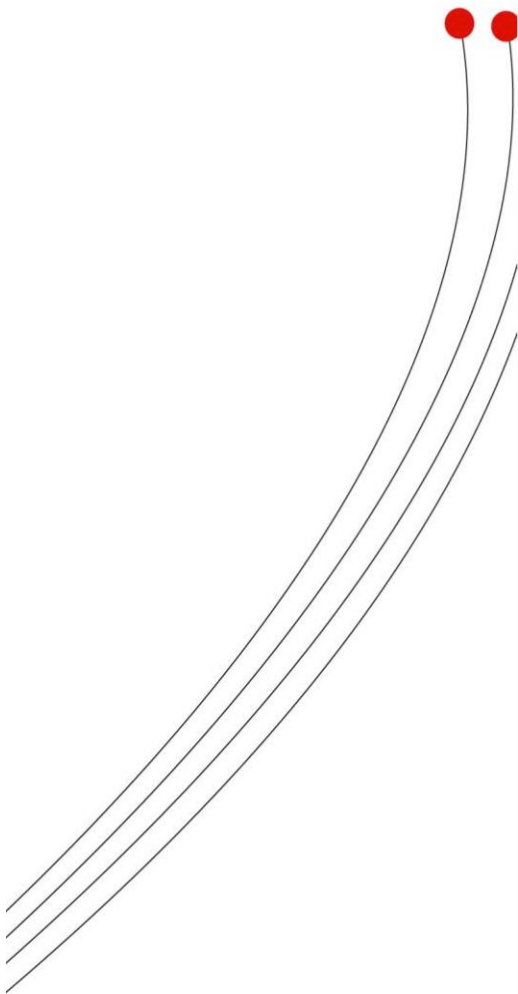# Capital structure: Evidence from Dutch firms

Master thesis (194100040)

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Master thesis Business Administration

Capital structure: Evidence from Dutch firms

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In order to complete the master study Business Administration, I investigated the capital structure decisions of Dutch listed firms. This thesis contains my findings, which was conducted in the period February till October 2013.

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Abstract

This study investigates which factors are important in de capital structure decisions of Dutch listed non-financial firms. The sample consist out of 77 Dutch firms, which are listed on the stock exchange Euronext Amsterdam in the period from 2004 till 2009. Using ordinary least squares regression analysis, factors of three theories are investigated: the trade-off theory, the pecking order theory and the agency cost theory. The empirical results indicate that the most important factors of the capital structure decision in the Netherlands are size, tangibility, profitability and free cash flow. Overall, larger Dutch firms do have a higher debt ratio. Dutch listed firms follow the pecking order theory. They use their profit as an internal fund and use their tangible assets as collateral in order to attract debt if their internal fund is insufficient. Besides this, Dutch listed firms which do have a free cash flow, use their tangible assets also as collateral in order to reduce their free cash flow. The results show that there is no difference between the firms who will overinvest and the firms who will under invest. The presence of priority shares in Dutch organizations is the takeover defense which do have the most influence on the debt ratio. The preferred shares are only related to leverage under the agency cost theory and the certificates in the pooled sample in the case of underinvestment. All the other variables which were tested, were not significant.

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1. Introduction

Choosing the optimal capital structure is one of the most common problems in organizations. Many researchers tried to find out how organizations are financed and which determinants are important in the capital structure decision (Armada, Nunes and Serrasqueiro, 2011; mac an Bhaird and Lucey, 2010; Brounen, de Jong and Koedijk, 2006; Deesomsak, Paudyal and Pescetto, 2004; de Jong, 2002). However, the way organizations are financed, the capital structure, is still an unsolved puzzle.

The importance of the capital structure starts with the study of Modigliani and Miller (1958). They proposed theories about the capital structure, which can be seen as the basis for other studies which tried to find the optimal capital structure. However, other researchers used the theories of Modigliani and Miller (1958) to show that the assumptions of them were not met in the real world and therefore were unrealistic. Several theories about the capital structure occurred, like the trade-off theory, the pecking order theory and the agency cost theory. The trade-off theory is about finding the optimal balance between the benefits and the cost of debt and equity. The pecking order theory suggests that firms first use their internal financing. After this, firms use external financing, whereby firms prefer to use debt instead of equity. Managers are not always investing in projects in order to maximize the value of the firm to the shareholders, which causes conflicts between the manager and the shareholder. The agency cost theory discusses this problem.

Many studies were done in order to find an answer to the capital structure puzzle (Frank and Goyal, 2008). For instance, Brounen, de Jong and Koedijk (2006) focused their study about the capital structure on European firms and compared their findings with previous studies which were done in the US. De Jong, Kabir and Nguyen (2008) investigated firm-specific and country factors in order to find the way organizations were financed. Their study included 42 countries. They compared the determinants among countries and found differences in the capital structure of firms between these countries. Chen (2004) investigated the capital structure of Chinese listed firms and found that the theories which determined the capital structure of firms in the western of Europe, did not determined the capital structure of Chinese listed firms. Just a several studies were done in the Netherlands (de Bie and de Haan, 2007; Brounen, de Jong and Koedijk, 2006; Chen and Jiang, 2001; Degryse, de Goeij and Kappert, 2012; de Jong, 2002). Since not many studies included Dutch firms, I will focus my study on the firm-specific determinants which are important in the capital structure decisions of Dutch listed firms. Therefore, the main research question I use is:

Research question: "Which firms-specific determinants are important in the capital structure decisions of Dutch listed firms?"

I will describe three theories about the capital structure for the Dutch setting. This three theories are the trade-off theory, the pecking order theory and the agency cost theory. In order to answer the main research question, the determinants of the trade-off theory, the pecking order theory and the agency cost theory are investigated first. This leads to three sub questions:

Sub question 1: "Which factors of the trade-off theory determine the capital structure decisions of Dutch listed firms?"

Sub question 2: "Which factors of the pecking order theory determine the capital structure decisions of Dutch listed firms?"

Sub question 3: "Which factors of the agency cost theory determine the capital structure decisions of Dutch listed firms?"

The target sample I use consist out of 77 Dutch non-financial firms, listed on the stock exchange Euronext Amsterdam. All firms are non-financial firms, because the capital structure of financial firms differ from non-financial firms (Deesomsak, Paudyal and Pescetto, 2004). The period of measurement is between 2004 and 2009. The dependent variable is collected from 2005 till 2009 and the independent variables are collected from 2004 till 2008. The data of the firm-specific determinants are gathered from the database ORBIS. I investigate under the agency cost theory also the corporate governance of Dutch firms. Data of the takeover defenses are gathered from *Effectengids: Gids bij de officiële prijscourant van Euronext Amsterdam.* This data give input for the OLS[1] regression analysis.

The empirical results show that there are a several factors important in determining the capital structure. These factors are size, tangibility, profitability and free cash flow. Of the corporate governance, the board structure do not have any impact on the leverage. Only the priority shares do have an impact on the debt ratio in all the models where the corporate governance is included. Of the other takeover defenses, the preferred shares are only significant under the agency cost theory and the certificates only in the integrated model in the case of underinvestment. I can conclude from this study that larger Dutch organizations do have a larger debt ratio. This is because larger firms do have a more stable cash flow and their activities are more diversified than smaller firms. This lowers the bankruptcy risk and therefore the bankruptcy costs. Also, the earnings are less volatile and the information is less asymmetric, which makes obtaining debt easier. Due to the lesser information asymmetry, the conflicts between the agent and the principal are lesser. Overall, from this study I can conclude that Dutch firms with profit will follow the pecking order theory. I found moderately evidence for this statement. They use their profit as an internal source to finance. However, profit is not always sufficient and an external financing source is needed. Since this theory suggest that firms prefer debt over equity, Dutch firms use their tangible assets as collateral in order to reduce the risk of the organization. In this way the risk of the lender decreases and organizations can easier attract debt at a lower rate. Besides this, the results of my study also show that if Dutch firms do have a free cash flow, they will attract more debt. The sample of the over investors and the sample of the under investors do not show differences in the variables which determine the capital structure. Therefore, I can conclude that there are no differences in the capital structure choice between both types of firms. Even firms with growth opportunities will use debt to reduce their amount of free cash flow. They attract debt in order to reduce the agency problems and therefore reduce the agency costs to a

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[1] OLS is the abbreviation for Ordinary Least Squares.

minimum. Debt reduces the possibility of managers to invest in projects which do not increase the value of the firm, because servicing debt to the debt holder is mandatory. However, debt can be risky for the organization and can increase the business risk and the risk of the lender. The debt holder will ask for a higher rate of return if the debt is risky. To attract more debt, Dutch organizations use their tangible assets as a collateral. This will decrease the business risk and the risk of the lender. In this way, organizations can easier attract debt. With this debt they can reduce their agency conflicts and agency costs.

This study contributes to solving the puzzle of the capital structure by testing firms-specific determinants of Dutch listed firms. Therefore, this study contributes to the studies that are done about the capital structure. I investigate three prominent theories and therefore it contributes also to the studies that are done among these theories. It confirms that some determinants, like the size, tangibility, the profitability and the free cash flow, are indeed important in determining the capital structure, where other determinants, like the corporate governance, is less important. Besides this, it is interesting for businesses to know how Dutch listed firms are financed. This study shows firms the possibilities to finance their own business.

This chapter, chapter 1, provided an introduction of this study. I discussed the topic, the objective, showed the main results and the contribution. The remainder of this study is organized as follows: The next chapter, chapter 2, summarizes the three prominent theories about the capital structure. This are the trade-off theory, the pecking order theory and the agency cost theory. I review in this chapter empirical evidence and provide a theoretical framework. In this chapter, I also discusses firm-specific determinants and their relationship with financial leverage. In chapter 3, I present the methodology. This chapter provides a brief explanation of the data, the firm-specific variables and the method of analysis. In chapter 4, I show the results of the analysis and discusses them. In the last chapter, chapter 5, I give the conclusion of this study, including the limitations and suggestions for further research.

2. Literature review and theory

In this chapter I review existing literature related to the capital structure. This chapter lays the foundation for the analysis. First, I give an explanation of the capital structure. After this, I discuss the classical theory of Modigliani and Miller (1958), following by the three prominent theories about the capital structure, namely trade-off theory, pecking order theory and agency cost theory. I summarize these three theories and discuss them. This section provide the basis for this empirical study.

2.1 Explanation of the definition capital structure

The capital structure is about how the organization finance its investments through a combination of debt and equity capital. Debt and equity capital differs in their nature. Debt capital refers to the amount of borrowed capital in the organization, such as bonds and loans. Equity capital refers to the fund of the organization which is hold by the owner of the organization or the shareholders. The capital structure is about achieving the best mix between debt and equity to maximize the value of the organization. It can also be expressed as the amount of debt capital of the total capital, which is called the financial leverage (Hillier, Jaffe, Jordan, Ross and Westerfield, 2010). De Jong (2002) argued that the leverage equals to the long-term debt ratio. I use in this study both terms, the capital structure and the financial leverage.

2.2 The classical theory of Modigliani and Miller (1958)

Modigliani and Miller (1958) made assumptions about the capital structure. They stated that the value of an organization is not determined by the way the organization is financed. Therefore, the value of the organization is independent to the capital structure of that organization. According to Modigliani and Miller (1958), the value of an organization depends on the real assets. They argued that the capital market is perfect and that debt and equity are perfect substitutes of each other. According to them, there are no bankruptcy costs, no agency costs, no transaction costs, no tax and no asymmetric information. In this perfect capital market, financial decisions are irrelevant and there is no financial leverage. This means that the way organizations are financed is irrelevant.

However, the capital market do have some imperfections, which makes the classical theory of Modigliani and Miller (1958) unrealistic. Businesses face the risk that they go bankrupt, even large businesses, as the recent financial crisis showed. Since businesses face bankruptcy risk, there are bankruptcy costs. Tax must be paid by organizations, which influence the decisions of the organization in their choice of financing. Bankruptcy costs and tax are relevant for the financing decisions and are discussed in the trade-off theory. In short, the trade-off theory discusses that organizations are trying to find the optimal balance between the benefits and the cost of debt and equity. Most of the time, managers do have more and better information about the organization than the outside investors. The pecking order theory is based on this information asymmetry. This theory state that organizations prefer to use internal financing

instead of external financing and organizations use debt rather than equity. So, information asymmetry is relevant for the organization in choosing to finance with debt or equity. The conflicts between the agent, which is the manager, and the principal, also called the shareholder, rise because the manager does not always handle in favor of the shareholder. These conflicts are discussed in the agency cost theory and makes the agency costs important for the choice of financing decisions.

The perfect capital market does not exist in the real world, which makes the choice to finance with debt or equity important for organizations. The capital structure influences, due to this imperfections, the value of the organization (Kraus and Litzenberger, 1973). This means the value of an organization varies with changes in their capital structure. The imperfections in the capital market influence the financing decisions. The trade-off theory, the pecking order theory and the agency cost theory shows that the classical theory of Modigliani and Miller (1958) is unrealistic. It shows that debt and equity are no perfect substitutes of each other, as Modigliani and Miller (1958) stated and that the decisions of the capital structure are important for organizations (Hillier, Jaffe, Jordan, Ross and Westerfield, 2010).

2.3 Trade-off theory

The static trade-off theory is about finding the optimal balance between the benefits and the cost of debt and equity (de Bie and de Haan, 2007). Based on the influence of tax and costs of financial distress, organizations have a target debt-to-equity ratio (Brounen, de Jong and Koedijk, 2006). The debt-to-equity ratio leads to the optimal capital structure for the organization. Organizations are trying to achieve this target ratio (Myers, 1984).

Having debt in the organization has some benefits, but also brings some costs. The benefit of having debt in the organization is that debt has tax advantages. This leads to an increase in the value of the firm. Debt brings also costs, like costs of financial distress. An example of costs of financial distress is the cost of bankruptcy risk (Kraus and Litzenberger, 1973). This cost leads to a decrease of the value of the firm. The cost of debt increases with the leverage level of an organization (Degryse, de Goeij and Kappert, 2012).

Most empirical studies found evidence that support the trade-off theory (Frank and Goyal, 2008). Deesomsak, Paudyal and Pescetto (2004) found empirical evidence that the trade-off theory influenced the capital structure decisions of firms in the Asia Pacific. De Haan and Hinloopen (2003) tested different proxies of the trade-off theory and found empirical evidence that the trade-off theory was an important determinant in the capital structure choice of their target sample. However, they did not found evidence for all the proxies they tested. Delcoure (2007) found for organizations in the Western of Europe evidence that the trade-off theory was important in the financing choice. In their capital structure study of 42 countries, de Jong, Kabir and Nguyen (2008) found empirical evidence that the trade-off theory influenced the financing decisions. Brounen, de Jong and Koedijk (2006) showed also evidence of the existence of the trade-off theory in organizations. They investigated firms in

four countries, including the Netherlands. Overall, they found for all four countries a moderately support of the trade-off theory.

The trade-off theory suggests that an organization is balancing their choice for financing with debt or equity on the costs and the benefits of debt. The target debt-to-equity ratio is based on finding the best balance between the benefits of tax and the cost of financial distress. In most empirical studies, two proxies are taken in consideration to measure the trade-off theory. These proxies have to deal with the benefits of tax and the bankruptcy costs, the non-debt tax shield and the costs of financial distress (Brounen, de Jong and Koedijk, 2006; Degryse, de Goeij and Kappert, 2012; de Haan and Hinloopen, 2003; de Jong, 2002). I take this two proxies in consideration in order to test the trade-off theory for my target sample.

2.3.1   Non-debt tax shield

The non-debt tax shield influences the capital structure of an organization (Miller, 1977). DeAngelo and Masulis (1980) presented a model which incorporated corporate tax, personal tax and non-debt tax shield in order to find the optimal capital structure. Interest, which should be paid over debt, is tax deductible. Therefore firms prefer to finance their deficit with debt instead of equity. According to DeAngelo and Masulis (1980), the non-debt tax shield is a substitute for the benefits of debt financing. Firms are motivated to use debt instead of equity in order to save corporate taxes. The non-debt tax shield can be used as depreciation to reduce the tax of the corporation. Firms with large non-debt tax shields, this are organizations which has a low taxable income, issue less debt.

De Jong (2002) investigated Dutch listed firms and found that the leverage of Dutch organizations is determined by the non-debt tax shield. I expect to find a negative relationship between non-debt tax shield and the financial leverage of a firm, since the non-debt tax shield reduces the amount of debt in the organization.

2.3.2   Costs of financial distress

Businesses faces the risk that they go bankrupt. Paying the debt holders is mandatory, while paying returns to the shareholder is voluntary. If an organization fails in servicing debt, the debt holders can ask for bankruptcy of the organization (de Jong, 2002). Debt has some influence on this risk of going bankrupt. The disadvantage of debt is that it increases the possibility of going bankrupt. This possibility of going bankrupt produces costs for the organization: (1) direct costs and (2) indirect costs. Direct costs include administrative fees and legal fees, such as accountants. Indirect costs are costs which are not directly related to the possibility of going bankrupt, but it is the cause of costs like loss of sales, employees who leave the company, additional cost to operate, et cetera (Hillier, Jaffe, Jordan, Ross and Westerfield, 2010). Business risk increases the bankruptcy costs. However, the use of tangible assets can reduce the costs of financial distress (Delcoure, 2007).

De Jong, Kabir and Nguyen (2008) and de Jong (2002) used business risk, tangibility and size as proxies to measure the cost of financial distress. Where some researchers found significant evidence that business risk influenced the financial leverage of an organization (de Jong, 2002; de Jong, Kabir and Nguyen, 2008), Antoniou, Guney & Paudyal (2008), Deloure (2007), de Jong (2002) and Titman and Wessels (1988) found empirical evidence that there was a relationship between tangibility and financial leverage. In this study, I investigate the proxies business risk and tangibility in order to test the costs of financial distress.

2.3.2.1 Business risk

Business risk has to deal with the risk that an organization goes bankrupt. Earnings volatility is an important determinant in determining business risk and is used by several researchers (Antoniou, Guney and Paudyal, 2008; Brounen, de Jong and Koedijk, 2006; Delcoure, 2007; de Jong, 2002; de Jong, Kabir and Ngyen, 2008). De Jong, Kabir and Ngyen (2008) stated that *"higher risk indicates higher volatility of earnings and higher probability of bankruptcy"* (p. 1960). Organizations which have a higher earnings volatility faces the risk that their earnings are not enough to pay their debt servicing to the debt holders. Therefore, organizations with higher earnings volatility have a larger probability of financial distress (Delcoure, 2007). This leads to an increase in the rate of return to the debt holders, because the business risk is higher. In this situation lenders can lose their investment if the organization goes bankrupt. This is the reason why organizations with high volatile earnings have a lower debt ratio (Antoniou, Guney and Paudyal, 2008). When the bankruptcy risk of an organization are larger, an increase of the earnings volatility means a decrease of the debt ratio of an organization (Delcoure, 2007). Firms with high financial leverage do have a higher probability of going bankrupt (de Jong, 2002) and do have more costs of financial distress (Brounen, de Jong and Koedijk, 2006; de Jong, 2002).

De Jong, Kabir and Nguyen (2008) found a negative relationship between business risk and leverage. De Jong (2002) stated that organizations with higher business risk obtain less debt. Therefore, in organizations with higher business risk is the leverage of an organization lower. De Jong (2002) found empirical evidence for this statement for large Dutch listed firms. Given the theory and the empirical evidence, I expect that the relationship between business risk and leverage is negative.

2.3.2.2 Tangibility

The costs of financial distress plays an important role in the trade-off theory. Tangible assets can reduce the bankruptcy costs. This is because tangible assets can be used as collateral. In this way, lenders are provided with securities when the firm is in financial distress and the organization can obtain debt. When the organization provide the lenders with collateral, the risk of the lenders has decreased. In this way, an organization can borrow debt even if the organization is in financial distress (Delcoure, 2007).

Delcoure (2007) found a positive relationship between asset tangibility and leverage, just as Titman and Wessels (1988). De Jong (2002) found also a positive relationship between tangibility and leverage for large Dutch listed firms. I expect that the relationship between tangibility and financial leverage is positive for Dutch listed firms. This is because an organization can obtain debt, even in times of financial distress, if they have enough tangible assets which can be used as collateral.

2.4 Pecking order theory

Besides the trade-off theory, some researchers suggest that the capital structure is also determined by the pecking order theory. The pecking order theory, suggested by Myers (1984) and Myers and Majluf (1984), is based on information asymmetry and can be seen as a model of financial hierarchy (Brounen, de Jong and Koedijk, 2006). Inside managers often have more information about the organization than the outside investors. Since the information is asymmetric, there are costs if additional funds is needed. Investors consider that debt is less risky than equity (mac an Bhaird and Lucey, 2010). The pecking order theory suggests that organization prefer to use internal funds first. This means that the organization will first use their retained earnings to finance. However, this internal fund is generally insufficient to cover the entire financial deficit, so additional (external) fund is needed. In this case, organizations will use debt financing. The last option, if debt financing is still not covering the financial deficit, is equity financing. The pecking order theory orders the preferences of new equity issuing. So, the preference to use internal finance before external finance (debt first than equity), has a negative effect on the amount of debt in the organization. Firms who follow the pecking order theory do not have a target debt ratio.

There is a mixed support for the pecking order theory. Some researchers found empirical evidence that organizations follow the pecking order theory, while other researchers did not found any evidence that support this theory. Shyam-Sunder and Myers (1999) tested the pecking order hypothesis and found evidence that indeed organization follow the pecking order theory. De Jong, Verbeek and Verwijmeren (2011) found also evidence that the way organizations choose their capital structure is in line with the pecking order theory. De Haan and Hinloopen (2003) investigated the financing behavior of Dutch firms and found that the preferences of financing is in line with the stated financing hierarchy. Brounen, de Jong and Koedijk (2006) found that the pecking order theory is present in European countries. However, the pecking order theory is not the most important determinant in the capital structure. They also found that information asymmetry does not drive the pecking order theory. The findings of Brounen, de Jong and Koedijk (2006) are in line with the findings of Graham and Harvey (2001). However, some researchers did not found evidence for the pecking order theory. Frank and Goyal (2008) found that when an organization has a financial deficit, equity issuing cover this deficit more than debt.

Several researchers used profitability in order to investigate the pecking order theory (de Bie and de Haan, 2007; Degryse, de Goeij and Kappert, 2012; Delcoure, 2007; Jang and Tang, 2007; de Jong, Kabir and Nguyen, 2008; de Jong, Verbeek and Verwijmeren, 2011). De Haan

and Hinloopen (2003) used in their study of Dutch firms besides the profitability, also the liquidity. De Jong, Kabir and Nguyen (2008) and Deesomsak, Paudyal and Pescetto (2004) also used liquidity as a proxy. Some researchers used in their study asset tangibility (Antoniou, Guney and Paudyal, 2008; Chen, 2004; Chen and Jiang, 2001; Degryse, de Goeij and Kappert, 2012; Delcoure, 2007; Frank and Goyal, 2008; Frank and Goyal, 2009). Besides these three proxies, a several researchers investigated the proxy operating cash flow under the pecking order theory. Chen (2004) argued that the operating cash flow and the profitability are nearly the same. Since both variables are so closely related, is it not meaningful to calculate and investigate both proxies. Therefore, I investigate the asset tangibility, the profitability and the liquidity of Dutch listed firms in order to test the presence of the pecking order theory.

2.4.1 Asset tangibility

Most of the time, the internal fund of a firm is not enough to finance the entire financial deficit of the organization. Therefore, firms need an external fund. As explained in the above section, organizations prefer to obtain debt first and then issuing equity. In order to obtain debt, organizations will use their tangible assets as collateral. In this way, firms will reduce the risk of the lender. The risk premium, which is ask by the lender, will decrease if the organizations provides their lender with collateral (Antoniou, Guney and Paudyal, 2008; Frank and Goyal, 2008). Besides this, obtaining debt without collateral makes borrowing money more expensive. In this situation, organizations will issuing equity, which they actually want to use only as a last option. Borrowing money with unsecured debt will be more expensive than borrowing with secured debt (Chen and Jiang, 2001). Also, borrowing with unsecured debt will increase the information asymmetry (Degryse, de Goeij and Kappert, 2012). This situation causes more conflicts between the lender and the shareholder. Therefore, organizations with tangible assets will borrow money and provide their lenders with collateral. In this way, organizations can borrow more money under the pecking order theory. Chen (2004) argued in his study that organizations can easier attract debt when they use their tangible assets as collateral and therefore the relationship between asset tangibility and leverage is positive.

Delcoure (2007) provided empirical evidence for this positive relationship, just as Frank and Goyal (2008). They found that indeed organizations with tangible assets borrow more. Also, Chen and Jiang (2001) found that tangible assets under the pecking order theory are positively related to the leverage of a firm. They argued that firms with tangible assets do have more access to loans. Seeing the theory and the empirical evidence, I expect to find a positive relationship between asset tangibility and leverage under the pecking order theory. Organizations will, after they used their internal fund, first use debt to finance, before they will issue equity. In order to obtain debt and reduce the risk premium (which makes borrowing less expensive), organizations will provide their lender with collateral. The tangible assets can be used as collateral and the relationship will be positive.

2.4.2 Profitability

The pecking order theory suggests that organizations first use their retained earnings. If the retained earnings are not enough, organizations obtain debt and as last option they finance with equity, as stated in the section above. Deesomsak, Paudyal and Pescetto (2004) explained in their study that organizations who do have profit, do not have the preference to raise equity as additional capital. In order to finance their projects and future growth, organizations use their retained earnings first. Profit can be used as an internal funds (Antoniou, Guney and Paudyal, 2008; de Bie and de Haan, 2007; Delcoure, 2007; de Jong, Kabir and Nguyen, 2008). De Bie and de Haan (2007) stated that more profit of an organization leads to more retained earnings, which causes a negative effect on the financial leverage of a firm. This effect is negative, because the organization fist use their profit to finance and obtain less debt, which lowers the amount of debt. According to Myers (1984) and Myers and Majluf (1984), profitable firm have a lower financial leverage than unprofitable organizations. Antoniou, Guney and Paudyal (2008) described in their study that profitability is the source for retained earnings. Organizations prefer to finance with an internal source. If the profitability of an organization is high, the internal source of financing is improved and the need to attract external sources of finance is lower. Therefore, organization with profit obtain less debt (de Bie and de Haan, 2007).

De Jong, Verbeek and Verwijmeren (2011) found empirical evidence that organizations with profit do have a lower leverage. Firms use their profit as an internal financing source. This is also supported by Titman and Wessels (1988), who found that larger firms use their profit as retained earnings in order to reduce their debt level. De Jong, Kabir and Nguyen (2008) found empirical evidence, in 25 of the 42 countries they investigated, that profit is used to internally finance the future projects. Reviewing the literature and the empirical evidence given by different studies, I expect that the relationship between profitability and financial leverage of Dutch listed firms is negative; organizations first use their profitability as an internal financing source before they attract external financing sources.

2.4.3 Liquidity

De Haan and Hinloopen (2003) focused their study on the financing preference hierarchy of Dutch organizations. Besides profitability, they also used liquidity as a proxy. Firms prefer to use their internal fund first, before they attract external sources to finance. Liquid assets and cash function as an internal source of finance. A firm use their liquid assets first, before they attract debt (de Jong, Kabir and Nguyen, 2008). De Haan and Hinloopen (2003) found that liquidity is strong positive related to internal finance and negative to external finance. This means that firms prefer to finance internal, before they attract external financing as debt. More internal fund means that an organization will attract less external finance. Organizations will finance their projects and other investments as much as possible with internal fund, which do not increase the amount of debt. In this way, liquidity has a negative relationship with financial leverage. Firms which have a high amount of liquidity do not borrow not much (Deesomsak, Paudyal and Pescetto, 2004).

De Haan and Hinloopen (2003) found significant evidence that firms used first their liquid assets to finance. De Jong, Kabir and Nguyen (2008) found a significant negative relationship for the Dutch firms between liquidity and financial leverage. Firms first use their cash and other liquid assets instead of debt. Therefore, I expected that the relationship between liquidity and financial leverage of Dutch listed firms is negative.

2.5 Agency cost theory

Jensen and Meckling (1976) and Jensen (1986) proposed that decisions around the capital structure of an organization are not only based on the trade-off theory and the pecking order theory, but also on agency problems. These problems exist between the agents, this are the managers, and the principals, which are the shareholders. The interests of managers and shareholders are not always the same. The inside manager have on average more and better information than the outside investor, which leads to information asymmetry.

The cost associated with the agency problems comes from different sources. The cost arise from (1) the risk that managers would use the resource of the organization for their own benefits and (2) producing financial statements by an external auditor (Hillier, Jaffe, Jordan, Ross and Westerfield, 2010). In finding the optimal capital structure, the agency costs should be reduced to a minimum.

There is an ongoing conflict between researchers who support the agency cost theory and researchers who do not support it. Some researchers argue that the agency costs can be considered as a part of the trade-off theory, based on the information asymmetry between shareholders and managers (Armada, Nunes and Serrasqueiro, 2011; Degryse, de Goeij and Kappert, 2012; Mahajan and Tartaroglu, 2008). However, la Porta, Lopez-de-Silanes, Shleifer and Vishny (1998) investigated the institutional environment in different countries. They found that due to the differences in the institutional environments across countries, the agency costs differ per country. In the studies about firms in the Netherlands, some researchers argued and showed empirical evidence that the agency cost theory is a relevant theory in determining the capital structure (Degryse, de Goeij and Kappert, 2012; de Jong, 2002). Since I investigate the capital structure of Dutch firms, I take the agency cost theory in consideration.

De Jong (2002) suggested in his study that the agency cost theory is determined by (1) the free cash flow, (2) the growth opportunity and (3) the corporate governance. Titman and Wessels (1988) and Brounen, de Jong and Koedijk (2006) used in their studies growth opportunity to investigate the agency cost. Jensen (1986) used the free cash flows and the growth opportunity to investigate agency costs. De Jong (2002) showed in his study that the corporate governance also influence slightly the agency cost theory. In the Netherlands, compared to for instance the US, the corporate governance have some special characteristics. Therefore, I investigate the free cash flow, the growth opportunity and the corporate governance of Dutch listed firms in order to test the agency costs.

2.5.1 Free cash flow

Jensen (1986) suggested in his study that the agency costs increases with the free cash flow. According to Jensen (1986), the free cash flow is the *"cash flow in excess of that required to fund all projects that have positive net present values when discounted at the relevant cost of capital"* (p. 323). Shareholders prefer that the free cash flow is invested in projects with a positive net present value or paid out as dividends. However, managers have the incentive to invest in projects which will increase their own wealth. In this way, managers sometimes invest in projects with an expected return which is lower than the cost of capital. Investing in projects with an expected return which is lower than the cost of capital is recognized by the shareholder as overinvestment (de Jong, 2002). Jensen (1986) suggested that the use of debt can reduce this problem and therefore reduce the agency costs. This is because of servicing debt to the debt holders is mandatory. In this way, managers can use the free cash flow of the organization to pay the interest and other repayments of debt.

On the other hand, debt can increase the agency cost between debt holders and shareholders. Debt holders will require a higher rate of return when the debt is risky. Shareholders will select risky projects to invest, which transfer the value from the debt holders to the shareholders.

Jensen (1986) investigated the free cash flow and found that the free cash flow of an organization have a positive effect on the leverage of an organization. De Jong (2002) tested in his study the agency cost theory of Dutch listed firms and used the free cash flow as one of the proxies. He found a positive relationship between the free cash flow and the financial leverage. Debt reduces the agency problems and therefore the agency costs, since it reduces the possibility of managers to overinvest the free cash flow of the organization. In order to find the optimal capital structure of a firm, the agency costs must be reduced to a minimum, as mentioned before. Since the problem of free cash flow can be tackled with debt, organizations with these problems obtain more debt in their organization. Therefore, the amount of debt is higher. So, I expect that the relationship between the free cash flow and the financial leverage of Dutch listed firms is positive. However, the problem between the shareholder and the manager exist in the problem of overinvestment and not in the problem of underinvestment. I will explain and discuss both problems briefly in section 2.5.2.Where the problem of overinvestment has to deal with the managerial discretion problem (Degryse and de Jong, 2006), in other words managers can invest the free cash flow in projects which will not increase the value of the organization, the underinvestment problem has to deal with the information asymmetry. There are growth opportunities in the case of underinvestment, so shareholders are less afraid that the free cash flow will be invested in projects with a negative NPV. So, the problem of the free cash flow is not relevant in the underinvestment theory, therefore I expect that the relationship between the free cash flow and the leverage in the case of underinvestment does not exist.

2.5.2 Growth opportunity

Managers not always invest in favor of the shareholders, which causes some conflicts between the manager and the shareholder. If there are low possibilities for the organization to grow, but managers have the incentive to invest, this leads to sub optimally investments or to investing in projects that are risky (Deesomsak, Paudyal and Pescetto, 2004). If there are high growth opportunities, but the firm is highly levered, the manager has not the incentive to invest. This are the problems of overinvestment and underinvestment respectively. If an organization has a low growth opportunity, but they invest in projects with a negative NPV[2], organizations overinvest. If the manager can invest in positive NPV projects and the growth opportunities are high, but rejects these projects, there is an underinvestment. According to Degryse and de Jong (2006), the problem of overinvestment is more common than the problem of underinvestment in Dutch firms. They showed that the Dutch setting influences their statement. The Dutch setting has two important characteristics. The first characteristic is that the influence of the shareholders is limited, even if mostly the size of the shareholders is large. Second characteristics is about the role of banks. Banks play in the Netherlands an important role and they have through different channels influence on the firm. Seeing the fact that the Dutch setting has the characteristic that the influence of the shareholders is limited, the managers of the firms in the Netherlands do have much more discretion over the investment, than for instance managers of firms in the US. This causes the managerial discretion problems, which is the cause of the overinvestment. Therefore, the problem of asymmetric information, which causes the problem of underinvestment, will be less important in the Netherlands. In the section below, the overinvestment is discussed first, after this I discuss the problem of underinvestment.

2.5.2.1 Overinvestment

As stated in the section of the free cash flow (see section 2.5.1) managers can return the free cash flow of the organization to the shareholders. However, manager have the incentive not to return the free cash flow to the shareholders and pay them out as dividends, but to use these earnings for further expansion of the organization. Manager have the incentive to invest, even if the projects have a negative NPV. This causes conflicts between the shareholders and the managers. These kind of projects do not increase the value of the organization. If the growth opportunity of the organization is low and the manager is investing in projects with a negative NPV, than a manager overinvests. This means that the manager invests money in a project that does not increases the value of the organization. Jensen (1986) stated in his study that managers with free cash flow, but without growth opportunities, are the ones who will overinvest. This leads to more problems between the manager and the shareholder and thus for more agency costs.

Issuing debt can protect the manager from overinvestment (Jensen, 1989). If a firm issues debt, the amount of the free cash flow will be reduced. It is namely mandatory to pay the debt holder. The debt holder asks for the interest and other repayments. So, from the amount of the

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[2] NPV is the net present value

free cash flow, the manager of the firm first needs to pay the bondholder. If the manager is not paying the bondholder, the bondholder can ask for bankruptcy of the firm, something managers want to avoid. Therefore, managers are willing to pay the bondholder. The benefit of debt in this situation is that the amount of free cash flow is reduced, managers cannot invest that much in projects which do not increase the value of the firm. Overinvestment can also be reduced by growth opportunity, which reduces the required debt of the organization. Therefore the leverage of a firm is reduced (de Jong and van Dijk, 2007). This all leads to a negative relationship between the growth opportunity and leverage of firms if an organization is overinvesting or is an potential over investor, namely issuing debt can protect the manager from overinvesting.

De Jong (2002) found in his study that the relationship between growth opportunity and leverage of large Dutch listed firms is negative. This is supported by Titman and Wessels (1988) and Graham and Harvey (2001) who also expected a negative relationship between the growth opportunity and leverage for larger listed firms. Titman and Wessels (1988) gave as an explanation for this negative relationship that when a firm is growing, it has more flexibility in the choice of future investment and cost of borrowing will be higher (Delcoure, 2007). This lead to more problems in the relationship between an agent and the principal. Therefore, there are more agency costs. To avoid these more agency cost, firms which have the possibility to grow first, use their internal resources and raise equity to finance its risky investments and avoid obtaining debt. Besides this, the relationship is also negative because growth opportunity can be related intangible assets. If this is the case, organizations do not want to commit themselves with debt, because they do not know when the growth in these intangible assets will pay its revenue (Deesomsak, Paudyal and Pescetto, 2004). I expect a negative relationship between growth opportunity and financial leverage for Dutch organizations in the case of overinvestment.

2.5.2.2   *Underinvestment*

Underinvestment differs in two ways from overinvestment: (1) the agency problem of underinvestment rises between the shareholders and the bondholders and (2) a requirement for the problem of underinvestment is that an organization has growth opportunities (Myers, 1977).

In the situation of underinvestment, there is an overhang of debt (Brounen, de Jong and Koedijk, 2006) and is caused by the information asymmetry (Degryse and de Jong, 2006). Underinvestment occurs if a manager could invest in a project which have a positive NPV and low risk, but reject this project. Mostly, highly levered firms will under invest. Manager reject these project because of the costs of external capital rises (Myers, 1977) and shareholders will not provide the required equity (de Jong and van Dijk, 2007). If a manager want to invest in projects with a positive NPV with debt, this gives the signal to the market that the organization expects a low future profitability and a low future cash flow. Myers and Majluf (1984) stated that due to the information asymmetric, the market does not recognize the growth opportunities of the firm. This leads to an increase in the costs of debt, namely debt

holders increase their risk premium. In this way, the benefits for the bondholders are higher than for the shareholders. This leads to a conflict between the bondholder and the shareholder. Debt can aggravate these conflicts, because of the overhang of debt.

The costs of debt are higher and shareholders will not provide the required equity, therefore manager reject valuable projects for the organization. However, short-term debt can protect the shareholders for the underinvestment of the managers.

Underinvestment is important for the Dutch setting (Degryse and de Jong, 2006). As Myers and Majluf (1984) argued, the investment opportunities increases with the underinvestment. The underinvestment problem is the result from information asymmetry, namely the information asymmetry hinders firms with growth opportunities to invest and leads to underinvestment. Degryse and de Jong (2006) argues that the interaction between the free cash flow and the growth opportunity differs if firms overinvest and under invest. Therefore, it is important to also look at this subsample. Only by splitting and testing both samples, it is possible to identify the managerial discretion problem (overinvestment) and the asymmetric information problem (underinvestment). As mentioned also in the section of the free cash flow, section 2.5.1, I expect that there will be a difference between the firms who will overinvest and the firms who will under invest in their interaction with the free cash flow. Therefore, it is important not only to test the overinvestment, but also to test the underinvestment. I expect that in the case of underinvestment the free cash flow is no problem and in the case of overinvestment, the free cash flow will be a problem.

Myers (1977) stated that the relationship between growth opportunities and leverage for firms which under invest is negative. Titman and Wessels (1988) investigated in their study the relationship between growth opportunity and leverage and did not split them out in overinvestment and underinvestment. Their expectation was to found a negative relationship between growth opportunity and leverage, but they did not found any empirical evidence to support this relationship. Besides Myers (1977) and Titman and Wessels (1988), de Jong and van Dijk (2007) investigated the agency problems of Dutch non-financial firms and tested the underinvestment behavior. They expected to found a negative relationship between growth opportunity and leverage in the case of underinvestment. However, they did not found convincing evidence for this relationship. Also, Brounen, de Jong and Koedijk (2006) did not found evidence for this negative relationship.

Due to the theory, I expect to find in this study a negative relationship between growth opportunity and financial leverage in the case of underinvestment. Manager are willing to invest, but have to reject the projects. The organization does not take the growth opportunity, debt increases the agency conflicts and therefore the agency costs between the shareholder and the bondholder (de Jong and van Dijk, 2007). Since the agency costs must be reduced in order to find the optimal capital structure, organizations avoid in this situation debt as much as possible. Conflicts between the shareholder and the bondholder have a negative effect on the value of the firm (de Jong and van Dijk, 2007).

2.5.3 Corporate governance in the Netherlands

Corporate governance are structures, systems and processes within an organization and differs from country to country (Kabir, Cantrijn and Jeuinink, 1997). It is related to the financial leverage of a firm and influence the value of an organization.

The corporate governance in the Netherlands has some special characteristics. The market for it is virtually absent, due to the fact that the takeover defenses in the Netherlands are highly effective (Kabir, Cantrijn and Jeunink, 1997). Also, larger firms in the Netherlands have large block holders, which offers protection against hostile takeovers. Besides this, firms in the Netherlands have a two-tiered board system (de Jong, 2002). The takeover defenses are effective in Dutch firms, namely it protects the Dutch organizations from hostile takeovers. Effective corporate governance can be seen as a substitute for debt and therefore for financial leverage. Effective corporate governance reduces the amount of necessity debt in the organization, which causes a negative relationship with financial leverage.

As stated above, there are three variables in corporate governance: board structure, ownership concentration and takeover defenses (de Jong, 2002). I summarize these three variables and discuss them below. In this study, I take of these three variables two in consideration. These variables are the board structure and the takeover defenses.

2.5.3.1 *Board structure*

The board structure refers to the management board, which is controlled by the supervisory board (Fama and Jensen, 1983). The board of listed firms in the Netherlands consists out of a management board and a supervisory board, which is called the two-tier board system (de Jong, 2002). According to Kabir, Cantrijn and Jeunink (1997) the supervisory board plays an important role. This supervisory board consists out of representatives from different interest groups and other outsiders, this are not the shareholders (Kabir, Cantrijn and Jeunink, 1997). Conspicuous in the Dutch institutional setting is the structured regime. The structured regime delegated some special rights of the shareholders to the supervisory board. This structured regime is mandatory for Dutch firms when they have met the some requirements. These requirements are: (1) an organization has at least 16 million euro as subscribed capital; (2) the organization has a works council; and (3) the organization has at least 100 employees in the Netherlands. However, for firms which it is not mandatory to have a structured regime, they can adopt it voluntarily. In a structured regime, current members of the supervisory board elect new members, while the supervisory board nominate and dismiss the member of the managerial board. The supervisory board must approve some decisions of the managerial board and provide the annual statements of the organization (de Jong, 2002; de Jong, Mertens and Roosenboom, 2006; Kabir, Cantrijn and Jeunink, 1997). In this way, the rights of the shareholders are limited, which leads to a less effective corporate governance. Shareholders can control the managers of the organization lesser, which leads to more conflicts between the manager and the shareholder. Debt can reduce these agency conflicts.

The board structure depends on the corporate system of a country. It is a disciplinary device if the supervisory board controls the management board (de Jong, 2002). The effectiveness of the supervisory board is determined by their independence (de Jong, 2002; Maassen and van den Bosch, 1999; Wen, Rwegasira and Bilderbeek, 2002) and their power (de Jong, 2002; Wen, Rwegasira and Bilderbeek, 2002). As mentioned before, managers of an organization try to avoid debt. The corporate governance of an organization forces the management to accept more leverage in their firm, which means more debt in the organization (de Jong, 2002). The extent of avoiding debt depends on the characteristics of the corporate governance. Managers are trying to avoid debt, however the control structures and the incentives induces the leverage of the organization and therefore has a positive effect on the financial leverage. So, in this situation, the corporate governance of an organization leads to more debt in the organization. Therefore, I expect to find a positive relationship between the power of the supervisory board and the leverage of Dutch listed firms.

2.5.3.2   Ownership concentration

The ownership concentration plays an important role in the Netherlands, it protects the organization from hostile takeovers bids (Kabir, Cantrijn and Jeunink, 1997). Due to concentration and identifying the shareholders of the organization, managers can be monitored. Most Dutch firms have one large block holder, which owns the shares of the organization (de Jong, Mertens and Roosenboom, 2006). This block holder may have only strategic interest in the organization, which lead to different interests than the other shareholders have. For instance, the block holders protect managers who are ineffective in order to extract wealth which belong to other shareholders (Becht and Röell, 1999). Block holders can also be financial institutions, such as insurance companies, banks and pension funds (de Jong, 2002; de Jong, Mertens and Roosenboom, 2006). This large block holder can protect the organization from hostile takeovers (de Jong, 2002). Kabir, Cantrijn and Jeunink (1997) found in their study that organizations with lower ownership concentration, adopt more takeover defenses.

2.5.3.3   Takeover defenses

Takeover defenses protect the organization from hostile takeovers. Stock listed firms in the Netherlands have multiple takeover defenses. Therefore hostile takeover bids are not common in the Netherlands (de Jong, 2002; de Jong, Mertens and Roosenboom, 2006). Preferred share, priority shares and depository receipts, also called certificates, are the most common takeover defenses (de Jong, 2002; de Jong, Mertens and Roosenboom, 2006; Vermij, 2009). In the Netherlands are (protective) *preferred shares* the most adopted defense mechanism. These shares are issued normally in the holders' name, which is most of the time a friendly party. The shares are sold at the nominal value (de Jong, Mertens and Roosenboom, 2006). Ones the shareholders gave their approval to sell the preferred shares as a takeover defense, the management can sell it without another approval of the shareholders (de Jong, 2002). 25 percent of the value of the shares must be paid up. The preferred shares have the same voting

right as the ordinary shares of the organization, even when they are not fully paid. When a hostile takeover bid occurs, stockholders authorize the management of the company to issue the preferred shares. The friendly parties gets the voting power, which is the same as the ordinary shares, and in this way they are resist to the hostile takeover bids (de Jong, 2002; de Jong, DeJong, Mertens and Wasley, 2005; Kabir, Cantrijn and Jeunink, 1997). *Priority shares* give the holder of these shares special rights, such as voting rights. The holders of these priority shares are mostly friendly foundations. Priority shares protect against hostile takeovers. The holders of the priority shares, called the priority, also have the right to nominate and dismiss members of the management board and the supervisory board and issuing new shares (de Jong, 2002; de Jong, Mertens and Roosenboom, 2006; Kabir, Cantrijn and Jeunink, 1997). According to de Jong, Mertens and Roosenboom (2006), the "*priority shares are not traded on the stock exchange*" (p. 357). The holders of *depository receipts* have the rights of a ordinary share, but the voting right is excluded. The voting rights are at a trust office, an administrative office. So, in the case of the depository receipts or certificates, the holders only have the cash flow rights. The trust office is represented by the management board, the supervisory board and outsiders of the organization. The majority of the office must be outsiders, however these outsiders are friendly outsiders. The trust office issues a certificate of every deposit share on the stock exchange Euronext Amsterdam. The holder of the certificate can trade this certificate. The holder has the dividend rights and has the ability to be attended on the General Meeting of Shareholders, but do not have the right to vote. In this way, organizations are prevent against hostile takeovers (de Jong, 2002; de Jong, DeJong, Mertens and Wasley, 2005; de Jong, Mertens and Roosenboom, 2006; Kabir, Cantrijn and Jeunink, 1997).

As mentioned in the beginning of this section, there is a negative relationship between effective corporate governance and leverage. Namely, effective corporate governance is a substitute for debt. Preferred shares, priority shares and depository receipts are effective takeover defenses and protects the organization from hostile takeovers. It limits the rights of the shareholders during the threat of a hostile takeover. So, in the case of a hostile takeover threat, the takeover defenses function as effective corporate governance and are therefore a substitute for debt financing. Therefore, I expect to find a negative relationship between the takeover defenses and financial leverage for Dutch listed firms, just as a several studies did.

3. Methodology and data

In this section I describe the research question of this study, the sample, the period of measurement and the data sources. Besides this, I also introduce the hypotheses, which are based on the theoretical framework of the previous chapter (chapter 2). I operationalize all the variables which I need test. I will also explain in this chapter the method of analysis.

3.1 Research question

Many studies are done in order to investigate how organizations take their financing decisions. However, the capital structure is still an unsolved puzzle. Most studies are done in the US and lesser studies focused on firms in the Netherlands (de Bie and de Haan, 2007; Brounen, de Jong and Koedijk, 2006; Chen and Jiang, 2001; Degryse, de Goeij and Kappert, 2012; de Jong, 2002). This study contributes to the unsolved puzzle of the capital structure by identifying which determinants are most important in the capital structure decisions of Dutch listed firms. Therefore, the main research question is:

Research question: "Which firms-specific determinants are important in the capital structure decisions of Dutch listed firms?"

This study investigates three prominent theories about the capital structure: the trade-off theory, the pecking order theory and the agency cost theory. Before I can give an answer to the main research question, the determinants which determined these three theories should be investigated first. This leads to the following three sub questions:

Sub question 1: "Which factors of the trade-off theory determine the capital structure decisions of Dutch listed firms?"

Sub question 2: "Which factors of the pecking order theory determine the capital structure decisions of Dutch listed firms?"

Sub question 3: "Which factors of the agency cost theory determine the capital structure decisions of Dutch listed firms?"

3.2 Sample, period and data source

In this study, I investigate the capital structure decisions of firms in the Netherlands. Therefore, the initial sample consist of Dutch listed non-financial firms. Firms in my target sample need to be listed on the stock exchange Euronext Amsterdam. Financial firms, like insurance companies, banks and pension funds are excluded from the sample. This is because financial firms do have a distinctive capital structure. This means, the determinants which determine the capital structure of financial firms differs from the determinants which determine the capital structure of non-financial firms (Deesomsak, Paudyal and Pescetto, 2004).

I test the determinants of the trade-off theory, the pecking order theory and the agency cost theory. Cross-sectional data provide the necessary data for the analysis. The observations are held at one point in time (Babbie, 2007). This study collect data of the independent variables, the discussed variables of the three theories, from 2004 until 2008. The leverage, the dependent variable, is collected from 2005 till 2009.

The data about the takeover defenses are collected from *Effectengids: Gids bij de officiële prijscourant van Euronext Amsterdam.* The necessary data in order to measure all the other independent variables and the dependent variable are collected from ORBIS. This database provide secondary data about large Dutch listed firms. Primarily, 77 non-financial firms are selected in ORBIS. This sample provide the necessary data for the OLS regression analysis.

3.3 Hypotheses

3.3.1 Hypotheses from the trade-off theory

The trade-off theory is about the benefits and the cost of debt and equity. It examine the non-debt tax shield and the costs of financial distress, where business risk and tangibility are the proxies. I established the following hypotheses:

Hypothesis 1a: The relationship between non-debt tax shield and financial leverage of Dutch listed firms is negative.

Hypothesis 1b: The relationship between business risk and financial leverage of Dutch listed firms is negative.

Hypothesis 1c: The relationship between tangibility and financial leverage of Dutch listed firms is positive.

3.3.2 Hypotheses from the pecking order theory

The pecking order theory discusses the financing hierarchy, where the asset tangibility, the profitability of an organization and the liquidity are the proxies. I generated the following three hypotheses:

Hypothesis 2a: The relationship between asset tangibility and financial leverage of Dutch listed firms is positive.

Hypothesis 2b: The relationship between profitability and financial leverage of Dutch listed firms is negative.

Hypothesis 2c: The relationship between liquidity and financial leverage of Dutch listed firms is negative.

3.3.3 Hypotheses from the agency cost theory

The agency cost theory is based on information asymmetric. Most of the time, the manager do have more information about the organization than the outside investor. The free cash flow is a proxy for the agency cost theory. Growth opportunity is a proxy to measure the overinvestment behavior of an organization as well the underinvestment behavior. The Dutch corporate governance do have some special characteristics which influence the financial leverage. Board structure and takeover defenses structure are the proxies of the corporate governance which I test in this study. As a result, I established the following hypotheses:

Hypothesis 3a: The relationship between free cash flow and financial leverage of Dutch listed firms in the case of overinvestment is positive.

Hypothesis 3b: There is no relationship between the free cash flow and financial leverage of Dutch listed firms in the case of underinvestment.

Hypothesis 3c: The relationship between growth opportunity and financial leverage of Dutch listed firms in the case of overinvestment is negative.

Hypothesis 3d: The relationship between growth opportunity and financial leverage of Dutch listed firms in the case of underinvestment is negative.

Hypothesis 3e: The relationship between the power of the supervisory structure and financial leverage of Dutch listed firms is positive.

Hypothesis 3f: The relationship between the takeover defense structure and financial leverage of Dutch listed firms is negative.

Table 1 gives an overview of the expected relationship between the firm-specific determinants and the financial leverage of Dutch listed non-financial firms.

Table 1
Summary of the relationships between the determinants
of capital structure and financial leverage of Dutch listed non-financial firms

Theory	Dependent variable	Relationship with leverage of Dutch listed non-financial firms
Trade-off theory	Non-debt tax shield	-
	Business risk	-
	Tangibility	+
Pecking order theory	Asset tangibility	+
	Profitability	-
	Liquidity	-
Agency cost theory	Free cash flow in the case of overinvestment	+
	Free cash flow in the case of underinvestment	No relationship
	Growth opportunity in the case of over investment	-
	Growth opportunity in the case of under investment	-
	Power of the supervisory board	+
	Takeover defense structure	-

3.4 Variables

The financial leverage is the dependent variable, which is determined by the independent variables of the three prominent theories. I use size of the firm in this study as a control variable. Table 2 provides an overview of the definition of the variables. I explain below how the different variables will be measured.

3.4.1   Dependent variable

Leverage

In the literature about the capital structure there are two measurements of leverage. This are the market leverage and the book leverage. De Jong (2002) concluded in his study that many Dutch organizations use the book value of debt to measure their capital structure. The decision to use book values and not market values can influence the capital structure. However, de Jong, Verbeek and Verwijmeren (2011) showed in their research that the choice to use the market value, and not the book value of debt, gives somehow the same results in the capital structure decision. So, there is not a great difference in using the book value or the market value in order to measure the financial leverage.

In this study, I use the book value of leverage. The book value of leverage is defined as the long-term debt ratio, which is the long-term debt divided by the total assets. It is common to use an alternative definition of leverage in order to check for the robustness of the analysis. De Jong, Kabir, Nguyen (2008) did a several robustness analysis and compared their findings with previous studies. They used other definitions of leverage of previous studies (Giannetti, 2003; Fan, Titman and Twite, 2006; Wald, 1999). All these researchers showed in their studies that the results of both definitions they used are highly similar. In this study, I use the definition of debt maturity in order to check for the robustness of the results. Debt maturity is defined as the long term debt divided by the total debt (Fan, Titman and Twite, 2006).

3.4.2   Independent variables from the trade-off theory

Non-debt tax shield

Financing with debt has some benefits. DeAngelo and Masulis (1980) stated that the non-debt tax shield is a substitute for these benefits of debt. Interest is tax deductable, therefore organizations are motivated to finance with debt instead of equity. As a consequence, firms with a large non-debt tax shield issues less debt. This means that the relationship between non-debt tax shield and financial leverage is negative (hypothesis 1a).

A common way to measure non-debt tax shield is dividing depreciation by total assets (Deesomsak, Paudyal and Pescetto, 2004; Degryse, de Goeij and Kappert, 2012; Delcoure, 2007; Frank and Goyal, 2008; de Haan and Hinloopen, 2003; Titman and Wessels, 1988). In this study, I use the above definition to calculate the non-debt tax shield.

Business risk

Organizations faces the risk that they go bankrupt. Earnings volatility is a common used determinant to measure the business risk. De Jong, Kabir and Nguyen (2008) stated in their study that more earnings volatility comes from higher risk and this leads to a higher probability of going bankrupt. Debt holders ask a higher rate of return in this situation. Due to this, organizations with higher risk obtain less debt. According to the trade-off theory, there is a negative relationship between business risk and financial leverage (hypothesis 1b).

Earnings volatility is defined by de Jong (2002) as the standard deviation of the change in operating income over a time period of five years. De Jong (2002) used to measure this variable the changes in the operating income of the firm from t-4 till t. I use this definition in my study, meaning that the changes in the operating income over the years 2005 till 2009 are measured.

Tangibility

Tangible assets reduces the costs of financial distress if they are used as collateral. The risk of the debt holder decreases, which means that organization can borrow loans at a lower rate. The relationship between tangibility and financial leverage is positive (hypothesis 1c).

Tangibility is by Chen and Jiang (2001), Deesomsak, Pescetto and Paudyal (2004) and de Jong, Kabir and Nguyen (2008) defined as total fixed assets divided by the total assets. I use this definition in order to calculate the tangibility.

3.4.3 Independent variables from the pecking order theory

Asset tangibility

The asset tangibility under the pecking order theory suggests a positive relationship with the leverage of a firm (hypothesis 2a). If the internal fund is not enough, organization will use debt rather than equity. In order to obtain debt, organization will provide their lenders with collateral, the tangible assets, in order to reduce the risk of the lender and decreases therefore the risk premium which should be paid.

Asset tangibility under the pecking order theory is defined the same way as the tangibility under the trade-off theory. Antoniou, Guney and Paudyal (2008), Chen (2004), Chen and Jiang (2001), Delcoure (2007) and Frank and Goyal (2008) all used the ratio of total fixed asset to total assets. As mentioned before, I will use this definition to calculate the asset tangibility of Dutch listed firms.

Profitability

The pecking order theory suggests that the profitability negatively is related to the financial leverage (hypothesis 2b). In this situation the more profit means less debt. According to the

pecking order theory, organizations first use their retained earnings to finance their investments. If there is still a deficit, organizations prefer debt finance and as last option equity financing.

Profitability is defined by several researchers as the earnings before interest, tax and depreciation (EBITD) divided by the total assets (Deesomsak, Pescetto and Paudyal, 2004; Degryse, de Goeij and Kappert, 2012). I use this calculation in order to measure the factor profitability.

Liquidity

Another proxy in the pecking order theory is liquidity. According to de Haan and Hinloopen (2003), organizations use their liquid assets and cash as internal funds, before they obtain debt. Firms which have a high amount of liquid assets and cash will borrow not much. Therefore, the relationship between liquidity and financial leverage is negative (hypothesis 2c).

Liquidity is defined as the ratio of current assets to current liabilities (Deesomsak, Pescetto and Paudyal, 2004; de Jong, Kabir and Nguyen, 2008). In my study, I use this ratio to calculate the liquidity of the Dutch organizations.

3.4.4 Independent variables from the agency cost theory

Free cash flow

The agency cost theory discusses the conflicts between managers and shareholders. Managers have the incentive to invest the free cash flow in projects that will increase their own wealth, while shareholders like to see that the free cash flow will be invested in projects that increase the value of the organization or paid out as dividends. Debt can reduce these conflicts and the relationship between free cash flow and financial leverage is positive in the case of overinvestment (hypothesis 3a). However, as stated in the literature, the free cash flow problem does not exist in the case of underinvestment. The cause of the problem of underinvestment is the information asymmetry. Therefore, I expect no relationship between the free cash flow and the financial leverage in the case of underinvestment (hypothesis 3b).

De Jong (2002) used in his study the definition of the free cash flow of Lehn and Poulson (1989). They defined the free cash flow as the ratio of the operating income before depreciation minus the taxes, interest expenditures and the dividends to the total assets. De Jong (2002) argued in his study that the interest expenditures and the dividends are not relevant in calculating the free cash flow. This is because managers can determine the level of debt and dividend. In this way, manager can choose for a certain level of debt and dividend, meaning that the free cash flow can be set at a level which is optimal for the managers. Therefore, the interest expenditures and the dividends should not taken into account for

calculating the free cash flow. So, I use in this study the ratio of operating income before depreciation (EBITD) minus the taxes to the total assets.

Growth opportunity

Since the influence of the shareholders in the Dutch setting is limited, the manager has more discretion over the investments of the firms (Degryse and de Jong, 2006). Manager have the incentive to expand the organization. In firms where the growth opportunity is low and the free cash flow is high, these firms are recognized by Jensen (1986) as potential *over investors* (Jensen, 1986). This leads to more conflicts between the manager and the shareholder, more managerial discretion problems, and therefore to more agency costs. The agency cost theory state that in order to find the optimal capital structure, the agency costs should be reduced to a minimum. Debt can protect the manager from overinvesting, since paying the debt holder is mandatory. However, growth opportunity can reduce the overinvestment behavior of a manager and therefore reduce the amount of required debt. This leads to a negative relationship between growth opportunity and leverage in the case of overinvestment (hypothesis 3c).

If a manager rejects projects which can increase the value of the organization, a manager *under invests*. The cause of underinvestment is the information asymmetry. In this situation, there is a overhang of debt. The conflicts exist between the shareholder and the bondholder. The costs of external capital rises and shareholders are not willing to provide funds to invest, which leads to rejection of projects. Financing these projects with debt gives the signal to the market that the organization expects low profitability and low cash flows in the future. Due to the information asymmetry, the market does not recognize the opportunity (Myers and Majluf, 1984). In this way, the costs of debt are higher and the benefits of the bondholder to the shareholder increase. This leads to more conflicts and for more agency costs. Therefore, the relationship between growth opportunity and financial leverage in the case of underinvestment is negative (hypothesis 3d).

A common way to measure the growth opportunity is by calculating the market-to-book ratio (Antoniou, Guney and Paudyal, 2008; de Bie and de Haan, 2007; Chen and Jiang, 2001; Frank and Goyal, 2008; de Jong, 2002; Mahajan and Tartarogly, 2008; Titman and Wessels, 1988). To calculate the market-to-book ratio the market value of the equity is divided by the book value of equity. It is the same as dividing the market capitalization by the shareholders funds. It is about the expectation of the market. Tang and Jang (2007) explained in their study that the market-to-book ratio shows the current expectation of the firm about the future growth. Hereby is it important that the market sees the growth opportunity. Degryse and de Jong (2006) explained in their paper that the cause of the overinvestment problem is the managerial discretion and the cause of the problem of underinvestment is the information asymmetry. The growth will be low in the case of overinvestment and high in the case of underinvestment. There are different ways to split the sample into overinvestment and underinvestment firms. De Jong (2002) used for instance the median as a cutoff value and de Bie and de Haan (2007) used in their study the average market-to-book ratio as a cutoff value.

Degryse and de Jong (2006) discussed in their study another method to determine the cutoff value. The theory about the growth opportunity stated that the organizations which have a market-to-book ratio which is smaller than one are the organizations which have a problem with the managerial discretion. This are the organizations which will overinvest. The organizations with a market-to-book ratio which is larger than one are the organizations with a information asymmetric problem and will under invest (Hayashi, 1982; Vogt, 1994). However, Degryse and de Jong (2006) argued in their study that the cutoff value should be just above one. They argued that it is possible that firms face a sloping demand curve which is downwards or that the returns of the adjustment costs decrease. In this situation the marginal value of the growth opportunity is lower than the average value of the growth opportunity. Therefore, it is better to have a cutoff value which is just above one. Besides this, they also argued that splitting the sample gives one-third of firms with a growth opportunity which is low and two-third which gives firms with a high growth opportunity. Frank and Goyal (2008) split their sample in a way that the firms who will overinvest are one-third and the firms who will under invest are two-third. In order to split up my own sample in two categories, I use the median as a cutoff value. So, firms with a value which are lower than the median are the firms who are (potential) over investors and firms with a value which is higher than the median are firms who are (potential) under investors. In this way my sample is also divided into one-third and two-third of the whole sample. If an organization has a market-to-book value which is lower than the median, I will value it with one, otherwise it is valued with a zero.

So, if MV/BV[3] is higher than the median, there is a growth opportunity (underinvestment) and if the MV/BV equals or is lower than the median, there is no growth opportunity or a low growth opportunity for the organization (overinvestment). In this study, I split up the whole sample under the agency cost theory in over investors and under investors. For the regression analysis with the pooled samples, I will also use this splitting because I test also the agency cost theory in these samples.

Corporate governance
As described in section 2.5.3, the corporate governance in the Netherlands do have some special characteristics. I take in this study the board structure and the takeover defenses in consideration. Effective corporate governance reduces the amount of debt and therefore there is a negative relationship with leverage.

In the Netherlands, the *board structure* is called a two-tier board system. In this system the supervisory board controls the managerial board. The managerial board cannot take all their decisions without approval of the supervisory board. Besides this, the corporate governance can force the management of a firm to accept more debt in the firm. Therefore, the relationship between power of the supervisory board (board structure) and financial leverage is positive (hypothesis 3e).

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[3] MV/BV is the market value divided by the book value.

De Jong (2002) took in his study about capital structure decisions in the Netherlands the Dutch corporate governance in consideration. In the two-tier board system plays the supervisory board an important role. The effectiveness of the supervisory board depends on the power and the independence of this board. Wen, Rwegasira and Bilderbeek (2002) discussed in their study that the size of the board is an important determinant. The more members the supervisory board has, the more pressure they can exercise on the managers. Van Ees, Postma and Sterken (2003) used in their study the size of the board and the composition of the supervisory board in order to investigate the corporate governance in the Dutch setting. Van Ees, Postma and Sterken (2003), de Jong (2002) and Wen, Rwegasira and Bilderbeek (2002) defined board size as the total number of the members of the managerial board and the supervisory board. The supervisory board size is the number of members of the supervisory board (van Ees, Postma and Sterken, 2003; de Jong, 2002). The power of the supervisory board is defined by de Jong (2002) as the number of supervisory board divided by the total board size, which is also called the relative supervisory board size. I investigate in this study the power of the supervisory board and therefore I take the definition of de Jong (2002) in consideration and measure the relative supervisory board size.

There are three *takeover defenses* in the Netherlands which protects Dutch firms from hostile takeovers. This are the preferred shares, the priority shares and depository receipts, also known as certificates. The most common adopted takeover defense in the Netherlands are the preferred shares. These three kind of takeover defenses are effective, namely it protects the organization for hostile takeovers. Due to these takeover defenses, the agency conflicts are reduced. Therefore, the takeover defense structure is negatively related to financial leverage (hypothesis 3f).

De Jong (2002) defined the existence of the takeover defenses. I follow the method that de Jong (2002) used in his study. I include a dummy variable for every takeover defense (I include in total three dummy variables). The value one means that the preferred shares, priority shares and depository receipts respectively are present in the organization, otherwise it is valued with a zero. Only this data is not collected from the database ORBIS, but from *Effectengids: Gids bij de officiële prijscourant van Euronext Amsterdam.*

3.4.5   Control variable

Size

According to the trade-off theory, size is positively related to the financial leverage. Many researchers stated that the probability of bankruptcy decreases with the size of the firm and therefore the bankruptcy costs are lower. Larger firms do have a more stable cash flow and do have more diversified activities, therefore the risk of going bankrupt is for larger firms lower (Deesomsak, Pescetto and Paudyal, 2004; de Haan and Hinloopen, 2003; de Jong, 2002). In this way, size is an inverse proxy for the probability of going bankrupt. According to the pecking order theory, size is also positively related to the financial leverage. Larger firms are more diversified. Besides this, their earnings volatility is lower. Also, larger firms are more

closely observed by analysts and are better known by the participants in the credit market. This creates less information asymmetric. In this way, larger organizations can easier attract external financing, as debt, than smaller firms (Degryse, de Goeij and Kappert, 2012; de Haan and Hinloopen, 2003). The amount of debt in larger organizations will be higher. As mentioned, the information asymmetry between the agent and the principal is limited by the size of the organization. According to Myers and Majluf (1984) larger firms do have less information asymmetry and so the outsiders do have more information about the firms than when the firms are smaller. This is due to the fact that the monitor costs are lower of larger firms. Also, as stated before, larger firms can easier attract loan, while they have better access to the credit market and larger firms do have less volatility in their earnings. Therefore, the size is positively related to the financial leverage in the agency cost theory.

Many researchers included size as a proxy, some of them as a control variable. In this study, I use firm size as a control variable. There are different ways to measure size. I define firm size as the natural logarithm of total assets (Chen, 2004; Deesomsak, Paudyal and Pescetto, 2004; Degryse, de Goeij and Kappert, 2012; Frank and Goyal, 2008; de Haan and Hinloopen, 2003; de Jong, Kabir and Nguyen, 2008).

3.5 Method of analysis

As is shown in the literature part and by much other studies, the financial leverage of an organization depends on many factors (Frank and Goyal, 2008). This study contains a quantitative analysis, meaning that there are numerical units collected and analyzed. A common used technique in determining the capital structure is the OLS regression technique (de Bie en de Haan, 2007; de Jong, Kabir and Nguyen, 2008; Frank and Goyal, 2008). Regression analysis is used in order to estimate the linear relationship between the dependent variable financial leverage and the independent variables which are proposed by the three prominent theories. The regression analysis assumes a causal relationship, meaning that the independent variables are the cause of the dependent variable.

The basic OLS regression equation (equation 1), which shows the causal relationship between the dependent variable financial leverage and the independent variables from the different theories, is:

$$Y_{it} = \beta_0 + \beta_1 SIZE_{it-1} + \beta_2 NDTS_{it-1} + \beta_3 RISK_{it-1} + \beta_4 TANG_{it-1} + \beta_5 PROF_{it-1} + \beta_6 LIQ_{it-1} + \beta_7 FCF_{it-1} + \beta_8 GROWTH_{it-1} + \beta_9 BOARD_{it-1} + \beta_{10} PREF_{it-1} + \beta 11 PRIORit-1 + \beta 12 CERTit-1 + \varepsilon it \qquad (1)$$

In this model Y_{it} is the leverage of firm i at year t. There is for the independent variables a lag. This means that the decisions of the previous year, year t-1, influence the decisions of leverage in year t. SIZE is the control variable firm size, NDTS is the non-debt tax shield, RISK is the business risk, TANG is the (asset) tangibility (trade-off theory and pecking order theory), PROF is the profitability, LIQ is the liquidity, FCF is the free cash flow (in the case of overinvestment and in the case of underinvestment), GROWTH is the growth opportunity

(in the case of overinvestment or in the case of underinvestment), BOARD is the power of the supervisory board (the board structure), PREF are the preferred shares, PRIOR are the priority shares, CERT are the depository receipts (certificates) and ε is an error term. β_0 imposes the intercept, β_1 is the coefficient of the control variable and β_2, β_3, β_4, β_5, β_6, β_7, β_8, β_9, β_{10}, β_{11} and β_{12} are the coefficients of the independent variables. The slope β is the same for all industries and individual firms.

Based on hypothesis 1a, 1b, 1c, 2a, 2b, 2c, 3a, 3b, 3c, 3d, 3e and 3f the expectation is to find a negative coefficient of NDTS, a negative coefficient of RISK, a positive coefficient of TANG (for the trade-off theory and the pecking order theory), a negative coefficient of PROF, a negative coefficient of LIQ, a positive coefficient of FCF in the case of overinvestment and no relationship is expected in the case of underinvestment, a negative coefficient of GROWTH (in the case of overinvestment and in the case of underinvestment), a positive coefficient of BOARD and negative coefficients of PREF, PRIOR and CERT.

The slope β of the different independent variables are analyzed by a several regression analysis. First, I include only the control variable size in the regression model. In this way can been seen if the control variable influence the financial leverage. The independent variables of the trade-off theory and the control variable are included in the second model. In this test, all the Dutch listed firms are included. The third regression model included the control variable and the independent variables of the pecking order theory, where also all the Dutch listed firms are included. The independent variables of the agency cost theory and the control variable are included in the fourth and fifth regression models. As mentioned before, I will split the full sample of Dutch listed firms in the agency cost theory. As de Jong (2002) described in his study, over investors will have a higher free cash flow and a lower growth opportunity compared to the under investors. Therefore, I will split up the sample in this section. The fourth regression model included the growth opportunity in the case of overinvestment, the fifth model included growth opportunity in the case of underinvestment. In the last two regression models, model six and seven, all the independent variables of the trade-off theory, the pecking order theory, the agency cost theory and the control variable size are employed. The sixth regression model test the capital structure decisions of firms in the case of overinvestment, while the seventh model test the case of underinvestment. These last two regression models show if and how the independent variables influence the capital structure decisions of Dutch organizations.

As I described in the section of the dependent variable leverage, another definition of leverage is employed in order to check the results for their robustness. This robustness check is done for all the regression models which are employed. So, another seven OLS regression analysis are done.

Table 2
Definition of variables

Variable	Definition	Reference
Leverage		
Long-term debt ratio	$\dfrac{Long\ term\ debt}{Total\ assets}$	Degryse, de Goeij and Kappert (2012); Frank and Goyal (2008); de Jong (2002).
Debt maturity	$\dfrac{Long\ term\ debt}{Total\ debt}$	Fan, Titman and Twite (2006).
Trade-off theory		
Non-debt tax shield	$\dfrac{Depreciation}{Total\ assets}$	Deesomsak, Paudyal and Pescetto (2004); Degryse, de Goeij and Kappert (2012); Delcoure (2007); Frank and Goyal (2008); de Haan and Hinloopen (2003); Titman and Wessels (1988).
Business risk	Standard deviation of change in operating income over a time period of 5 years	De Jong (2002).
Trade-off theory / Pecking order theory		
(Asset) tangibility	$\dfrac{Total\ fixed\ assets}{Total\ assets}$	Antoniou, Guney and Paudyal (2008); Chen (2004); Chen and Jiang (2001); Deesomsak, Pescetto and Paudyal (2004); Delcoure (2007); Frank and Goyal (2008); de Jong, Kabir and Nguyen (2008).
Pecking order theory		
Profitability	$\dfrac{Earnings\ before\ interest, tax\ and\ depreciation\ (EBITD)}{Total\ assets}$	Deesomsak, Paudyal and Pescetto (2004); Degryse, de Goeij and Kappert (2012).
Liquidity	$\dfrac{Current\ assets}{Current\ liabilities}$	Deesomsak, Paudyal and Pescetto (2004); de Jong, Kabir and Nguyen (2008).

Agency cost theory

Free cash flow	$$\frac{Operating\ income\ before\ depreciation - taxes}{Total\ assets}$$	De Jong (2002); Lehn and Poulson (1989).
Growth opportunity	$$\frac{Market\ value\ of\ equity}{Book\ value\ of\ equity} = \frac{Market\ capitalization}{Shareholders\ funds}$$	Antoniou, Guney and Paudyal (2008); de Bie and de Haan (2007); Chen and Jiang (2001); Degryse and de Jong (2006); Frank and Goyal (2008); de Jong (2002); Mahajan and Tartarogly (2008); Titman and Wessels (1988).

Board structure

Power of the supervisory board	$$\frac{Supervisory\ board\ size}{Total\ board}$$	De Jong (2002).

Takeover defenses

Preferred shares	1 if this takeover defense is present, otherwise 0	De Jong (2002).
Priority shares	1 if this takeover defense is present, otherwise 0	De Jong (2002).
Depository receipts	1 if this takeover defense is present, otherwise 0	De Jong (2002).

Control variable

Size	Natural logarithm of total assets	Chen (2004); Deesomsak, Paudyal and Pescetto (2004); Degryse, de Goeij and Kappert (2012); Frank and Goyal (2008); de Haan and Hinloopen (2003); de Jong, Kabir and Nguyen (2008).

4. Results and discussion

Before I will show and discuss the results of the OLS regression analysis, I will discuss the results of the descriptive statistics. After this, I will discuss the results of the correlations between the variables. As last, the OLS regression analysis will be discussed.

4.1 Results and discussion of the descriptive statistics

Looking at table 3, see page 40, it can be seen that the residuals are overall normally distributed, namely the mean and the median are highly similar. This means that the assumption of normality do not have infractions. Besides this discussion, I will also compare the mean and the median of the factors which I found and compare it with previous studies which are done in the Netherlands. The mean of the long term debt to total assets which I found in this study has not much changed over time, compared to the study of de Jong (2002). De Jong (2002) used in his study data from 1992 till 1997, where I used data from 2004 till 2009. He found a mean of 0.136, where the mean which I found is 0.137. The firm size is measured as the natural logarithm of the total assets. De Haan and Hinloopen (2003) found in their study a average firm size of 12.398. This is almost the same mean which I found in this study for Dutch listed firms. De Haan and Hinloopen (2003) measured their factor size over de years 1984 till 1997. So, I can conclude that the average size of Dutch listed firms has not changed over time. This statement is also supported when I look at the results of the descriptive statistics of de Bie and de Haan (2007). They focused also their study also on Dutch listed firms and used data from 1983 till 1997. They found a average firm size of 13.1 and a median of 13.0. This is almost the same which I found. When I compare the mean and the median of the non debt tax shield with the value of de Haan and Hinloopen (2003), I see that my value is slightly different from the value which they found. De Haan and Hinloopen (2003) found a average non debt tax shield of 0.051 and a median of 0.045. This difference can be there because the data which I used to measure the sample differs from the data they used. De Jong (2002) and I found different values of the mean of the factor risk. Risk is measured as the standard deviation of the change in the operating income of a period of five years. Were I found a average of 0.443, de Jong (2002) found a average of 0.035. A explanation for this difference can be that the business risk changed over time. Were de Jong (2002) used data from 1992 till 1997, I used data from 2004 till 2009. In 2007/2008 the world wide economic crisis started. Business went bankrupt, even large ones. So the risk in that time and the time after increased. This can be an explanation why de Jong (2002) and I found so different values. The average of the asset tangibility which Chen and Jiang (2001) found and which I found is somehow the same and therefore are comparable. Chen and Jiang (2001) found a average of 0.351 and a median of 0.359. I found a mean of 0.490 and a median of 0.498. The maximum value of the tangibility is 0.997, which is quite high. Looking at the study of Chen and Jiang (2001), they found a maximum of 0.925. Therefore, the value I found as maximum is comparable to the previous study which is done in the Netherlands. De Jong (2002) found a average of 0.556 in his study for the whole sample of Dutch listed firms. This value lays close the value I found. The average of profitability in this study is 0.080 and the

median is 0.122. De Bie and de Haan (2007) found in their study an average of 0.088 of all Dutch listed firms. Their finding is close to my finding. Also, Chen and Jiang tested the profitability and found 0.061 as average. Also this value does not differ much from the value I found. Even so, Chen and Jiang (2001) found just as I a negative minimum for this variable. De Jong, Kabir and Nguyen (2008) measured the liquidity by dividing the current assets by the current liabilities, just as I. For the sample of the Dutch listed firms, they found an average of 2.584, where I found an average of 2.678. So, the mean I found is close to the mean which this previous study found. The mean of the free cash which I found is a bit larger than the free cash flow which de Jong (2002) found. Were de Jong (2002) found a free cash flow of 0.030, I found a free cash flow of 0.061. However, the sample of de Jong (2002) is measured at a different time period, which can influenced this difference. The growth opportunity is harder to compare with other studies, because I split the sample up between firms who overinvest and firms who will under invest. Most empirical studies only test the growth opportunity for the whole sample and de Jong (2002) tested the growth opportunity for the whole sample and the potential over investors. I used this variables as a dummy and valued the (potential) over investors with a one, otherwise it is valued with a zero. To measure growth opportunity, I calculated the market-to-book value. Chen and Jiang (2001) also calculated the market to book ratio. They found an average of 0.862 and a median of 0.687. De Bie and de Haan (2007) also calculated the market-to-book ratio and did found a mean of 1.336 and a median of 1.157. Besides this, de Jong (2002) found a average of 0.090 and a median of 0.062 and Degryse and de Jong (2006) found a mean of 1.406 and a average of 1.195. The values of de Bie and de Haan (2007) are close to the values I found. The difference in the averages values and in the medians which all these researchers found can be explained by the use of different samples at different time periods. De Jong (2002) studied the corporate governance in the Netherlands. I found a value of the relative board size, which is close to the value he found. De Jong (2002) found a mean value of 0.657, were I found a value of 0.593. The median which de Jong (2002) found has a value of 0.667, in my sample the value is close to this, namely 0.625. However, de sample which de Jong (2002) used is much larger than the sample I used. To compare the preferred shares, the priority shares and the certificates, I have to look again at the study of de Jong (2002). In my study, these three variables are dummies. The means of these three variables differs from the means of the Jong (2002). In my target sample was much smaller than the sample of de Jong (2002), which can explain the difference. He has more firms in his target sample and probably more firms which adopted a takeover defense. Also, the data can been changed over time, for example, less firms adopted a takeover defense. This can be an explanation for the different values. Overall, the values I found in this thesis are comparable with the values which previous studies found that are done in the Netherlands.

Table 3

Descriptive statistics of variables used in OLS regression

	Mean	Median	Std. Deviation	Minimum	Maximum	N
LTD/TA	0.137	0.127	0.127	0.000	0.523	385
LTD/TD	0.232	0.211	0.220	0.000	0.998	385
SIZE	13.180	13.185	2.159	8.509	17.733	385
NDST	0.039	0.029	0.038	0.000	0.398	350
RISK	0.443	0.422	1.777	0.0725	6.576	345
TANG	0.490	0.498	0.215	0.000	0.997	350
PROF	0.080	0.122	0.571	-10.753	1.060	350
LIQ	2.678	1.350	19.313	0.000	377.700	350
FCF	0.061	0.063	0.024	0.036	1.121	350
GROWTH	1.416	1.019	1.698	0.192	12.195	385
BOARD	0.593	0.625	0.189	0.000	1.000	385
PREF	0.540	1.000	0.499	0.000	1.000	340
PRIOR	0.220	0.000	0.414	0.000	1.000	340
CERT	0.150	0.000	0.356	0.000	1.000	340

This table reports the mean, the median, the standard deviation, the minimum and the maximum of the variables which are used in the OLS regression. LTD/TA is the long term debt to total assets ratio, which is an indicator for the leverage of a firm. LTD/TD is the long term debt to total debt ratio, which indicates the leverage of a firm. SIZE is the size of the organization, measured by the natural logarithm of the total assets. NDST is the non-debt tax shield, which is calculated by the depreciation divided by the total assets. RISK is the business risk of an organization, calculated by the standard deviation of the change of the operating income over a time period of 5 years. TANG is the tangibility, calculated by the total fixed assets divided by the total assets. PROF is the profitability ratio measured by the EBITD divided by the total assets. LIQ is the liquidity of the organization, measured by the current assets to current liabilities ratio. FCF is the free cash flow, calculated by the operating income before depreciation minus the taxes divided by the total assets. GROWTH is the growth opportunity of an organization, which is calculated by the market to book ratio. If the market to book ratio is 1.07 or lower than 1.07, than it is an overinvestment (OI) and when the market to book ratio is higher than 1.07, than it is underinvestment (UI). BOARD is the board structure, calculated by the number of members of the supervisory board divided by the total board. PREF are the preferred shares of the organization, PRIOR are the priority shares of the organization and CERT are the depository receipts.

4.2 Results and discussion of the correlation matrix

Table 4, see next page, shows the correlation between the variables. It is important to look at the correlations, because it shows the researcher the relationship between the variables. It shows if there is a relationship between the variables and the sign shows if this relationship is positive or negative. In this study, I look at the Pearson correlations coefficient. As can be seen in the row of the leverage, firm size and tangibility are highly significant correlated with the leverage of a firm. These two variables are significant at a level of 1%, where the correlation between leverage and firm size 0.552 is and the correlation between leverage and tangibility 0.485 is. Both variables do have a positive sign, meaning that the relationship between each variable and leverage is positive. Besides this two factors, the free cash flow also significant correlated with leverage at a level of 5%, where the correlation 0.117 is. The correlation of 0.117 suggests that the relationship between the leverage and the free cash will be positive. Significant correlations with leverage, but at a low level of 10%, are profitability, liquidity, growth opportunity and the presence of priority shares. The correlation between leverage and profitability is -0.067, between leverage and liquidity -0.066, between leverage and growth opportunity in the case of overinvestment 0.207, between leverage and growth opportunity in the case of underinvestment 0.133 and between priority shares and the leverage -0.078. Looking at the signs, there is a negative relationship between both profitability and liquidity with leverage and a positive relationship between leverage and growth opportunity in both cases. The relationship between leverage and the presence of priority shares is negative. This means that I expect to find in the final analysis that the most significant and most

important factors for the capital structure choice are size and tangibility. Besides these two factors, also the free cash flow, the profitability, liquidity, growth opportunity and priority shares are expected to be important in the leverage choice of Dutch firms. All the other independent variables do not have a significant correlations factor with leverage.

In table 4 can also be seen that among all the other independent variables, some variables are significantly correlated to each other. At a significance level of 1%, size and non-debt tax shield (-0.194) are correlated. Besides this, also size and tangibility (0.268), non-debt tax shield and risk (0.169), non-debt tax shield and growth opportunity (0.311 in the case of overinvestment and 0.310 in the case of underinvestment), risk and profitability (0.331), tangibility and liquidity (-0.151), tangibility and free cash flow (0.371), priority shares and growth opportunity in the case of overinvestment (0.311) and certificates and tangibility (0.165) are highly correlated. At a level of 5%, size and liquidity (-0.097) are significant correlated, just as size and the board structure (-0.106), risk and free cash flow (-0.330), risk and growth opportunity in the case of overinvestment (0.690), growth opportunity in the case of underinvestment and the board structure (0.119), preferred shares and tangibility (-0.177), profitability and the free cash flow (-0.116), liquidity and free cash flow (0.182), priority shares and non-debt tax shield (-0.098), priority shares and preferred shares (0.086) and certificates and growth opportunity in the case of overinvestment (0.218). Looking at table 4, there is, based on the correlations coefficients, no high multi-collinearity. Overall, all the correlations coefficients are smaller than 0.7, which means that there is no high correlation (Huizingh, 2006).

Table 4
Correlation between the variables

	LTD/TA	SIZE	NDST	RISK	TANG	PROF	LIQ	FCF	GROWTH-IO	GROWTH-UI	BOARD	PREF	PRIOR	CERT
LTD/TA	1.000													
SIZE	0.552***	1.000												
NDST	-0.013	-0.194***	1.000											
RISK	-0.049	0.178*	0.269***	1.000										
TANG	0.485***	0.268***	0.169***	-0.091	1.000									
PROF	-0.067*	0.038	0.027	0.331***	0.002	1.000								
LIQ	-0.066*	-0.097**	-0.061	-0.078	-0.151***	-0.012	1.000							
FCF	0.117**	-0.039	0.132*	-0.330**	0.371***	-0.116**	0.182**	1.000						
GROWTH-OI	0.207*	0.119	-0.311***	-0.690**	0.004*	-0.103	0.019	-0.031	1.000					
GROWTH-UI	0.133*	-0.012	0.310***	-0.135	0.088*	0.046	-0.055	0.070	-	1.000				
BOARD	0.065	-0.106**	-0.021	-0.112	-0.041	0.017	0.040	-0.003	0.033	0.119**	1.000			
PREF	-0.016	0.165*	0.075*	0.098	-0.117**	0.093*	-0.063	-0.044	-0.085	0.082	-0.129	1.000		
PRIOR	-0.078*	-0.006	-0.098**	-0.034	0.038	0.029	-0.035	-0.076	0.311***	-0.051	0.029	0.086**	1.000	
CERT	-0.041	0.006	0.047	0.181*	0.165***	0.024	-0.027	0.065	-0.218**	-0.062	-0.011	0.079	0.116	1.000

This table reports the correlation coefficient between each variable which is used in the regression analyses. The variables are defined in table 2. *** Correlation is significant at the level of 1%. ** Correlation is significant at the level of 5%. * Correlation is significant at the level of 10%.

In order to check for multi-collinearity of all the independent variables, I look besides the correlation coefficients also at the tolerance and VIF data. The VIF data is calculated by 1 divided by the tolerance data. The rule of thumb is that when the VIF data is below 10, than there is no multi-collinearity. Just as I expect, all the VIF data is below 10. This means that there is no multi-collinearity and I can employ all the variables in one model.

4.3 Results and discussion of the OLS regression analysis

In table 5, which is showed on page 48, I show results of the OLS regression analysis with the dependent variable long term debt ratio. In all models can been seen that the firm size is highly positively related to leverage. All the β are significant at a level of 1%. In Dutch listed firms will the probability of going bankrupt be smaller in larger firms. So, the amount of bankruptcy costs decreases by the size of the organization. This is due to the fact that larger organizations do have more diversified activities and have overall a more stable cash flow. Therefore they can easier attract debt, which has a positive influence on the leverage (Deesomsak, Pescetto and Paudyal, 2004). This positive influence of the trade-off theory is also shown in this study. Under the pecking order theory is size also positively related to leverage, which is also shown in this study. This is due to the lower volatility in earnings of larger firms. Besides this, larger firms are more closely observed by analyst. Due to this, the information asymmetric is smaller, participants of the credit market do have more and better information about the firm when the firm is larger. This means that larger firms can easier attract a loan than smaller firms, and therefore they do have a larger debt amount. This results in a positive relationship between the size of the firm and the leverage (Degryse, de Goeij and Kappert, 2012; de Haan and Hinloopen, 2003). Also, I expect to find a positive relationship between size and leverage under the agency cost theory. I found this positive relationship, as can be seen in the results of table 5. The information asymmetric is smaller for larger firms, meaning that the outsiders do have more and better information when the organization is larger. The results of this is that the conflicts between the manager and the shareholder are lesser. The monitoring cost are smaller. Due to this, larger organization can easier attract debt finance than smaller organization. Therefore, there is a positive relationship between the leverage and the size of the organization under the agency cost theory (Myers and Majluf, 1984). This strong positive relationship also holds in the pooled regression models, models 6 and 7.

In model 2 is besides the firm size, also the tangibility a significant factor of leverage at a level of 1%. The sign of tangibility is positive, β is 0.206. This means that the relationship between the tangibility and the leverage of Dutch listed firms positive is. The relationship is in line with hypothesis 1c and therefore hypothesis 1c is supported. Dutch listed firms use their tangible assets as a collateral in order to obtain debt. They provide their lenders with tangible assets, which reduce the risk of bankruptcy and therefore the risk that a lender loses his money. The use of tangible assets increase the amount of debt, because organization with tangible assets, collateral, can obtain more debt. Several researchers tested the relationship between asset tangibility and leverage. Delcoure (2007), Titman and Wessels (1988) and de Jong (2002) found all three a significant positive relationship with leverage. My findings are in line with the findings of these previous studies. The non-debt tax shield and the risk are both not significant in my sample. De Jong (2002) found in his sample of Dutch listed firms a negative significant relationship between non-debt tax shield and the leverage, which does not match my findings. However, for the variable risk is the support mixed. Some researchers found a significant relationship, others did not. For my sample, the variable risk is also not significant. So, I convergence with the researchers who also found no significant relationship for this variable. A possible explanation for these findings is that the factor size is a

significant factor. I used the size of the organization as a control variable. According to the theories, the leverage of a firm increases with the size of the firm. As explained in the theoretical framework, the non-debt tax shield can be used as a substitute for the benefits of debt financing. However, lager Dutch organizations will have more debt in their organization, since the size is a significant positive factor. So, financing with debt gives the organization the opportunity to use the benefits of debt. Therefore the substitute non-debt tax shield is not needed and so not a significant factor in this paper. According to the theories about the capital structure, the bankruptcy risk decreases with the size of the firm. Larger firms do have a more stable cash flow and do have more diversified activities. Due to this, the risk of the organization will decrease and larger organization can attract more debt. Therefore, the business risk is not a significant. However, as I also explained in the theoretical framework, tangible assets can be used as collateral in order to attract debt, even if the firm is in financial distress. However, I did not found the business risk as a significant factor, but for the tangibility I found a significant β. As Chen and Jiang (2001) explained in their paper, organizations will borrow with secured debt, because borrowing with unsecured debt is more expensive. Besides this, if an firm borrows with unsecured debt, the information asymmetric will be larger. Since the information asymmetric causes more conflicts (agency cost theory), it is better to borrow with secured debt. Therefore, the tangible assets are used and so this factor is significant.

Looking at model 3, next to size are also tangibility and profitability a significant factor. Tangibility is significant at a level of 1% and profitability is significant at a level of 5%. The β of tangibility is 0.216 and of profitability in this model is -0.019. The sign of the β of tangibility is positive, meaning that the tangibility has a positive influence on the debt level of the organization. This evidence support hypothesis 2a. The β of profitability is negative, which means that the profitability has a negative relationship with leverage of Dutch listed firms. Hypothesis 2b stated that the relationship between profitability and the leverage of Dutch listed firms is negative. I show empirical evidence that under pecking order theory this hypothesis is supported. As mentioned in the theoretical framework, in order to attract external financing (first debt than equity), organizations will provide their lenders with collateral. In this way the risk of the lender decreases and the risk premium will be lower which should be paid by the organizations. Debt will be cheaper and easier to obtain for Dutch organizations. My findings are in line with the findings of previous studies of Chen (2004), Chen and Jiang (2001) and Frank and Goyal (2008). They all showed the positive relationship between the tangibility and the leverage under the pecking order theory. My results show that the profit of Dutch listed firms is used as an internal fund in order to pay their investments. This means that they need lesser external finance, as debt, which lowers the amount of debt in the organization. Therefore, the relationship I found is negative. Previous studies of de Jong, Verbeek and Verwijmeren (2011) and Titman and Wessels (1988) showed that there is a significant relationship between profitability and leverage. This corresponds to my findings. The liquidity ratio is in my sample negative, but not significant in the OLS regression analysis. This is contrary to the findings of de Haan and Hinloopen (2003) and de Jong, Kabir and Nguyen (2008), who found a negative significant relationship for this variable.

In model 4 is the agency cost theory in the case of overinvestment tested. In this model only firms with a MV/BV which is equal or lower than the median are included. Besides the size, is in this model the free cash flow a significant variable, at a significance level of 1%, where the β 0.625 is. This means that the relationship between the free cash flow and the leverage of a firm positive is, just as stated in hypothesis 3a. Therefore, I show empirical evidence that support this hypothesis. There are also two takeover defenses significant related to the long term debt ratio. This are the preferred shares and the priority shares. The preferred shares are significant at a level of 10% where the β -0.019 is and the priority share are significant at a level of 5% where the β -0.031 is. Both takeover defenses are negatively related to the leverage, which is in line with hypothesis 3f. In model 5, I tested the agency cost theory in the case of underinvestment. Just as in model 4, besides the size, the free cash flow and the presence of the preferred shares and the priority shares are significant related to the leverage. The free cash flow is positively related at a level of 1%, β is 0.669. This is not in line with hypothesis 3b. Both takeover defenses are both at a significance level of 5% related to leverage. The β of the preferred shares is -0.024 and the β of the priority shares is -0.035. Taken together, this means that there is a positive significant relationship between the leverage and the free cash flow in the case of overinvestment, just as stated in hypothesis 3a. I also found a positive significant relationship between the free cash flow and the leverage in the case of underinvestment, which is not line with hypothesis 3b. Therefore, only hypothesis 3a is supported. Of all the takeover defenses, the preferred shares and the priority shares are significant correlated with the leverage of a firm. So, this evidence can support hypothesis 3f for the preferred shares and the priority shares. In these two models is the free cash flow is positive significant related to leverage. This means that Dutch listed firms use debt in order to decrease their amount of free cash flow, which causes in this way lesser agency problems and therefore lesser agency costs. Firms are willing to reduce their agency costs in order to find their optimal capital structure. So, in order to reduce the agency cost, organizations attract debt to reduce the amount of free cash flow. My findings are not in line with the findings of de Jong (2002). He tested the free cash flow of Dutch listed firms, but did not found empirical evidence that this variable significantly influenced the leverage decisions. Besides the free cash flow, also the presence of the priority shares is a significant factor at a level of 5%. The presence of the preferred shares are significant related at a very low level of 10%. The certificates is the only variable of the takeover defenses which is not significant related to the leverage of Dutch firms in this model. De Jong (2002) tested also the takeover defenses and did not found convincing evidence that the takeover defenses influence the capital structure. Therefore, my findings are not in line with the findings of de Jong (2002). The growth opportunity in the case of overinvestment and the board structure are not significant factors in this model. The board structure is measured by the relative board size. De Jong (2002) tested this factor for Dutch listed firms and did not found a significant relationship with the long term debt ratio. So, my findings about the board structure match the findings of de Jong (2002). Looking at both models, I can conclude that there is no difference in the capital structure choice under the agency cost theory between the firms who overinvest and the firms who will under invest. So even firms with growth opportunities will use debt to reduce the amount of free cash flow in the organization and therefore reduce the agency costs.

In model 6 and 7 I test all the variables in one model. Model 6 is in the case of overinvestment and model 7 is in the case of underinvestment. In model 6 and 7 can been seen that next to the size, the tangibility is highly significant related to leverage (at a level of 1%), β in model 6 is 0.222 and β in model 7 is 0.216. Profitability do have also a significant influence on the debt ratio at a level of 5% in both models. The β of profitability in model 6 is -0.019 and the same β is found in model 7. Seeing the negative β, profitability has a negative impact on the debt ratio. Also highly significant in model 6 and 7 is the free cash flow. It seems that this determinant also plays an important role in the capital structure choice of Dutch firms, but it does not matter if these firms are over investors or under investors. This variable is significant at a level of 5%, where the β in model 6 is 0.014 and in model 7 β 0.050. The β is positive, meaning that the relationship between the free cash flow and the leverage of Dutch listed firms is positive. So, also Dutch firms with growth opportunities will attract debt in order to reduce their free cash flow and therefore their agency problems. This is not in line with hypothesis 3b. Only the growth opportunity in the case of overinvestment in model 6 is significant related to leverage. This is at a low level of 10%, where β 0.093 is. The growth opportunity in the case of underinvestment, which is tested in model 7, is not significant. As Degryse and de Jong (2006) explained in their study, the problem of overinvestment is more common in the Netherlands than the problem of underinvestment. This is due to the fact that the Dutch setting has two important characteristics. The first is that the influence of the shareholders is limited, even if the size of them is large. The banks do have an important role in the Netherlands, through different channels. Since the influence of the shareholders is limited, managers do have more discretion over the investments of the firms, than for instance in the US. This causes managerial discretion problems, also known as the problem of overinvestment. These problems are due to the Dutch setting, more common in the Netherlands than the underinvestment problem. However, I stated in hypothesis 3c that the relationship between the growth opportunity and the leverage in the case of overinvestment negative is. The results show that this is not the case in the sample of Dutch listed firms. Priority shares are also significant. In model 6 this variable is significant at a level of 10% and in model 7 at a level of 5%. The β of the priority shares in model 6 is -0.024 and in model 7 -0.027. The relationship with leverage is negative, meaning that the debt ratio of the firm will be lower if the organization has priority shares. Besides the priority shares are in model 7 also the certificates significant at a level of 5%. The β is negative (-0.037), meaning that the relationship with leverage is negative. This is also in line with hypothesis 3f. So, seeing the results of these two models, hypothesis 1c, 2a, 2b, 3a and 3f (in the case of priority shares and certificates) are supported. As can been concluded from model 6, larger firms do have a higher leverage. As explained earlier, the relationship between size and leverage under all the theories is positive. The bankruptcy cost decreases, since the possibility of going bankrupts is smaller. Therefore, larger firms can easier attract debt finance (trade-off theory). Larger firms do have less volatile earnings and the information asymmetry is lower, which leads to the fact that larger firms can easier attract debt than smaller firms (pecking order theory). Since the information asymmetry is smaller, there are less conflicts between the managers and the shareholders. In this way, organizations can easier attract debt (agency cost theory). Profitability has a negative impact on the leverage of a firm, as can be seen in table 5.

According to the pecking order theory, organizations will first use their internal fund, such as profit, to finance their future investments. Therefore, profitable firms will not obtain debt or obtain less debt if they can finance with a internal fund. So, my findings are in line with this theory. These findings converge with the findings of de Jong, Verbeek and Verwijmeren (2011) and with de Jong, Kabir and Nguyen (2008). Both studies also found a significant impact of the profitability under the pecking order theory. However, most of the time the internal fund profit is not sufficient to cover all the financial deficit. Therefore, organizations attract external capital. They prefer to obtain debt, before they will issue equity. In order to obtain debt, organizations will provide their lenders with collateral. Tangible assets can be used by the organization as collateral, this is why I found a positive and significant relationship between the tangibility and the leverage of Dutch listed firms. If organizations provide their lenders with collateral, the risk that the lender will lose his investment decreases. This affects the risk premium of the loan, namely this will be smaller since the risk of the lender is lower. Therefore, organizations can easier attract a loan and at a lower rate. My findings are in line with the findings of Chen (2004), Chen and Jiang (2001) and with the findings of Frank and Goyal in (2008). Moreover, my findings are overall in line with the pecking order theory. Profit was used first as internal fund, if this will not cover the entire financial deficit, then organizations attracted a loan. To attract this loan, organizations provide their lenders with collateral. In this way, the need to issuing equity is lower. Organizations are not willing to issue equity, because of the consideration of the investors that debt is less risky than equity. This is in line with Chen and Jiang (2001). They also found a moderately support that Dutch firms will follow the pecking order theory. The free cash flow is also highly significant related to the leverage of a firm when this firm is a (potential) over investor (see model 6). This positive relationship means that the organizations is willing to attract debt in order to reduce their agency costs when they have a free cash flow and a low growth opportunity. Dutch organizations with free cash flow will attract debt. Their tangible assets are also used as collateral to attract debt in order to reduce their agency costs. Growth opportunity in the case of overinvestment slightly influence the leverage. I expect to find a negative coefficient. However, the results show that the coefficient is positive. A possible explanation for this low significant coefficient is that the growth opportunity in the case of overinvestment is correlated with the tangibility. Of all the takeover defenses, only the priority shares do have a very slightly impact on the leverage. In model 7, there are six factors significant. The outcomes of this regression model is nearly the same as the outcomes of the regression analysis of model 6. The only differences is that the growth opportunity is not significant. Looking at model 7, the most important factors are the size of the organization, the profit, the tangible assets, the free cash flow, the priority shares and the certificates. Overall, I concluded from this two models that Dutch organizations with profit will follow the pecking order theory. They first use their profit as an internal fund. Most of the time, this amount of money is not enough to cover the entire financial deficit. Therefore organization attract a loan first, as explained in the pecking order theory. To obtain debt, organizations provided their lenders with collateral, their tangible assets, in order to decrease the risk. Now, they can easier attract loan at a lower rate, since the risk premium is lower. Also firms which do have a free cash flow will attract more debt. These firms use their tangible assets not only

to attract a loan if their internal fund is not enough, they also use their tangible assets in order to attract a loan in order to reduce the agency costs. Managers do have the incentive to invest in projects which do not increase the value of the firm, this causes conflicts between the manager and the shareholder, better known as agency problems. Paying the debt holder is mandatory. Therefore, debt can reduce the agency costs. First, the firm need to pay their debt holders, they want interest and at the end their loan back. So, the amount of free cash flow

Table 5

Coefficient - Determinants of leverage (long term debt to total assets ratio)

	Relationship according to the theory	Model 1 Control variable	Model 2 Trade-off theory	Model 3 Pecking order theory	Model 4 Agency cost theory - case overinvestment	Model 5 Agency cost theory - case of underinvestment	Model 6 All independent variables - case of overinvestment	Model 7 All independent variables - case of underinvestment
SIZE	+	0.032***	0.028***	0.027***	0.033***	0.034***	0.027***	0.027***
		-12.951	-4.951	-11.470	-13.338	-13.747	-10.606	-10.798
NDST	-		-0.028				-0.124	-0.012
			(-0.089)				(-0.892)	(-0.086)
RISK	-		-0.007				-0.003	-0.004
			(-1.122)				(-0.486)	(-0.556)
TANG	+		0.206***	0.216***			0.222***	0.216***
			-3.685	-9.085			-8.112	-7.883
PROF	-			-0.019**			-0.019**	-0.019**
				(-2.185)			(-2.187)	(-2.236)
LIQ	-			-0.000018			0.000	0.000
				(-0.846)			(0.883)	(-1.021)
FCF	+				0.625***	0.669***	0.014**	0.050**
					-3.497	-3.788	-2.075	-2.006
GROWTH	-				0.087	0.012	0.093*	0.008
					-1.324	-1.286	-1.998	-1.404
BOARD	+				-0.006	-0.019	0.018	0.009
					(-0.201)	(-0.666)	(0.690)	(0.340)
PREF	-				-0.019*	-0.024**	0.000	-0.003
					(-1.742)	(-2.180)	(-0.037)	(-0.285)
PRIOR	-				-0.031**	-0.035**	-0.024*	-0.027**
					(-2.335)	(-2.463)	(-1.984)	(-2.273)
CERT	-				-0.019	-0.019	-0.037	-0.037**
					(-1.257)	(-1.259)	(-1.047)	(-2.631)
INTERCEPT		-0.290***	-0.323***	-0.325***	-0.972***	-0.982***	-0.399**	-0.404**
		(-8.685)	(-9.950)	(-10.571)	(-5.229)	(-5.491)	(-2.097)	(-2.168)
N		385	345	345	125	260	125	260
R^2		0.305	0.437	0.435	0.345	0.363	0.458	0.463
Adjusted R^2		0.303	0.406	0.429	0.333	0.351	0.441	0.446

This table reports the results of the regression analysis. The dependent variable, leverage, is the long term debt to total assets. Model 1 employs the control variable SIZE. Model 2 employs the control variable and the independent variables of the trade-off theory. Model 3 employs the control variable and the independent variables of the pecking order theory. Model 4 employs the control variable and the independent variables of the agency cost theory, in the case of overinvestment. Model 5 employs the control variable and the independent variables of the agency cost theory, in the case of underinvestment. Model 6 employs the control variable and all the independent variables of the trade-off theory, the pecking order theory and the agency cost theory, in the case of overinvestment. Model 7 employs the control variable and all the independent variables of the trade-off theory, the pecking order theory and the agency cost theory, in the case of underinvestment. The variables are defined in table 2. *** Parameter is significant at the level of 1%. ** Parameter is significant at the level of 5%. * Parameter is significant at the level of 10%. The t-values are between the parentheses.

decreases. Managers do have less money to invest in projects with a negative NPV and therefore the agency problems and costs are reduced. However, my results show that even firms with growth opportunities will attract debt in order to reduce their free cash flow. So, my findings are not in line with hypothesis 3b. Besides this, also the priority shares did have a very slightly impact in both models. Seeing the results of both models, I can conclude that there is not a difference between the variables which are important for determining the capital structure of firms who overinvest and firms who will under invest.

As last, robustness analysis is done in order to check if the results of the depended variable long term debt ratio are robust when the dependent variable has another definition. The results of the robustness analysis are shown in table 6. This definition is the debt maturity. I check

Table 6
Coefficient - Determinants of leverage (long term debt to total debt ratio)

	Relationship according to the theory	Model 1 Control variable	Model 2 Trade-off theory	Model 3 Pecking order theory	Model 4 Agency cost theory - case overinvestment	Model 5 Agency cost theory - of case underinvestment	Model 6 All independent of variables - case overinvestment	Model 7 All independent variables - case of underinvestment
SIZE	+	0.094***	0.047***	0.061**	0.101***	0.105***	0.047**	0.048**
		-3.369	-3.697	-2.157	-3.612	-3.669	-2.536	-2.556
NDST	-		-0.140				-0.838*	-0.033
			(-1.166)				(-1.697)	(-1.900)
RISK	-		-0.039				-0.010	-0.009
			(-0.485)				(-0.007)	(-0.112)
TANG	+		1.414**	1.292***			0.373***	0.398***
			-2.107	-4.489			-4.189	-4.208
PROF	-			-0.031			-0.021*	-0.022
				(-0.289)			(-2.204)	(-0.207)
LIQ	-			0.001			0.001	0.001
				(0.476)			(0.207)	(0.188)
FCF	+				0.248**	0.530*	-0.678	-0.759
					-2.243	-2.253	(-0.307)	(-0.337)
GROWTH	-				0.963*	-0.003	-0.844	-0.009
					-2.674	(-0.070)	(-1.525)	(-0.210)
BOARD	+				0.369	0.369	0.535	0.542
					-1.163	-1.141	-1.425	-1.687
PREF	-				-0.307**	-0.319*	-0.169	-0.173
					(-2.507)	(-2.576)	(-1.351)	(-1.363)
PRIOR	-				-0.287*	-0.334*	-0.215	-0.251**
					(-1.868)	(-2.283)	(-1.479)	(-2.721)
CERT	-				-0.199	-0.147	-0.088	-0.042
					(-1.178)	(-0.867)	(-0.519)	(-0.246)
INTERCEPT		-0.874**	-0.733**	-0.771**	-0.560***	-0.628**	-0.811***	-0.344**
		(-2.341)	(-1.898)	(-2.904)	(-3.857)	(-2.775)	(-2.795)	(-2.152)
N		385	345	345	125	260	125	260
R²		0.029	0.095	0.078	0.082	0.069	0.129	0.114
Adjusted R²		0.026	0.045	0.068	0.065	0.051	0.100	0.085

This table reports the results of the regression analysis. The dependent variable, leverage, is the long term debt to total debt ratio. Model 1 employs the control variable SIZE. Model 2 employs the control variable and the independent variables of the trade-off theory. Model 3 employs the control variable and the independent variables of the pecking order theory. Model 4 employs the control variable and the independent variables of the agency cost theory, in the case of overinvestment. Model 5 employs the control variable and the independent variables of the agency cost theory, in the case of underinvestment. Model 6 employs the control variable and all the independent variables of the trade-off theory, the pecking order theory and the agency cost theory, in the case of overinvestment. Model 7 employs the control variable and all the independent variables of the trade-off theory, the pecking order theory and the agency cost theory, in the case of underinvestment. The variables are defined in table 2. *** Parameter is significant at the level of 1%. ** Parameter is significant at the level of 5%. * Parameter is significant at the level of 10%. The t-values are between the parentheses.

the robustness for all the seven regression models and I conclude that the results of both definitions are highly similar. Using another definition of leverage has hardly impact on the coefficients and the significance levels of the independent variables. I can say that the main findings of this study are robust.

In conclusion, size is in all the models positive and significant related to the leverage. Tangibility is positive significant related to leverage in model 2, 3, 6 and 7. This factor is measured in two theories, namely the trade-off theory and the pecking order theory. Tangibility is all the models highly significant. Seeing models 2, 3, 6 and 7, hypothesis 1c is supported, but also hypothesis 2a is supported. Profitability is also significant related to leverage (see model 3, 6 and 7). This means that this studies provide evidence that support hypothesis 2b. Hypothesis 3a is supported, the free cash flow shows a significant positive relationship with leverage in model 4, 5, 6 and 7. However, I did not found empirical evidence for hypothesis 3b, the free cash flow is a significant factor. So, even if the firm has growth opportunities, it will attract debt in order to reduce the free cash flow. As discussed,

all the takeover defenses have some influence in the different models (see models 4, 5, 6 and 7). The priority shares is the takeover defense which is the most significant takeover defenses (it have in all four models a significant impact). The preferred shares are significant in the models 4 and 5, and the certificates only in model 7. Therefore, hypothesis 3f is supported if you look at the different models. All other hypotheses are rejected.

I can conclude that the capital structure decisions of Dutch listed firms is mainly determined by the size, the profitability, the tangibility and the free cash flow. Larger Dutch listed firms do have a larger debt ratio and thus do have more debt in their organization. According to the trade-off theory this is due the fact that larger organizations do have a more stable cash flow and their activities are more diversified. This means that the risk of going bankrupt is less and therefore the bankruptcy costs are smaller. Since the risk is smaller, organizations can easier attract a loan. Also, the volatile in earnings is lower if the organization is larger. Besides this, larger organizations are more closely observed by analyst and better know by their market participants. In this way, the information asymmetry is smaller and organizations can attract easier a loan than smaller firms (pecking order theory). Since the information is less asymmetric, there will be less conflicts between the agent and the principal. Larger organizations do have better access to the credit market than smaller firms (agency cost theory). Dutch firms with profit will use their profit as an internal fund. This lowers the amount of debt in the organizations. However, the profit of Dutch organizations is most of the time not enough to cover their deficit, therefore they need an external fund. Since the pecking order theory suggests that debt is less risky than equity, organization prefer to finance with debt, before they will issue equity. In order to attract debt, Dutch firms provide their lenders with collateral. In this way the risk of the firm, and therefore the risk of the lender, decreases. This influence the risk premium, namely this premium will be lower. Therefore, providing the lenders with collateral, gives organizations the opportunity to easier attract debt at a lower rate. In this way, they do not have to issue equity, or at least not that much equity, as an additional fund. On the other hand, Dutch firms with or without growth opportunities, do have a free cash flow. These firms will attract not only debt to finance projects, they also attract debt in order to reduce the agency problems and therefore reduce their agency costs to a minimum. Having free cash flow in the organization can increase the agency conflicts, since managers can use the free cash flow to invest in projects that will not increase the value of the firms. Debt can reduce this problem, due to the fact that paying the debt holder is mandatory. However, having debt in the organization can increase the business risk and therefore the risk of the lender; if the organization goes bankrupt, the lender will lose his investment. Therefore, the rate of return, which is asked by the debt holder, will be higher. In order to obtain more debt, Dutch firms use their tangible assets as a collateral. Using tangible assets as collateral decreases the business risk and the risk of the debt holder. Organization can attract easier debt to reduce the agency problems and their agency costs. So, even firms with growth opportunities use debt to reduce their amount of free cash flow. Besides this, the takeover defenses do have a slightly impact on the capital structure in the Netherlands.

5. Conclusion

The way organizations are financed is a puzzle where a lot of researchers tried to find an answer for. Most empirical studies about the capital structure decisions are done among firms in the US. Just a several studies focused on Dutch firms (de Bie and de Haan, 2007; Brounen, de Jong and Koedijk, 2006; Chen and Jiang, 2001; Degryse, de Goeij and Kappert, 2012; de Jong, 2002). I investigate in this research which factors are important in the capital structure decision of Dutch listed non-financial firms. Therefore, the main research question I use is:

Research question: "Which firms-specific determinants are important in the capital structure decisions of Dutch listed firms?"

After Modigliani and Miller (1958) came up with their theory, many researchers used it to show that the assumptions of Modigliani and Miller (1958) were unrealistic in the real world. Several theories occurred about the capital structure. This study describes the factors of three prominent theories, the trade-off theory, the pecking order theory and the agency cost theory, for the Dutch setting. Before I can give an answer to the main research question, the factors of these different theories must be investigated first. This lead to the following three sub questions:

Sub question 1: "Which factors of the trade-off theory determine the capital structure decisions of Dutch listed firms?"

Sub question 2: "Which factors of the pecking order theory determine the capital structure decisions of Dutch listed firms?"

Sub question 3: "Which factors of the agency cost theory determine the capital structure decisions of Dutch listed firms?"

After OLS regression analysis has been carried out, I can conclude that the size of the organization does have a highly significant positive influence on the leverage. Overall, this means that larger Dutch organizations do have a larger debt ratio. In the trade-off theory, the size is positively related to the leverage. This is due to the more stable cash flow of larger organizations and their more diversified activities. The bankruptcy risk, and therefore the bankruptcy costs, will be smaller. This means that the larger Dutch organizations can easier attract a loan. Besides this, the pecking order theory suggests also a positive relationship with leverage. The information will be less asymmetric because larger organizations are better observed by analysts and better known by the market participants. Also, larger firms will have less earnings volatility. Less information asymmetric also means that the conflicts between the agent and the principal are smaller, which is discussed in the agency cost theory. Larger organizations does have better access to the credit market and therefore better access to attract a loan. Besides size, the most important factor of the trade-off theory is tangibility. Size, profitability and tangibility are the most important determinants of the pecking order theory. Of the agency cost theory, the size of the firm, the free cash flow, the preferred shares and the priority shares are the most important and significant factors. So, the contribution of these

research to these three theories is that for the sample of Dutch listed firms the tangibility of the trade-off theory is an important factor, of the pecking order theory the profitability and the tangibility and the free cash flow, the preferred shares and the priority shares are the most important factors of the agency cost theory. For the whole sample the factors size, tangibility, profitability and the free cash flow are highly significant. Looking at all the models, I show that the priority shares do have the most significant impact on leverage of all the takeover defenses. The preferred shares are only significant under the agency cost theory and the certificates are only significant in the whole sample in the case of underinvestment. In this way, this study contributes also to the studies that are done about the capital structure puzzle. I described in this research which factors are important in the capital structure choice of firms in the Netherlands and in this way contributes to the unsolved capital structure puzzle.

In this study I show that the most important factors that determine the capital structure decision of Dutch listed firms are the size, the tangibility, the profitability and the free cash flow. Tangibility is not only under the trade-off theory and pecking order theory positive significant, but also in the pooled sample (model 2, 3, 6 and 7). This means that both hypothesis 1c and hypothesis 2a are supported. Profitability is a significant factor of the pecking order theory and in the pooled sample. Therefore, hypothesis 2b is supported. The free cash flow is positive and significant under the agency cost theory, but also in the integrated models 6 and 7 (model 4, 5, 6 and model 7). So, hypothesis 3a is supported. Of all the takeover defenses, the priority shares do have a the most impact on the leverage. Preferred shares are only significant under the agency cost theory and the certificates are only in model 7, the pooled sample in the case of underinvestment significant. Therefore, hypothesis 3f can only be supported in the case of the priority shares. In the case of the preferred shares, hypothesis 3f can only be supported under the agency cost theory and in the case of certificates only in the pooled sample when organizations under invest. All the other hypotheses, hypotheses 1a, 1b, 2c, 3b, 3c, 3d and 3e, can be rejected. In conclusion, larger firms do have a higher debt ratio. Dutch listed firms with profit first use their profit as an internal funds, before they attracted an external fund. Dutch firms prefer to use debt instead of equity, since investors consider that debt is less risky than equity. In the case that the profit is not enough to cover the financial deficit, Dutch firms attract debt. In order to attract debt, Dutch firms provide their lenders with collateral. In this way, the business risk and the risk of the lender decreases, which causes a reduction of the risk premium. So, providing the lender with collateral means for the organization that they can easier attract debt and at a lower rate. My findings in this study are moderately in line with the pecking order theory. Next to this, Dutch organizations attract more debt when they have a free cash flow, in order to reduce the agency problems and reduce their agency costs to a minimum. This problems rise because the manager can use the free cash flow to invest in projects which do not increase the value of the firm. However, it does not matter if the organization over or under invests. Even firms with growth opportunities will use debt in order to reduce their free cash flow. In order to find the optimal capital structure, the agency costs must be reduced to a minimum. Debt can reduce the agency conflicts and therefore the agency costs. However, having debt in the organization can be risky for the organization and can increase the risk of the lender. Therefore, if the debt is risky, the debt holder will ask for a higher rate of return. To obtain more debt as an

organization at a lower rate of return, Dutch organizations use their tangible assets as collateral. Firms provide their lenders with collateral. This decreases the business risk and therefore the risk of the lender. The organization can attract more debt. Dutch firms can mitigate the agency conflicts and therefore the agency costs.

This study contributes to the studies about the unsolved puzzle of the capital structure. It test firm-specific determinants of three prominent theories in the Dutch setting. Therefore, this study contributes to the capital structure studies that are done among Dutch firms. It shows that the factors size, profitability, tangibility and free cash flow are important in the capital structure decisions in the Netherlands. Besides this, it also contributes to the studies that are done among these three theories. It is also interesting for businesses to know how the capital structure of Dutch listed firms overall is. This study shows these businesses the possibilities of financing their own business.

It is inevitable that a study has a number of limitations. This study has also a number of limitations. The first limitations is that I investigate three prominent theories about the capital structure. However, besides the trade-off theory, the pecking order theory and the agency cost theory, there are other theories which can determine the capital structure decisions. This is the market timing hypothesis. In short, the market timing hypothesis suggest that managers do not care if the organization is financed with debt or equity. For them, it is more important to recognizing the mispricing. It is important for the organization that the mispricing is recognized earlier by the managers then by the market (Baker and Wurgler, 2002). If the mispricing is overvalue of the stock, firms would issue new shares. If the mispricing is undervalue of the stock, the organization prefer to buy the shares back. The second limitation is that the ownership concentration, which is a part of the corporate governance, is not taken into account. The Dutch corporate governance have some special characteristics and consist out of three variables: board structure, ownership concentration and takeover defenses (de Jong, 2002). De Jong (2002) stated in his study that the ownership concentration is important in the Netherlands. So, this factor may influence the capital structure decision of Dutch firms as well. The third limitation is that the profitability in this study is a factor of the pecking order theory. However, profitability can also be a factor of the trade-off theory, which may influence the capital structure decision in a different way. Profitability in an organization can result in a lower cost of bankruptcy, since the risk of bankruptcy is lower. This also means that the tax will be higher, which results in a more important role of the non-debt tax shield of an organization. Therefore, there is a positive relationship between profitability and leverage under the trade-off theory. Fourth, there are many ways to define and calculate the different factors. For instance, in this study I defined the profitability as the earnings before interest, tax and depreciation divided by the total assets. The profitability can also be defined as the ratio of operating profit to book value of total assets, or just the earnings before interest and tax (EBIT) divided by the total assets. As last, the data which I used to calculate the dependent and the independent variables is not up to date.

For future research, the impact of the factors of the market timing hypothesis can be included and test for the Dutch setting. Also, the influence of the ownership concentration could be

taken into account. This study used data of firms between 2004 and 2009. For future research more up to data can be used. Also, more definition of a factor can be tested, for instance use more definitions of the profitability. As last, this study conducted one analysis method. For future research, more analytical methods can be used in order to investigate which factors are important in the capital structure decision.

References

Antoniou, A., Guney, Y. & Paudyal, K. (2008). The determinants of capital structure: Capital market-oriented versus bank-oriented institutions. *Journal of Financial and Quantitative Analysis, 43*(1), 59-92.

Armada, M. R., Nunes, P. M. & Serrasqueiro, Z. S. (2011). Pecking order theory versus trade-off theory: are service SMEs' capital structure decisions different? *Service Business*, *5*(4), 381-409.

Babbie, E. (2007) *The Practice of Social Research.* Wadsworth, Cengage Learning.

Baker, M. & Wurgler, J. (2002). Market timing and capital structure. *Journal of Finance*, *57*(1), 1-32.

Becht, M. & Röell, A. (1999). Blockholdings in Europe: An international comparison. *European Economic Review, 43*(4), 1049-1056.

Bhaird, mac an, C. & Lucey, B. (2010). Determinants of capital structure in Irish SMEs. *Small Business Economy, 35*(3), 357-375.

Bie, de, T. & Haan, de, L. (2007). Market timing and capital structure: Evidence for Dutch firms. *De Economist, 155*(2), 183-206.

Brounen, D., Jong, de, A. & Koedijk, K. (2006). Capital structure policies in Europe: Survey evidence. *Journal of Banking & Finance, 30*(5), 1409-1442.

Chen, J. J. (2004). Determinants of capital structure of Chinese-listed companies. *Journal of Business Research, 57*(12), 1341-1351.

Chen, L. H. & Jiang, G. J. (2001). The determinants of Dutch capital structure choice. *SOM-Theme E.*

DeAngelo, H., & Masulis, R. W. (1980). Optimal capital structure under corporate and personal taxation. *Journal of Financial Economics, 8* (1), 3–29.

Deesomsak, R., Paudyal, K. & Pescetto, G. (2004). The determinants of capital structure: evidence from the Asia Pacific region. *Journal of Multinational Financial Management, 14*(4), 387-405.

Degryse, H., de Goeij, P. & Kappert, P. (2012). The impact of firm and industry characteristics on small firms' capital structure. *Small Business Economics, 38*(4), 431-447.

Degryse, H. & Jong, de, A. (2006). Investment and internal finance: Asymmetric information or managerial discretion? *International Journal of Industrial Organization, 24*(1), 125-147.

Delcoure, N. (2007). The determinants of capital structure in transitional economies. *International Review of Economics and Finance*, *16*(3), 400-415.

Ees, van, H., Postma, T. J. B. M. & Sterken, E. (2003). Board characteristics and corporate performance in the Netherlands. *Eastern Economic Journal, 29*(1), 41-58.

Fama, E.F. & M.C. Jensen (1983). Separation of ownership and control. *Journal of Law and Economics, 26*(2), 301-325.

Fan, J. P. H., Titman, S. & Twite, G. (2006). An international comparison of capital structure and debt maturity choices. *Journal of Financial and Quantitative Analysis, 47*(1), 23-56.

Frank, M. & Goyal, V. K. (2008). Trade-off and pecking order theories of debt. *Handbook of corporate finance: Empirical corporate finance*. Amsterdam: Elsevier.

Frank, M. & Goyal, V. K. (2009). Capital structure decisions: Which factors are reliably important? *Financial Management*, *38*(1), 1-37.

Graham, J.R. & Harvey, C.R. (2001). The theory and practice of corporate finance: Evidence from the field. *Journal of Financial Economics, 60*(2), 187-243.

Giannetti, M. (2003). Do better institutions mitigate agency problems? Evidence from corporate finance choices. *Journal of Financial and Quantitative Analysis,38*(1), 185-212.

Haan, de, L. & Hinloopen, J. (2003). Preference hierarchies for internal finance, bank loans, bond, and share issues: evidence for Dutch firms. *Journal of Empirical Finance, 10*(5), 661-681.

Hayasi, F. (1982). Tobin's marginal q and average q: A neoclassical interpretation. *Econometrica*, *50*(1), 224-313.

Hillier, D., Jaffe, J., Jordan, B., Ross, S. & Westerfield, R. (2010). *Corporate Finance.* Berkshire: McGraw-Hill Education.

Huizingh, E. (2006). *Inleiding SPSS 14.0 voor Windows en Data Entry*. Den Haag, Sdu Uitgevers bv.

Jang, S. C. & Tang, C. H. (2007). Revisit to the determinants of capital structure: A comparison between lodging firms and software firms. *International Journal of Hospitality Management, 26*(1), 175-187.

Jensen, M. C. (1986). Agency costs of free cash flow, corporate finance and takeovers. *American Economic Review, 76*(2), 323-339.

Jensen, M. C. & Meckling, W. (1976). Theory of the firm: Managerial behavior, agency costs, and ownership structure. *Journal of Financial* Economics, 3(4), 305-360.

Jong, de, A. (2002). The discipline role of leverage in Dutch firms. *European Finance Review*, *6*(1), 31-62.

Jong, de, A. & Dijk, van, R. (2007). Determinants of Leverage and Agency Problems: A Regression Approach with Survey Data. *The European Journal of Finance, 13(*6), 565-593.

Jong, de, A., DeJong, D. V., Mertens, G. & Wasley, C. E. (2005). The role of self-regulation in corporate governance: Evidence and implications from the Netherlands. *Journal of Corporate Finance, 11*(3), 473-503.

Jong, de, A., Mertens, G. & Roosenboom, P. (2006). Shareholders' voting at general meetings: Evidence from the Netherlands. *Journal of Management and Governance,* 10(4), 353-380.

Jong, de, A., Verbeek, M. & Verwijmeren, P. (2011). Firms' debt–equity decisions when the static tradeoff theory and the pecking order theory disagree. *Journal of Banking & Finance, 35*(5), 1303-1314.

Kabir, R., Cantrijn, D. & Jeunink, A. (1997). Takeover defenses, ownership structure and stock returns in the Netherlands: An empirical analysis. *Strategic Management Journal, 18*(2), 97-109.

Kayhan, A. & Titman, S. (2007). Firms' histories and their capital structure. *Journal of Financial Economics*, *83*(1), 1-32.

Kraus, A. and Litzenberger, R. H. (1973). A state-preference model of optimal financial leverage. *Journal of Finance*, *28*(4), 911-922.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A. & Vishny, R.W. (1998). Law and finance. *Journal of Political Economy, 106*(6), 1113-1155.

Lehn, K. & Poulsen, A. (1989). Free cash flow and stockholder gains in going private transactions. *The Journal of Finance, 44*(3), 771-787.

Maassen, G. & van den Bosch, F. (1999). On the supposed independence of two-tier boards: Formal structure and reality in the Netherlands. *Corporate Governance: An International Review, 7*(1), 31-37.

Mahajan, A. & Tartaroglu, S. (2008). Equity market timing and capital structure: International evidence. *Journal of Banking & Finance, 32*(5), 754-766.

Michaelas, N., Chittenden, F., & Poutziouris, P. (1999). Financial policy and capital structure choice in U.K. SMEs: Empirical evidence from company panel data. *Small Business Economics*, *12*(2), 113-130.

Miller, M. H. (1977). Debt and Taxes. *Journal of Finance, 32*(2), 261-275.

Miller, M. H. & Modigliani, F. (1958). The cost of capital, finance, and the theory of investment. *American Economic Review, 48*(3), 433-443.

Murphy, K. J. (1985). Corporate performance and managerial remuneration: An empirical analysis. *Journal of Accounting and Economics, 7*(1), 11-42.

Myers, S. C. (1977). Determinants of corporate borrowing. *Journal of Financial Economics, 5*(2), 174-175.

Myers, S. C. (1984). The Capital Structure Puzzle. *The Journal of Finance, 39*(3), 575-592.

Myers, S. C. & Majluf, C. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, *13*(2), 187-221.

Sogorb-Mira, F. (2005). How SME uniqueness affects capital structure: Evidence from a 1994–1998 Spanish data panel. *Small Business Economics*, *25*(5), 447-457.

Shyam-Sunder, L. & Myers, S.C. (1999). Testing static tradeoff against pecking order models of capital structure. *Journal of Financial Economics, 51*(2), 219-244.

Titman, S. & Wessels, R. (1988). The Determinants of Capital Structure Choice. *The Journal of Finance*, *43*(1), 1-19.

Vermij, E. (2009). *Effectengids - Gids bij de officiële prijscourant van Euronext Amsterdam.* Deventer, Kluwer.

Vogt, S. C. (1994). The cash flow/investment relationship: Evidence from U.S. manufacturing firms. *Financial management, 23*(2), 3-20.

Wald, J. (1999). How firm characteristics affect capital structure: An international comparison. *Journal of Financial Research, 22*(2), 161-187.

Wen, Y., Rwegasira, K. & Bilderbeek, J. (2002). Corporate governance and capital structure decisions of the Chinese listed firms. *Corporate Goverance: An International Review, 10*(2), 75-83.

Dutch summary

Deze studie onderzoekt welke factoren belangrijk zijn in het nemen van beslissingen omtrent de kapitaal structuur van Nederlandse beursgenoteerde bedrijven. Er zijn 77 Nederlandse bedrijven onderzocht, die in de periode van 2004 tot en met 2009 genoteerd waren op de beurs Euronext Amsterdam. Door middel van OLS regressie analyses, zijn factoren van drie verschillende theorieën onderzocht. Deze theorieën zijn de *trade-off* theorie, the *pecking order* theorie en de *agency cost* theorie. De empirische resultaten laten zien dat de factoren *size, tangibility, profitability* en *free cash flow* belangrijk zijn in de kapitaal structuur beslissing van Nederlandse beursgenoteerde bedrijven. Over het algemeen kan worden gezegd dat grotere Nederlandse beursgenoteerde bedrijven meer schuld in de vorm van een lening zullen hebben. Daarnaast blijkt uit de empirische resultaten dat veel Nederlandse beursgenoteerde bedrijven de *pecking order* theorie zullen volgen. Zij zullen eerst hun winst (*profit)* gebruiken als een interne bron van financiering. Mocht deze interne financieringsbron niet voldoende zijn om de volledige financiële tekort te financieren, dan zullen zij geld in de vorm van een lening gaan aantrekken. Om dit te kunnen doen zullen Nederlandse bedrijven gebruik maken van hun *tangible assets*. Deze materiële activa zullen als onderpand dienen voor de uitlener, om zo hun risico te verkleinen en de externe financieren tegen een lager premium te verkrijgen. Daarnaast zullen deze activa ook als onderpand worden gebruikt om de *free cash flow* te verlagen. De *free cash flow* kan worden gebruikt door de managers om te investering in projecten die niet bijdragen aan de verhoging van de waarde van het bedrijf. Bij dit soort investeringen is er geld aanwezig in de organisatie. Echter doet het er niet toe of de organisatie lage of hoge groeimogelijkheden heeft, de resultaten laten zien dat het hebben van een *free cash flow* in beide gevallen significant gerelateerd is aan de hoeveelheid schuld binnen de organisatie. Door schuld in de vorm van een lening aan te trekken, kan deze hoeveelheid worden verminderd. Echter, om een lening aan te kunnen trekken en de risico's van deze vorm van financieren te beperken, zullen ook hier de *tangible assets* worden gebruikt als onderpand. Op deze manier kunnen de *agency costs* worden gereduceerd tot een minimum, waarbij de organisatie haar optimale kapitaal structuur kan bereiken. Van alle beschermingsconstructies tegen overnames (*takeover defenses),* zijn de prioriteitsaandelen de meeste significant beschermingsconstructies die gerelateerd zijn aan de kapitaal structuur. Naast deze aandelen zijn er nog twee andere beschermingsconstructies. Echter hebben deze aandelen een zeer geringe invloed op de kapitaal structuur van Nederlandse bedrijven. Overigens hebben de overige factoren die in deze studie zijn getoetst, geen significant bewijs geleverd dat deze van belang zijn voor het bepalen van de kapitaal structuur voor de beursgenoteerde bedrijven binnen Nederland.