. The data can be linked, due to the fact that the Amadeus database also uses the Bureau van Dijk BvDep numbers to record data of firms. Thus the Zephyr data is linked to the Amadeus data through the BvDep numbers. Consequently a database is created which contains the corporate debt items of the target firms and the financial statement items of the private equity funds, which are hung to the private equity event. A more detailed description of the linking of the databases will be provided in the next section.

5.3 Linkage

As stated in previous chapters the intention of this master thesis is to research whether target firms respond to the transparency of private equity funds. In order to research this given, data for both private equity funds and target firms was collected. It was stated that the debt level of a target firms is dependent on the private equity fund's transparency level. Therefore debt level data was gathered from target firms and through means of a disclosure index the transparency level of a private equity fund was decided. The debt data as well as the data for the disclosure index was subtracted from the Amadeus database into two different databases. One database consisted of the data on the firms and the other database contained the information on the private equity funds. The data had to be linked to the pre-defined private equity funds identified from the Zephyr database, which dealt with the firms during the timeframe of the study.

The database was prepared in Stata¹⁶. Both data for target firms and private equity funds was subdivided into year baskets, creating single observations for each individual year for each individual target firm and private equity firm. This operation is necessary to allow an analysis across sections and time simultaneously. Through subdividing the data into year baskets the data became panel data ready. Next the data was sorted in Stata on the identified BvDep numbers. As mentioned earlier it is possible to link the Zephyr database to the Amadeus database by means of the company specific id numbers granted by Bureau van Dijk. The data was then hung to the private equity events. Thus each private equity event had a unique target firm id number and a unique private equity fund id number. This created a dynamic database. Three different datasets were now linked to each other through the private equity event. Due to the creation of the dynamic database, which contains all data on the target firms and the private equity firms, it now becomes possible to research the central hypothesis of this master thesis.

The final dataset contained over 18.000 data points. The data points which missed all information on either the private equity firm or the target firm were deleted. 12.095 data points were lost due to incomplete records and we were left with 6.255 individual data points. Afterwards all data points which specifically lack information on the debt level of the target firms were deleted. During this operation 3.008 data points were deleted. Last we deleted all data points lacking information on the disclosure index. Since we created the disclosure index

¹⁶ The Stata code can be found in appendix D.

ourselves none of the data points are lost. The final database contains 5.046 observations. This allowed us to carry out several panel data regressions in order to estimate the validity of the model. Moreover the magnitude of the panel database allowed to experiment with several identifiers of debt. The Stata code that was used to link the datasets to one another can be found in appendix. The next section will discuss the usage of several debt indicators.

5.4 Estimation of Debt

The several debt variables on which the target firm debt was estimated were described in section 4.4. Debt was said to be equal to these five indicators of debt. In order to construct debt from these debt variables, long term debt data were extracted from the Amadeus database. This way debt was reconstructed through estimating new betas for the several debt variables.

Debt had to be re-estimated because we wanted to base our model on the debt variables identified by Aggarwal and Aung Kyaw (2009). Due to the fact that it was impossible to collect data for all debt variables identified by Aggarwal and Aung Kyaw (2009), debt as estimated by the variables had to be reconstructed. Therefore a regression was run on long term debt data from the Amadeus database. The betas that were constructed through the regression on long term debt were then used to estimate “new long term debt”.

Equation 4.2 was first run, where *Debt* are the long term debt data taken from the Amadeus database.

Equation 4.2

$$Debt = \beta_0 + \beta_1 Lev + \beta_2 Tang + \beta_3 Profit_{t-1} + \beta_4 Size + \beta_5 Tax + \varepsilon$$

Consequently the regression was run again now based on the new betas subtracted from equation 4.2. Equation 5.1 represents *new debt*.

Equation 5.1

$$New\ debt = \beta_0 + \beta_1 Lev + \beta_2 Tang + \beta_3 Profit_{t-1} + \beta_4 Size + \beta_5 Tax + \varepsilon$$

As stated in the introduction three estimates of debt were used to prove the validity of our model. Since we do not use the exact same variables as Aggarwal and Aung Kyaw (2009), we use two extra methods for determining the debt level to ensure the robustness of our analysis.

The second method to estimate the target firm's debt level is to use the long term debt (*ldebt*) data from the Amadeus database directly. Amadeus estimates long term debt for each target firm. In order to estimate the strength of our estimated *new debt*, long term debt as collected by Amadeus is used as a second estimate for a target firm's debt level. It now becomes possible to run the panel data regression based on two measurements of debt. This fact allows estimating the soundness of the model through the estimated *new debt*, based on the debt variables selected by Aggarwal and Aung Kyaw (2009) and long term debt data provided by Amadeus. The third estimation of debt that we used is the average of the *new debt* betas. In the regression for *new debt*, betas were estimated for each year. In order to prevent yearly random effects from occurring in our regression, we estimated the average of the betas found, possibly providing a more solid estimation of the debt level. Now we are able to run the regression again with average betas for the debt variables. The third estimator of debt will from here on be named *average debt*.

5.5 Descriptive statistics

This chapter will provide the descriptive statistics of our research. A breakdown of the data is provided for the entire final database. The summary statistics are split up. An overview of the disclosure index scores is provided and last the summary statistics of the several target firm debt variables are presented.

The final database consists out of 5.046 data points. The table below presents the origin of the data. It becomes clear that most data is available from French private equity events, followed by Spanish and German private equity events. The large Eurozone economies thus contribute more to our final database than the smaller Eurozone economies such as Portugal and Greece of which only 46 and 22 data points are available.

Table 5.1: Overview origin data points final database

Country	Obs	Year	Obs
AT	44	2004	916
BE	260	2005	1010
DE	654	2006	1106
ES	1000	2007	1022
FI	256	2008	933
FR	2258		
GR	22		
IT	150		
LU	42		
NL	244		
NO	1		
PT	46		
SE	4		
SI	6		

Chapter 4 described the set up of the disclosure index. The table below presents the outcome of equation 4.1 for the various private equity funds.

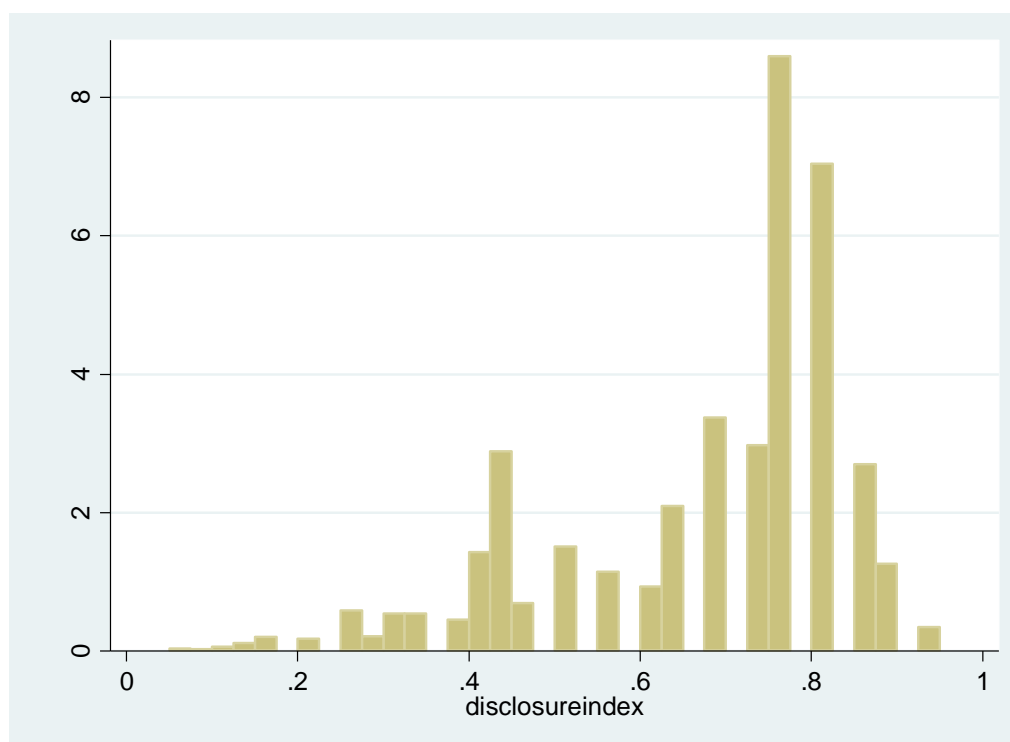
Table 5.2: Disclosure index score

disclosureindex			
Percentiles	Smallest		
1%	.15	.05	
5%	.325	.05	
10%	.4	.05	Obs 5046
25%	.55	.05	Sum of Wgt. 5046
50%	.725		Mean .669788
		Largest	Std. Dev. .1749921
75%	.8	.95	
90%	.85	.95	Variance .0306222
95%	.85	.95	Skewness -1.024024
99%	.9	.95	Kurtosis 3.228353

The mean of the disclosure index is 67%, the accompanying standard deviation is 17%. The four smallest observations are all 5%, which means that these four funds have disclosed only 5% of our pre-identified disclosure items. The four largest observations are 95%, indicating that these four funds have disclosed 95% of our pre-identified items.

The percentiles provide us with a bit more perspective on the level of fund disclosure. At the 25% percentile the disclosure index is already at 55%. Funds disclose 73% at the 50% level and 80% at the 75% percentile. This indicates that the disclosure index of the private equity funds is concentrated around the mean and is skewed towards the higher levels of disclosure. The histogram of the disclosure index below presents this outcome.

Histogram 5.1: Distribution of the disclosure index



Next we will provide an overview on the debt target variables. As mentioned three measures of debt are used in our research, to explore the relationship between private equity fund disclosure and target firm debt. First *new debt* will be discussed. *New debt* has a mean of 264.930 Euro and a standard deviation of 290.416 Euro.

Table 5.3: Summary statistics *new debt* with outliers

newdebt				
	Percentiles	Smallest		
1%	-521031.7	-5574358		
5%	-157724	-2755770		
10%	-23442.55	-1854192	Obs	5046
25%	131874.9	-1783349	Sum of Wgt.	5046
50%	269401.8		Mean	264929.8
		Largest	Std. Dev.	290416.4
75%	412901.7	1509930		
90%	571133.4	1619498	Variance	8.43e+10
95%	694533.2	1619498	Skewness	-2.447061
99%	916770.9	1908786	Kurtosis	41.78224

The long term debt levels are very similar to the debt levels of the variable *new debt*. Here there only four firms with negative levels of debt. Since the 50% percentile is at 478 Euro and

the mean debt level is 273.308 Euro the debt levels are again heavily skewed to the left where a small portion of the firms possess very large debt.

Table 5.4: Summary statistics long term debt with outliers

----- ldebt -----				
	Percentiles	Smallest		
1%	0	-3117		
5%	0	-2157		
10%	0	-10	Obs	5046
25%	0	0	Sum of Wgt.	5046
50%	477.5		Mean	273308.2
		Largest	Std. Dev.	2233135
75%	6899	4.28e+07		
90%	71799	4.62e+07	Variance	4.99e+12
95%	292492	4.69e+07	Skewness	13.80794
99%	8747000	5.07e+07	Kurtosis	235.3621

The standard deviation is very large. In order to solve for these outlier problems the top and bottom 1% could be corrected for. However the long term debt data comes directly from the Amadeus database. Deleting the data would be illogical, because we assume the data from Amadeus to be correct.

The third debt variable is *average debt*. The descriptive statistics are very similar to the statistics of *new debt* and long term debt. The mean is 263.805 Euro and a standard deviation of 300.949 Euro. In contrast to the long term debt variable no extreme outliers are present and outlier analysis is not necessary.

Table 5.5: Summary statistics *average debt* with outliers

----- avedebt -----				
	Percentiles	Smallest		
1%	-561075.9	-8210750		
5%	-154063	-3410822		
10%	-26161.37	-1680588	Obs	5046
25%	131300.1	-1543734	Sum of Wgt.	5046
50%	275225		Mean	263805.2
		Largest	Std. Dev.	300949.2
75%	412282.7	1493329		
90%	561482.1	1498594	Variance	9.06e+10
95%	682427	1498594	Skewness	-5.355384
99%	904258.6	1911148	Kurtosis	134.6476

5.6 Fixed effects panel data

A fixed effects panel data regression was run on the final database described in section 5.2. It was necessary to estimate a fixed effects panel, due to the fact that we faced an unbalanced panel. Some panel data sets, especially those on firms or individuals, have missing data points for some years in the sample. Such a sample is called an unbalanced panel. Stata solves for these missing data points through making the appropriate adjustment for this loss¹⁷.

The characteristic of a fixed effects estimation is that the unobserved effect disappears. If our regression would be estimated for each year separately we would observe an unobserved effect, also known as the omitted variable bias. The unobserved effect is captured in the error term of the equation. It is basically a variable which does not change over time, making it obsolete in a fixed effects model. The fixed effects analysis causes this unobserved effect to disappear. The effect disappears due to the fact that the variable is constant over time and thus has the same effect for each time period. Therefore it is impossible to include constant variables in the model.

Through estimating time demeaned data¹⁸, the fixed effects analysis, the unobserved effect disappears. The fixed effects estimator causes the unobserved effect to fade away.

Next the regression based on equation 4.3 is programmed¹⁹. We used the time-demeaning on each explanatory variable and included time period dummies. The time period dummies were included to solve for any unobserved effects which change over time. As a result the fixed effects analysis captures the unobserved constant effect over time and we have captured the unobserved changing effect over time through including time period dummies.

No control variables are necessary when running a fixed effects analysis. The disappearance of the unobserved effect makes it impossible to include constant variables in the analysis, which means all control variables will automatically be dropped. A fixed effects model solely analyzes the effect of the independent variables on the dependent variable. Therefore control variables are unnecessary since the regression does not capture the effect of omitted variables and control variables.

¹⁷ Cross-sectional units for which only one single time period is available, play no role in the fixed effects analysis.

¹⁸ Panel data where for each data point the average over time is subtracted from the data in each time period. (Wooldridge, 2006)

¹⁹ The Stata code can be found in appendix D.

5.6.1 Results new debt-fixed effects analysis

First the regression is run with *new debt* as the dependent variable. The independent variables are the variables that we have identified in equation 4.3, namely the disclosure index, the year dummies and the interaction variables.

At first sight the model seems to fit the collected data as the probability of the F test is close to zero. This means that grouping the data in a panel model or structure has significantly increased the R-squared. The explanatory power of the model is therefore higher compared to a standard linear regression. The 5.046 observations are divided over 1.304 groups, who have on average 3.9 yearly observations. Unfortunately the R-squared is not high; it is merely 10.85%, indicating that this setting does not explain the dependent variable very well. More specifically the independent variable “disclosure index” also has a low t-statistic and is also not significant at the commonly used significance levels. The other independent variables that are taken in are also not significant but this was to be expected since they were intended to filter out the unobserved effect. The only significant variables are the year dummies for the years 2007 and 2008. Very likely these year dummies represent the financial crisis of 2007 and the effect represents a credit crunch for target firms.

Even adjusting the significance level to 90% does not provide any significant changes in the outcome. The results are shown in table 5.6 below.

Table 5.6: Output *new debt*

```

Fixed-effects (within) regression
Group variable: dealno

R-sq:  within = 0.1085
       between = 0.0010
       overall = 0.0249

Number of obs   = 5046
Number of groups = 1304

Obs per group: min = 1
               avg  = 3.9
               max  = 5

corr(u_i, Xb) = -0.0174

F(9, 3733) = 50.48
Prob > F    = 0.0000

```

newdebt	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
disclosure~x	-52518.74	36540.52	-1.44	0.151	-124160.1 19122.59
d_2005	25113.01	26351.12	0.95	0.341	-26550.99 76777.01
d_2006	19592.81	28047.35	0.70	0.485	-35396.81 74582.42
d_2007	62918.07	31221.56	2.02	0.044	1705.096 124131
d_2008	102930.6	29599.43	3.48	0.001	44897.98 160963.2
inter2005	-22049.66	38705.29	-0.57	0.569	-97935.23 53835.91
inter2006	50048.49	40634.33	1.23	0.218	-29619.17 129716.1
inter2007	50577.91	44492.25	1.14	0.256	-36653.58 137809.4
inter2008	48484.01	43767.9	1.11	0.268	-37327.32 134295.3
_cons	240589.6	24214.51	9.94	0.000	193114.6 288064.6
sigma_u	255273.68				
sigma_e	155588.84				
rho	.72913506	(fraction of variance due to u_i)			

F test that all u_i=0: F(1303, 3733) = 10.25 Prob > F = 0.0000

5.6.2 Results long term debt-fixed effects analysis

The second debt indicator we used, to validate that target firms are influenced by the financial statement transparency of private equity funds is long term debt. As stated before, long term debt is obtained from the Amadeus database. Again equation 4.3 is run with long term debt as the dependent variable. The independent variables are the variables that we have identified in equation 4.3, namely the disclosure index, the year dummies and the interaction variables. The F-test predicts that the model is also suited to the data, due to the fact that we removed the outliers. The R-squared has declined; the model's explanatory power has become lower compared to the model using *new debt*. Consequently the disclosure index is still not significant and cannot explain the differences in the dependent variable. As to be expected the explanatory are also not significant. Also the year dummies for the years 2007 and 2008 are not significant.

Again adjusting the significance level to 90% does not provide any significant changes in the outcome. The results are shown in table 5.7 below.

Table 5.7: Output long term debt

```

Fixed-effects (within) regression          Number of obs   =    5046
Group variable: dealno                   Number of groups =    1304

R-sq:  within = 0.0071                   Obs per group:  min =     1
        between = 0.0008                  avg =           3.9
        overall = 0.0002                  max =           5

corr(u_i, Xb) = -0.0165                   F(9, 3733)      =     2.97
                                                Prob > F        =     0.0016

```

ldebt	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
disclosure~x	178479.3	184176.2	0.97	0.333	-182616.5 539575
d_2005	100836.5	132818.3	0.76	0.448	-159567 361240
d_2006	169009.9	141367.8	1.20	0.232	-108155.8 446175.5
d_2007	190523.4	157366.9	1.21	0.226	-118010 499056.8
d_2008	238826.4	149190.8	1.60	0.110	-53677.02 531329.9
inter2005	-112257.1	195087.3	-0.58	0.565	-494745.2 270231
inter2006	-125461.6	204810.3	-0.61	0.540	-527012.7 276089.5
inter2007	-84116.43	224255.5	-0.38	0.708	-523791.7 355558.8
inter2008	-125779	220604.5	-0.57	0.569	-558296.2 306738.2
_cons	73459.55	122049.1	0.60	0.547	-165829.8 312748.9
sigma_u	1886874.2				
sigma_e	784218.66				
rho	.85270521	(fraction of variance due to u_i)			

F test that all u_i=0: F(1303, 3733) = 28.49 Prob > F = 0.0000

5.6.3 Results average debt-fixed effects analysis

The final debt indicator that was used was average debt. As mentioned, *average debt* is based on the average of the betas of *new debt* estimations. Once more equation 4.3 is run with *average debt* as the dependent variable. The independent variables are the variables that we have identified in equation 4.3, namely the disclosure index, the year dummies and the interaction variables. The F-test result is similar to the first F-test result, where the regression was run with average new debt. The F-test is again close to zero, which indicates that the panel data grouping has increased explanatory power. Nevertheless the R-squared has decreased slightly as compared to the first R-squared, which indicates that the model still has little explanatory power. Moreover the disclosure index, the explanatory variables and year dummies are as before not significant. No year dummies are significant at 95%.

Yet again adjusting the significance level to 90% does not provide any significant changes in the outcome. The results are shown in table 5.8 below.

Table 5.8: Output *average debt*

```

Fixed-effects (within) regression          Number of obs   =   5046
Group variable: dealno                    Number of groups =   1304

R-sq:  within = 0.0248                    Obs per group:  min =    1
        between = 0.0004                  avg =           3.9
        overall = 0.0059                  max =           5

corr(u_i, Xb) = -0.0087                    F(9, 3733)      =   10.55
                                                Prob > F        =   0.0000

```

avedebt	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
disclosure~x	5975.841	39819.82	0.15	0.881	-72094.88 84046.56
d_2005	44306.78	28715.98	1.54	0.123	-11993.76 100607.3
d_2006	24014.03	30564.43	0.79	0.432	-35910.58 83938.65
d_2007	-26688	34023.51	-0.78	0.433	-93394.48 40018.48
d_2008	44809.38	32255.8	1.39	0.165	-18431.34 108050.1
inter2005	-31685.88	42178.86	-0.75	0.453	-114381.7 51009.98
inter2006	27981.86	44281.03	0.63	0.527	-58835.51 114799.2
inter2007	108993.4	48485.17	2.25	0.025	13933.41 204053.4
inter2008	40377.63	47695.81	0.85	0.397	-53134.76 133890
_cons	222017.5	26387.62	8.41	0.000	170282 273753.1
sigma_u	263429.56				
sigma_e	169552.03				
rho	.70708168	(fraction of variance due to u_i)			

F test that all u_i=0: F(1303, 3733) = 9.23 Prob > F = 0.0000

5.6.4 Interpretation fixed effects analysis

We can deduct from the results above that the model we estimated, is unable to confirm the hypothesis: Are target firms influenced by the financial statement transparency of private equity funds?

We have emphasized above that a fixed effects panel data analysis is the best way to analyze this data, as can be concluded from the results above. In all three regressions the F-test statistic shows that the use of this kind of model is likely to have increased the explanatory value of the model. The F-statistics were all highly significant signaling that the R-squared was higher when compared to a simple linear model. Using fixed effects analysis, adds explanatory power in comparison to simpler linear models.

We assume that under a strict exogeneity²⁰ assumption the fixed effects estimator is unbiased. The error term should be uncorrelated with each of the independent variables (Wooldridge, 2006). As we can see from the analysis above in each case the correlation between the error term and the variables is very low. Therefore the fixed effect estimator is unbiased and robust.

²⁰ The variable is uncorrelated with past, present and future shocks.

The fact that no correlation exists means that an unbalanced panel can be run without any problems (Wooldridge, 2006). In general the models run seem to be robust.

The explanatory power of the model is low in all three cases. However the low values for R-squared are not completely unexpected due to the nature of a fixed effects model. A fixed effects model reduced the need for control variables because there is no longer the effect of omitted variables. Therefore we estimated a regression with only the disclosure index, interaction variables and year dummies as independent variables. This means that the R-squared is directly related to the significance of our main independent variable. So in case the effect of disclosure index on debt is insignificant the model is automatically lacking explanatory power. The R-squared is directly related to the significance of the independent variables. Therefore a low R-square does not necessarily mean that the model can be disposed of due to lacking explanatory power, however the R-squared does conclude on the strength of the hypothesis.

Taking in consideration the significance of the disclosure index, and as explained the R-squared, there is no evidence for the main hypothesis. All three analyses indicate that there is no proven effect of the influence of the level of transparency of private equity funds on the level of debt of target firms. No matter how we define debt, we cannot find an influence of the main explanatory variable, within each all common significance levels.

5.7 Conclusion

This chapter has first described how the dynamic panel was created. It has discussed how the three different data sets were linked to one another and became one panel. It then dealt with the different indicators that were used to estimate the level of debt of a target firm. In chapter 4 the equation to calculate debt was first discussed, after some consideration it was decided to estimate two other indicators of debt. The second debt indicator was long term debt. These data was extracted from Amadeus and then used as the dependent variable in the fixed effects analysis. The last debt indicator was based on the average of the beta estimates found in the debt equation²¹ from chapter 4. It was opted to average debt, to construct a more robust indicator for debt than *new debt* would be.

²¹ Equation 4.2.

The panel data method was discussed in 4.5. As explained it was opted to carry out a fixed effects model, due to fact that we faced an unbalanced panel. The results of the analysis were explained in section 5.6. It appeared that none of the estimates for the influence on debt proved to be significant. The model lacked explanatory power. The model fitted the data, according to the F-test statistics, but as the R-squared results showed it had very little explanatory power.

Therefore we can conclude that target firms are not influenced by the financial statement transparency of private equity funds. It seems that when debating on how to obtain funds a target firm does not consider the transparency of a private equity fund's financial statements to be a factor. Even low debt level target firms do not seem to take low transparency of a private equity fund into account. The next chapter will discuss the analysis of the results found in this chapter.

6. Analysis

6.1 Introduction

This chapter will attempt to compare the research carried out in this master thesis to the research performed by Müller (2008). Even though the research of Müller (2008) does not perfectly resemble our research there are some similarities.

Müller (2008) mostly researches the disclosures of private equity funds to their investors. He interviewed several fund managers and fund investors and on basis of their input constructed a disclosure index. The disclosure index was constructed from several categories, which are then researched and tested for significance. However the main bottleneck of Müller's research is that he has only researched the disclosures of private equity funds to their investors for two funds. He therefore admits that his research might even be biased by the selection of the fund-of-funds managers that provided the reports.

First a small summary will be provided of the research of Müller (2008). Next a comparison between this master thesis and Müller's paper (2008) will be sketched. Last a short conclusion will be presented.

6.2 Müller 2008

Chapter 2.6 of this master thesis already commented on the ongoing discussion in the United States, that fund investors are often not kept in the loop on a fund's activities. This is exactly what Müller (2008) researched, he states that "Information gaps exist when fund investors regard certain information as important, but the information is not reported in enough detail". (p. 254)

Müller (2008) states a number of consequences of fund reporting of which to us the most important ones are: Fund investors require comprehensive information on the operating and financial situation of the fund, on the performance of the investments of the fund and on the costs of the fund. It appears to him that fund managers are reluctant to provide any information on these items.

This master thesis has mainly researched what the effects of statutory items are on target firms. It has been found that even though private equity funds are required by European law to publish certain financial statement items they often neglect to do so. Müller (2008) researches investor reporting. Investor reports are additional information to the statutory financial

statements; since these reports alone do not provide a comprehensive overview of the performance of a fund.

The purpose of Müller's analysis of investor reporting is to show the variability in the amount of reported information of private equity funds. A relationship is then explored between the extent of disclosure and certain fund characteristics. Müller (2008) draws up five hypotheses. The first is whether there are differences in the level of disclosures between venture capital funds and buyout funds. More important to us is the second hypothesis, which considers the general level of disclosure in Europe and compares it to the level of fund disclosure in the United States. The other three hypotheses regard a positive relationship between fund disclosure and the reporting of some fund characteristics.

However after his research he must conclude that there might be a bias due to the selection of the fund-of-funds managers that provided the reports. Müller (2008) only researches two private equity funds. He investigates the funds internally, due to the fact that investor reports are usually not made public.

Müller (2008) finds that European private equity funds on average disclose more than United States' funds. According to Müller's findings European private equity funds score on average 50% on the disclosure index. This is also the only hypothesis where Müller finds strong evidence to confirm the hypothesis. Only weak evidence is found for the first hypothesis and no relationships exist for the other hypotheses.

6.3 Comparison to Müller (2008)

Even though our research is rather unique and there is thus little similarity to other research in the field, some comparisons can be drawn to the research of Müller (2008). Our research has focused on the pre-investment stage. We have researched whether target firms are influenced by the transparency of private equity funds prior to the actual private equity investment. We have assumed that target firms consider the transparency of a private equity fund's financial statements, before they approach the fund for funds. Müller (2008) has looked at the post-investment stage. He has researched the disclosure level of a private equity fund to its investors. Müller drew up a disclosure index consisting out of several subcategories, each subcategory was further investigated. Disclosure on portfolio companies was a subcategory that was thoroughly investigated. However it is mostly researched what the value and performance of these portfolio companies is after the private equity investment.

What is remarkable between our research and Müller's research is that fund investors seem to find additional information crucial and target firms do not. As mentioned earlier Müller (2008) states that an information gap exists when fund investors cannot obtain all information they perceive necessary. Target firms do not seem to share this view. According to our research, target firms do not appear to be affected by the transparency of a private equity fund's financial statements. At first sight they do not seem to require additional information on the fund's financial status. Target firms appear to be only after funds and do not shrew to obtain funds.

To a fund's investors economic profit is crucial. Financial information is the basis of the valuation of a fund's investments and is therefore crucial to a fund's investors. Fund investors need this information on portfolio companies in order to determine the fair value of the investments. For target firms the information on economic profit of a private equity fund is less relevant, since the firms just want to obtain funds. However a target firm is heavily influenced by the private equity fund after the transaction. The financial transaction can have large implications for the new portfolio firm, the employees and the management team of the portfolio firm. After a takeover by a private equity fund, the firm might be split up, large cuts in personnel could take place or different managers and business styles could be introduced to the company. Although the economic information on a private equity fund is less relevant for a target firm, it is surprising that the reputation of a private equity fund has no bigger influence on target firms. Target firms do not prefer private equity funds with higher transparency, in contrast to fund investors, although for target firms there might be a clear incentive to have an idea on what will happen to their business.

With regard to the disclosure of financial information, Müller (2008) finds that European funds on average disclose 50%. After careful study we find that European funds on average disclose 68%. Nevertheless we focused mainly on statutory items and not on investor reports. Since the disclosure items are not completely similarly constructed we cannot conclude that firms in our sample disclose more information. However it does appear that our disclosure index on average reports higher levels of disclosure. We found that even though private equity funds were obliged to disclose such items they refused to or were unable to. This is similar to the refusal of private equity funds to publicize any information on a fund's commitments. Private equity funds state that information on their investments is highly sensitive and therefore choose not to publicize such information. Nonetheless 50%, as reported by Müller

(2008), and 68% percent disclosure is a relative need score as compared to United States' funds. There have been court orders against United States funds in order to force them to disclose more information and to expose the fund's investors.

However it is difficult to illustrate any further comparisons to our research and the research of Müller (2008). As stated our research focused on the pre-investment stage and Müller (2008) on the post-investment stage. Yet it is noticeable that a fund's investors value additional information more than target firms value a fund's financial information.

6.3 Conclusion

This chapter mainly discussed the book by Müller (2008). A brief summary on his chapter "Fund manager's reporting" was provided. Müller (2008) mainly researched five hypothesis, but mainly emphasized on the information gap between a fund's investors and a fund's managers. He researched what the variability in the amount of reported information of private equity funds is. Müller (2008) categorized the information he collected on two private equity funds into several subcategories. Then he tested the statistic significance of each subcategory. Overall strong evidence was only found for Müller's second hypothesis, where he found that European private equity funds score reasonably as compared to United States' funds. This is what our research showed too. The average for the disclosure index was 68% for European private equity funds. The previous chapter indicated that no relation could be found between the debt level of a target firm and the level of transparency of a private equity fund. A high transparency level thus does not seem important to target firms, where additional information is crucial to a fund's investors. The key lies in the different motives of the fund's investors and target firms. The fund's investors pursue economic motives; they are after profits and maximizing the value of the portfolio. Target firms are after attracting funds, to expand their business. They are basically in desperate need of funds.

The last chapter of this master thesis will provide the conclusion. The conclusion will deal with the limitations of the study, the findings of the master thesis and some recommendations for future research.

7. Conclusion

The private equity market can be characterized through information and agency asymmetries. Private equity investors screen their target firms in order to estimate whether the target firm is a solid investment. However it has never been researched whether target firms screen the private equity fund before they approach the fund for financing. Private equity financing has had a bad reputation for several years. Private equity financing was accused of causing detrimental effects to society. It has therefore been researched in this master thesis whether Eurozone target firms consider the financial statement transparency of Eurozone private equity funds between 2004 and 2008. The private equity funds were selected from the Eurozone, since the influence of judiciary, regulatory inflictions and exchange rate fluctuations could be prevented as such. European target firms were researched because not much research had been carried out on this topic.

In order to find out whether target firms actually take the financial statements of private equity funds into account, two scenarios can be created. The first being that target firms do not screen the financial statements of private equity funds, due to the fact that they are in desperate need of funds. Funds might be necessary to either further develop a product or to expand certain production lines. The second scenario is that firms do screen the financial statements of private equity funds, because they are hesitant towards the intentions of the fund. Not all private equity funds, disclose their strategy, investments or investors. The results of the analysis show that scenario two cannot be proven and so scenario one is likely to be the correct one.

To measure the relation between target firms and the financial statement transparency of private equity funds, it is assumed that high debt level target firms are desperate for funds and thus willing to accept low financial statement transparency of private equity funds. This relationship is estimated through constructing a disclosure index, which measures the transparency of the financial statements of private equity funds. The quality of financial statements is captured through the quantity of financial statement items and informational items a private equity fund provides. The total level of reported items is captured in a disclosure index.

The debt level of target firms is computed through running a regression on a number of debt ratios that are associated with the capital structure of a firm. Two more indicators of debt were used to ensure the robustness of the debt indicator. Consequently a panel data regression is run in order to estimate whether target firms are influenced by the financial statement transparency of private equity funds and to capture the time period.

The results we found show that target firms are likely not to be influenced by the transparency of the financial statements of private equity funds. We found no statistical evidence from which we could deduct that the debt level of a target firm is at all influenced by the transparency of the financial statements of a private equity fund. Therefore we can conclude that scenario two applies to our research. Target firms do not screen the financial statements of private equity funds. This could be considered a surprising outcome, since comparison with Müller (2008) showed that transparency is usually considered to be very important. Also regulations, comments from industry organizations and the European Commission all pinpoint or indicate that transparency is essential and should be improved. Our research implies that this is not the case for target firms. They seem to only be after obtaining funds and do not seem to be hesitant towards highly none transparent private equity funds. These results are interesting in the light for a push for more regulation on more transparency. If the target firms dealing with private equity funds are not interested in the level of financial statement transparency the usefulness of more regulation becomes questionable. However it might also be the case that target firms are less interested in financial statement transparency due a shortage of credit. As our research showed there was a positive effect for the years 2007 and 2008, which possibly indicates a financial crisis effect.

Nevertheless there are some drawbacks to our research. First of all we only considered the Eurozone, this because we tried to control for the influence of judiciary, regulatory inflictions and exchange rate fluctuations. Moreover the difference between Europe and the United States are not covered in this master thesis and also transactions between different geographical areas are not included. When a larger geographical distance is considered, the effect of transparency might become more important, which we cannot measure currently.

However looking at the identified private equity events it became clear that most transactions take place nationally. Private equity funds in our database usually strike a deal with domestic target firms. This would imply that an informational gap does exist. Approaching a private equity fund seems to be a somewhat informal event, where cultural differences and habits

play a role. It therefore appears that doing business within one's own country replaces the need for transparent private equity funds, since target firms do not fear aggressive foreign tactics. They expect a business approach to which they are accustomed to. United States private equity funds, for example, have the reputation of being more aggressive than European funds, which leads European target firms to search nationally and in need of lower transparency.

It would therefore be interesting to research whether this is actually the case. What is the rationality behind these national private equity events and is it a substitute for transparency? Furthermore it would be interesting to redo our analysis with solely non national private equity events and check whether transparency then becomes more important. Appendix C, which presents the national regulations on publication of financial statements, could be used to research these local partnerships.

Rules and regulations with regard to the financial statements of private equity funds have been under intense scrutiny. The lack of transparency has been blamed for many of the problems concerning the private equity market. Opponents state that private equity funds are only after short term profits. A European directive on alternative investment funds will probably be installed soon. This directive will have some implications for private equity funds, the main implication being that they should become more transparent. The industry fears that this will drive the funds out of Europe. The question therefore is: Do we consider transparency of investments more important than increased business activity? Our research seems to indicate that target firms do not select their partners based on the transparency of their financial statements. In any case accounting standards are at the heart of this transparency debate.

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Appendix A

Table 1: Overview of financial statement transparency and earnings quality literature

Author, year	Research	Sample	Research methods	Overview results
Armstrong, Davilla and Foster (2006)	Examine the role of financial statement information in a broad cross-section of industries in the venture-backed, private equity market.	Venture capital backed firms	Panel data analysis	Financial statement information can be used to explain Pre-IPO differences across companies in their private equity valuations and changes in these valuations over time.
Barth, Konchitchki and Landsman (2006)	It is researched whether firms with more financial statement transparency enjoy lower cost of capital	United States firms	Cross-sectional analysis	A negative relation is found between financial statement transparency and expected cost of capital based on the three Fama-French factors.
Beuselinck, Deloof and Manigart, 2008	Analyze the voluntary disclosure behavior of firms around private equity participation.	Belgian private firms	Cross-sectional and time regressions and logit and panel-logit model	Private equity presence positively influences voluntary financial disclosure. At very high private equity levels, ownership is positively related to increased financial disclosure.
Beuselinck, Deloof and Manigart, 2009	The effect of private equity on the observed earnings quality of private firms.	Belgian private firms	Pooled regression, 2 stage OLS model and probit model	Powerful earnings quality for private equity backed firms and there is no difference in earnings quality for various levels of private equity ownership.
Bushman, Piotroski and Smith, 2004	Corporate transparency as the availability of firm specific Information to outside parties	World countries	Factor analysis of a range of firm specific information measures	Governance transparency is related to a country's judicial system and financial transparency is related to political economy
Hand (2005)	Researches the value relevance of financial statement data and nonfinancial statement information within and across pre-and post private equity markets.	U.S. biotechnology firms	Panel data analysis	Financial statements are value relevant in the capital markets.

Healy and Palepu, 2001	Review research on financial reporting And voluntary disclosure of management	Literature review	Survey	The framework presents financial reporting and voluntary disclosure from a number of regulatory, auditing and managerial perspectives.
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Appendix B: Disclosure items and debt variables

Disclosure items		Source
General operational information on fund level		
Fund's domicile	Location fund	Amadeus
Legal form	Different recorded legal forms	Amadeus
Portfolio or fund strategy	Strategy of the fund	Amadeus
Strategic alliance	Relationship with other investment funds to pursuit a set of agreed upon goals	Amadeus
Auditor's name	Name accountancy office	Amadeus
Reporting basis	Consolidated or unconsolidated	Amadeus
Fund's employees	Number of employees working for fund	Amadeus
Note about the application of any reporting guidelines	IFRS or local GAAP	Amadeus
Name of CEO	Name of fund's CEO	Amadeus
Financial profile: Fund		
Business overview	Short description of fund's engagements	Amadeus
Trade description (English)	Description of the sector fund focuses on	Amadeus
Number of recorded investors	Number of total recorded investors	Amadeus
Name of recorded investors	Name of fund's investor	Amadeus
Type of investor	Type of industry investor is in	Amadeus
Percentage of total ownership stake	Percentage of total ownership by investors	Amadeus
Independence indicator investors	Company with known investors and do not own more than 24,9%	Amadeus
Investor funds	Funds from investors	Amadeus
Information source fund	Companies disclose ownership data themselves, either when they disclose their investors or list their subsidiaries. Such disclosures may or may not be mandatory according to company status (listed/unlisted) or ownership percentages.	Amadeus
Performance measurement on fund level		
EBITDA Margin	$((\text{EBIT} + \text{depreciation}) / \text{operating revenue}) * 100$	Amadeus
Profit Margin	$(\text{Profit before tax} / \text{operating revenue}) * 100$	Amadeus
Return on capital employed (percentage)	$((\text{Profit before tax} + \text{interest}) / (\text{Investor funds} + \text{Non current liabilities})) * 100$	Amadeus
Liquidity ratio (absolute)	$(\text{Current assets} - \text{Stocks}) / \text{Current liabilities}$	Amadeus
Solvency ratio (percentage)	$(\text{Investor funds} / \text{Total assets}) * 100$	Amadeus

Financial information fund: Profit and loss account

Operating revenue	Operating revenue/ turnover	Amadeus
Gross profit	Sales minus all costs directly related to those sales	Amadeus
Financial revenue		
	Revenues from sale of securities and shares + Revenues from long-term financial assets + Revenues from short term financial assets + Expenses on securities revaluation + Change of state of reserves and accounting adjustments in financial area + Received interests + Other financial revenues + Transfer of financial revenues	Amadeus
Financial expenses	Sold securities and shares + Expenses on financial assets + Expenses on securities revaluation + Paid interests + Other financial expenses + Transfer of financial expenses	Amadeus
Profit and loss before taxes	Operating income + Income from financial operations	Amadeus
Interest paid	Paid interests	Amadeus

Financial information fund: Balance sheet

Working capital	Stocks and contracts in progress + Trade debtors (after 1 year + within 1 year) - Suppliers (within 1 year).	Amadeus
Total assets	Total assets	Amadeus
Total investor funds and liabilities	Total investor funds and liabilities	Amadeus
Enterprise value	Total value of the enterprise	Amadeus

General information on portfolio companies and role of fund

Number of recorded portfolio companies by fund	Number of recorded portfolio companies by fund	Amadeus
Legal and trading names of portfolio companies	Legal and trading names portfolio companies	Amadeus
Industry/sub sector	Industry of portfolio company	Amadeus
Current stage of investment	The Ownership status informs on the existence or non-existence of a ultimate owner link between each subsidiary and sub-subsidiary with the subject company	Amadeus
Percentage owned direct by fund	Total percentage of portfolio company owned by fund	Amadeus
Type of subsidiary	Type of industry portfolio company is in	Amadeus
Number of employees	Number of employees of portfolio company	Amadeus

Target firm debt variables	Measurement/Definition
Leverage	Long term debt ratio = Long term debt/total assets
Tangibility	Ratio of fixed assets to total assets
Profit (t-1)	Operating income to total assets
Size	Natural logarithm of total sales
Tax	Income tax to earnings before interest and tax
Operating profit/loss	Operating income
Solvency ratio	Ratio of investor funds to total assets

Appendix C: National rules on publication of financial statement

publication Eurozone

	Which companies legally do not have to file any form of account?	Can companies file less information or not file accounts at all?
Austria	Private companies	No
Belgium	None all companies have to publicize	No
Finland	All companies except for: All joint-stock companies and all cooperatives; Limited partnerships, partnerships and private firms, which meet two of the following three conditions: turnover over 7.30 million EUR - balance sheet total over 3.65 million EUR - number of personnel over 50	Yes; 1. If the company is a limited partnership, partnership or firm, and the company's size has fallen below the limit values mentioned above, the company is not obligated to file the accounts; 2. if only one of the following three limit values is met; turnover over 3.4 million EUR - balance sheet total over 1.7 million EUR - number of personnel over 25, the company can file its accounts in a shortened form, in which no turnover or direct costs are shown
France	Partnerships (SNC), Affaires Personnelles, Coopératives, SCI, Administration, Associations, GIE, & Idots	In general not
Germany	Private companies	In general not
Greece	General Partnerships, Limited Partnerships, Sole Proprietorships	Yes, if they operate under liquidation status
Ireland	Unlimited companies	Yes
Italy	Not obligatory, except for public companies	-
Luxembourg	All companies except for: Public and Private limited companies	-
Malta	-	-
The Netherlands	Small companies	
Portugal	Individual Entities without businesses	Yes, a company may be, for instance under a "Companies Recovering Process"
Slovenia	None all companies have to publicize	All companies have to publicize the same data
Spain	Cooperatives, association, general/limited partnership	Small (medium sized) companies meeting during 2 years 2 of the following criteria: Balance Sheet Profit & Loss Accounts - total assets < 395 <1.580 - turnover < 790 <1.160 - employees < 50 < 250

Appendix D: Stata Code

D.1: Preparing the disclosure index

```
*generate dummy variables for disclosure index 2004

gen d_legalform2004 = 0
gen d_strategyorgandpolicy2004 = 0
gen d_auditorname2004 = 0
gen d_reportingbasis2004 = 0
gen d_employees2004 = 0
gen d_fullname2004 = 0
gen d_tradedescriptionenglish2004 = 0
gen d_shareholdername2004 = 0
gen d_shareholdertype2004 = 0
gen d_shareholderpercownership2004 = 0
gen d_indepind2004 = 0
gen d_ebitdamargin2004 = 0
gen d_profitmargin2004 = 0
gen d_returnoncapitalemployed2004 = 0
gen d_liquidityratiox2004 = 0
gen d_solvencyratio2004 = 0
gen d_workingcapitaltheur2004 = 0
gen d_totalassetstheur2004 = 0
gen d_totalsharefundsliabtheur2004 = 0
gen d_enterprisevaluetheur2004 = 0
gen d_operatingrevenueurnovert2004 = 0
gen d_grossprofittheur2004 = 0
gen d_financialrevenue2004 = 0
gen d_financialexpensestheur2004 = 0
gen d_profitlossbeforetaxtheur2004 = 0
gen d_interestpaidtheur2004 = 0
gen d_noofrecordedsubsidiaries2004 = 0
gen d_subsidiaryname2004 = 0
gen d_subsidiarystatus2004 = 0
gen d_subsidiarytype2004 = 0
gen d_subsidiarypercofownshipt2004 = 0
gen d_subsidiarynoofemployees2004 = 0
gen d_subsidiaryinfosource2004 = 0
gen d_shareholdersfundstheur2004 = 0
gen d_accountingpracticeyr2004 = 0
gen d_overview2004 = 0
gen d_strategicaliances2004 = 0
gen d_noofrecordedshareholders2004 = 0
gen d_immediateshareholderinfo = 0
gen d_subsidiaryindustry2004 = 0

replace d_legalform2004 = 1 if legalform2004 != ""
replace d_strategyorgandpolicy2004 = 1 if
strategyorganizationandpolicy200 != ""
replace d_auditorname2004 = 1 if auditorname2004 != ""
replace d_reportingbasis2004 = 1 if reportingbasis2004 != "No recent
account"
replace d_employees2004 = 1 if employees2004 != .
replace d_fullname2004 = 1 if fullname2004 != ""
replace d_tradedescriptionenglish2004 = 1 if tradedescriptionenglish2004
!= ""
replace d_shareholdername2004 = 1 if shareholdername2004 != ""
```

```

replace d_shareholdertype2004 = 1 if shareholdertype2004 != ""
replace d_shareholderperownership2004 = 1 if
(shareholderpercentageofownership != "" & shareholderpercentageofownership
!= "n.a.")
replace d_indepind2004 = 1 if (indepind2004 != "U" & indepind2004 != "-")
replace d_ebitdamargin2004 = 1 if ebitdamargin2004 != ""
replace d_profitmargin2004 = 1 if profitmargin2004 != ""
replace d_returnoncapitalemployed2004 = 1 if returnoncapitalemployed2004
!= ""
replace d_liquidityratiox2004 = 1 if liquidityratiox2004 != ""
replace d_solvenyratio2004 = 1 if solvenyratio2004 != ""
replace d_workingcapitaltheur2004 = 1 if workingcapitaltheur2004 != .
replace d_totalassetstheur2004 = 1 if totalassetstheur2004 != .
replace d_totalsharefundsliabtheur2004 = 1 if
totalsharefundsliabtheur2004 != .
replace d_enterprisevaluetheur2004 = 1 if enterprisevaluetheur2004 != .
replace d_operatingrevenueurnovert2004 = 1 if
operatingrevenueurnoverttheur2004 != .
replace d_grossprofittheur2004 = 1 if grossprofittheur2004 != .
replace d_financialrevenueurnovert2004 = 1 if financialrevenueurnovert2004
!= .
replace d_financialexpensestheur2004 = 1 if financialexpensestheur2004
!= .
replace d_profitlossbeforetaxtheur2004 = 1 if
profitlossbeforetaxtheur2004 != .
replace d_interestpaidtheur2004 = 1 if interestpaidtheur2004 != .
replace d_noofrecordedsubsidiaries2004 = 1 if
numberofrecordedsubsidiaries2004 != 0
replace d_subsidiaryname2004 = 1 if subsidiaryname2004 != ""
replace d_subsidiarystatus2004 = 1 if subsidiarystatus2004 != "-"
replace d_subsidiarytype2004 = 1 if subsidiarytype2004 != ""
replace d_subsidiarypercofofownership2004 = 1 if
(subsidiarypercentageofownership != "" &
subsidiarypercentageofownership != "n.a.")
replace d_subsidiarynoofemployees2004 = 1 if subsidiarynoofemployees2004
!= .
replace d_subsidiaryinfosource2004 = 1 if subsidiaryinformationsource2004
!= ""
replace d_shareholdersfundstheur2004 = 1 if shareholdersfundstheur2004
!= .
replace d_accountingpracticeyr2004 = 1 if
accountingpracticeyr2004 != ""
replace d_overview2004 = 1 if overview2004 != ""
replace d_strategicalliances2004 = 1 if strategicalliances2004 != ""
replace d_noofrecordedshareholders2004 = 1 if
noofrecordedshareholders2004 != 0
replace d_immediateshareholderinfo = 1 if
immediateshareholderinformations != ""
replace d_subsidiaryindustry2004 = 1 if subsidiaryindustry2004 != ""

gen disclosureindex2004 = 0
replace disclosureindex2004 = (d_legalform2004 + d_strategyorgandpolicy2004
+ d_auditorname2004 + d_reportingbasis2004 + d_employees2004 +
d_fullname2004 + d_tradedescriptionenglish2004 + d_shareholdertype2004 +
d_shareholderperownership2004 + d_indepind2004 +
d_ebitdamargin2004 + d_profitmargin2004 + d_returnoncapitalemployed2004 +
d_liquidityratiox2004 + d_solvenyratio2004 + d_workingcapitaltheur2004 +
d_totalassetstheur2004 + d_totalsharefundsliabtheur2004 +
d_enterprisevaluetheur2004 + d_operatingrevenueurnovert2004 +
d_grossprofittheur2004 + d_financialexpensestheur2004 +
d_financialrevenueurnovert2004 + d_profitlossbeforetaxtheur2004 +

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```

d_interestpaidtheur2004 + d_noofrecordedsubsidiaries2004 +
d_subsidiaryname2004 + d_subsidiarystatus2004 + d_subsidiarytype2004 +
d_subsidiarypercofownershipt2004 + d_subsidiarynoofemployees2004 +
d_shareholdersfundstheur2004 + d_subsidiaryinfosource2004 +
d_accountingpracticeyr2004 + d_overview2004 + d_strategicaliances2004 +
d_noofrecordedshareholders2004 + d_immediateshareholderinfo +
d_subsidiaryindustry2004)/40

```

*generate dummy variables for disclosure index 2005

```

gen d_legalform2005 = 0
gen d_strategyorgandpolicy2005 = 0
gen d_auditorname2005 = 0
gen d_reportingbasis2005 = 0
gen d_employees2005 = 0
gen d_fullname2005 = 0
gen d_tradedescriptionenglish2005 = 0
gen d_shareholdername2005 = 0
gen d_shareholdertype2005 = 0
gen d_shareholderperownership2005 = 0
gen d_indepind2005 = 0
gen d_ebitdamargin2005 = 0
gen d_profitmargin2005 = 0
gen d_returnoncapitalemployed2005 = 0
gen d_liquidityratiox2005 = 0
gen d_solvencyratio2005 = 0
gen d_workingcapitaltheur2005 = 0
gen d_totalassetstheur2005 = 0
gen d_totalsharefundsliabtheur2005 = 0
gen d_enterprisevaluetheur2005 = 0
gen d_operatingrevenueurnovert2005 = 0
gen d_grossprofittheur2005 = 0
gen d_financialrevenue2005 = 0
gen d_financialexpensestheur2005 = 0
gen d_profitlossbeforetaxtheur2005 = 0
gen d_interestpaidtheur2005 = 0
gen d_noofrecordedsubsidiaries2005 = 0
gen d_subsidiaryname2005 = 0
gen d_subsidiarystatus2005 = 0
gen d_subsidiarytype2005 = 0
gen d_subsidiarypercofownershipt2005 = 0
gen d_subsidiarynoofemployees2005 = 0
gen d_subsidiaryinfosource2005 = 0
gen d_shareholdersfundstheur2005 = 0
gen d_accountingpracticeyr2005 = 0
gen d_overview2005 = 0
gen d_strategicaliances2005 = 0
gen d_noofrecordedshareholders2005 = 0
gen d_immshareholderinfo2005 = 0
gen d_subsidiaryindustry2005 = 0

```

```

replace d_legalform2005 = 1 if legalform2005 != ""
replace d_strategyorgandpolicy2005 = 1 if v44 != ""
replace d_auditorname2005 = 1 if auditorname2005 != ""
replace d_reportingbasis2005 = 1 if reportingbasis2005 != "No recent
account"
replace d_employees2005 = 1 if employees2005 != .
replace d_fullname2005 = 1 if fullname2005 != ""
replace d_tradedescriptionenglish2005 = 1 if tradedescriptionenglish2005
!= ""

```

```

replace d_shareholdertype2005 = 1 if shareholdertype2005 != ""
replace d_shareholderperownership2005 = 1 if (v52 != "" & v52 != "n.a.")
replace d_indepind2005 = 1 if (indepind2005 != "U" & indepind2005 != "-")
replace d_ebitdamargin2005 = 1 if ebitdamargin2005 != ""
replace d_profitmargin2005 = 1 if profitmargin2005 != ""
replace d_returnoncapitalemployed2005 = 1 if returnoncapitalemployed2005
!= ""
replace d_liquidityratiox2005 = 1 if liquidityratiox2005 != ""
replace d_solvenyratio2005 = 1 if solvenyratio2005 != ""
replace d_workingcapitaltheur2005 = 1 if workingcapitaltheur2005 != .
replace d_totalassetstheur2005 = 1 if totalassetstheur2005 != .
replace d_totalsharefundsliabtheur2005 = 1 if
totalsharefundsliabtheur2005 != .
replace d_enterprisevaluetheur2005 = 1 if enterprisevaluetheur2005 != .
replace d_operatingrevenueurnovert2005 = 1 if v63 != .
replace d_grossprofittheur2005 = 1 if grossprofittheur2005 != .
replace d_financialrevenueurnovert2005 = 1 if financialrevenueurnovert2005
!= .
replace d_financialexpensestheur2005 = 1 if financialexpensestheur2005
!= .
replace d_profitlossbeforetaxtheur2005 = 1 if
profitlossbeforetaxtheur2005 != .
replace d_interestpaidtheur2005 = 1 if interestpaidtheur2005 != .
replace d_noofrecordedsubsidiaries2005 = 1 if
numberofrecordedsubsidiaries2005 != 0
replace d_subsiaryname2005 = 1 if subsiaryname2005 != ""
replace d_subsiarystatus2005 = 1 if subsiarystatus2005 != "-"
replace d_subsiarytype2005 = 1 if subsiarytype2005 != ""
replace d_subsiarypercofownshipt2005 = 1 if (v73 != "" & v73 !=
"n.a.")
replace d_subsiarynoofemployees2005 = 1 if subsiarynoofemployees2005
!= .
replace d_subsiaryinfosource2005 = 1 if subsiaryinformationsource2005
!= ""
replace d_shareholdersfundstheur2005 = 1 if shareholdersfundstheur2005
!= .
replace d_accountingpracticeyr2005 = 1 if v77 != ""
replace d_overview2005 = 1 if overview2005 != ""
replace d_strategicaliances2005 = 1 if strategicaliances2005 != ""
replace d_noofrecordedshareholders2005 = 1 if
noofrecordedshareholders2005 != 0
replace d_immshareholderinfo2005 = 1 if v81 != ""
replace d_subsiaryindustry2005 = 1 if subsiaryindustry2005 != ""

gen disclosureindex2005 = 0
replace disclosureindex2005 = (d_legalform2005 + d_strategyorgandpolicy2005
+ d_auditorname2005 + d_reportingbasis2005 + d_employees2005 +
d_fullname2005 + d_tradedescriptionenglish2005 + d_shareholdertype2005 +
d_shareholderperownership2005 + d_indepind2005 +
d_ebitdamargin2005 + d_profitmargin2005 + d_returnoncapitalemployed2005 +
d_liquidityratiox2005 + d_solvenyratio2005 + d_workingcapitaltheur2005 +
d_totalassetstheur2005 + d_totalsharefundsliabtheur2005 +
d_enterprisevaluetheur2005 + d_operatingrevenueurnovert2005 +
d_grossprofittheur2005 + d_financialexpensestheur2005 +
d_financialrevenueurnovert2005 + d_profitlossbeforetaxtheur2005 +
d_interestpaidtheur2005 + d_noofrecordedsubsidiaries2005 +
d_subsiaryname2005 + d_subsiarystatus2005 + d_subsiarytype2005 +
d_subsiarypercofownshipt2005 + d_subsiarynoofemployees2005 +
d_shareholdersfundstheur2005 + d_subsiaryinfosource2005 +
d_accountingpracticeyr2005 + d_overview2005 + d_strategicaliances2005 +

```

```
d_noofrecordedshareholders2005 + d_immshareholderinfo2005 +  
d_subsiaryindustry2005)/40
```

```
*generate dummy variables for disclosure index 2006
```

```
gen d_legalform2006 = 0  
gen d_strategyorgandpolicy2006 = 0  
gen d_auditorname2006 = 0  
gen d_reportingbasis2006 = 0  
gen d_employees2006 = 0  
gen d_fullname2006 = 0  
gen d_tradedescriptionenglish2006 = 0  
gen d_shareholdername2006 = 0  
gen d_shareholdertype2006 = 0  
gen d_shareholderpercownership2006 = 0  
gen d_indepind2006 = 0  
gen d_ebitdamargin2006 = 0  
gen d_profitmargin2006 = 0  
gen d_returnoncapitalemployed2006 = 0  
gen d_liquidityratiox2006 = 0  
gen d_solvenyratio2006 = 0  
gen d_workingcapitaltheur2006 = 0  
gen d_totalassetstheur2006 = 0  
gen d_totalsharefundsliabtheur2006 = 0  
gen d_enterprisevaluetheur2006 = 0  
gen d_operatingrevenueurnovert2006 = 0  
gen d_grossprofittheur2006 = 0  
gen d_financialrevenue2006 = 0  
gen d_financialexpensestheur2006 = 0  
gen d_profitlossbeforetaxtheur2006 = 0  
gen d_interestpaidtheur2006 = 0  
gen d_noofrecordedsubsidiaries2006 = 0  
gen d_subsiaryname2006 = 0  
gen d_subsiarystatus2006 = 0  
gen d_subsiarytype2006 = 0  
gen d_subsiarypercofownshipt2006 = 0  
gen d_subsiarynoofemployees2006 = 0  
gen d_subsiaryinfosource2006 = 0  
gen d_shareholdersfundstheur2006 = 0  
gen d_accountingpracticeyr2006 = 0  
gen d_overview2006 = 0  
gen d_strategicaliances2006 = 0  
gen d_noofrecordedshareholders2006 = 0  
gen d_immshareholderinfo2006 = 0  
gen d_subsiaryindustry2006 = 0
```

```
replace d_legalform2006 = 1 if legalform2006 != ""  
replace d_strategyorgandpolicy2006 = 1 if v84 != ""  
replace d_auditorname2006 = 1 if auditorname2006 != ""  
replace d_reportingbasis2006 = 1 if reportingbasis2006 != "No recent  
account"  
replace d_employees2006 = 1 if employees2006 != .  
replace d_fullname2006 = 1 if fullname2006 != ""  
replace d_tradedescriptionenglish2006 = 1 if tradedescriptionenglish2006  
!= ""  
replace d_shareholdername2006 = 1 if shareholdername2006 != ""  
replace d_shareholdertype2006 = 1 if shareholdertype2006 != ""  
replace d_shareholderpercownership2006 = 1 if (v92 != "" & v92 != "n.a.")  
replace d_indepind2006 = 1 if (indepind2006 != "U" & indepind2006 != "-")  
replace d_ebitdamargin2006 = 1 if ebitdamargin2006 != ""
```

```

replace d_profitmargin2006 = 1 if profitmargin2006 != ""
replace d_returnoncapitalemployed2006 = 1 if returnoncapitalemployed2006
!= ""
replace d_liquidityratiox2006 = 1 if liquidityratiox2006 != ""
replace d_solvenyratio2006 = 1 if solvenyratio2006 != ""
replace d_workingcapitaltheur2006 = 1 if workingcapitaltheur2006 != .
replace d_totalassetstheur2006 = 1 if totalassetstheur2006 != .
replace d_totalsharefundsliabtheur2006 = 1 if
totalsharefundsliabtheur2006 != .
replace d_enterprisevaluetheur2006 = 1 if enterprisevaluetheur2006 != .
replace d_operatingrevenueurnovert2006 = 1 if v103 != .
replace d_grossprofittheur2006 = 1 if grossprofittheur2006 != .
replace d_financialrevenueurnovert2006 = 1 if financialrevenueurnovert2006 !=
.
replace d_financialexpensestheur2006 = 1 if financialexpensestheur2006
!= .
replace d_profitlossbeforetaxtheur2006 = 1 if
profitlossbeforetaxtheur2006 != .
replace d_interestpaidtheur2006 = 1 if interestpaidtheur2006 != .
replace d_noofrecordedsubsidiaries2006 = 1 if
numberofrecordedsubsidiaries2006 != 0
replace d_subsidiaryname2006 = 1 if subsidiaryname2006 != ""
replace d_subsidiarystatus2006 = 1 if subsidiarystatus2006 != "-"
replace d_subsidiarytype2006 = 1 if subsidiarytype2006 != ""
replace d_subsidiarypercofownshipt2006 = 1 if (v113 != "" & v113 !=
"n.a.")
replace d_subsidiarynoofemployees2006 = 1 if subsidiarynoofemployees2006
!= .
replace d_subsidiaryinfosource2006 = 1 if subsidiaryinformationsource2006
!= ""
replace d_shareholdersfundstheur2006 = 1 if shareholdersfundstheur2006
!= .
replace d_accountingpracticeyr2006 = 1 if v117 != ""
replace d_overview2006 = 1 if overview2006 != ""
replace d_strategicaliances2006 = 1 if strategicaliances2006 != ""
replace d_noofrecordedshareholders2006 = 1 if
noofrecordedshareholders2006 != 0
replace d_immshareholderinfo2006 = 1 if v121 != ""
replace d_subsidiaryindustry2006 = 1 if subsidiaryindustry2006 != ""

gen disclosureindex2006 = 0
replace disclosureindex2006 = (d_legalform2006 + d_strategyorgandpolicy2006
+ d_auditorname2006 + d_reportingbasis2006 + d_employees2006 +
d_fullname2006 + d_tradedescriptionenglish2006 + d_shareholdername2006 +
d_shareholdertype2006 + d_shareholderperownership2006 + d_indepind2006 +
d_ebitdamargin2006 + d_profitmargin2006 + d_returnoncapitalemployed2006 +
d_liquidityratiox2006 + d_solvenyratio2006 + d_workingcapitaltheur2006 +
d_totalassetstheur2006 + d_totalsharefundsliabtheur2006 +
d_enterprisevaluetheur2006 + d_operatingrevenueurnovert2006 +
d_grossprofittheur2006 + d_financialexpensestheur2006 +
d_financialrevenueurnovert2006 + d_profitlossbeforetaxtheur2006 +
d_interestpaidtheur2006 + d_noofrecordedsubsidiaries2006 +
d_subsidiaryname2006 + d_subsidiarystatus2006 + d_subsidiarytype2006 +
d_subsidiarypercofownshipt2006 + d_subsidiarynoofemployees2006 +
d_shareholdersfundstheur2006 + d_subsidiaryinfosource2006 +
d_accountingpracticeyr2006 + d_overview2006 + d_strategicaliances2006 +
d_noofrecordedshareholders2006 + d_immshareholderinfo2006 +
d_subsidiaryindustry2006)/40

```

*generate dummy variables for disclosure index 2007

```

gen d_legalform2007 = 0
gen d_strategyorgandpolicy2007 = 0
gen d_auditorname2007 = 0
gen d_reportingbasis2007 = 0
gen d_employees2007 = 0
gen d_fullname2007 = 0
gen d_tradedescriptionenglish2007 = 0
gen d_shareholdername2007 = 0
gen d_shareholdertype2007 = 0
gen d_shareholderpercownership2007 = 0
gen d_indepind2007 = 0
gen d_ebitdamargin2007 = 0
gen d_profitmargin2007 = 0
gen d_returnoncapitalemployed2007 = 0
gen d_liquidityratiox2007 = 0
gen d_solvenyratio2007 = 0
gen d_workingcapitaltheur2007 = 0
gen d_totalassetstheur2007 = 0
gen d_totalsharefundsliabtheur2007 = 0
gen d_enterprisevaluetheur2007 = 0
gen d_operatingrevenueurnovert2007 = 0
gen d_grossprofittheur2007 = 0
gen d_financialrevenue2007 = 0
gen d_financialexpensestheur2007 = 0
gen d_profitlossbeforetaxtheur2007 = 0
gen d_interestpaidtheur2007 = 0
gen d_noofrecordedsubsidiaries2007 = 0
gen d_subsidiaryname2007 = 0
gen d_subsidiarystatus2007 = 0
gen d_subsidiarytype2007 = 0
gen d_subsidiarypercofownshipt2007 = 0
gen d_subsidiarynoofemployees2007 = 0
gen d_subsidiaryinfosource2007 = 0
gen d_shareholdersfundstheur2007 = 0
gen d_accountingpracticeyr2007 = 0
gen d_overview2007 = 0
gen d_strategicaliances2007 = 0
gen d_noofrecordedshareholders2007 = 0
gen d_immshareholderinfo2007 = 0
gen d_subsidiaryindustry2007 = 0

```

```

replace d_legalform2007 = 1 if legalform2007 != ""
replace d_strategyorgandpolicy2007 = 1 if v124 != ""
replace d_auditorname2007 = 1 if auditorname2007 != ""
replace d_reportingbasis2007 = 1 if reportingbasis2007 != "No recent
account"
replace d_employees2007 = 1 if employees2007 != .
replace d_fullname2007 = 1 if fullname2007 != ""
replace d_tradedescriptionenglish2007 = 1 if tradedescriptionenglish2007
!= ""
replace d_shareholdername2007 = 1 if shareholdername2007 != ""
replace d_shareholdertype2007 = 1 if shareholdertype2007 != ""
replace d_shareholderpercownership2007 = 1 if (v132 != "" & v132 !=
"n.a.")
replace d_indepind2007 = 1 if (indepind2007 != "U" & indepind2007 != "-")
replace d_ebitdamargin2007 = 1 if ebitdamargin2007 != ""
replace d_profitmargin2007 = 1 if profitmargin2007 != ""
replace d_returnoncapitalemployed2007 = 1 if returnoncapitalemployed2007
!= ""
replace d_liquidityratiox2007 = 1 if liquidityratiox2007 != ""

```



```

replace d_solvenyratio2007 = 1 if solvenyratio2007 != ""
replace d_workingcapitaltheur2007 = 1 if workingcapitaltheur2007 != .
replace d_totalassetstheur2007 = 1 if totalassetstheur2007 != .
replace d_totalsharehundsliabtheur2007 = 1 if
totalsharehundsliabtheur2007 != .
replace d_enterprisevaluetheur2007 = 1 if enterprisevaluetheur2007 != .
replace d_operatingrevenueurnovert2007 = 1 if v143 != .
replace d_grossprofittheur2007 = 1 if grossprofittheur2007 != .
replace d_financialrevenueheur2007 = 1 if financialrevenueheur2007 !=
.
replace d_financialexpensestheur2007 = 1 if financialexpensestheur2007
!= .
replace d_profitlossbeforetaxtheur2007 = 1 if
profitlossbeforetaxtheur2007 != .
replace d_interestpaidtheur2007 = 1 if interestpaidtheur2007 != .
replace d_noofrecordedsubsidiaries2007 = 1 if
numberofrecordedsubsidiaries2007 != 0
replace d_subsidiaryname2007 = 1 if subsidiaryname2007 != ""
replace d_subsidiarystatus2007 = 1 if subsidiarystatus2007 != "-"
replace d_subsidiarytype2007 = 1 if subsidiarytype2007 != ""
replace d_subsidiarypercofownshipt2007 = 1 if (v153 != "" & v153 !=
"n.a.")
replace d_subsidiarynoofemployees2007 = 1 if subsidiarynoofemployees2007
!= .
replace d_subsidiaryinfosource2007 = 1 if subsidiaryinformationsource2007
!= ""
replace d_shareholdersfundstheur2007 = 1 if shareholdersfundstheur2007
!= .
replace d_accountingpracticeyr2007 = 1 if v157 != ""
replace d_overview2007 = 1 if overview2007 != ""
replace d_strategicaliances2007 = 1 if strategicaliances2007 != ""
replace d_noofrecordedshareholders2007 = 1 if
noofrecordedshareholders2007 != 0
replace d_immshareholderinfo2007 = 1 if v161 != ""
replace d_subsidiaryindustry2007 = 1 if subsidiaryindustry2007 != ""

gen disclosureindex2007 = 0
replace disclosureindex2007 = (d_legalform2007 + d_strategyorgandpolicy2007
+ d_auditorname2007 + d_reportingbasis2007 + d_employees2007 +
d_fullname2007 + d_tradedescriptionenglish2007 + d_shareholdername2007 +
d_shareholdertype2007 + d_shareholderpercownership2007 + d_indepind2007 +
d_ebitdamargin2007 + d_profitmargin2007 + d_returnoncapitalemployed2007 +
d_liquidityratiox2007 + d_solvenyratio2007 + d_workingcapitaltheur2007 +
d_totalassetstheur2007 + d_totalsharehundsliabtheur2007 +
d_enterprisevaluetheur2007 + d_operatingrevenueurnovert2007 +
d_grossprofittheur2007 + d_financialexpensestheur2007 +
d_financialrevenueheur2007 + d_profitlossbeforetaxtheur2007 +
d_interestpaidtheur2007 + d_noofrecordedsubsidiaries2007 +
d_subsidiaryname2007 + d_subsidiarystatus2007 + d_subsidiarytype2007 +
d_subsidiarypercofownshipt2007 + d_subsidiarynoofemployees2007 +
d_shareholdersfundstheur2007 + d_subsidiaryinfosource2007 +
d_accountingpracticeyr2007 + d_overview2007 + d_strategicaliances2007 +
d_noofrecordedshareholders2007 + d_immshareholderinfo2007 +
d_subsidiaryindustry2007)/40

*generate dummy variables for disclosure index 2008

gen d_legalform2008 = 0
gen d_strategyorgandpolicy2008 = 0
gen d_auditorname2008 = 0
gen d_reportingbasis2008 = 0

```

```

gen d_employees2008 = 0
gen d_fullname2008 = 0
gen d_tradedescriptionenglish2008 = 0
gen d_shareholdertype2008 = 0
gen d_shareholderperownership2008 = 0
gen d_indepind2008 = 0
gen d_ebitdamargin2008 = 0
gen d_profitmargin2008 = 0
gen d_returnoncapitalemployed2008 = 0
gen d_liquidityratiox2008 = 0
gen d_solvenyratio2008 = 0
gen d_workingcapitaltheur2008 = 0
gen d_totalassetstheur2008 = 0
gen d_totalsharefundsliabtheur2008 = 0
gen d_enterprisevaluetheur2008 = 0
gen d_operatingrevenueurnovert2008 = 0
gen d_grossprofittheur2008 = 0
gen d_financialrevenue2008 = 0
gen d_financialexpensestheur2008 = 0
gen d_profitlossbeforetaxtheur2008 = 0
gen d_interestpaidtheur2008 = 0
gen d_noofrecordedsubsidiaries2008 = 0
gen d_subsidiaryname2008 = 0
gen d_subsidiarystatus2008 = 0
gen d_subsidiarytype2008 = 0
gen d_subsidiarypercofownshipt2008 = 0
gen d_subsidiarynoofemployees2008 = 0
gen d_subsidiaryinfosource2008 = 0
gen d_shareholdersfundstheur2008 = 0
gen d_accountingpracticeyr2008 = 0
gen d_overview2008 = 0
gen d_strategicaliances2008 = 0
gen d_noofrecordedshareholders2008 = 0
gen d_immshareholderinfo2008 = 0
gen d_subsidiaryindustry2008 = 0

```

```

replace d_legalform2008 = 1 if legalform2008 != ""
replace d_strategyorgandpolicy2008 = 1 if v164 != ""
replace d_auditorname2008 = 1 if auditorname2008 != ""
replace d_reportingbasis2008 = 1 if reportingbasis2008 != "No recent
account"
replace d_employees2008 = 1 if employees2008 != .
replace d_fullname2008 = 1 if fullname2008 != ""
replace d_tradedescriptionenglish2008 = 1 if tradedescriptionenglish2008
!= ""
replace d_shareholdertype2008 = 1 if shareholdertype2008 != ""
replace d_shareholderperownership2008 = 1 if (v172 != "" & v172 !=
"n.a.")
replace d_indepind2008 = 1 if (indepind2008 != "U" & indepind2008 != "-")
replace d_ebitdamargin2008 = 1 if ebitdamargin2008 != ""
replace d_profitmargin2008 = 1 if profitmargin2008 != ""
replace d_returnoncapitalemployed2008 = 1 if returnoncapitalemployed2008
!= ""
replace d_liquidityratiox2008 = 1 if liquidityratiox2008 != ""
replace d_solvenyratio2008 = 1 if solvenyratio2008 != ""
replace d_workingcapitaltheur2008 = 1 if workingcapitaltheur2008 != .
replace d_totalassetstheur2008 = 1 if totalassetstheur2008 != .

```

```

replace d_totalsharefundsliabtheur2008 = 1 if
totalsharefundsliabtheur2008 != .
replace d_enterprisevaluetheur2008 = 1 if enterprisevaluetheur2008 != .
replace d_operatingrevenueurnovert2008 = 1 if v183 != .
replace d_grossprofittheur2008 = 1 if grossprofittheur2008 != .
replace d_financialrevenue2008 = 1 if financialrevenue2008 !=
.
replace d_financialexpensestheur2008 = 1 if financialexpensestheur2008
!= .
replace d_profitlossbeforetaxtheur2008 = 1 if
profitlossbeforetaxtheur2008 != .
replace d_interestpaidtheur2008 = 1 if interestpaidtheur2008 != .
replace d_noofrecordedsubsidiaries2008 = 1 if
numberofrecordedsubsidiaries2008 != 0
replace d_subsidiaryname2008 = 1 if subsidiaryname2008 != ""
replace d_subsidiarystatus2008 = 1 if subsidiarystatus2008 != "-"
replace d_subsidiarytype2008 = 1 if subsidiarytype2008 != ""
replace d_subsidiarypercofownershipt2008 = 1 if (v193 != "" & v193 !=
"n.a.")
replace d_subsidiarynoofemployees2008 = 1 if subsidiarynoofemployees2008
!= .
replace d_subsidiaryinfosource2008 = 1 if subsidiaryinformationsource2008
!= ""
replace d_shareholdersfundstheur2008 = 1 if shareholdersfundstheur2008
!= .
replace d_accountingpracticeyr2008 = 1 if v197 != ""
replace d_overview2008 = 1 if overview2008 != ""
replace d_strategicaliances2008 = 1 if strategicaliances2008 != ""
replace d_noofrecordedshareholders2008 = 1 if
noofrecordedshareholders2008 != 0
replace d_immshareholderinfo2008 = 1 if v201 != ""
replace d_subsidiaryindustry2008 = 1 if subsidiaryindustry2008 != ""

gen disclosureindex2008 = 0
replace disclosureindex2008 = (d_legalform2008 + d_strategyorgandpolicy2008
+ d_auditorname2008 + d_reportingbasis2008 + d_employees2008 +
d_fullname2008 + d_tradedescriptionenglish2008 + d_shareholdertype2008 +
d_shareholderperownership2008 + d_indepind2008 +
d_ebitdamargin2008 + d_profitmargin2008 + d_returnoncapitalemployed2008 +
d_liquidityratio2008 + d_solvenyratio2008 + d_workingcapitaltheur2008 +
d_totalassetstheur2008 + d_totalsharefundsliabtheur2008 +
d_enterprisevaluetheur2008 + d_operatingrevenueurnovert2008 +
d_grossprofittheur2008 + d_financialexpensestheur2008 +
d_financialrevenue2008 + d_profitlossbeforetaxtheur2008 +
d_interestpaidtheur2008 + d_noofrecordedsubsidiaries2008 +
d_subsidiaryname2008 + d_subsidiarystatus2008 + d_subsidiarytype2008 +
d_subsidiarypercofownershipt2008 + d_subsidiarynoofemployees2008 +
d_shareholdersfundstheur2008 + d_subsidiaryinfosource2008 +
d_accountingpracticeyr2008 + d_overview2008 + d_strategicaliances2008 +
d_noofrecordedshareholders2008 + d_immshareholderinfo2008 +
d_subsidiaryindustry2008)/40

*Making database ready for panel data

*deleting data
drop legalform2004
drop strategyorganizationandpolicy200
drop auditorname2004
drop reportingbasis2004
drop employees2004
drop fullname2004

```

drop tradedescriptionenglish2004
 drop shareholdername2004
 drop shareholderstype2004
 drop shareholderpercentageofownership
 drop indepind2004
 drop ebitdamargin2004
 drop returnoncapitalemployed2004
 drop liquidityratiox2004
 drop solvencyratio2004
 drop workingcapitaltheur2004
 drop totalassetstheur2004
 drop totalsharefundsliabtheur2004
 drop enterprisevaluetheur2004
 drop operatingrevenue turnover theur200
 drop grossprofittheur2004
 drop financialrevenue theur2004
 drop financialexpense theur2004
 drop profitlossbeforetax theur2004
 drop interestpaid theur2004
 drop numberofrecordedsubsidiaries2004
 drop subsidiaryname2004
 drop subsidiarystatus2004
 drop subsidiarytype2004
 drop subsidiarypercentageofownership
 drop subsidiarynoofemployees2004
 drop subsidiaryinformationsource2004
 drop shareholdersfundstheur2004
 drop accountingpracticelastavailyr200
 drop overview2004
 drop strategicalliances2004
 drop noofrecordedshareholders2004
 drop immediateshareholderinformations
 drop subsidiaryindustry2004

drop legalform2005
 drop v44
 drop auditorname2005
 drop reportingbasis2005
 drop employees2005
 drop fullname2005
 drop tradedescriptionenglish2005
 drop shareholdername2005
 drop shareholderstype2005
 drop v52
 drop indepind2005
 drop ebitdamargin2005
 drop profitmargin2005
 drop returnoncapitalemployed2005
 drop liquidityratiox2005
 drop solvencyratio2005
 drop workingcapitaltheur2005
 drop totalassetstheur2005
 drop totalsharefundsliabtheur2005
 drop enterprisevaluetheur2005
 drop v63
 drop grossprofittheur2005
 drop financialrevenue theur2005
 drop financialexpense theur2005
 drop profitlossbeforetax theur2005
 drop interestpaid theur2005
 drop numberofrecordedsubsidiaries2005

drop subsidiaryname2005
 drop subsidiarystatus2005
 drop subsidiarytype2005
 drop v73
 drop subsidiarynoofemployees2005
 drop subsidiaryinformationsource2005
 drop shareholdersfundstheur2005
 drop v77
 drop overview2005
 drop strategicalliances2005
 drop noofrecordedshareholders2005
 drop v81
 drop subsidiaryindustry2005

drop legalform2006
 drop v84
 drop auditorname2006
 drop reportingbasis2006
 drop employees2006
 drop fullname2006
 drop tradedescriptionenglish2006
 drop shareholdername2006
 drop shareholderstype2006
 drop v92
 drop indepind2006
 drop ebitdamargin2006
 drop profitmargin2006
 drop returnoncapitalemployed2006
 drop liquidityratiox2006
 drop solvencyratio2006
 drop workingcapitaltheur2006
 drop totalassetstheur2006
 drop totalsharehfundsliabtheur2006
 drop enterprisevaluetheur2006
 drop v103
 drop grossprofittheur2006
 drop financialrevenuetheur2006
 drop financialexpensestheur2006
 drop profitlossbeforetaxtheur2006
 drop interestpaidtheur2006
 drop numberofrecordedsubsidiaries2006
 drop subsidiaryname2006
 drop subsidiarystatus2006
 drop subsidiarytype2006
 drop v113
 drop subsidiarynoofemployees2006
 drop subsidiaryinformationsource2006
 drop shareholdersfundstheur2006
 drop v117
 drop overview2006
 drop strategicalliances2006
 drop noofrecordedshareholders2006
 drop v121
 drop subsidiaryindustry2006

drop legalform2007
 drop v124
 drop auditorname2007
 drop reportingbasis2007
 drop employees2007
 drop fullname2007

drop tradedescriptionenglish2007
drop shareholdername2007
drop shareholderstype2007
drop v132
drop indepind2007
drop ebitdamargin2007
drop profitmargin2007
drop returnoncapitalemployed2007
drop liquidityratiox2007
drop solvencyratio2007
drop workingcapitaltheur2007
drop totalassetstheur2007
drop totalsharehundsliabtheur2007
drop enterprisevaluetheur2007
drop v143
drop grossprofittheur2007
drop financialrevenuetheur2007
drop financialexpensestheur2007
drop profitlossbeforetaxtheur2007
drop interestpaidtheur2007
drop numberofrecordedsubsidiaries2007
drop subsidiaryname2007
drop subsidiarystatus2007
drop subsidiarytype2007
drop v153
drop subsidiaryinformationsource2007
drop shareholdersfundstheur2007
drop v157
drop overview2007
drop strategicalliances2007
drop noofrecordedshareholders2007
drop v161
drop subsidiaryindustry2007

drop legalform2008
drop v164
drop auditorname2008
drop employees2008
drop fullname2008
drop tradedescriptionenglish2008
drop shareholdername2008
drop shareholderstype2008
drop v172
drop indepind2008
drop ebitdamargin2008
drop profitmargin2008
drop returnoncapitalemployed2008
drop liquidityratiox2008
drop solvencyratio2008
drop workingcapitaltheur2008
drop totalassetstheur2008
drop totalsharehundsliabtheur2008
drop enterprisevaluetheur2008
drop v183
drop grossprofittheur2008
drop financialrevenuetheur2008
drop financialexpensestheur2008
drop profitlossbeforetaxtheur2008
drop interestpaidtheur2008
drop numberofrecordedsubsidiaries2008
drop subsidiaryname2008

```

drop subsidiarystatus2008
drop subsidiarytype2008
drop v193
drop subsidiarynoofemployees2008
drop subsidiaryinformationsource2008
drop shareholdersfundstheur2008
drop v197
drop overview2008
drop strategicalliances2008
drop noofrecordedshareholders2008
drop v201
drop subsidiaryindustry2008

save "D:\Naomi Scriptie\AmadeusDisclosurev4.dta", replace

gen year = 2004
save "D:\Naomi Scriptie\AmadeusDisclosurev4_2004.dta", replace

use "D:\Naomi Scriptie\AmadeusDisclosurev4.dta", clear

gen year = 2005
save "D:\Naomi Scriptie\AmadeusDisclosurev4_2005.dta", replace

use "D:\Naomi Scriptie\AmadeusDisclosurev4.dta", clear

gen year = 2006
save "D:\Naomi Scriptie\AmadeusDisclosurev4_2006.dta", replace

use "D:\Naomi Scriptie\AmadeusDisclosurev4.dta", clear

gen year = 2007
save "D:\Naomi Scriptie\AmadeusDisclosurev4_2007.dta", replace

use "D:\Naomi Scriptie\AmadeusDisclosurev4.dta", clear

gen year = 2008
save "D:\Naomi Scriptie\AmadeusDisclosurev4_2008.dta", replace

use "D:\Naomi Scriptie\AmadeusDisclosurev4_2004.dta", clear

append using "D:\Naomi Scriptie\AmadeusDisclosurev4_2005.dta"
append using "D:\Naomi Scriptie\AmadeusDisclosurev4_2006.dta"
append using "D:\Naomi Scriptie\AmadeusDisclosurev4_2007.dta"
append using "D:\Naomi Scriptie\AmadeusDisclosurev4_2008.dta"

gen disclosureindex = .

replace disclosureindex = disclosureindex2004 if year == 2004
replace disclosureindex = disclosureindex2005 if year == 2005
replace disclosureindex = disclosureindex2006 if year == 2006
replace disclosureindex = disclosureindex2007 if year == 2007
replace disclosureindex = disclosureindex2008 if year == 2008

save "D:\Naomi Scriptie\AmadeusDisclosurev5.dta", replace

*use "D:\Naomi Scriptie\AmadeusDisclosurev4.dta", clear

```

D.2: Preparing debt variables

```
*import debt variables into stata

insheet using "D:\Naomi Scriptie\Amadeus debt variables target firms
10juni.csv", delimiter(";") names

*rename variables
rename noncurrentliabilitieslongtermdeb longtermdebt2008
rename v44 longtermdebt2007
rename v45 longtermdebt2006
rename v46 longtermdebt2005
rename v47 longtermdebt2004

*regressions debtratio

*regress debtratio2004 enterprisevaluetheur2004 incometaxtoebit2004
longtermdebtratio2004 operatingincometoassets2004 operatingpltheur2004
solvencyratio2004 ratiofixedassets2004 lnsales2004
*regress debtratio2005 enterprisevaluetheur2005 incometaxtoebit2005
longtermdebtratio2005 operatingincometoassets2005 operatingpltheur2005
solvencyratio2005 ratiofixedassets2005 lnsales2005
*regress debtratio2006 enterprisevaluetheur2006 incometaxtoebit2006
longtermdebtratio2006 operatingincometoassets2006 operatingpltheur2006
solvencyratio2006 ratiofixedassets2006 lnsales2006
*regress debtratio2007 enterprisevaluetheur2007 incometaxtoebit2007
longtermdebtratio2007 operatingincometoassets2007 operatingpltheur2007
solvencyratio2007 ratiofixedassets2007 lnsales2007
*regress debtratio2008 enterprisevaluetheur2008 incometaxtoebit2008
longtermdebtratio2008 operatingincometoassets2008 operatingpltheur2008
solvencyratio2008 ratiofixedassets2008 lnsales2008

regress longtermdebt2004 incometaxtoebit2004 longtermdebtratio2004
operatingincometoassets2004 ratiofixedassets2004 lnsales2004, noconstant
regress longtermdebt2005 incometaxtoebit2005 longtermdebtratio2005
operatingincometoassets2005 ratiofixedassets2005 lnsales2005, noconstant
regress longtermdebt2006 incometaxtoebit2006 longtermdebtratio2006
operatingincometoassets2006 ratiofixedassets2006 lnsales2006, noconstant
regress longtermdebt2007 incometaxtoebit2007 longtermdebtratio2007
operatingincometoassets2007 ratiofixedassets2007 lnsales2007, noconstant
regress longtermdebt2008 incometaxtoebit2008 longtermdebtratio2008
operatingincometoassets2008 ratiofixedassets2008 lnsales2008, noconstant

gen newdebt2004 = .
gen newdebt2005 = .
gen newdebt2006 = .
gen newdebt2007 = .
gen newdebt2008 = .

replace newdebt2004 = (-1244.364 * incometaxtoebit2004) + (490186.6*
longtermdebtratio2004) + (-184157.2 * operatingincometoassets2004) + (-
150754.1* ratiofixedassets2004) + (47891.15* lnsales2004)
replace newdebt2005 = (1160.077* incometaxtoebit2005) + (515824.4*
longtermdebtratio2005) + (-223381.1* operatingincometoassets2005) + (-
156422.6* ratiofixedassets2005) + (51858.8* lnsales2005)
replace newdebt2006 = (-1206.297* incometaxtoebit2006) + (405693.6*
longtermdebtratio2006) + (-244200* operatingincometoassets2006) + (-
112741.4* ratiofixedassets2006) + (56797.97* lnsales2006)
```



```

replace newdebt2007 = (-476.694* incometaxtoebit2007) + (478127*
longtermdebtratio2007) + (-155372.7 * operatingincometoassets2007) +
(14050.65 * ratiofixedassets2007) + (42835.4* lnsales2007)
replace newdebt2008 = (-2645.851* incometaxtoebit2008) + (442833.7*
longtermdebtratio2008) + (-327146.7* operatingincometoassets2008) + (-
313367.8* ratiofixedassets2008) + (79958.98* lnsales2008)replace
newdebt2005 = (873.9217 * incometaxtoebit2005) + (250381.6 *
longtermdebtratio2005) + (-16043.46 * operatingincometoassets2005) +
(3.517968 * operatingpltheur2005) + (-523.6116 * solvencyratio2005) +
(36510.76 * ratiofixedassets2005) + (-41.79296 * lnsales2005)
replace newdebt2006 = (-123.6912 * incometaxtoebit2006) + (311183.3 *
longtermdebtratio2006) + (5229.518 * operatingincometoassets2006) +
(4.285904 * operatingpltheur2006) + ( 32.55496 * solvencyratio2006) + (
30062.1 * ratiofixedassets2006) + (-7700.276 * lnsales2006)
replace newdebt2007 = (71.91522 * incometaxtoebit2007) + (463297.4 *
longtermdebtratio2007) + (-15904.14 * operatingincometoassets2007) +
(3.612152 * operatingpltheur2007) + (-654.163 * solvencyratio2007) +
(-19605.27 * ratiofixedassets2007) + (754.3814 * lnsales2007)
replace newdebt2008 = (-1395.139 * incometaxtoebit2008) + (313188.9
* longtermdebtratio2008) + (-76183.92 * operatingincometoassets2008) +
(3.352324 * operatingpltheur2008) + ( -1248.919 * solvencyratio2008) +
( -69194.63 * ratiofixedassets2008) + ( 17755.04 * lnsales2008)

rename bvdepidnumber TBvD_ID

*make database panel data ready

save "D:\Naomi Scriptie\AmadeusDebtv4.dta", replace

gen year = 2004
save "D:\Naomi Scriptie\AmadeusDebtv4_2004.dta", replace

use "D:\Naomi Scriptie\AmadeusDebtv4.dta", clear

gen year = 2005
save "D:\Naomi Scriptie\AmadeusDebtv4_2005.dta", replace

use "D:\Naomi Scriptie\AmadeusDebtv4.dta", clear

gen year = 2006
save "D:\Naomi Scriptie\AmadeusDebtv4_2006.dta", replace

use "D:\Naomi Scriptie\AmadeusDebtv4.dta", clear

gen year = 2007
save "D:\Naomi Scriptie\AmadeusDebtv4_2007.dta", replace

use "D:\Naomi Scriptie\AmadeusDebtv4.dta", clear

gen year = 2008
save "D:\Naomi Scriptie\AmadeusDebtv4_2008.dta", replace

use "D:\Naomi Scriptie\AmadeusDebtv4_2004.dta", clear

append using "D:\Naomi Scriptie\AmadeusDebtv4_2005.dta"
append using "D:\Naomi Scriptie\AmadeusDebtv4_2006.dta"
append using "D:\Naomi Scriptie\AmadeusDebtv4_2007.dta"
append using "D:\Naomi Scriptie\AmadeusDebtv4_2008.dta"

gen newdebt = .

```

```

replace newdebt = newdebt2004 if year == 2004
replace newdebt = newdebt2005 if year == 2005
replace newdebt = newdebt2006 if year == 2006
replace newdebt = newdebt2007 if year == 2007
replace newdebt = newdebt2008 if year == 2008

save "D:\Naomi Scriptie\AmadeusDebtv5.dta", replace

```

D.3: Preparing the linked database

*Final database buidling

```

use "C:\Users\Naomi\Documents\Rotterdam\Master Thesis Rotterdam\Naomi
Scriptie\Zephyr.dta", clear

save "C:\Users\Naomi\Documents\Rotterdam\Master Thesis Rotterdam\Naomi
Scriptie\finaldatabase.dta", replace

rename targetbvdepidnumber TBvD_ID

rename acquirorbvdepidnumber ABvD_ID

save "C:\Users\Naomi\Documents\Rotterdam\Master Thesis Rotterdam\Naomi
Scriptie\finaldatabase.dta", replace

use "C:\Users\Naomi\Documents\Rotterdam\Master Thesis Rotterdam\Naomi
Scriptie\AmadeusDebtv4.dta", clear

sort TBvD_ID

save "C:\Users\Naomi\Documents\Rotterdam\Master Thesis Rotterdam\Naomi
Scriptie\AmadeusDebtv5.dta", replace

use "C:\Users\Naomi\Documents\Rotterdam\Master Thesis Rotterdam\Naomi
Scriptie\finaldatabase.dta", clear

sort TBvD_ID

merge TBvD_ID using "C:\Users\Naomi\Documents\Rotterdam\Master Thesis
Rotterdam\Naomi Scriptie\AmadeusDebtv5.dta", _merge(merge1)

save "C:\Users\Naomi\Documents\Rotterdam\Master Thesis Rotterdam\Naomi
Scriptie\finaldatabasev2.dta", replace

sort ABvD_ID

save "C:\Users\Naomi\Documents\Rotterdam\Master Thesis Rotterdam\Naomi
Scriptie\finaldatabasev2.dta", replace

use "C:\Users\Naomi\Documents\Rotterdam\Master Thesis Rotterdam\Naomi
Scriptie\AmadeusDisclosurev4.dta", clear

sort ABvD_ID

save "C:\Users\Naomi\Documents\Rotterdam\Master Thesis Rotterdam\Naomi
Scriptie\AmadeusDisclosurev5.dta", replace

use "C:\Users\Naomi\Documents\Rotterdam\Master Thesis Rotterdam\Naomi
Scriptie\finaldatabasev2.dta", clear

```

```

merge ABvD_ID using "C:\Users\Naomi\Documents\Rotterdam\Master Thesis
Rotterdam\Naomi Scriptie\AmadeusDisclosurev5.dta", _merge(merge2)

save "C:\Users\Naomi\Documents\Rotterdam\Master Thesis Rotterdam\Naomi
Scriptie\finaldatabasev3.dta", replace

*making panel data ready
gen year = 2004
save "C:\Users\Naomi\Documents\Rotterdam\Master Thesis Rotterdam\Naomi
Scriptie\finaldatabasev3_2004.dta", replace

use "C:\Users\Naomi\Documents\Rotterdam\Master Thesis Rotterdam\Naomi
Scriptie\finaldatabasev3.dta", clear

gen year = 2005
save "C:\Users\Naomi\Documents\Rotterdam\Master Thesis Rotterdam\Naomi
Scriptie\finaldatabasev3_2005.dta", replace

use "C:\Users\Naomi\Documents\Rotterdam\Master Thesis Rotterdam\Naomi
Scriptie\finaldatabasev3.dta", clear

gen year = 2006
save "C:\Users\Naomi\Documents\Rotterdam\Master Thesis Rotterdam\Naomi
Scriptie\finaldatabasev3_2006.dta", replace

use "C:\Users\Naomi\Documents\Rotterdam\Master Thesis Rotterdam\Naomi
Scriptie\finaldatabasev3.dta", clear

gen year = 2007
save "C:\Users\Naomi\Documents\Rotterdam\Master Thesis Rotterdam\Naomi
Scriptie\finaldatabasev3_2007.dta", replace

use "C:\Users\Naomi\Documents\Rotterdam\Master Thesis Rotterdam\Naomi
Scriptie\finaldatabasev3.dta", clear

gen year = 2008
save "C:\Users\Naomi\Documents\Rotterdam\Master Thesis Rotterdam\Naomi
Scriptie\finaldatabasev3_2008.dta", replace

use "C:\Users\Naomi\Documents\Rotterdam\Master Thesis Rotterdam\Naomi
Scriptie\finaldatabasev3_2004.dta", clear

append using "C:\Users\Naomi\Documents\Rotterdam\Master Thesis
Rotterdam\Naomi Scriptie\finaldatabasev3_2005.dta"
append using "C:\Users\Naomi\Documents\Rotterdam\Master Thesis
Rotterdam\Naomi Scriptie\finaldatabasev3_2006.dta"
append using "C:\Users\Naomi\Documents\Rotterdam\Master Thesis
Rotterdam\Naomi Scriptie\finaldatabasev3_2007.dta"
append using "C:\Users\Naomi\Documents\Rotterdam\Master Thesis
Rotterdam\Naomi Scriptie\finaldatabasev3_2008.dta"

gen disclosureindex = .

replace disclosureindex = disclosureindex2004 if year == 2004
replace disclosureindex = disclosureindex2005 if year == 2005
replace disclosureindex = disclosureindex2006 if year == 2006
replace disclosureindex = disclosureindex2007 if year == 2007
replace disclosureindex = disclosureindex2008 if year == 2008

gen newdebt = .

```

```

replace newdebt = newdebt2004 if year == 2004
replace newdebt = newdebt2005 if year == 2005
replace newdebt = newdebt2006 if year == 2006
replace newdebt = newdebt2007 if year == 2007
replace newdebt = newdebt2008 if year == 2008

save "C:\Users\Naomi\Documents\Rotterdam\Master Thesis Rotterdam\Naomi
Scriptie\finaldatabasev5.dta", replace

gen ldebt = .

replace ldebt = longtermdebt2004 if year == 2004
replace ldebt = longtermdebt2005 if year == 2005
replace ldebt = longtermdebt2006 if year == 2006
replace ldebt = longtermdebt2007 if year == 2007
replace ldebt = longtermdebt2008 if year == 2008

gen avedebt2004 = .
gen avedebt2005 = .
gen avedebt2006 = .
gen avedebt2007 = .
gen avedebt2008 = .

replace avedebt2004 = (-882.6258* incometaxtoebit2004) + ((466533.06) *
longtermdebtratio2004) + ((-226851.54)* operatingincometoassets2004) + ((-
143847.05)* ratiofixedassets2004) + ((55868.46)* lnsales2004)
replace avedebt2005 = (-882.6258* incometaxtoebit2005) + ((466533.06) *
longtermdebtratio2005) + ((-226851.54)* operatingincometoassets2005) + ((-
143847.05)* ratiofixedassets2005) + ((55868.46)* lnsales2005)
replace avedebt2006 = (-882.6258* incometaxtoebit2006) + ((466533.06) *
longtermdebtratio2006) + ((-226851.54)* operatingincometoassets2006) + ((-
143847.05)* ratiofixedassets2006) + ((55868.46)* lnsales2006)
replace avedebt2007 = (-882.6258* incometaxtoebit2007) + ((466533.06) *
longtermdebtratio2007) + ((-226851.54)* operatingincometoassets2007) + ((-
143847.05)* ratiofixedassets2007) + ((55868.46)* lnsales2007)
replace avedebt2008 = (-882.6258* incometaxtoebit2008) + ((466533.06) *
longtermdebtratio2008) + ((-226851.54)* operatingincometoassets2008) + ((-
143847.05)* ratiofixedassets2008) + ((55868.46)* lnsales2008)

gen avedebt = .

replace avedebt = avedebt2004 if year == 2004
replace avedebt = avedebt2005 if year == 2005
replace avedebt = avedebt2006 if year == 2006
replace avedebt = avedebt2007 if year == 2007
replace avedebt = avedebt2008 if year == 2008

drop if mergel != 3 | merge2 != 3

drop if newdebt == .

drop if disclosureindex == .

drop if acquirorcountrycode == "CH"
drop if acquirorcountrycode == "CZ"
drop if acquirorcountrycode == "GB"

*drop if targetcountrycode == ""

gen d_2004 = 0

```

```
gen d_2005 = 0
gen d_2006 = 0
gen d_2007 = 0
gen d_2008 = 0

replace d_2004 = 1 if year == 2004
replace d_2005 = 1 if year == 2005
replace d_2006 = 1 if year == 2006
replace d_2007 = 1 if year == 2007
replace d_2008 = 1 if year == 2008

gen inter2004 = (d_2004*disclosureindex)
gen inter2005 = (d_2005*disclosureindex)
gen inter2006 = (d_2006*disclosureindex)
gen inter2007 = (d_2007*disclosureindex)
gen inter2008 = (d_2008*disclosureindex)
```

D.4: Panel set and regressions

```
*define panel data
```

```
xtset dealno year
```

```
*regressions
```

```
xtreg newdebt disclosureindex d_2005 d_2006 d_2007 d_2008 inter2005  
inter2006 inter2007 inter2008, fe
```

```
xtreg ldebt disclosureindex d_2005 d_2006 d_2007 d_2008 inter2005 inter2006  
inter2007 inter2008, fe
```

```
xtreg avedebt disclosureindex d_2005 d_2006 d_2007 d_2008 inter2005  
inter2006 inter2007 inter2008, fe
```