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DETERMINANTS OF CAPITAL STRUCTURE IN FINNISH LISTED INDUSTRIAL COMPANIES

Bachelor's thesis

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I hereby declare that I have compiled the thesis independently
and all works, important standpoints and data by other authors
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ABSTRACT

The aim of this thesis is to give understanding whether factors chosen by the author determine capital structure in listed industrial companies in Finland during the years 2010 to 2018. Industrial companies chosen for this study are listed on Helsinki stock exchange also known as Nasdaq Helsinki. All the companies are headquartered in Finland. The analysis is made using panel data and two different regression models. Author also conducted Hausman test. The p-value from this test indicates that random effects model is chosen to analyse the results. The determinants of capital structure are calculated based on balance sheet and income statement figures downloaded from Orbis database.

The empirical findings of this study show that the significant variables for short-term debt are tangibility, liquidity and profitability. On the contrary, significant variables for long-term debt are tangibility, profitability, non-debt tax shield and growth. The behaviour of the determinants can be described acting according to pecking order theory.

Keywords: capital structure, debt ratios, industrial companies, pecking order theory

INTRODUCTION

The way companies make capital structure decision is a wide study area in corporate finance. In Finland, the main studies regarding the determinants of the capital structure have concentrated on small and medium-sized enterprises. (Kanniainen, Airaksinen 1989; Virolainen 1998; Kjellman, Hansén 1995; Tahvanainen 2003; Martikainen, Nikkinen 2007) However, studies about capital structure related to listed industrial companies are not so common. In general, capital structure has been extensively studied mainly in United States and in international level.

The original initiative for this topic was author's personal interest in industrial companies in Finland. Industrial companies create an interesting base for this thesis because the field has been changing relatively lot during past few years. In 2008, the global financial crisis changed the industrial field in Finland. According to Statistics Finland (Tilastokeskus), in 2010 first positive signs related to rehabilitation were shown. However, the volume of the production was still very low. In 2014, corporate tax decreased to 20 percent and it has raised discussion how the tax reform will affect capital structure. Not until 2018, Statistics Finland reported again after 10 years that almost one-third of the GDP of Finland comes from the industrial field and the volume of production had reached the initial level before financial crisis. All the companies in the sample are industrial companies that are publicly listed in Nasdaq Helsinki. Data was gathered from years 2010-2018.

The importance of the capital structure can be traced to the theories which have been developed over time. Modigliani-Miller (MM) theory (1958) created the base for future studies of capital structure and stated that the value of the company is not affected by capital structure decisions. Later other theories have been developed and one of the important matters that was discovered was the amount of financial leverage. When MM theory stated that the amount of debt does not matter, trade-off theory discloses the idea that the company should borrow up to the point where tax benefit from borrowing money equals the cost of financial distress. According to trade-off theory, increased costs in financial distress can cause bankruptcy. However, it is quite rare. Few years later, Myers and Majluf (1984) found that company should first use its internal sources of

financing, and only after that, if needed, use external financing. Theory was named pecking order theory.

The aim of this study is to achieve general understanding which factors can determine the capital structure. It is interesting to see how the empirical findings outside Finland are applicable to Finnish industrial companies. In addition, this thesis examines how the main theories of capital structure can explain the results from Finnish industrial companies.

The study aims to answer the following research questions:

1. Can chosen factors determine capital structure?
2. How the capital structure theories explain these results?

This thesis consists of three parts. The first part introduces the theoretical framework and empirical studies made about the topic. The second part is formed around the sample and method. The third part draws conclusions and gathers the information together achieved by random effects regression model and theories. The theoretical framework forms the general overview to the capital structure, its determinants and four main theories. Modigliani and Miller theory, trade-off theory, agency cost theory and pecking order theory bring together the main perspectives towards the capital structure. The determinants of the capital structure will be included in the theoretical framework. Random effects regression model will be used to analyse the determinants and their effect to capital structure. Data is taken from the Orbis database and covers 39 Finnish listed industrial companies. At the end of the thesis, all the empirical results are presented and discussed and conclusions are given.

1. CAPITAL STRUCTURE

This part describes which are the main elements and measurements of the capital structure and the theories that build a framework for capital structure. Four main theories are introduced in this thesis related to capital structure. These theories support the previous empirical evidence.

1.1. Overview of the capital structure

Capital structure is one of the basic elements that a company must determine. It ensures operational and financial welfare and when optimized, decreases the possibility of financial risks. At the same time well-designed capital structure enhances the value of the company. Financial risks include for example risk for default and bankruptcy costs. The way how the capital structure is conducted affects strongly the success of the company (Honkanen 2017, 10). Capital structure means the balance between interest bearing debt and equity. Moreover, the capital structure includes the idea of how companies assess their long-term strategies. Optimal capital structure aims to maximize the value of the company and on the other hand, maximize the wealth of the shareholders.

Many studies have been conducted to describe the optimal capital structure and seek answers to two question; what are the main determinants that affect capital structure? And which factors can determine capital structure? However, the results from the studies have been occasionally controversial. (Honkanen 2017, 10). One reason for this can be the empirical controversies. The studies are based on different ratios and above all, the ratios can be calculated differently. In addition, previous studies have used several methods to describe the capital structure and its determinants.

In general, capital structure is theoretically controversial topic itself. According to Cohen and Harcourt (2005) the capital structure disputation arises because of the physical and value conception of capital. Physical conception stands for different shapes of equipment and the value of these equipment is measured by a pecuniary value. (Cohen, Harcourt 2005, 27)

As can be seen from figure 1 below, debt and equity form the capital structure. Different financing sources can be separated according to time to maturity. However, this does not apply to equity. In general, companies must determine three different things when making capital structure decisions. First is the decision between internal and external financing and then the choice between equity and debt. Last, companies must make decision between long-term financing and short-term financing. (Salminen 2013, 18)

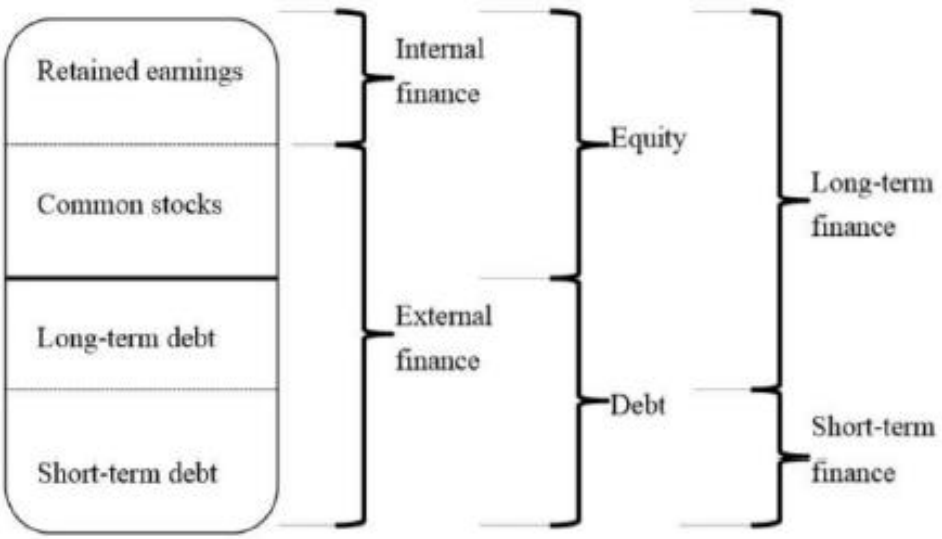

Figure 1: Capital structure framework
Source: Salminen 2013, 18

Capital structure can be measured in many ways. The broadest definition of financial leverage is total liabilities divided by total assets. (Alipour et al. 2015, 77) This thesis examines the capital structure with two different ratios. Cassar and Holmes (2003) and Hall et al. (2004) among others used two ratios to measure the capital structure. First was short-term debt and second long-term debt. According to Hall et al. (2004) short term debt is said to be due in 12 months and long-term debt maturity is over 12 months. The first ratio measures the amount of short-term debt and is calculated (STD) as below.

$$SHORT-TERM\ DEBT\ (STD) = \frac{Short-term\ Debt}{Total\ Assets} \qquad (1)$$

The second ratio to calculate the capital structure measures the long-term debt in the company. It is calculated (LTD) as below.

$$LONG - TERM\ DEBT\ (LTD) = \frac{Long-term\ debt}{Total\ assets} \quad (2)$$

According to Martikainen and Nikkinen (2007) in their study about capital structure of small and medium-sized enterprises they stated that using two different ratios allows more detail analysis. Using two ratios also ensures that the measurement of financial leverage is eligible and as accurate as possible. Honkanen (2017) stated that when more specific leverage ratios are used, more details can be noticed. In addition, previous empirical evidence, relationship between different debt ratios and capital structure determinants can vary. Due to this, it is important to use several ratios besides just one.

1.1.1. Theoretical background

This part introduces the four pioneering theories related to capital structure. Modigliani and Miller (1958) theory has created the base for capital structure. Later, trade-off theory introduced the effect of financial leverage to capital structure decisions and pecking order theory stated that the company should first concentrate on internal financing. However, these theories cannot explain empirical evidence completely. For example, static trade-off theory concentrates on the effect of taxes and pecking order theory tries to show the situation in the light of asymmetric information (Alipour et al. 2015, 57).

In addition, other theories have been introduced to explain capital structure choices. For example, signaling theory refers that when management makes some financial decisions, they try to signal investors possible future outcome. Also, market timing theory can be said to be a modern theory related to capital structure. Theory discovered that company uses equity issuing in capital structure decisions.

1.2.1. Modigliani and Miller

Modigliani and Miller (MM) theory introduced and created the modern base for capital structure. Theory was developed in 1958 by Franco Modigliani and Merton Miller. It can be divided into two different propositions. The proposition I introduced that the value of the company is not affected by the capital structure. Value of the company would be purely defined by the value of the investments. At this point, the theory did not consider taxes, bankruptcy costs, risk of default,

transaction costs or asymmetric information. Theoretically speaking, this would implement a perfect market condition which should be perfectly efficient. (Modigliani, Miller 1958, 296)

Later MM theory was further developed, and modifications were made. Now the effect of taxes was taken under consideration and default risk was recognized. Taxes play an important part, because it allowed company to exploit the tax shield of debt. Static trade-off theory later introduced the negative side of financial leverage but before that MM theory discovered that greater the amount of leverage the greater the value of the company. The larger the amount of financial leverage, the larger is the weighted average cost of capital (WACC). (Ross et al. 2010, 528-529)

However, in the real-world MM theory, especially the first proposal without any modifications is quite poor tool in the real world. With the modifications, theory matches the real-world situations better, but studies indicate that modern capital structure choices do not support this theory. MM theory demands perfect market conditions. However, this is not realistic situation and there are many inaccuracies that may occur. (Honkanen 2017, 20)

Often MM theory is indicated as too strict theory which does not consider the external environment of the company. According to Alipour et al. (2015), MM theory concentrated mainly on financial, tax and growth factors. They, however, found empirical evidence related to effective tax rate and short-term debt. (Alipour et al. 2015, 56)

1.2.2. Static trade-off theory

Even if debt financing is cheaper than equity financing, the static trade-off theory (TOT) reported that there was a point where the amount of financial leverage can be too large. The theory was based on the propositions developed by Modigliani and Miller. Theory tried to seek answer for balance between costs and benefits of debt. The balance is also called optimal capital structure. Companies can take a tax advantage from the large amount of debt. This is called a tax shield. The larger the amount of debt is, the larger the shield against taxes grows. On the other hand, a larger amount of debt increases the risk of default and bankruptcy costs. Eventually, the benefits of taking the debt could be offset by the disadvantages. (Ross et al. 2010, 539-540)

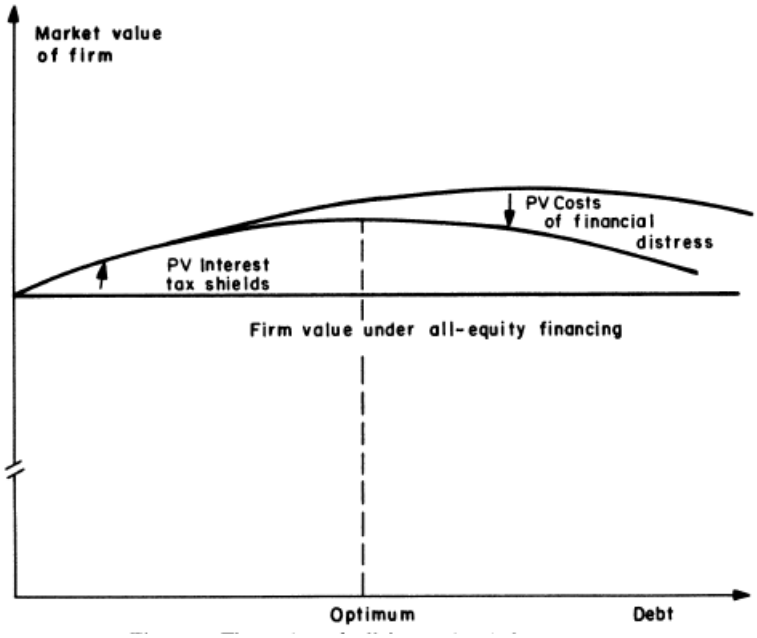

Figure 2: Static trade-off theory
Source: Myers 1984, 577

Figure 2 above represents the point where according to the static trade-off theory value of the company is maximized when the tax benefit from one more dollar loaned equals the cost that arise from the financial distress (Ross et al. 2010, 536). This point can also be called as the optimal capital structure. An optimal capital structure is the target debt-equity ratio that company wants to achieve (Kjellman, Hansén 1995, 92). The actual value of the company starts to decrease when the financial distress costs grow too large. From the figure this can be seen in the point of PV costs of financial distress (Myers 1984, 577)

Studies have found empirical evidence between static trade-off theory and capital structure determinants. Alipour et al. (2015) found empirical evidence that there is a positive significant relationship between debt ratios and asset structure. According to the study, results are on the line with static trade-off theory. Also, similar evidence supporting the TOT has been found from other studies related to capital structure determinants. (Honkanen 2017; De Jong et al. 2008).

1.2.3. Agency theory

Jensen and Meckling (1976) developed a theory called agency theory. They defined agency relationships as a contract between one or more agents and one or more principals. Theory pointed out two different kinds of agency relationships. First was the relationship between shareholders

and company's management. Second was the relationship between shareholders and bondholders. What made these relationships special was that if both parties try to maximize their own well-being in the company, it could cause a conflict between agents and principals. In other words, this situation was called an agency cost. According to Jensen and Meckling (1976) agency costs are formed by three factors. These factors are monitoring expenditures, bonding expenditures and residual loss and should be considered as any other cost. (Jensen, Meckling 1976, 308-210)

To give an illustration of the conflict between shareholders and company's management, a case in point is the situation where shareholders want to maximize their return on investment and are ready to make riskier decisions in order to do that. However, management often wants to keep in with the safer investments. (Jensen, Meckling 1976, 313)

Bondholders are often concerned when company decides to pay more dividends for shareholders. As already mentioned, shareholders are more willing to make riskier investments to get more dividends. Bondholders on the other hand, are more interested about the fact how well can the company pay back its debt and which strategies would support this output. (Jensen, Meckling 1976, 313) According to De Jong et al. (2008), conflict raised in cases of underinvestment or asset-substitution.

1.2.4. Pecking order theory

Pecking order theory with the static trade-off theory is one of the most popular theories in capital structure. It was developed by Myers and Majluf (1984). Theory pointed out that considering the asymmetric information, a company should first use its internal financing sources and only after that if needed, move to external financing. Internal financing should be made through retained earnings. External financing includes debt as a primary source and equity as a secondary source. Amount of debt can be divided between short-term debt and long-term debt. Companies should consider the informational effects of financing. For example, issuing equity raises some questions. (Myers, Majluf 1984, 189)

In general, companies should accept all the investments with positive net present value (NPV). Theoretically speaking, the real-life does not work like this. Public companies' management usually has more information and due to this, company can also accept some investments with

negative NPVs. (Myers, Majluf 1984, 187-189) In addition, Kjellman and Hansén (1993) stated that some managers prefer using pecking order theory because of the corporate control aspects.

Asymmetric information causes that the investors do not reach all the inclusive information. The pecking order of financing decisions can give various signals to the investors. One of the signals is related to the equity issue decision. If the company decides to issue shares, this could indicate that the company is in trouble and at the same time the share price decreases. (Myers, Majluf 1984, 209)

Empirical evidence between pecking order theory and capital structure determinants was found from several studies. For example, Kjellman and Hansén (1993) found evidence from Finnish companies and the findings of Alipour et al. (2015) support these empirical results. In general, many empirical findings can be traced to pecking order theory. According to Kjellman and Hansén (1993) one of the most important reasons for pecking order theory was control dilution. As already mentioned earlier, when external sources of financing are used, the outside monitoring increases.

1.3. Empirical studies

Existing literature has mainly focused on to describe capital structure internationally, and only few studies are conducted in Finland. In Finland, most of the studies concentrate on small and medium-sized enterprises. Good examples are Kjellman and Hansén's (1993) and Martikainen and Nikkinen's (2007) studies about the determinants of capital structure. They gathered the data from Finnish companies across industries. Studies conducted related to capital structure can be grouped by different factors, for example by location. Bancel and Mittoo (2004) gathered empirical findings in European level. Before that, Rajan and Zingales (1995) and Wald (1999) conducted studies based on international evidence. These studies among others build a strong base for this thesis related to capital structure on listed Finnish industrial companies. However, almost every study points out an important fact. Capital structure cannot be determined entirely by the chosen determinants.

The existing studies related to the capital structure can imply very different kinds of results. One reason for this is that different studies have assessed different determinants. The second reason is the methods used. However, the most common methods used are different kinds of regression models.

Kjellman and Hansén (1993) studied whether the static trade-off theory or the pecking order theory explains the financing behaviour of listed Finnish companies. As using a questionnaire, they got a result that companies prefer static trade-off theory by 66.7 %. This indicated that companies wanted to achieve a certain debt-equity ratio and as a result, an optimal capital structure. In addition, it was discovered that companies that did not report widely about the asymmetric information, preferred the static trade-off theory. The pecking order theory was used in situations where the companies carry it out in the hope of avoiding losing control of the company. For these companies also the leverage ratios were higher than for companies accepting the target capital strategy. Kjellman and Hansén's study formed a base for Finnish capital structure study.

Rajan and Zingales (1995) concentrated to find determinants that affect the capital structure in public companies in G7-countries. According to the study, the capital structure in these countries was relatively the same but the differences that arise cannot be solely explained by institutional effects. The effect of institutions should be examined more specifically, and the theories published related to the capital structure should incorporate more closely to empirical evidence. Study conducted by Rajan and Zingales (1995) can be said to be a pioneer study in capital structure field.

Determinants of capital structure were not the only things that affect the amount of leverage and companies' financing decisions. There were many variables that the company could not even predict. Even if there was a strong theoretical base for capital structure and many factors, the relationship to other factors should also be examined more. (Rajan, Zingales 1995, 1448) In their study, the institutional effects were pointed out. According to Rajan and Zingales (1995) the effect of institutions should be examined more specifically, and the theories published related to the capital structure should incorporate more closely to empirical evidence. Evidence gathered by Kjellman and Hansén (1994) supported this and stated that decisions made by management can be affected by the institutional effects.

Empirical evidence gathered by Bancel and Mittoo (2004) as well as Wald (1999) studied the effect of institutions. They argued that institutional effects affect companies' financing policies widely and every situation should be considered separately. De Jong et al. (2007) studied both company-specific and country-specific determinants. They found strong interconnection between leverage ratios and size, tangibility, profitability, company risk and growth. In addition, the study showed that for example, GDP growth rate and bond market development influence capital

structure that companies choose. Because of this, country-specific factors should also be considered when making capital structure decisions.

Wald (1999) conducted a cross-country study and gathered data from France, Germany, Japan, the United Kingdom and the United States. He verified many empirical results that Rajan and Zingales (1995) also found. In addition, he found that determinants of capital structure can act in different ways in different countries. Theoretically speaking, results showed evidence towards pecking order theory. A case in point was that the study argues the higher the growth opportunities are for the company, the lower the leverage ratios will be. However, United States was found to act differently.

De Jong et al. (2008) studied both company-specific and country-specific determinants that influence the capital structure. Data was gathered over 40 countries all over the world and Finland was included in the study. They found strong interconnection between leverage ratios and size, tangibility, profitability, company risk and growth. According to De Jong at al. (2008) the results were partly in line with conventional capital structure theories. However, capital structure theories cannot precisely explain everything and that was why they stated that more evidence between theories and real-world examples was needed.

Alipour et al. (2015) studied the determinants that affect the capital structure in industrial companies in Iran. The main finding was that companies use more debt than equity to finance their activities. Especially short-term debt was a big part of debt financing. Also, they argued that size has a large effect on capital structure. Negative relationship was discovered between variables. A negative relationship was also found between capital structure and financial flexibility and liquidity. Alipour et al. (2015) concluded some main points for capital structure studies. Study conducted by Alipour et al. (2015) showed especially empirical evidence on pecking order theory and trade-off theory.

1.4. Determinants of capital structure

This thesis concentrates to determine capital structure with seven different determinants. Chosen determinants are widely used in many studies conducted in European and international level. The determinants used in this thesis are tangibility, profitability, financial flexibility, size, growth,

liquidity and non-debt tax shield. All the chosen determinants have been found to have a significant relationship to the amount of financial leverage in previous studies. The relationship is not always only positive or negative. In several cases, both relationships can be justified.

1.4.1.Tangibility

Tangibility measures the percentage of tangible assets. Tangible assets are said to be the assets that have usually a physical form and pecuniary value. Tangibility is defined as net fixed assets over book value of total assets. In this paper, tangibility (TANG) is calculated as below.

$$TANGIBILITY\ (TANG) = \frac{Net\ Fixed\ Assets}{Total\ Assets} \quad (3)$$

Tangibility is included in many studies when capital structure and its determinants have been studied a lot in international level (De Jong et al. 2008; Alipour et al. 2015; Rajan and Zingales 1995). Sometimes tangibility is also measured as asset structure. Results analysing tangibility and capital structure have, however, varied and according to De Jong et al. (2008) country's characteristics may affect this. They argued that in some countries the relationship is negative and in other countries it can be positive. (De Jong et al. 2008, 1954)

According to the static trade-off theory, tangibility and leverage has a positive relationship. Theory explains that for example in case of bankruptcy, company would need more collateral assets to cover the leverage level. (Alipour et al. 2015, 60) Also, the agency cost theory supports the positive relationship between tangibility and capital structure. (Titman, Wessels 1988, 3)

However, also negative relationships have been found between tangibility and capital structure. Hutchinson and Hunter (1995) argued that when the financial risks increase due to increase in higher operating leverage, the relationship is negative. Also, interest rates and amount of financial leverage may have an effect. Pecking order theory supports the negative relationship between tangibility and debt ratios.

Most of the studies keep tangibility as a company-specific determinant which is statistically significant measure. (De Jong et al. 2008, 1961) Also, Rajan and Zingales (1995) found evidence that tangibility is always positively affected by the financial leverage.

H1: Tangibility has a positive relationship to debt ratios.

1.4.2. Profitability

Profitability is defined as earnings before interest and tax (EBIT) over total assets. Profitability is measured in percentages and calculated (PROF) as below.

$$PROFITABILITY\ (PROF) = \frac{EBIT}{Total\ Assets} \quad (4)$$

Profitability is one of the main goals of any company and decisions related to it are crucial for the company. Results regarding the relationship between profitability and leverage have been ambiguous. In addition, the main theories of capital structure suggest different outcomes. According to the pecking order theory, the relationship is negative. When companies are more profitable, they do not need to use debt as much as they should if they could not take an advantage from internal financing. However, static trade-off theory proposed that profitable companies have more leverage because in case of financial distress, profitable companies have more possibilities to cope with it. (Alipour et al. 2015, 59-62)

Moreover, a significant negative relationship is found by several studies (Alipour et al. 2015; De Jong et al. 2008). These studies indicate that companies act according to pecking order theory and use the internal financing before the external financing even if the company is profitable. It could be also stated that if the company is profitable enough, it does not need external financing.

H2: Profitability has a negative relationship to debt ratios.

1.4.3. Financial flexibility

Financial flexibility is defined by retained earnings over total assets and calculated (FLEX) as below.

$$FINANCIAL\ FLEXIBILITY\ (FLEX) = \frac{Retained\ Earnings}{Total\ Assets} \quad (5)$$

Financial flexibility is the expected retention rate that companies expect to have. Financial flexibility measures also the strengths and weaknesses of the company; the flexibility of the company. (Alipour et al. 2015, 50) Beattie et al. (2006), who conducted a pioneer study about

financial flexibility, implied financial flexibility as the credit rating. In other words, this means how well the company can react to changes happening around it. Beattie et al. (2006) also found that companies with higher financial flexibility tend to obtain less financial leverage.

Graham and Harvey (2001) stated that financial flexibility is the most important determinant affecting the financial leverage. In their study over 60 percent of the CFOs identified financial flexibility as important or very important factor of capital structure. According to Graham and Harvey (2011), European evidence showed that financial flexibility has a major effect to capital structure choices.

According to Alipour et al. (2015) and Beattie et al. (2006) financial flexibility and the capital structure had a negative relationship. The pecking order theory supports this.

H3: Financial flexibility has a negative relationship to debt ratios.

1.4.4. Size

Size of the company is described by natural logarithm of total assets and in this paper (SIZE) is calculated as below.

$$SIZE\ (SIZE) = \ln\ (Total\ Assets) \qquad (6)$$

Size is commonly used determinant of the capital structure, but the results are ambiguous (Alipour et al. 2015; Rajan and Zingales 1995). In general, it could be assumed that the larger the company, the larger is the amount of debt. Also, Rajan and Zingales (1995) support this idea that because of larger firms have a smaller probability to go bankrupt, they can have more debt and size would have a positive relationship to debt ratios. Moreover, trade-off theory suggests that the relationship between the size of the company and the capital structure is positive. This is due to because the size of the company is attached to tax benefits that the company can get. It has also been argued that large companies do not face financial distress as easily as small companies. (Alipour et al. 2015, 56-58)

On the other hand, there has been studies that show positive results wrong and that the relationship is negative or that the size does not even play a significant role on capital structure decisions. The negative relationship is based on the ideas of pecking order theory. A case in point is that Rajagopal (2011) argued that large companies have less debt than smaller companies and because of this, the

relationship was found to be negative. Especially negative relationship between short-term debt and size was noticed. (Rajagopal 2011, 12). Alipour et al. (2015) empirical findings support the negative relationship.

H4: Size has a negative relationship to debt ratios.

1.4.5. Growth

Growth is measured by a percentage change in total assets and calculated (GROWTH) as below.

$$GROWTH\ (GROWTH) = \%\ change\ in\ (Total\ Assets) \qquad (7)$$

To illustrate the relationship between leverage and growth, pecking order theory by Myers and Majluf (1984) suggest that when company faces growth opportunities it most likely not use that much debt. Wald (1999) in his study found that agency problems that may arise between management, shareholders and bondholders drive high-growth companies to favour internal financing. This indicates that future growth opportunities and capital structure have a negative relationship. Trade-off theory suggests the negative relationship.

However, positive relationship between growth and debt ratios have been found. Filsarei et al. (2016) found positive relationship and like Wald (1999) they stated that the type of industry can affect the relationship between growth and debt ratios. According to Viviani (2008) positive relationship is supported by pecking order theory. In the light of that study, when the company grows, it causes also the investments of the company to grow. In order to fulfil the investments, companies may have to use debt which makes the relationship positive.

Many studies have been interpreting the relationship between capital structure and future growth opportunities: by market value of total assets over book value of total assets, by percentage change in total assets and by capital expenditures over total assets. (De Jong et al. 2008; Wald 1999; Titman, Wessels 1988) Moreover, most of the studies indicated a negative and significant relationship between growth opportunities and the capital structure.

H5: Growth has a negative relationship to debt ratios.

1.4.6. Liquidity

Another factor that can have an impact to debt ratios is liquidity. Liquidity is measured by current assets divided by current liabilities. This ratio can also be called by current ratio. It is calculated (LIQ) as below.

$$LIQUIDITY\ (LIQ) = \frac{Current\ Assets}{Current\ Liabilities} \quad (8)$$

The relationship between capital structure and liquidity can be mixed. Static trade-off theory states that companies should keep their liquidity conditions good and when the amount of financial leverage increases, liquidity comes even more important. This would indicate a positive relationship. On the other hand, pecking order theory suggests that when the amount of liquidity is balanced, there is no need for the extra financial leverage and companies use internal financing. This indicates that liquidity and capital structure have a negative relationship. Also, the agency cost theory supports negative relationship. (Alipour et al. 2015, 58)

As can be seen, theories indicate diverse relationships. However, Alipour et al. (2015) and Sheikh and Wang (2011), found in their studies that liquidity and capital structure have a negative relationship. Moreover, Eldomiaty and Azim (2008) found that especially current ratio, which is used in this study, has a negative relationship to leverage.

H6: Liquidity has a negative relationship to debt ratios.

1.4.7. Non-debt tax shield

Non-debt tax shield is measured by the total sum of depreciation and amortization and divided by total assets. Non-debt tax shield is calculated (NDTS) as below.

$$NON-DEBT\ TAX\ SHIELD\ (NDTS) = \frac{Depreciation+Amortization}{Total\ Assets} \quad (9)$$

Static trade-off theory introduced in the previous section, points out when capital structure of the company is optimized. In general, the more the company takes financial leverage, the more company can benefit from the tax shield. This is one of the main reasons why companies prefer debt instead of equity. In other words when the tax advantage introduced by trade-off theory

decreases, other tax deductions increase. Examples of the other tax deductions are for example depreciation and investment tax credits. (Titman, Wessels 1988, 3)

DeAngelo and Masulis (1980) were one of the first who integrated non-debt tax shield to capital structure decisions. They found negative significant relationship between non-debt tax shield and capital structure. According to DeAngelo and Masulis (1980), non-debt tax shield can be used to decrease the amount of corporate taxes in case of depreciation and due to this the relationship is assumed to be negative.

However, some studies indicate that relationship can also be positive. According to Graham (2013) if companies in the sample tend to invest a lot and in addition, increase the financial leverage to invest more, relationship can be positive. Also, the findings of Bradley et al. (1984) before Graham indicate that positive relationship is possible.

Given the above, Wald (1999) stated that when company makes external financing decisions, they prefer some other source than debt, because the gain is relatively small. Also, the findings of Rajan and Zingales (1995) between taxes and debt ratios indicate that this can be accurate result. Despite positive results from studies related to non-debt tax shield and capital structure, in this thesis the relationship is assumed to be negative. (DeAngelo, Masulis 1980; Wald 1999)

H7: Non-debt tax shield has a negative relationship to debt ratios.

Table 1 below summarizes the determinants and the relationships in three main capital structure theories. In this study, all the determinants are formed based on previous studies related to capital structure.

Table 1: Determinants' behaviour according to different theories

Determinant	Agency cost theory	Static trade-of theory	Pecking order theory
TANG	+	+	-
FLEX			-
SIZE		+	-
LIQ		+	-
PROF		+	-
NDTS		-	
GROWTH		-	+

Source: Compiled by author

When looking at the hypotheses made and match them to different theories, can be noticed that pecking order theory supports most of the hypotheses. Agency cost theory has not been studied that much than trade-off theory and pecking order theory. Because of this, thesis concentrates more on trade-off and pecking order theory.

2. DATA AND METHODOLOGY

This section presents the sample and methodology used in thesis. The aim of the thesis was to give a general understanding which factors can determine the capital structure of Finnish industrial companies. This was conducted by the fixed and random effects regression models.

Empirical part of this thesis was made by using panel data. Panel data was gathered from different time points of the same companies. It combines the time series and cross-sectional data. Data included seven determinants of capital structure and two measurements of financial leverage. Using panel data suited well to this thesis because panel data allowed managing the similarity of chosen companies. Panel data is often used when the study concentrates on dynamics of change. With cross-section or time series data the effects could not be measured in the similar way. The chosen time frame for this study was years 2010-2018. During this time, industrial field in Finland has been developing a lot and due the financial crisis 2008, rehabilitation was still ongoing. Using panel data allowed author to use short time frame. (Sheytanova 2014, 5-6)

All the companies were Finnish industrial companies listed in Nasdaq Helsinki. In total, 39 companies were chosen to this thesis. All the chosen companies were internationally influential and play an important role in Finland's exports. Caverion Corporation, Lehto Group Corporation and Consti Corporation were left out from the list because of the incomplete financial information.

This study concentrates only on Finnish listed industrial companies. Due to this some limits were imposed. The first limitation is the sample itself. The number of companies was limited to 39 total and the years examined were 2010-2018. Due to these, the sample was rather small. Because of this, also lagged variables were used. In addition, this thesis concentrated to study only Finland. The geographical location and similarity in institutional and macroeconomic factors can have an effect to the outcome. Last, some of the accounting standards may have changed during years which can bias the ratios.

Orbis database was used to obtain the data for the companies. Balance sheet and income statement items were gathered from Orbis to calculate selection of financial ratios. The annual reports of the companies were also studied to get a broader picture what is happening behind the numbers.

2.1. Descriptive statistics

Descriptive statistics summarize the data gathered from the chosen companies. It is used to describe the data and understand the numbers little bit better. Descriptive statistics also narrows the data set and helps to find for example the maximum and minimum values. The data chosen for this thesis is described by mean, median, standard deviation (S.D.), minimum (min) and maximum (max) values. Mean describes the average value of the data set and median is the value from the data set that divides it to two equal parts. Standard deviation describes the variability of the data.

Table 2. Descriptive statistics for the data

	mean	median	S. D.	min	max
STD	0,44	0,41	0,21	0,17	1,9
LTD	0,17	0,14	0,16	0	1,35
TANG	0,44	0,41	0,19	0,05	0,91
FLEX	0,44	0,21	0,72	-8,27	0,69
SIZE	12,31	12,11	1,86	8,58	15,89
LIQ	1,43	1,38	0,58	0,11	4,67
PROF	0,04	0,06	0,14	-1,57	0,55
NDTS	0,05	0,04	0,06	0	0,91
GROWTH	0,03	0,01	0,23	-0,79	1,43

Source: Compiled by the author, data gathered from Orbis database.

According to the descriptive statistics, the mean of the short-term debt is relatively higher than the mean of the long-term debt. Honkanen (2017) and Martikainen and Nikkinen (2007) got also similar kinds of results. Martikainen and Nikkinen (2007) in their study found that the mean of the short-term debt approximately was 42 percent and long-term debt 16 percent. According to this, Finnish industrial companies tend to have more short-term debt than long-term debt.

The maximum values of the STD and LTD are quite large. Both values belong to Valoe Plc. in 2015. According to Morningstar and annual statement 2015, their yearly performance was 111,1 percent which is relatively high. Tangibility is relatively high for the companies. Profitability shows however low figures and the minimum value -1,57 belongs to Valoe Plc. in 2014. According

to Morningstar, the yearly performance has been negative by 77,5 percent in year 2014 which also explain the effects to company's profitability. Liquidity shows also quite large numbers, which indicated that companies have a good ability to face their short-term obligations.

Table 3: Correlation coefficient matrix

	STD	*LTD*	*TANG*	*FLEX*	*SIZE*	*LIQ*	*PROF*	*NDTS*	*GROWTH*
STD	1,00								
LTD	-0,03	1,00							
TANG	-0,19	0,53	1,00						
FLEX	**-0,67**	-0,30	-0,21	1,00					
SIZE	-0,11	-0,16	-0,03	0,33	1,00				
LIQ	-0,50	-0,23	-0,55	0,43	-0,07	1,00			
PROF	-0,60	-0,17	-0,10	**0,75**	0,25	0,32	1,00		
NDTS	0,31	0,25	0,36	-0,68	-0,23	-0,23	-0,61	1,00	
GROWTH	-0,25	0,05	-0,04	0,27	0,12	0,19	0,31	-0,23	1,00

Source: Compiled by the author, data gathered from Orbis database

Author also compiled a correlation coefficient matrix to describe the data in more detail. Correlation coefficient matrix shows degree of association between two different determinants of capital structure. Correlation can be positive or negative. One (1) means that the correlation between determinants is perfect and the closer the correlation is zero (0) the weaker the correlation is. However, correlation of -0,6 is as strong as correlation of 0,6. When the correlation is one, the factor is correlating with itself.

According to Honkanen (2017), strong correlation between determinants can worse the results from regression analysis. Highly correlated variables should not be included in the model at the same time. As can be seen from table 3, financial flexibility shows some stronger correlations to other variables.

As can be noticed from table 3, short-term debt seems to have a negative relationship to all determinants except non-debt tax shield. There is also negative relationship between dependent variables; short-term debt and long-term debt. On the other hand, long-term debt correlates positively to several determinants; tangibility, non-debt tax shield and growth. The correlations relative to debt ratios are often found to be opposite. Similar kinds of results can be found from studies made by Honkanen (2017).

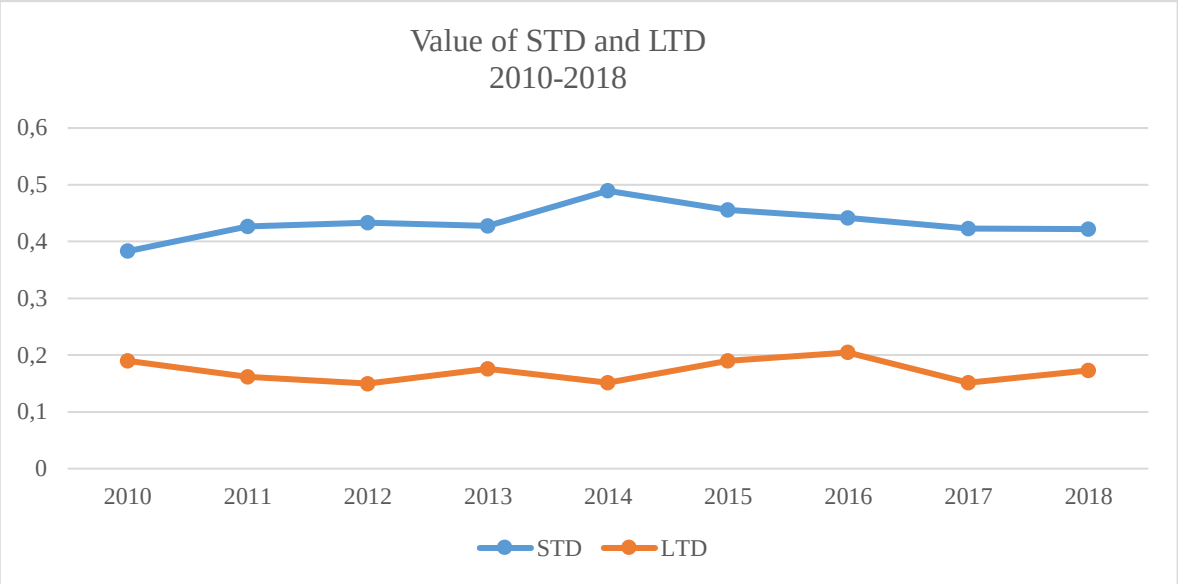

Figure 3: Value of STD and LTD in years 2010-2018
Source: Compiled by author

Figure 3 above shows the amount of short-term debt and long-term debt for industrial companies in years 2010-2018. From the figure can be noticed that Finnish industrial companies tend to have more short-term debt than long-term debt. Above all, the amount of short-term and long-term debt has stayed relatively steady over years. Interesting change can be seen on year 2014. The amount of short-term debt increased by almost 10 percent, but the long-term debt decreased by 5 percent. This could be caused by the corporate tax change which happened in 2014. Also, Alipour et al. (2015) found that companies usually have more short-term debt than long-term debt.

2.2. Research methodology

To conduct this empirical study, two regression models were estimated with Gretl. Hausman test was conducted in order to decide between two models. In general, panel data is mostly analysed by fixed effect model or random effects model. Pooled model is not described in this part because data is simply pooled together, and method is not commonly used with panel data. (Sheytanova 2014, 6)

Fixed effects model is usually used when the impact of variables that change over time are analysed. When using the fixed effect model, the result is not a generalization for the whole population. The result is strictly imposed only for the sample chosen. According to Sheytanova

(2014), fixed effect model leads to increase in efficient results. The formula used in the fixed effect model is stated below.

$$y_{it} = \beta_{i1} x_{it} + \alpha_i + u_{it} \quad (10)$$

y = dependent variable (company i, time index t)
β_i = coefficient
x = independent variable
α = company specific variable
u = error term

In random effects model two different error terms are included to the model. In other words, it is unlikely that all the conditions in the study are similar and heterogenous. Additionally, random effect model gives a generalization from the whole situation, unlike fixed effect model concentrates only to the chosen sample. (Sheytanova 2014, 6)

The formula used to calculate the random effect model is stated below.

$$y_{it} = \beta_{it} x_{it} + \alpha + u_{it} + \varepsilon_{it} \quad (11)$$

y = dependent variable (company i, time index t)
β_i = estimated parameter
x_{it} = independent variable
α = company specific variable
u = between-entity error
ε = within-entity error

In general regression analysis is a common tool used to compare and analyse the relationships between different determinants. The model of the regression analysis, as seen above, is stated between dependent variables (response variables) and independent variables (explanatory variables). (Chatterjee, Hadi 2006, 1) In this thesis the dependent variables is financial leverage measuring the capital structure. Due to two different dependent variables, short-term debt and

long-term debt, all together four models were made. The independent variables are tangibility, profitability, size, growth, non-debt tax shield and financial flexibility.

To decide, which regression model was used to evaluate the determinants of the capital structure, statistical hypothesis test was conducted. In order to do that also the significance level had to be decided. In this study, author chose the significance level to be 5 % which means that the p-value is 0,05. If the p-value of the determinant was below 0,05, determinant was said to be statistically significant for the model.

There are several different options to choose between models. Most common statistical hypothesis tests used are t-test and Hausman test. Hausman test is commonly used in econometrics and that is why it is chosen to be used also in this thesis to decide choosing which model should be used. The hypotheses in the Hausman test are:

H_0 = The individual specific effects are random.
H_1 = Difference between fixed effects and random effects is significantly different from zero.

3. EMPIRICAL RESULTS

3.1. Regression analysis

This part shows the results for fixed and random effects models. Due to two different dependent variables, all together four different regression models were estimated. Table number 4 shows the regression results for fixed and random effects models. Model 1 (M1) represents the results for fixed effect regression and model 2 (M2) represents the results for random effects regression. The models estimated for short-term debt are indicated with latter a and models for long-term debt are indicated with b. Coefficient shows the relationship between dependent and independent variable. If the coefficient is seen positive, it indicates that when the dependent variable increases, also the independent variable increases. In case of negative relationship, when the dependent variable increases, the independent variable decreases. Standard error shows how close the sample average is from the population average.

In addition, the problem of endogeneity was taken into account in this study. Endogeneity can be appeared in three different forms. These are simultaneity, omitted variables and measurement error. In case of omitted variables something that is not considered in the model affects to both dependent and independent variable. In other words, problem can also mean that there is correlation between independent variable and error term. In this study lagged variables were used to solve the problem of simultaneity. To control the macro effects, time dummies were added to the model. However, results of these are not presented.

The correlation coefficient matrix presented in the second part, indicated that financial flexibility has some stronger correlations in the model with other independent variables. Due to this and the problem of multicollinearity, financial flexibility was left out from the model.

Hausman test was conducted to decide between two regression models. The null hypothesis would have been rejected, if the p-value for the test would have been lower than 0,05. In this case fixed

effect model should have been used. The Hausman test showed p-value for short-term debt 0,532 and for long-term debt 0,659. Both values were larger than the p-value of 0,05. This indicated that null hypothesis was not rejected, and random effect model was used to analyse the determinants of capital structure for both debt ratios. Both models were consistent but according to Hausman test, random effect was more efficient to be used in this study. One reason to explain this result can be that random sample was taken from population. This was one of the conditions that must be fulfilled for random effect model.

Table 4. Regression results for models 1 and 2

sample	ind. co.	ind. co.	ind. co.	ind. co.
DV	STD	LTD	STD	LTD
model	M1a	M1b	M2a	M2b
	coef. / sign.	coef. / sign.	coef. / sign.	coef. / sign.
const	0,620**	0,040	0,724***	−0,125
	(0,246)	(0,208)	(0,218)	(0,161)
TANG	-0,571***	0,222***	−0,550***	0,239***
	(0,094)	(0,080)	(0,090)	(0,075)
SIZE	0,025	0,014	0,015	0,005
	(0,022)	(0,018)	(0,017)	(0,012)
LIQ	-0,196***	0,003	−0,193***	0,006
	(0,027)	(0,023)	(0,027)	(0,023)
PROF	-0,452***	-0,182*	−0,458***	−0,187*
	(0,113)	(0,096)	(0,112)	(0,096)
NDTS	-0,553	1,024***	0,540	1,013***
	(0,283)	(0,241)	(0,281)	(0,205)
GROWTH	0,018	0,105**	0,017	0,104**
	(0,055)	(0,047)	(0,055)	(0,046)
R squared	0,701	0,617		
N	296	296	296	296

Source: Compiled by author

Notes:

1. DV stands for dependent variables, which are short-term debt (STD) and long-term debt (LTD).
2. For abbreviations see part 1.4.

3. Coef. Refers to coefficient and sign. refers to significance of the variable.
4. Standard errors are in parentheses.
5. N refers to number of observations.

R squared for short-term debt in fixed effect model was 0,701 and for long-term debt 0,617. Theoretically speaking, these results were quite high for capital structure studies. Because of the stronger correlations that can be seen from the correlation matrix, as already stated financial flexibility was removed from the model. In addition, variance inflation factor (VIF) test was conducted for the sample. VIF measures also the amount of multicollinearity. Results showed for short-term debt 3.3 and for long-term debt 2.6. Range between 1-5 was assumed to be suitable and over 5 indicates potential issues with multicollinearity As a conclusion, the VIF values for the models were acceptable.

As can be seen from table 4 above the results for fixed effect model and random effects model were quite similar. This increased the creditability of the empirical results. Also, the statistical significance seemed to be relatively same for all the the independent variables across models. Table showed strong relationship between tangibility and debt ratios. Also profitability showed strong significant relationship to short-term debt and long-term debt. Growth seemed to have a positive significant effect to long-term debt.

The coefficient of tangibility indicated that long-term debt had a positive relationships and short-term debt had a negative relationship to tangibility. When there is a one unit increase in tangibility, it decreases the short-term debt almost by 0,600 in both models. However, in case of increase in long-term debt, increase in tangibility also increases the amount of long-term debt. Size did not show significant relationships in this model. As tangibility, also liquidity showed some mixed results. For long-term debt relationship was positive and for short-term debt relationship was negative. However, liquidity is significant factor only for short-term debt. The results show that when there is one unit increase in profitability, it decreases the short-term debt almost by 0,500. Interesting result can be found for non-debt tax shield. According to the results, it is a significant factor for long-term debt and the relationship is positive.

Table 5: Summary of the effects in random effect model

determinant	hypothesis	actual (STD)	actual (LTD)
TANG	+	-***	+***
FLEX	-		
SIZE	-	+ (NS)	+(NS)
LIQ	-	-***	+(NS)
PROF	-	-***	- *
NDTS	-	+ (NS)	+ ***
GROWTH	-	+(NS)	+ **

Source: Compiled by author

Notes:

1.Stars refer to statistical significance: *p<0,05, ** p<0.001 and *** p<0.0001.
2. NS refers to not significant.

Table 5 above shows the summary of the positive or negative effect of the determinants to the debt ratios and significance for random effects model. From this, conclusion can be drawn that factors chosen to this study, can partly describe the capital structure. Some factors showed mixed results but size was found to be not significant in both models for both debt ratios.

3.2. Empirical results and discussion

The empirical results for both models were showed in the last part. Some similar results can be found from Honkanen (2017), Alipour et al. (2015) and Martikainen and Nikkinen (2007) studies. This part concentrates to analyze and discuss only the results of random effects model.

H1: Tangibility has a positive relationship to debt ratios.

As can be seen from table 4 tangibility has a negative effect on short-term debt (coefficient −0,550) and positive (coefficient 0,239) effect to long-term debt. As already discussed in the theoretical part, one determinant can have different effects to debt ratios. According to Honkanen (2007) these result differences can be explained by the additional costs and reimbursement obligations related to long-term debt.

Comparing the results to previous studies, similarities and differences can be found. According to Alipour et al. (2015) tangibility had a positive effect on long-term debt and negative effect to short-term debt. With these results, author's findings are in line. The different effects to debt ratios can be explained by the usage of the debt. Harc (2015) in her study found also similar results. She explained the results by maturity matching principle. In general, it means that long-term assets are financed by fixed assets and short-term assets are financed by current assets. The positive effect between tangibility and long-term debt is explained by that companies use tangible assets as collateralsore tangible assets ensures mores collaterals. (Harc 2015, 219)

Tangibility is a great example how the different debt ratios can change the result of the relationship. According to p-values tangibility is a significant factor for short-term debt and long-term debt. Hypothesis is accepted in the case of long-term debt. Positive relationship between long-term debt and tangibility can be traced to static trade-off theory. This means that Finnish industrial companies tend to choose some target leverage ratio and maintain it when making long-term debt decisions. The more companies have debt, the more they have tangible assets. On the other hand, negative relationship between tangibility and short-term debt supports the pecking order theory.

H2: Profitability has a negative relationship to debt ratios.

Results between debt ratios and profitability are mixed. Negative relationship can be noticed from both of the debt ratios to profitability. The coefficient for the short-term debt is −0,458 and for long-term debt −0,187. In view of this, can be said that profitability has more stronger connection to short-term debt than long-term debt has. However, profitability is significant factor for both debt ratios.

Some studies state that the results vary between debt ratios and profitability. According to Alipour et al. (2015) the relationship is negative. They found that profitability has a significant effect on all debt ratios. Also, this study shows similar results. However, Chittenden et al. (1996) found that profitability does not seem to have a significant role in long-term debt, but short-term financing decisions have negative relationship to profitability. Also, author's findings indicate that short-term debt has stronger relationship to profitability.

In both cases the hypothesis is accepted. The result indicates that Finnish industrial companies favor pecking order theory when profitability increases. In another words, even if industrial

company in Finland is profitable and could handle the pressure that come from leverage, they still prefer internal financing.

These results are similar than Beattie et al. (2006) found. According to their study, companies which prefer pecking order theory relate their business much on profit that they create. The profit for these companies means more growth opportunities and they do not have to use the external financing that much. (Beattie et al. 2006, 15)

H3: Financial flexility has a negative relationship to debt ratios.

Correlation coefficient matrix indicated that financial flexibility correlates with other variables. In order to avoid multicollinearity, financial flexibility was left out from the model.

H4: Size has a negative relationship to debt ratios.

The coefficient for short-term debt is 0,015 and for long-term debt 0,005. However, the hypothesis is rejected in both cases because the p-value is larger than 0,05. In other words, size is not a significant determinant for capital structure in this study.

Some studies found size to be a significant factor. A case in point was Alipour et al. (2015) study where the significance between size and debt ratios was found to all debt ratios; the relationship was negative. The negative relationship is supported by pecking order theory. However, De jong et al. (2008) found that the relationship would be positive. Large firms can take more debt because they can handle the bankruptcy cots better. Trade-off theory supports this finding. De Jong et al. (2008) results are in line to out findings.

Even if test results did not find size to be a significant variable, in general it is kept as one of the main factors affecting capital structure. Beattie et al. (2006) stated that large companies ususally have more opportunities in financing and they are not that afraid of taking debt. As a result they can have a positive relationship between debt and size. In addition, the findings of De jong et al. (2008) supports this. On the contrary small firms often prefer short-term debt financing.

H5: Growth has a negative relationship to debt ratios.

As can be seen from table 4 the coefficients show that growth has a postive relationship to both debt ratios (0,017 and 0,104). However, the p-values show that hypothesis is rejected with short-term debt and accepted in the case long-term debt.

Honkanen et al. (2007) found opposite results. The relationship was negative for long-term debt and positive for short-term debt. In general, growth and debt ratios has a negative relationship. Trade-off theory supports this outcome. According to Wald (1999) situation can be effected by the institutional or industry effects discussed earlier because the results are mixed. Positive relationship is often seen as an argument of pecking order theory. Empirical evidence found by Viviani (2008), indicated that high growth companies tend to borrow more in order to get more funds to decrease the amount of asymmetric information.

As a conclusion, in Finland there is also a possibility that institutions affect the relationship between growth and debt ratios. The positive relationship also indicates that Finnish industrial companies with high growth opportunities tend to issue more debt. Because the hypothesis is rejected in the case of short-term debt, can be concluded that future growth opportunities affect especially positively to long-term debt decisions.

H6: Liquidity has a negative relationship to debt ratios.

The regression model shows that liquidity has a negative effect on short-term debt and positive effect to long-term debt. The coefficients are -0,193 and 0,006. P-values indicate that liquidity has a significant effect on short-term debt, but in the case of long-term debt, hypothesis is rejected.

Viviani (2008) stated that when the liquidity is measured by several ratios, results can be mixed. However, commonly it is supposed to have a negative relationship because companies with great liquidity can use the liquidities to finance their business. The pecking order theory explains this negative relationship. In other words, when Finnish industrial companies make short-term financing decisions they balance it to available liquidity. If their liquidity is low, they need more debt to ensure that they can fulfill their financial obligations.

Positive effect on long-term debt can be explained by trade-off theory. Unlike the pecking order theory, trade-off theory assumes that when the amounbt of debt increases, also the amount of liquidity has to increase. Companies want to maintain good liquidity balance and that is also one reason why the amount of the debt increases, also the amount of liquidity must increase. According to our results, Finnish industrial companies keep liquidity important when making short-term debt decisions.

H7: Non-debt tax shield has a negative relationship to debt ratios.

Non-debt tax shield is assumed to have a negative relationship but author's empirical findings show that for short-term debt the coefficient is 0,540 and for long-term debt 1,013. According to p-values, non-debt tax shield is kept to be significant only for long-term debt. This indicates that hypothesis is accepted only for long-term debt.

De Angelo and Masulis (1980) predicted a negative relationship for non-debt tax shield and debt ratios but they also stated that the relationship can be different due to industry. The choice of industry can also have an effect to our results because the relationship was positive. Positive relationship can also be explained by the investing habits of Finnish industrial companies. According to the result, Finnish industrial companies tend to use their long-term debt to investments.

Minton and Wruck (2001) found some interesting evidence to positive relationship between non-debt tax shield and financial leverage. According to Minton and Wruck (2001) if the company is acting in a conservatively way, that can have a positive effect to non-debt tax shields. Graham (2013) concluded that companies that use financial leverage in investing purposes, can have a positive relationship between non-debt tax shield and debt ratios. According to this, Finnish industrial companies can use long-term debt in investing purposes.

CONCLUSION

The aim of this thesis was to give a general understanding how tangibility, financial flexibility, size, growth opportunities, liquidity, profitability and non-debt tax shield affect to capital structure choices that Finnish listed industrial companies make. And more importantly, which factors can determine capital structure. In addition, this thesis gave overview of the main theories of the capital structure and how they can be applied to Finnish industrial companies. Data for the analysis was gathered from 39 industrial companies listed in Nasdaq Helsinki. Time period was years 2010-2018. Study was conducted by using panel data and two different regression models. However, only results from random effects model were taken under consideration. Due to high correlation of financial flexibility, it was left out from the models.

To give a more accurate and eligible view to capital structure decisions, two different ratios were used to measure the amount of financial leverage. The short-term debt ratio measures the amount of leverage which has maturity within next 12 months. Long-term debt ratio measures the amount of leverage that has maturity over 12 months. The empirical results that author concluded in the previous part, fulfil some of the hypotheses stated in the beginning of the thesis. However, there can be found differences in significant variables between short-term and long-term debt.

The main research questions were:

1. Can chosen factors determine capital structure?
2. How the capital structure theories explain these results?

To answer the first research question, it can be said that capital structure can partly be determined by the chosen factors. This research did not consider for example institutional effects or macroeconomic variables. Because of this, results only partly explain the capital structure decisions. Significant relationships between factors and debt ratios were found. The significant factors for short-term debt were tangibility, liquidity and profitability. On the contrary, significant

factors for long-term debt were tangibility, profitability, non-debt tax shield and growth. However, size showed insignificant relationship for both debt ratios.

Tangibility showed the strongest relationships to capital structure on both short-term and long-term debt decisions. Also, p-values for profitability indicated negative significant relationship for both debt ratios. It could be said that these determinants can partly determine why Finnish industrial companies make certain kind of capital structure decisions. On one hand, this was not a surprising result. Other studies have concluded that these two determinants affect financial leverage and especially European evidence has been found to support these findings.

On the other hand, the results related to tangibility and liquidity are mixed. For short-term debt, the relationship seems to be negative on tangibility and positive on liquidity. Long-term debt acted conversely and, in this study, liquidity did not show significant relationship to long-term debt. In addition, non-debt tax shield was found to be positive for both debt ratios and significant factor for long-term debt. This result could indicate that Finnish industrial companies tend to borrow to use the resources for investments.

To answer the second research question, one theory stands out more than others. The empirical evidence indicated that on most parts, Finnish industrial companies tend to follow pecking order theory in their short-term and long-term debt decisions. Long-term debt relationships to tangibility and liquidity, however, seemed to act according to static trade-off theory.

As a conclusion, can be said that Finnish industrial companies tend first use their internal financing sources before moving to external sources according to pecking order theory. Profitability was found to be a significant factor for both debt ratios. Author discovered that even if the company was profitable, it preferred using internal financing over external financing. Also, the finding related to positive relationship between growth and long-term debt indicate that Finnish industrial companies act according to pecking order theory. Industrial companies that have high growth opportunities for the future want to, on the other hand want to manage the amount of asymmetric information.

For further study, it would be interesting to apply the country-specific determinants to industrial companies in Finland and compare the findings of other studies especially to GDP. Previous studies found that the GDP has a positive and significant effect to capital structure. In addition, it

was found that increasing GDP correlates positively with growth opportunities. However, due the covid-19 virus, the economists in Finland have been predicted almost 13 percent decline in Finland's GDP. It would be interesting to see how this kind of situations affect companies and especially their capital structure choices. Above all, as already stated almost one third of the Finland's GDP comes from industrial companies and these kinds of crises have an effect to GDP and this way to capital structure decisions that Finnish industrial companies make.

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