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Master Thesis

The long-term effect of the 2006-tax reform on dividend payout ratio - a study of closely held Norwegian firms

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Thank you,
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Abstract

This paper aims at explaining the dividend payout ratio amongst privately, closely held, Norwegian firms, following the 2006 tax reform. There has been some studies on this topic, but not considering the long-run perspective. We believe that the long-term perspective is more relevant than a short-term one, given the advantages an increased sample size offers.

Our thesis finds evidence of chaos in the years leading up to the 2006 tax reform. These years suffered from companies diluting dividends no matter what, in order to make use of the current tax level. In the long-run, we see a more explainable development, considering which factors that are decisive in determining dividend payout ratio. Our findings are the same across different industries as well as different geographical locations within Norway.

Introduction

1.1 Motivation

The entire idea behind starting a business, is to be able to bring back some kind of payment to the owner, usually in the form of dividends. Hence, capital structure is an important part of any business, be publicly traded or privately held. Capital structure can enable or deter companies from achieving their goals, and needs to be closely monitored by management. The field of capital structure and dividend payments has been subject to many studies throughout the years, and a crucial part of many economic-related educations. Despite of the large amount of research, most of the studies conducted are on foreign companies, usually located in the US. This form the basic motivation as to why we have chosen the subject at hand. We want to investigate the subject with regards to the Norwegian market, which would be the most relevant approach to the subject, given our Norwegian background. We want to investigate the subject by making use of renowned theories developed within the field, and put these theories to the test on a Norwegian case.

In addition to the research field being interesting in itself, we have focused our efforts towards the renowned tax reform that took place in 2006. The reform will be addressed in-depth later in our thesis, but the main aim was to avoid income shifting taking place in Norwegian businesses following the difference in tax levels between labour income and capital income. In our thesis, we want to investigate the long-term effects of this tax reform on capital structure and dividend policy.

Our thesis has been developed with a short introduction to the mentioned tax reform with the aim of creating a summary of the most important aspects. Following the introduction, we want to give a literature review of the research conducted in the research field with the aim of identifying potential knowledge gaps that would need investigation. Based on the knowledge gap, we developed our research question and hypotheses. We then present some main descriptive statistics, before moving on with the analysis and methodology. Finally, we sum up our thesis with our concluding thoughts.

1.2 Background

Before moving on with an explanation of the 2006 tax reform, it is necessary to investigate the situation that lead to the reform. Without an understanding of the past, one cannot expect to fully grasp the changes that have occurred and why this is.

The previous system in place in Norway originated from a reform undertaken in 1992, commonly referred to as the "dual income tax" or the "Nordic tax system", since it was first implemented in the Nordic countries Denmark, Sweden, Finland, and Norway. This system operated with two different tax rates for income depending on how the income was generated. In general, income from capital was taxed with a low, flat, rate, while labour income was taxed with a progressive rate (Alstadsæter, 2006). The main idea behind the reform was to lower the general tax rates and at the same time expanding the potential tax base. The dual income tax system could provide incentives for business owners to shift income from ordinary labour income, to dividends which was subject to the lower tax rate. Given the obvious benefits of income shifting, not committing to his would be irrational from an economic point of view.

In order to counter some of the effects following the dual income tax system, the split model was introduced. The model laid down regulations as to how companies should classify the income and dividends distributed to its owners. The main point of the split model was how the ownership were distributed. If the company was closely held, meaning that ⅔ or more were held by an active owner, working more than 300 hours annually, the income would always be treated as labour income regardless of the dividend policy of the company. In order to classify dividends as capital gains, hence subject to the low, flat, tax rate, the company in question had to be widely held, meaning that more than ⅓ of the shareholders were passive (Alstadsæter, 2006).

In order not to deter investors from investing in companies in which they own more than ⅔ as an active owner, the imputation system allows for some deviations from the split model. A small amount, equal to the value of the capital assets multiplied by a rate of return decided upon by the Parliament, was to be allowed

considered as capital gains under the tax rates associated. In practice, this meant that one would be as well of as if one had invested in another company which had financial results equivalent to that of the previously mentioned rate. As a result, this could lead to artificially high book values, due to investments made in companies with the sole purpose of raising the book value in order to maximize the dividends made possible by the imputation rate (Alstadsæter, 2006).

The above described differences lead to an, at times immense, incentive for income shifting from labour income to capital income, and surveillance in order to deter this from happening would be highly costly (Sørensen, 1991). This was one of the most dominant criticisms of the dual income tax system, and played a role in the development of the 2006-reform.

The 1992-reform had obvious flaws, which lead to the aforementioned "income-shifting-problem". As stated by the Parliament, the 2006-reform was introduced as a solution with the primary objective to ensure a more "fair" taxation of income (Ministry of Finance, 2004). The main aim was to close the difference between capital income and labour income, which had increased to 33,5 percentage points in 2005 (Ministry of Finance, 2005). The parliament appointed a committee, led by Arne Skauge, to develop suggestions to a new tax reform. The Skauge committee highlighted a need for a more predictable taxation system. The committee's recommendations would later play a significant role in the development of what became known as the shareholder model, which was applied in the reform (Ministry of Finance, 2004).

1.3 2006 tax reform

The main elements of the shareholder model were to ensure that the possibility of income shifting appeared less attractive than before. This was done by applying double taxation on dividends, as well as lowering the existing progressive income tax, making sure that the difference was as small as possible (Ministry of Finance, 2016).

Double taxation on dividends was achieved by applying a corporate tax on profits, as well as a shareholder tax on dividends. In order to ensure continued incentive for investing in companies, an allowance was given on dividends, equal to the yield of a perceived risk-free investment. The incentive is supposed to counter the opportunity cost associated with a risk-free investment, such as government bonds. The development from 2006 to today has seen a decline in in this premium, which is closely linked with the falling key interest rate, and the allowance in 2015 was at a mere 0.6 percent (The Norwegian Tax Administration, u.d.). If the allowance is not used, it can be carried to upcoming years. The Parliament viewed the 2006-reform superior to the 1992-reform, since the allowance would allow for smaller dividends not to be affected by the change. The allowance would ensure that only so-called "high dividends and capital gains" would be affected, and thus not deter investors from investing. However, as has been pointed out, the reform did not totally abolish the difference in taxation, but compared to the 1992-reform, it was considered a significant improvement (Ministry of Finance, 2016).

The shareholder model would allow for a continuance of the main ideas of the already existing dual income system, meaning that the main principles of capital being invested where it the most benefits the society would still be practiced. In addition, the general population would not experience much of a difference, except the lower progressive tax-level. The goal of the 2006-reform was to decrease the difference between labour income tax and dividend tax. Part of this goal was achieved by increasing the tax on dividends, while at the same time lowering the labour income tax.

2.0 Literature Review

In order to conduct a thorough analysis of the subject at hand, it is necessary to investigate the existing literature already available. The aim of the literature review is to investigate if there are any leading theories within the subject of capital structure and dividend policies, and give summary of these, as well as present empirical evidence already available. By doing so, this paper will not only educate the reader, but also inform on what theories that are commonly accepted

as the most renowned. By applying certain search-techniques we have uncovered some theories we want to pursue further, and these are presented in the paragraphs below.

2.1 Modigliani and Miller

Franco Modigliani and Merton Miller (Modigliani & Miller, 1958) are considered to be the founding fathers of the study of capital structure. Their well-renowned article *The Cost of Capital, Corporation Finance and the Theory of Investment* concluded that the capital structure would have no effect when determining the value of a firm. They found that the only determining criterions were maximization of profits and maximization of market value. However, their theory is built on certain assumptions that might not hold true in the real world, such as the assumption of efficient markets and the absence of tax.

The assumptions in Modigliani and Miller's paper were not fully compatible with the real world. In 1963 they constructed a second paper, *Corporate Income Taxes and the Cost of Capital: A Correction*, which addressed the unlikelihood of a no-tax economy (Modigliani & Miller, 1963). The slacking of the no-tax assumption allowed for investigation of the advantages associated with holding debt in a company, known as the "tax shield". This new approach lead to a different conclusion on what would be an optimal capital structure. Where the capital structure before was viewed as irrelevant, the capital structure should now be financed entirely through debt. This new approach did not address the other assumptions associated with their first theory, neither did it account for obvious drawbacks in a scenario with 100 percent debt financing, such as the effects of financial stress on company performance.

2.2 Trade-off theory

Similar to the "tax shield", developed by Miller and Modigliani, the trade-off theory takes into account benefits of the tax shield, in addition to the bankruptcy costs. The theory was developed by Kraus and Litzenberger (Kraus & Litzenberger, 1973). Trade-off theory suggests that in order to find the optimal

capital structure there exists a trade-off between the tax benefits of debt and the cost of bankruptcy, which could be said to take into account the above-mentioned scenario of a completely debt-finance company. Higher debt is associated with a higher tax shield which is a positive driver of firm value. However, this is also linked with higher risk of going bankrupt which affect the firm value negatively. These findings have generated general principles of capital structure and formed the basis for further research.

2.3 Pecking Order Theory

A central theory within the study of capital structure, is the *Pecking Order Theory,* refined by Myers and Majluf (Myers & Majluf, 1984). The main findings of the article is that companies have a "pecking order" when it comes to different sources of financing. A company would for instance prefer internal financing over external financing, such as retained earnings over debt. Further down on the pecking order, companies would prefer debt over equity, where equity means issuing new shares. The reason for this priority is the knowledge gap, or an information asymmetry, between the managers in the company, and the investors outside of the company. Since the asymmetry is known to both parties, the external investors will want a reduction in the share price in order to provide equity to the company. The implied cost of a reduction in share price is the reason as to why this is the least preferred method of financing. The theory builds upon certain assumptions, some more likely than others. The assumption of information asymmetry comes from the three possible objectives of management identified by Myers and Majluf (Myers & Majluf, 1984);

- Management acts in the interest of *all* shareholders, and ignores any conflict of interest between old and new shareholders
- Management acts in old shareholders' interest, *and* assumes they are *passive*
- Management acts in old shareholders' interest, but assume they rationally *rebalance* their portfolios as they learn from the firm's actions

The combination of the information asymmetry and the different possible objectives of the management, may cause a situation of distress internally in the

company, as well as causing external insecurity of the profitability. Since well performing companies are perceived to have a higher rate of retained earnings, the relationship between performance and debt are said to be negatively dependent upon each other. The goal of achieving financial independence through retained earnings, can be achieved through financial slacking. The authors suggest both replacing dividends with retained earnings, or to issue new shares in times with high degree of information symmetry.

2.4 Capital Structure Decisions

Developed from the ideas of Modigliani and Miller (Modigliani & Miller, 1963) as well as Myers and Majluf (Myers & Majluf, 1984), Frank and Goyal (Frank & Goyal, 2009) developed the paper *Capital Structure Decisions: Which Factors are Reliably Important?* concerning decisions regarding capital structure in publicly traded, American, firms. They examined different factors that previous research suggested could impact the capital structure decisions in publicly traded firms. From the factors expected to have an impact, they arrived at six factors that they argued provided a solid base of explanation of their data. The six main factors were;

- Firms that compete in industries in which the median firm has high leverage tend to have high leverage
- Firms that have a high market-to book ratio tend to have low leverage
- Firms that have more tangible assets tend to have more leverage
- Firms that have more profits tend to have less leverage
- Larger firms (as measured by book assets) tend to have high leverage
- When inflation is expected to be high firms tend to have high leverage

In addition to the above mentioned factors, Frank and Goyal (Frank & Goyal, Testing the Pecking Order Theory of Capital Structure, 2003) also found evidence that further supports the findings in the pecking order theory, being the negative correlation between dividends and leverage. Companies that pay dividends are perceived as more "healthy", and thus has a lower leverage. Despite this, Frank

and Goyal maintains that the single most important factor is the leverage observed in the different industries.

Furthermore, they argue that the industry specific leverage can be explained by the earlier mentioned trade-off theory, in addition to the theory explaining several of the other six, core, factors in their model.

2.5 Dividend Payout Ratio

Even though capital structure is a vast field of study, which one could argue includes the area of dividends, we find it necessary to indulge in some theories investigating dividends more specific. A founding article within the area of dividend policies are *Distribution of Incomes of Corporations Among Dividends, Retained Earnings, and Taxes* by John Lintner at Harvard University (Lintner, 1956). The study found that the perceived possibility of future earnings influenced the dividends policy the company at hand chose to make use of. Despite only focusing on dividend policy, the article has formed the basis of many newer studies regarding the factors that determine dividends. Even though a large part of these studies concerns themselves with publicly traded firms, the field contains several interesting theories and studies that could be applicable to our, small, Norwegian case.

One article of interest is a study conducted with basis in Austrian companies. The study, *Corporate Governance, Dividend Pay-Out Policy, and the Interrelation Between Dividends, R&D, and Capital Investment* by Gugler (Gugler, 2003). The article suggests that dividends should be negatively correlated with decisions that would lessen the capability to yield dividends, such as research and development, investments, etc. Furthermore, a study conducted on American firms, *Determinants of Dividend Payout Ratios: Evidence from United States* by Gill, Biger & Rajendra (Gill, Biger, & Rajendra, 2010) suggest that central key figures, such as profitability, growth opportunities, debt/equity, influence the dividend payout ratio.

2.6 Industry's impact on dividend payout ratio

The 1997 paper *Determinants of Corporate Dividend Policy* developed by Baker and Powell (Baker & Powell, 2000), investigated which effects that had a saying in the dividend policy amongst NYSE-listed US firms. They aimed at collecting responses from 603 CFOs in different companies. Their findings were that current and future earnings were the most important factors. However, they also found evidence for differences amongst industries. The findings suggested that different industries might use different factors when deciding on their dividend policy.

Even though the environment in which the study was conducted greatly differs from ours, we believe that the essence of the study may also be applicable to our Norwegian case.

2.7 Firm location on dividend payout ratio

In their article *Does Geography Matters? Firm Location and Corporate Payout Policy*, John Kose et. al. (John, Knyazeva, & Knyazeva, 2011) investigated if the location of a firm had an impact on the dividend payout. The authors examined US listed firms in the period from 1992-2006. They found that remote located firms in average has higher dividend payouts than central located firms. They argue that locations explain 30% of the variance in dividends and that remotely located firms are 13% more likely to pay dividends than city-located firms. The main argument for this is that shareholder is further away from the company and take less part in managerial decisions.

2.8 Norwegian Studies

Annette Alstadsæter is one of the leading authors within the research on capital structure and dividends in Norway, related to the 2006 tax reform. She has conducted studies before and after the reform, and her publications are some of the very few that targets the Norwegian case. She investigates the taxation on dividends and how this affects the capital structure in private Norwegian firms, both through income shifting and leverage.

In 2006 she published an article called *The Achilles Heel of the Dual Income Tax - The Norwegian Case* which discussed the flaws of the 1992 tax reform. The article found evidence that self-employed could make use of real capital investments to shift the tax base in which their income was taxed. She also found concrete examples on how to avoid taxation under the split model, the main example being one of passive ownership in each other's firms. The conclusion of the article mentions the upcoming 2006 tax reform, and that this reform will target the problems mentioned in her article. Hence, the article can be said functioning as a stepping stone for her later research.

In 2009 Alstadsæter, together with Fjærli, published an article that closely investigated the effects of the 2006 tax reform in Norway on non-listed companies, partly building on her previous works. The article has over the years functioned as a leading article as to what effects the 2006-reform had, and was conducted amongst more than 75.000 Norwegian non-listed companies in the time period 1999-2006. The main focus of the article was to investigate the development in dividend policy and capital structure, and to identify possible trends. The article presents three main findings;

- A strong time effect on dividend payments which was evident through the 82 percent increase in dividends the last year before the reform, as well as a decrease of 41 percent the first year after.
- Support of a life-cycle view of corporations, meaning more mature companies, older than 10 years, are more likely to pay out dividends.
- Intertemporal shifting of income through the timing of dividends may increase the debt-equity ratio

These findings are done over a limited time window, and with limited amounts of data following the new reform. Hence, the authors themselves point out that this might limit the value of the article to some extent. The article concludes with naming concrete suggestions for further research, some of which will be discussed later in this paper, under identification of a possible "knowledge gap".

2.9 Knowledge Gap

There are several theories and articles investigating capital structure theories and factors that determine the capital structure. Most of the previous research has been conducted on American listed firms. Myers and Majluf examined listed companies and focused on different states of information asymmetry and their effect on share prices. They also considered how firms chose to different types of financing according to the degree of information symmetry. In private firms, this information asymmetry will not occur in the same way, since the companies are not listed.

Frank and Goyal's six factors are, as well, only tested on American public listed firms, and offers no indication as to how these factors might apply to Norwegian firms (naturally). In general, there has been done little research on factors influencing capital structure and dividen policy in private Norwegian firms. The research that has been done, has been carried out by Alstadsæter and Fjærli. They do in fact touch on the theories mentioned above, and could thus be said to contribute with research to the Norwegian scene. However, this does not mean that there exists extensive data on the topic, quite the contrary. The small amount of data that exists where done close to the 2006-reform, which means that any findings cannot fully be conclusive as to say that there has been a possible permanent change in the capital structure and dividend policy of small and medium sized Norwegian privately held companies.

In our opinion, there is a knowledge gap in the field of capital structure and dividend policy in privately held Norwegian firms, due to the lack of recent studies. Our goal is to examine the effects of the 2006 tax reform in this area. We also want to find out whether the classical theories can be adapted to privately held Norwegian firms, or if there is a need to develop theories specific for our area.

3. Research question and limitations

3.1 Research Question

In the following paragraphs, the research question and the specific hypotheses for this thesis will be presented. Our main objective for this thesis is to uncover the long-term effects on dividend policy in privately held Norwegian companies. Based on the literature review in the previous chapter, we believe this area of study needs more investigation to be able to draw a conclusion to the 2006 tax reform. We have therefore formulated our main research question towards this goal, and it states as follows:

What were the long-term effects of the 2006 tax reform on the factors determining dividend payouts in closely held Norwegian companies?

The research question is inspired by the 2009 article delivered by Alstadsæter and Fjærli. However, given the short time period after the reform, the findings in the original article had a major flaw in not giving the reform enough time to "settle in" before investigating it. The authors themselves pointed towards this limitation, and we also addressed this in our "knowledge gap". Therefore, we feel it necessary to investigate the effects on a more "permanent" basis.

3.2 Research Question Limitations

Given our research question and objective for the thesis, we are subject to some limitations. First of all, we have only focused on companies that we believe were affected of the 2006 tax reform. In order to have been effected, the company in question would need the ability to make use of income shifting, as explained by Alstadsæter (Alstadsæter, 2006). If a company has too many owners, or are publicly traded, a potential shift of income to the owners would at best be extremely hard, most likely impossible, and we have therefore not included such companies in this thesis. We have also chosen not to investigate potential benefits for shareholders not taxable in Norway. This limit our thesis to the extent that one could imagine a scenario where people make use of income shifting across borders, but we argue that this falls outside of our original scope.

Given that the 2006 tax reform is a natural "breaking point", it is only natural that the time aspect considered is somewhat close to this year. In order to keep the thesis and dataset at a comprehendible level, we have found it necessary to limit the time period we investigate. A natural starting point is the turn of the millennium, year 2000, which corresponds well with the original Alstadsæter (Alstadsæter, Anette, & Fjærli, 2009) article, spanning from 1999-2006. Moving to the other end of the time period, we have investigated the long-term effects as far as the data recorded would allow us, ending in 2015. This allows for a considerable amount of data, and the fact that we have 9 more years of observations than Alstadsæter is a big plus.

A key finding by Frank and Goyal (Frank & Goyal, 2009) was the importance of the industry a company operated in. They found that companies in industries with high mean leverage were likely to have high leverage themselves. We have therefore chosen to keep the different industries in mind when conducting out studies, and we will return to this later in the presentation of our hypothesis.

In addition, given Norway's geographical structure, one could argue that Norway could be subject to geographical differences. We therefore want to investagate if there's any differences in dividend policy among companies located in metropolitan and provincial areas.

3.3 Hypotheses

According to Alstadsæter and Fjærli (Alstadsæter, Anette, & Fjærli, 2009), there was a distinct difference in dividend policy as an effect of the 2006-reform. However, as mentioned, the study was conducted closely to the reform, and suffered from a lack of long-term data. Thus, our first hypothesis are as follows;

H1: Have the factors that determine the dividends payout ratio changed after the 2006 tax reform, and which factors are now the most determinant?

Based on the study undertaken by Frank and Goyal (Frank & Goyal, 2003), there seems to be some factors that are more important than others in deciding capital structure. The main important factor were industry specific capital structure,

followed by five more "supporting" factors. If combined with the study of Baker and Powell (Baker & Powell, 2000), a possible impact on the dividend payout ratio as a result of different industries seems highly plausible. Even though the two studies have different aims, they accompany each other well. In addition, even though the dataset on which these studies were conducted differs from the data set our thesis uses, we cannot rule out the possibility that some of the factors identified might apply to our dataset as well. We therefore want to investigate this further, and will do so by proposing the following hypothesis;

H2a: The dividend payouts of companies depend on the industry in which they operate

Based on Kose John et. al. (John, Knyazeva, & Knyazeva, 2011) findings, we want to check if the location of the firm matters in our case. Norway, in similarity with the US, has a divers geography, and we believe that their findings might hold true.

H2b: The dividend payout of companies depend on the area in which they are located

Based on our 3 hypotheses, we seek to investigate the field of smaller, privately held Norwegian firms, and believe that our hypotheses will enable us to answer our main research question in a satisfactory manner.

4. Data

In order to investigate the topic at hand, we applied for, and was granted, access to the CCGR-database. CCGR main aim is to closely study Norwegian firms, and their database has detailed data on a number of parameters, such as accounting data (CCGR, 2017). Our request focused mainly on accounting and balance sheet variables that would enable us to investigate capital structure and dividend payments. In addition, we utilized supporting variables, such as ownership-type and number of different owners, that enabled us to filter away observations that

were outside of the scope of this thesis. The full list of the different variables can be found in the appendix.

4.1 Filtering

Our initial dataset consisted of 3,4 million observations spanning from 2000-2015. To make the dataset more comprehendible and accurate, a process in which we filtered away un-wanted observations were necessary.

The first concern we addressed was the possibility that the sample contained observations stemming from companies operating in financial markets. Given the different nature of such companies, with respects to, for instance, the capital stock regulations these organisations must abide to, these firms were excluded in order not skew the analysis. Furthermore, we wanted to only include companies that had employees, eliminating "shell companies" and "holding companies". This is natural given that for the possible tax avoidance scheme previous described could take place, there had to be some sort of employment present. Hence, all observations where no employees were present were dropped.

Secondly, given our want to investigate privately held, Norwegian, companies, we excluded companies that were listed due to these companies being subject to different regulations. We also excluded companies that were owned by individuals not taxable in Norway, as this clearly is outside the scope of this thesis.

After closely inspecting the remaining observations, we found some abnormalities amongst the variables, such as negative revenue, negative assets, positive liabilities etc. Even though some of these examples could be real observations, the manner of most of these observations pointed towards flaws in the dataset, such as wrongly reported data etc. These observations were therefore dropped to reduce the noise in our analysis. We are aware that some might claim this could, to some extent, compromise the dataset, but given the width of the dataset we are comfortable with excluding these observations. We also want to underline the fact that the observations that were dropped in no way, what so ever, was dropped

because of individual investigations. This would have meant that we could have "altered" the dataset in a way that would compromise the integrity of this thesis.

To ensure that the companies left in the data set were complete in all years included in our analysis, companies that went out of business before 2015 or were not founded in 2000, was left out.

The most controversial measure of filtering, some will claim, is the fact that we dropped companies that never yielded any dividend payments at all. The rationale behind this, is that the majority of companies that never yields any dividends have made a decision to never do so. There could be several reasons to this, such as the want to grow, the want to invest etc. Nevertheless, companies that not even once yielded a dividend payout, were deleted.

This left a final sample consisting of 66 885 observations, corresponding to 4 459 companies present over the entire time-period. This, quite hard, selection could be afforded given the original dataset being so immense and allowing us room to drop many observations.

In addition, in order to avoid the problem with extreme observations, we have taken the measure of using winsorized variables at the 1% level.

4.2 Variables

After the above-mentioned filtering, our dataset had a substantial number of observations and variables. Based on the theory discussed in the literature review, we singled out the 14 exploratory variables we best felt could investigate our hypotheses. In the following section, an elaboration of these variables and their components will be presented. We would like to draw your attention towards the fact that we have normalised the variables, by dividing them on the company's total assets. This is a form for normalisation, and is done with the aim of note letting extreme observations soiling the dataset. Based on the outcome, we also chose to winsorize the variables. This was due to some variables coming back with outliers.

$$Dividend\ Pay\ Out\ Ratio = \frac{Dividends}{Net\ Income}$$

The dividend payout ratio functions as an indication of how much funds that the company pays to its owners, and how much money it keeps to re-investments in company. It is fairly obvious why dividend payout ratio is included, as it functions as our dependent variable. Furthermore, as Alstadsæter and Fjærli (Alstadsæter, Anette, & Fjærli, 2009) pointed at a strong time effect on dividend payments following the 2006 tax reform, and this is part of what we want to investigate.

$$Profitability = \frac{Net\ Income}{Total\ Assets}$$

According to Myers and Majluf (Myers & Majluf, 1984) well performing companies are perceived to have a higher rate of retained earnings, the relationship between performance and debt should be negatively correlated. From this argument follows, we believe, two possible reasons for including profitability. Firstly, in order to be able to give dividends, a company needs the monetary possibility to do so. We believe this possibility could be linked to higher profitability. However, we also believe that companies that were not profitable also payed out dividends, due to the upcoming 2006 tax reform. By including profitability, we will be able to investigate this possibility. Secondly, we believe that the 2006 tax reform could have seen a change in the importance of profitability. These two possibilities are also in line with the findings of Alstadsæter and Fjærli (Alstadsæter, Anette, & Fjærli, 2009).

$$Leverage = \frac{Total\ Liabilities}{Total\ Assets}$$

According to Frank and Goyal (Frank & Goyal, 2009), the most important factor in deciding a company's leverage, is the leverage observed in their respective industry. Beside this, leverage is an important part of the capital structure of any company. Given that we want to use leverage as both an independent and dependent variable in our thesis, the inclusion of leverage is quite obvious. In the

creation of our leverage, total liabilities consist of long and short-term debt, as well as provision.

$$Tax = \frac{Tax\ on\ Income}{Income}$$

This thesis aims at discussing the possible changes as a result of changes in the tax level. It is therefore only natural to include tax as an exploratory variable. In addition to this obvious reason above for inclusion, Modigliani and Miller discussed the possibilities of a tax shield as a reason for why companies would take on debt. If a company gets more debt, the capital structure changes, and therefore what may be yielded as dividends will changes as well.

CEO Salary

Payroll Expenses

Given that the main problem at hand were income shifting, as pointed out by Alstadsæter (Alstadsæter A. , 2006), we believe it could be interesting to watch the development of the CEO's salary in the different companies. The rationale behind this idea is that in smaller companies where the owner might also be the CEO, the possibility to camouflage income as dividends would drastically decrease after the 2006 tax reform. Therefore, we would expect the level of CEO salary to have an impact on the companies, both before and after the reform. The same logic follows for the payroll expenses, as we would be tempted to see an increase here as well, after the 2006 reform. These two variables are subject to a competitive market for employees and managers.

$$Tangibility = \frac{Total\ Fixed\ Assets}{Total\ Assets}$$

Frank and Goyal (Frank & Goyal, 2009) argued that firms with tangible assets tend to have a higher leverage. As mentioned, leverage is believed to have an effect on the funds that a company can pay out as dividends. Therefore, we expect tangibility to have an effect on the dividend payout ratio of the firms in our sample.

$$Liab. to\ financial\ Institutions = \frac{Liab. to\ financial\ Institutions}{Total\ Assets}$$

$$Accounts\ Recivable = \frac{Accounts\ Recivable}{Total\ Assets}$$

$$Accounts\ Payable = \frac{Accounts\ Payable}{Total\ Assets}$$

$$Provisions = \frac{Provisions}{Total\ Assets}$$

In addition to the earlier mentioned variables, which is based in theory, we have chosen to add some more variables. Above we have described some items from the balance sheet, which we believe can have an effect. The reason for this is to investigate if management possibly could have made use of the balance items in order to shift dividends or income to another time period.

$$Impairment\ and\ Write\ Down = \frac{Impairment\ and\ Write\ Down}{Total\ Assets}$$

$$Research\ and\ Development = \frac{Research\ and\ Development}{Total\ Assets}$$

$$Total\ Investments = \frac{Total\ Investments}{Total\ Assets}$$

$$Depreciation = \frac{Depreciation}{Total\ Assets}$$

Following the same reasoning as with the items from the balance sheet, we have included some items from the income statement that we want to further investigate. For example, by altering the rate of depreciation, a company can shift the funds available to dividend payments.

The two items, research and development, and total investments, are chosen based on the idea that if a company were to pay more dividends, this would affect the level of research and development, and investments, that the company could undergo.

As mentioned, Frank and Goyal found evidence for that the industry in which a company operates, could play a crucial factor in determining the capital structure of the company. Therefore, below is a presentation of the different industries

represented in our dataset. As is evident from the below table, no industry is separating itself significantly from the others. However, based on the table, we cannot rule out the possibility that it might still have an effect, even though it does not seem obvious at first glance. Below is our definition of industry avg. DPR and an overview of the different industries.

$$Industry\ avg.\ DPR_i = \frac{DPR_{Industry\ i}}{n\ Firms_i}$$

Table 1: Industry Overview

Based on the NACE codes, the below table has been developed. The table shows how the data sample is divided between the different industries, in addition to the average leverage of the specific industry. Please remember that financial firms have been excluded from this thesis.

Dummy	Name	Industry code(NACE)	Avg. Leverage	Avg. DPR	Number of firms	% of total firms
I1	Primary sector	1-9	0,59	0,51	842	1,18 %
I2	Manufacturing	10-34	0,60	0,43	7162	10,04 %
I3	Infrastructure	35-43	0,56	0,44	8270	11,59 %
I4	Transport, tourism	49-56	0,70	0,61	15566	21,82 %
I5	IT, science & tech	58-75	0,64	0,00	13643	19,12 %
I6	Education & health	85-88	0,62	0,60	2597	3,64 %
I7	Arts & recreation	90-93	0,70	0,57	1532	2,15 %
I8	Other	0,45-47,77-82,94-96	0,63	0,54	21733	30,46 %
			Number of firms		71344	

In addition to the industries mentioned above, we also believe that location of the company might affect the dividend payout ratio. The Norwegian geographic might play a bigger role than that of American firms. We have therefore developed a dummy to take into account whether the company is question is located in a city or not. The definition of "city" is according to the CCGR-database's definition of city. The summary statistics of this dummy variable can be seen below. At a first glance, the location does not seem to play to much of a factor, but the analysis might prove otherwise.

4.3 Descriptive Statistics

After the above presentation and discussion of the variables we have chosen as the most relevant for our thesis, we will move on with a presentation of the descriptive statistics of the variables.

Table 2: Summary Statistics T1

The below table depicts the main summary statistics of our main variables. The parameters are included based on their ability to easily give a quick overview of the data at hand.

Variable	N	Mean	Median	SD	Min	Max
Dividend Pay-Our Ratio	22232	0,89	0,82	1,07 -	0,06	5,36
Profitability	22295	0,11	0,10	0,12 -	0,23	0,48
Total Investments	22295	0,01	-	0,06	-	0,43
Liabilities to Financial Institutions	22295	0,08	-	0,15	-	0,60
Tax	22233 -	0,44 -	0,40	0,30 -	1,63	0,64
R&D	22295	0,00	-	0,01	-	0,08
CEO Salary	21290	318 733,20	313 000,00	157 818,70	-	1 196 000,00
Leverage	22295	0,75	0,80	0,17	0,10	0,95
Accounts Receivable	22295	0,21	0,18	0,19	-	0,75
Accounts Payable	22295	0,13	0,09	0,13	-	0,55
Depreciation	22295	0,05	0,03	0,05	-	0,21
Payroll Expenses	22295	1 672 128,00	1 103 000,00	1 921 262,00	51 000,00	16 400 000,00
Provisions	22232	0,00	-	0,00 -	0,00	0,00
Tangibility	22295	0,25	0,18	0,23	-	0,86
Industry dividend pay-out ratio	22295	0,44	0,53	0,24	-	0,62
City	22293	0,50	-	0,50	-	1,00

Table 3: Summary Statistics T2

The below table depicts the main summary statistics of our main variables. The parameters are included based on their ability to easily give a quick overview of the data at hand.

Variable	N	Mean	Median	SD	Min	Max
Dividend Pay-Our Ratio	48 937	0,32	-	0,64 -	0,06	5,36
Profitability	49 049	0,10	0,09	0,13 -	0,23	0,48
Total Investments	49 049	0,01	-	0,06	-	0,43
Liabilities to Financial Institutions	49 049	0,07	-	0,13	-	0,60
Tax	48 782 -	0,35 -	0,39	0,23 -	1,63	0,64
R&D	49 049	0,00	-	0,01	-	0,08
CEO Salary	47 064	473 141,70	457 000,00	237 679,00	-	1 196 000,00
Leverage	49 049	0,57	0,59	0,21	0,10	0,95
Accounts Receivable	49 049	0,19	0,15	0,18	-	0,75
Accounts Payable	49 049	0,11	0,07	0,11	-	0,55
Depreciation	49 049	0,03	0,02	0,04	-	0,21
Payroll Expenses	49 049	2 662 247,00	1 700 000,00	2 955 714,00	51 000,00	16 400 000,00
Provisions	48 937	0,00	-	0,00 -	0,00	0,00
Tangibility	49 049	0,22	0,14	0,22	-	0,86
Industry dividend pay-out ratio	49 049	0,43	0,53	0,21	-	0,62
City	49 049	0,49	-	0,50	-	1,00

The above table shows a summary of the most common statistical measures; number of observations, mean, median, standard deviation, and minimum and maximum observations. There are a few things concerning the table we would like to address. First of all, the number of observations deviates somewhat between the variables. This is due to missing observations in the different variables. Given the size of our dataset, this flaw should not play too big of a role, and we took no further actions regarding this.

Another aspect that is that the mean and median observation of a variable should be fairly similar. This is fairly accurate for most of our variables, with the

exception of the dividend payout ratio and the payroll expense. This is an indicator for that these two variables might be somewhat skewed. However, the difference is not that big, and we chose to not pay too much attention towards this "issue".

Table 4: Correlation Matrix

The below table displays the correlation matrix for the main variables of the dataset (due to the size of the table, the table had to be split in two. The results are still valid).

	Dividend Pay-Out Ratio	Profitability	Total Investments	Liabilities to Financial Institutions	Tax	R&D	CEO Salary	Leverage	Accounts Receivable
Dividend Pay-Out Ratio	1.0000								
Profitability	0.1560	1.0000							
Total Investments	0.0208	0.0599	1.0000						
Liabilities to Financial Institutions	-0.0596	-0.2140	-0.0554	1.0000					
Tax	-0.0870	-0.1487	0.0244	0.0141	1.0000				
R&D	0.0305	-0.0132	-0.0142	0.0308	-0.0293	1.0000			
CEO Salary	-0.0084	0.0902	0.0123	-0.0376	0.0050	-0.0197	1.0000		
Leverage	0.0401	0.0251	-0.1359	0.2829	-0.0904	0.0582	-0.0610	1.0000	
Accounts Receivable	-0.0009	0.0318	-0.1034	-0.1275	-0.0197	-0.0027	0.1399	0.1906	1.0000
Accounts Payable	-0.0253	-0.1890	-0.1165	-0.0659	0.0220	-0.0258	0.0006	0.3101	0.2218
Depreciation	0.0059	-0.1487	-0.0877	0.3090	-0.0470	0.1575	-0.0737	0.1306	-0.0339
Payroll Expenses	-0.0154	-0.0196	-0.0426	0.0441	0.0096	0.0010	0.4176	0.0505	0.2006
Provisions	0.0035	-0.0557	-0.0237	0.0771	-0.0921	0.0209	-0.0601	0.0087	-0.0360
Tangibility	-0.0249	-0.1819	-0.0862	0.5539	-0.0067	0.0803	-0.0615	0.0857	-0.2245
Industry dividend pay-out ratio	-0.0072	-0.0964	-0.0690	0.0369	0.0044	-0.0460	-0.0994	0.0419	-0.2061
City	0.0360	0.0722	0.0315	-0.0921	-0.0148	0.0267	0.0815	0.0299	0.0514

	Accounts Payable	Depreciation	Payroll Expenses	Provisions	Tangibility	Industry dividend pay-out ratio	City
Accounts Payable	1.0000						
Depreciation	-0.1019	1.0000					
Payroll Expenses	0.1012	-0.0081	1.0000				
Provisions	-0.0369	0.1134	-0.0572	1.0000			
Tangibility	-0.1884	0.5444	0.0234	0.1590	1.0000		
Industry dividend pay-out ratio	0.2768	-0.0601	0.0188	-0.0219	-0.0217	1.0000	
City	0.0008	-0.1046	0.0489	-0.0193	-0.1034	-0.0584	1.0000

The above table displays the correlation matrix of our main variables. The reason as to why we have included this table, is to investigate if our dataset might be subject to problems related to correlation. We find few reasons of concern, especially since our dependent variable, dividend payout ratio, does not have high correlation with any of independent variables.

In similarity with Frank and Goyal (Frank & Goyal, 2009), we have also included a more "in-depth" view of the different factors, which we will return to in the chapter concerning methodology.

5. Methodology

The objective of the thesis constitutes that the focus should rely on quantitative data and quantitative techniques. We aim to examine a large dataset, and try to identify tendencies among different firms. The main attribute of applying a

quantitative approach is that the external validity will be high. Any findings uncovered will most likely be of relevance, to some degree, to similar scenarios and research fields. The drawback, on the other hand, is that the internal validity will suffer to some extent. This due to the fact that no single company will be investigated in-depth. However, given the nature of the field at hand, the advantages of a quantitative approach outweigh the disadvantages.

Based on the theory available in the research field, as well as our findings when handling the data, we believe there could be evidence of the 2006 tax reform having an impact on the behavior of the firms included in our final dataset. The development in research and development costs, as well as the decline in provisions in the time leading up to the event, could both be indications of firms taking a proactive approach to protect their dividends. We therefore want to investigate if there could be a structural break in our dataset based on our core factor identified below.

5.1 Selection of core factors

In order to have a better foundation when deciding which factors to include in our model, we have drawn inspiration from Frank and Goyal (Alstadsæter, Anette, & Fjærli, 2009). In our calculations, dividend payout ratio is denoted by $L_{i,t}$ where i are the individual company and t are the different years. Furthermore, α denotes the constant parameter and $F_{i,t-1}$ is the set of our exploratory factors. This allows us to control what factors that play a role in determining the dividend payout ratio the following year. The model can be written as;

Equation 1

$$L_{i,t} = \alpha + \beta F_{i,t-1} + \varepsilon_{i,t}$$

Furthermore, we have made use of the Bayesian Information Criterion (BIC), as suggested by Hastie, Tibshirani and Friedman (Hastie, Tibshirani, & Friedman, 2001). The BIC model is written out below, where P is the number of parameters and N is the number of observations.

Equation 2

$$BIC = -2 * log - likelihood + P * \log(N)$$

The reasoning behind BIC is that one will create a set of models based on the same factors, but with different samples. The more samples one applies, the more likely is it that one of your models will in fact be the "correct" model to solve the question at hand. As Frank and Goyal (Frank & Goyal, 2009), we also make use of random samples, of equal size, in order to ensure the validity of our model.

Table 5, below, shows the process leading up to identifying the factors to include in our model. The table is derived by making use of equation 2. The first results are reported in the bottom row. We start by reporting the cumulative R^2 and BIC in column 4 and 5, before noting the coefficient and z-statistic of the factor with the lowest z-statistic. The factor with the lowest z-statistic are used in a simple regression with the dividend payout ratio, and the individual R^2 is reported. The process is repeated until we are left with only one factor. We have also investigated how often the different factors are represented in the best-BIC model for each random sample, reported in column 6.

Table 5: Selection of main factors

The below table depicts the different factors, and how they respond to our BIC selection. The development of the table has been done in accordance with the study of Frank and Goyal (2009). The first step in the development of the table is to run a regression with all factors included. The results on cumulative R^2 and BIC in column 4 and 5 are reported in the bottom line. We then report the coefficient value and the z-statistic, in column 1 and 2, based on the factor with the lowest z-statistic. Column 3 follows from a simple regression between the dividend payout ratio and the factor with the lowest z-statistic. After taking note of all the mentioned values, we remove the factor with the lowest z-statistics and repeat all the steps above until we are left with only one exploratory variable. The order in which the variables below are listed are the order in which they were kept in, meaning that accounts receivable was excluded first, and that research and development was the sole factor left.

Factor	Kofeffisent (1)	z-stat (2)	Own r2 (3)	Cumalative r2(4)	BIC (5)	% in random
Research and Developement	3,58	3,88	0,0012	0,0012	159560,60	43 %
Profitability	0,41	2,54	0,0024	0,0038	159400,10	86 %
Depreciation	1,75	2,82	0,0031	0,0072	159183,10	0 %
Tax	-0,18	-2,37	0,0029	0,0091	158393,50	100 %
Payroll Expences	0,00	-2,29	0,0081	0,0153	157989,40	0 %
Liabilities to fin. Institutions	-0,09	-1,11	0,0001	0,0155	157987,60	14 %
Total Investments	0,18	1,19	0,0001	0,0156	157989,50	14 %
Tangibility	0,15	1,47	0,0005	0,0159	157982,80	14 %
City	0,10	1,59	0,0001	0,0160	157985,70	14 %
CEO Salary	0,00	-1,96	0,0091	0,0177	151031,60	100 %
Industry average DPR	0,10	1,23	0,0001	0,0178	151038,60	29 %
Provisons	72920,12	2,08	0,0001	0,0178	151043,70	0 %
Leverage	0,09	0,29	0,0003	0,0182	151026,30	0 %
Accounts Payable	0,05	0,29	0,0000	0,0183	151035,80	0 %
Accounts Recivable	-0,03	-0,24	0,0000	0,0183	151046,20	0 %

Based on the tables above, we have chosen which factors that we want to include in our model. The selection of the factors are based on how often they are included in the lowest-BIC model. In all our models, we have corrected for heteroskedasticity by making use of robust standard errors, as well as making use of clustering on company ID (pcid) and year (yr), and utilised fixed effects. One might have suspected that dividend payments were subject to random effects, given that companies might have a planned dividend scheme. However, we believe that the 2006 tax reform caused such an uproar, that making use of fixed effects is the most accurate option.

In our model, we have decided to include a variable if it appears in more than 25 % of the random samples. This ensures a model consisting of a reasonable number of factors. The model is left consisting of 1) Research and Development, 2) Profitability, 3) Tax, 4) CEO Salary, 5) Average Industry DPR.

Equation 3

$$Dividend\ Payout\ Ratio = \beta_1 Research\ and\ Development + \beta_2 Profitability + \beta_3 Tax + \beta_4 CEO\ Salary + \beta_5 Industry\ avg.DPR$$

In order to investigate a possible structural break, we include interaction variables based on the tax reform, as well as performing the well-known Chow Test.

The interactions variables consist of the original variables from our model above, multiplied with a dummy variable. The dummy variable depends on whether the observation is before or after the tax reform, taking 0 if year is 2001-2004 and 1 otherwise. The interaction variables will allow our main factors to interact differently on the dividend payout ratio, depending on when they were observed. The results are presented below.

Table 6: Test for structural break

The below table shows the regression for T2. The top number for each factor is the associated coefficient from the regression. ***, **, * : significant-level 1%, 5% and 10%. The number below shows the standard error for the factor.

R&D	-2,080893**
	(0,8224858)
Profitability	0,4252358**
	(0,2051795)
Tax	-0,0692838
	(0,0453496)
CEO Salary	0,00000035**
	(0,00000014)
Industry average DPR	0,1321904**
	(0,0547673)
Tax reform dummy	-0,6233973***
	(0,1309498)
R&D*Tax Reform dummy	3.0812***
	(0,9223712)
Profitability*Tax Reform dummy	-0,0146685
	(0,27601)
Tax*Tax Reform dummy	0,0454377**
	(0,1855977)
CEO Salary*Tax Reform dummy	0,00000011
	(0,0000001)
Industry average DPR*Tax Reform dummy	-0,2372912
	(0,0472226)
R2	0,1519
N obs	63708

Given the significance of the tax reform dummy as well as the interaction variables, the above result indicates the presence of a structural break.

The Chow test proposes a null-hypothesis that there are no differences in means across two time periods (Groebner, Shannon, Fry, & Smith, 2014). In order to

perform the Chow test, we divided our dataset into three groups; total (including all years), T1 (2000-2004), and T2 (2005-2015). Based on these groups we derived the following regressions;

Equation 4a, 4b, 4c

$Dividend\ Payout\ Ratio$
$$= \beta_{1Total}Research\ and\ Development + \beta_{2Total}Profitability + \beta_{3Total}Tax + \beta_{4Total}CEO\ Salary + \beta_{5Total}Industry\ avg.DPR$$

$Dividend\ Payout\ Ratio$
$$= \beta_{1T1}Research\ and\ Development + \beta_{2T1}Profitability + \beta_{3T1}Tax + \beta_{4T1}CEO\ Salary + \beta_{5T1}Industry\ avg.DPR$$

$Dividend\ Payout\ Ratio$
$$= \beta_{1T2}Research\ and\ Development + \beta_{2T2}Profitability + \beta_{3T2}Tax + \beta_{4T2}CEO\ Salary + \beta_{5T2}Industry\ avg.DPR$$

The test statistic associated with the Chow test is found to be 2 015 based on the following equation.

Equation 5

$$\frac{(S_C - (S_1 + S_2))/k}{(S_1 + S_2)/(N_1 + N_2 - 2k)}$$

Furthermore, the associated F-value at the 1% level is found to be $F(5,66726) = 3,017$. Hence, we reject the null-hypothesis.

The Chow test and the interaction test both indicate the presence of a structural break, and we must therefore treat our data accordingly, moving forward with two distinct groups.

5.2 Model selection time periods

The selections processes and criteria from the initial model is repeated for both time periods. We have ensured that our random samples are of the same size across the different time samples. We have also kept the 25% cut-off level for a factor be included.

5.2.1 Time period 1

Table 7: Selection of main factors T1

Factor	Kofeffisent (1)	z-stat (2)	Own r2 (3)	Cumalative r2(4)	BIC (5)	% in random
Provisons	-107733,10	-2,23	0,0002	0,0002	48520,21	50 %
CEO Salary	0,00	2,32	0,0023	0,0025	46101,92	100 %
Payroll Expences	0,00	2,19	0,0018	0,0036	46094,43	100 %
Leverage	-2,23	-2,99	0,0456	0,0541	45231,80	100 %
Total Investments	-0,16	-0,62	0,0000	0,0544	45231,80	0 %
Depreciation	-0,83	-1,85	0,0003	0,0549	45232,30	50 %
Tangibility	0,17	1,23	0,0002	0,0555	45230,76	0 %
Industry average DPR	0,52	2,04	0,0002	0,0557	45237,10	25 %
Tax	0,11	1,81	0,0007	0,0562	45238,24	50 %
Accounts Recivable	-0,28	-2,28	0,0005	0,0564	45243,94	50 %
Research and Developement	0,14	0,12	0,0000	0,0565	45252,52	25 %
Liabilities to fin. Institutions	-0,15	-1,23	0,0001	0,0566	45260,60	0 %
Profitability	0,17	2,71	0,0002	0,0566	45270,27	0 %
City	0,01	0,09	0,0000	0,0566	45279,96	25 %
Accounts Payable	-0,42	-1,39	0,0006	0,0566	45289,44	0 %

Based on the above selection and the previous mentioned cut-off we are left with a core model for T1 consisting of the following factors:

Equation 6

$$Dividend\ Payout\ Ratio$$
$$= \beta_1 Provisons + \beta_2 CEO\ Salary + \beta_3 Payroll\ Expences + \beta_4 Leverage$$
$$+ \beta_5 Depreciation + \beta_6 Tax + \beta_7 Accounts\ Recivable$$

5.2.2 Time Period 2

Table 8: Selection of main factors T2

Factor	Kofeffisent (1)	z-stat (2)	Own r2 (3)	Cumalative r2(4)	BIC (5)	% in random
Leverage	-0,65	-11,12	0,0296	0,0296	78653,68	100 %
Accounts Recivable	-0,28	-5,87	0,0021	0,0299	78650,55	20 %
Profitability	0,10	1,78	0,0003	0,0308	78615,34	80 %
Tangibility	-0,21	-4,43	0,0015	0,0313	78601,00	0 %
Liabilities to fin. Institutions	-0,27	-5,30	0,0013	0,0316	78594,14	40 %
Depreciation	-1,15	-3,46	0,0019	0,0319	78591,61	20 %
CEO Salary	0,00	2,55	0,0080	0,0345	74677,20	100 %
Total Investments	0,39	4,60	0,0006	0,0347	74678,62	20 %
Tax	0,07	1,45	0,0007	0,0351	74354,75	40 %
Payroll Expences	0,00	2,15	0,0043	0,0354	74349,78	0 %
Provisons	-42011,05	-2,27	0,0001	0,0354	74358,41	20 %
Industry average DPR	-0,08	-2,22	0,0002	0,0355	74368,22	0 %
City	-0,06	-1,44	0,0001	0,0355	74378,61	20 %
Research and Developement	-0,93	-1,32	0,0001	0,0355	74389,27	0 %
Accounts Payable	-0,51	-7,40	0,0030	0,0355	74399,94	20 %

Based on the above selection and the previous mentioned cut-off we are left with a core model for T2 consisting of the following factors:

Equation 7

$Dividend\ Payout\ Ratio$

$$= \beta_1 Leverage + \beta_2 Profitability + \beta_3 Liabilities\ to\ Financial\ Institutions$$
$$+ \beta_4 Ceo\ Salary + \beta_5 Tax$$

6.0 Analysis

The following chapter will present the empirical result from our analysis. The first part of the analyses the factors that demines DPR before the reform and the second part the long-term effects after the reform.

6.1 Analysis of T1

Table 9: Core factors T1

The below table shows the regression for T1. The top number for each factor is the associated coefficient from the regression. ***, **, * : significant-level 1%, 5% and 10%. The number below shows the standard error for the factor.

Provisions	-168785,*** (37829,8)
CEO Salary	0,00000088*** (0,00000024)
Payroll Expenses	-0,00000017*** (0,00000003)
Leverage	-2,399189*** (0,7193285)
Depreciation	-1,108373** (0,4763534)
Tax	-0,09459313 (0,0582738)
Accounts Receivable	-0,2422152** (0,1183566)
R2	0,0556
N obs	16852

Provisions has a negative effect. This is to be expected since higher provisions would mean less funds available for dividend payments. Given the fact that

dividend payments would be harder taxed, the reason for manipulating provisions is minimal.

CEO Salary has a positive effect on DPR. This is contrary to what we would have expected, since higher salary payments would mean less funds to be diluted as dividends. However, one needs to take into account that the firms were expected to pay dividends "no matter what" in order to "beat" the tax reform. Contrary to CEO Salary, Payroll Expense has the expected effect on DPR.

Leverage has a negative impact on the dividend payout ratio. This could be a sign of companies having maxed out their potential leverage, in accordance with Miller and Modigliani (Modigliani & Miller, 1963) to achieve higher dividends, and the reason for the now negative effect being the trade-off between dividends and bankruptcy cost as described by Kraus and Litzenberger (Kraus & Litzenberger, 1973).

Similar to Provision, Depreciation has a negative effect on DPR. Higher Depreciation would mean a lower result, which again would give a weaker foundation for dividend payments. However, one need to keep in mind that Depreciation does not have any cash effect, and could in some instances be used as a way of "moving" money and costs between years.

Tax has a negative effect, given the connection with income. This goes against the rationale of an optimal capital structure, where a company with high taxes would be expected to have a larger tax shield which once again would lead to higher dividend payments (Kraus & Litzenberger, 1973).

Accounts receivable is capital which will benefit the company. However, since the capital is not yet available to the company, they cannot be diluted as dividends. Hence, the negative effect of the accounts revivable is to be expected.

6.2 Analysis of T2

Table 10: Core factors T2

The below table shows the regression for T2. The top number for each factor is the associated coefficient from the regression. ***, **, * : significant-level 1%, 5% and 10%. The number below shows the standard error for the factor.

Leverage	-0,6284316***
	(0,0367175)
Profitability	0,2035581***
	(0,0514775)
Liabilities to Financial Institutions	0,1065167 ***
	(0,0367278)
CEO Salary	0,00000022***
	(0,00000009)
Tax	0,0483135**
	(0,023127)
R2	0,0339
N obs	46808

Leverage still has a negative impact on the dividend payout ratio, and we refer to the analysis concerning T1. The rationale behind our interpretation is the same.

Profitability has a positive impact, which is to be expected. More profitable firms will have higher earnings, which again will yield higher dividends.

Liabilities to financial institutions has a positive effect. The companies could use liabilities to cover dividend payments. Given the possibility of companies emptying their retained earnings before the tax reform, growth in liabilities to financial institution as the source of funding, is in accordance with the pecking order theory (Myers & Majluf, 1984).

CEO Salary once again had a positive effect. However, the difference between tax on labour income and tax on dividends are smaller than in T1. The fact that CEO Salary has a positive effect in T2 could be interpreted as an indication of higher

CEO Salary being linked with better performing companies, which again would mean higher dividend payments.

Tax now has a positive effect on dividend payments. Contrary to T1, this is in accordance with the trade-off theory (Kraus & Litzenberger, 1973).

7.0 Conclusion

Based on the analysis above, we will now answer our hypotheses before concluding on our main research question.

Our first hypothesis was:

Have the factors that determine the dividend payout ratio changed after the 2006 tax reform, and which factors are now the most determinant?

Leverage, CEO Salary and Tax are the only factors that are included in both models, T1 and T2. Leverage had a highly significant effect in both periods, which was expected. We believe this is an indication of companies maxing out their leverage, in order to get as much dividend as possible, which is in accordance with trade-off theory (Kraus & Litzenberger, 1973). The decrease in mean leverage from T1 and T2 could suggest a movement towards a more normal level in the long run. We believe that this is in accordance with the pecking-order theory, where internal funding (retained earnings) would be preferred over external funding (Myers & Majluf, 1984).

We would have believed that CEO Salary would have a negative effect on DPR in T1, given the possibility of income shifting (Alstadsæter A. , 2006). However, this was not the case, supporting our belief of chaotic dividend payments in T1. In T2 we do believe the reason for the positive effect is due to performance of companies being more closely linked with CEO Salary.

Tax follows the same intuition as CEO Salary, where we would have expected a different outcome in T1. Once again, this supports our theory of messy dividend payments.

Moving on, we believe the fact that Profitability and Liabilities to financial institutions are included in T2 and not in T1, is a sign of normalisation in dividend policies amongst the firms in our samples. Profitability is one of the most decisive factors when determining dividend policies (Baker & Powell, 2000), and Liabilities to financial institutions could be used to cover dividend payments. We believe that the reason for these factors not being included in our final model for T1 is due to what we have referred to as a state of "chaos".

Our second hypothesis is related to industry.
The dividend payouts of companies depend on the industry in which they operate

According to Frank and Goyal (Frank & Goyal, 2009), industry is an important factor when determining the leverage of a company. Combined with the findings of Baker and Powell (Baker & Powell, 2000), we derived our hypothesis with the belief that the industry in which a company operates would also influence the dividend payout ratio for the companies in our sample. However, we have found that this is not the case amongst our sample. Our selection process for T1 and T2 did not allow for the inclusion of Industry average DPR. We considered including the factor based on our own beliefs, however we did not find the statistical evidence we needed.

The third hypothesis was related to the location of the company.
The dividend payouts of companies depend on the area in which they are located

According to John Kose et.al., the geography of a company is a determining factor when dealing with dividend payments (John, Knyazeva, & Knyazeva, 2011). We have argued that we believed the factor City to have an impact, given the Norwegian geography. However, after conducting the BIC-selection process for our models, City was only included. Therefore, we believe that the location of the firm, here meaning a city vs. non-city environment, does not have any important

effect on the dividend payout ratio. It would be interesting to investigate the issue of geography further, for instance divided by county, but this is left for future studies.

As to answering our main research question:
What where the long-term effects of the 2006 tax reform on the factors determining dividend payouts in closely held Norwegian companies?

Our thesis has uncovered a state of chaos in the years prior to the 2006 tax reform. These years saw factors which was not founded in theory having effects on dividend payout ratio. We have found the reason for this to be many companies paying dividends regardless of their financial situation.

The long-term effects are a more "predictable" situation, with a greater sense of foundation in theory when it comes to the dividend payout ratio. Factors that did not comply with theory in T1, changes in T2 and is now in accordance with classical financial theory.

We argue that the finding in T2 are representative of a long-term perspective of which factors that play an important role when deciding on dividend policies.

8.0 References

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9.0 Appendix

Table 1: Industry Overview

Based on the NACE codes, the below table has been developed. The table shows how the data sample is divided between the different industries, in addition to the average leverage of the specific industry. Please remember that financial firms have been excluded from this thesis.

Dummy	Name	Industry code(NACE)	Avg. Leverage	Avg. DPR	Number of firms	% of total firms
I1	Primary sector	1-9	0,59	0,51	842	1,18 %
I2	Manufacturing	10-34	0,60	0,43	7162	10,04 %
I3	Infrastructure	35-43	0,56	0,44	8270	11,59 %
I4	Transport, tourism	49-56	0,70	0,61	15566	21,82 %
I5	IT, science & tech	58-75	0,64	0,00	13643	19,12 %
I6	Education & health	85-88	0,62	0,60	2597	3,64 %
I7	Arts & recreation	90-93	0,70	0,57	1532	2,15 %
I8	Other	0,45-47,77-82,94-96	0,63	0,54	21733	30,46 %
				Number of firms	71344	

Table 2: Summary Statistics T1

The below table depicts the main summary statistics of our main variables. The parameters are included based on their ability to easily give a quick overview of the data at hand.

Variable	N	Mean	Median	SD	Min	Max
Dividend Pay-Our Ratio	22232	0,89	0,82	1,07	- 0,06	5,36
Profitability	22295	0,11	0,10	0,12	- 0,23	0,48
Total Investments	22295	0,01	-	0,06	-	0,43
Liabilities to Financial Institutions	22295	0,08	-	0,15	-	0,60
Tax	22233	- 0,44	- 0,40	0,30	- 1,63	0,64
R&D	22295	0,00	-	0,01	-	0,08
CEO Salary	21290	318 733,20	313 000,00	157 818,70	-	1 196 000,00
Leverage	22295	0,75	0,80	0,17	0,10	0,95
Accounts Receivable	22295	0,21	0,18	0,19	-	0,75
Accounts Payable	22295	0,13	0,09	0,13	-	0,55
Depreciation	22295	0,05	0,03	0,05	-	0,21
Payroll Expenses	22295	1 672 128,00	1 103 000,00	1 921 262,00	51 000,00	16 400 000,00
Provisions	22232	0,00	-	0,00	- 0,00	0,00
Tangibility	22295	0,25	0,18	0,23	-	0,86
Industry dividend pay-out ratio	22295	0,44	0,53	0,24	-	0,62
City	22293	0,50	-	0,50	-	1,00

Table 3: Summary Statistics T2

The below table depicts the main summary statistics of our main variables. The parameters are included based on their ability to easily give a quick overview of the data at hand.

Variable	N	Mean	Median	SD	Min	Max
Dividend Pay-Our Ratio	48 937	0,32	-	0,64	- 0,06	5,36
Profitability	49 049	0,10	0,09	0,13	- 0,23	0,48
Total Investments	49 049	0,01	-	0,06	-	0,43
Liabilities to Financial Institutions	49 049	0,07	-	0,13	-	0,60
Tax	48 782	- 0,35	- 0,39	0,23	- 1,63	0,64
R&D	49 049	0,00	-	0,01	-	0,08
CEO Salary	47 064	473 141,70	457 000,00	237 679,00	-	1 196 000,00
Leverage	49 049	0,57	0,59	0,21	0,10	0,95
Accounts Receivable	49 049	0,19	0,15	0,18	-	0,75
Accounts Payable	49 049	0,11	0,07	0,11	-	0,55
Depreciation	49 049	0,03	0,02	0,04	-	0,21
Payroll Expenses	49 049	2 662 247,00	1 700 000,00	2 955 714,00	51 000,00	16 400 000,00
Provisions	48 937	0,00	-	0,00	- 0,00	0,00
Tangibility	49 049	0,22	0,14	0,22	-	0,86
Industry dividend pay-out ratio	49 049	0,43	0,53	0,21	-	0,62
City	49 049	0,49	-	0,50	-	1,00

Table 4: Correlation Matrix

The below table displays the correlation matrix for the main variables of the dataset (due to the size of the table, the table had to be split in two. The results are still valid).

	Dividend Pay-Out Ratio	Profitability	Total Investments	Liabilities to Financial Institutions	Tax	R&D	CEO Salary	Leverage	Accounts Receivable
Dividend Pay-Out Ratio	1.0000								
Profitability	0.1560	1.0000							
Total Investments	0.0208	0.0599	1.0000						
Liabilities to Financial Institutions	-0.0596	-0.2140	-0.0554	1.0000					
Tax	-0.0870	-0.1487	0.0244	0.0141	1.0000				
R&D	0.0305	-0.0132	-0.0142	0.0308	-0.0293	1.0000			
CEO Salary	-0.0084	0.0902	0.0123	-0.0376	0.0050	-0.0197	1.0000		
Leverage	0.0401	0.0251	-0.1359	0.2829	-0.0904	0.0582	-0.0610	1.0000	
Accounts Receivable	-0.0009	0.0318	-0.1034	-0.1275	-0.0197	-0.0027	0.1399	0.1906	1.0000
Accounts Payable	-0.0253	-0.1890	-0.1165	-0.0659	0.0220	-0.0258	0.0006	0.3101	0.2218
Depreciation	0.0059	-0.1487	-0.0877	0.3090	-0.0470	0.1575	-0.0737	0.1306	-0.0339
Payroll Expenses	-0.0154	-0.0196	-0.0426	0.0441	0.0096	0.0010	0.4176	0.0505	0.2006
Provisions	0.0035	-0.0557	-0.0237	0.0771	-0.0921	0.0209	-0.0601	0.0087	-0.0360
Tangibility	-0.0249	-0.1819	-0.0862	0.5539	-0.0067	0.0803	-0.0615	0.0857	-0.2245
Industry dividend pay-out ratio	-0.0072	-0.0964	-0.0690	0.0369	0.0044	-0.0460	-0.0994	0.0419	-0.2061
City	0.0360	0.0722	0.0315	-0.0921	-0.0148	0.0267	0.0815	0.0299	0.0514

	Accounts Payable	Depreciation	Payroll Expenses	Provisions	Tangibility	Industry dividend pay-out ratio	City
Accounts Payable	1.0000						
Depreciation	-0.1019	1.0000					
Payroll Expenses	0.1012	-0.0081	1.0000				
Provisions	-0.0369	0.1134	-0.0572	1.0000			
Tangibility	-0.1884	0.5444	0.0234	0.1590	1.0000		
Industry dividend pay-out ratio	0.2768	-0.0601	0.0188	-0.0219	-0.0217	1.0000	
City	0.0008	-0.1046	0.0489	-0.0193	-0.1034	-0.0584	1.0000

Table 5: Selection of main factors

The below table depicts the different factors, and how they respond to our BIC selection. The development of the table has been done in accordance with the study of Frank and Goyal (2009). The first step in the development of the table is to run a regression with all factors included. The results on cumulative R^2 and BIC in column 4 and 5 are reported in the bottom line. We then report the coefficient value and the z-statistic, in column 1 and 2, based on the factor with the lowest z-statistic. Column 3 follows from a simple regression between the dividend pay-out ratio and the factor with the lowest z-statistic. After taking note of all the mentioned values, we remove the factor with the lowest z-statistics and repeat all the steps above until we are left with only one exploratory variable. The order in which the variables below are listed are the order in which they were kept in, meaning that accounts receivable was excluded first, and that research and development was the sole factor left.

Factor	Kofeffisent (1)	z-stat (2)	Own r2 (3)	Cumalative r2(4)	BIC (5)	% in random
Research and Developement	3,58	3,88	0,0012	0,0012	159560,60	43 %
Profitability	0,41	2,54	0,0024	0,0038	159400,10	86 %
Depreciation	1,75	2,82	0,0031	0,0072	159183,10	0 %
Tax	-0,18	-2,37	0,0029	0,0091	158393,50	100 %
Payroll Expences	0,00	-2,29	0,0081	0,0153	157989,40	0 %
Liabilities to fin. Institutions	-0,09	-1,11	0,0001	0,0155	157987,60	14 %
Total Investments	0,18	1,19	0,0001	0,0156	157989,50	14 %
Tangibility	0,15	1,47	0,0005	0,0159	157982,80	14 %
City	0,10	1,59	0,0001	0,0160	157985,70	14 %
CEO Salary	0,00	-1,96	0,0091	0,0177	151031,60	100 %
Industry average DPR	0,10	1,23	0,0001	0,0178	151038,60	29 %
Provisons	72920,12	2,08	0,0001	0,0178	151043,70	0 %
Leverage	0,09	0,29	0,0003	0,0182	151026,30	0 %
Accounts Payable	0,05	0,29	0,0000	0,0183	151035,80	0 %
Accounts Recivable	-0,03	-0,24	0,0000	0,0183	151046,20	0 %

Table 6: Test for structural break

The below table shows the regression for T2. The top number for each factor is the associated coefficient from the regression. ***, **, * : significant-level 1%, 5% and 10%. The number below shows the standard error for the factor.

R&D	-2,080893**
	(0,8224858)
Profitability	0,4252358**
	(0,2051795)
Tax	-0,0692838
	(0,0453496)
CEO Salary	0,00000035**
	(0,00000014)
Industry average DPR	0,1321904**
	(0,0547673)
Tax reform dummy	-0,6233973***
	(0,1309498)
R&D*Tax Reform dummy	3.0812***
	(0,9223712)
Profitability*Tax Reform dummy	-0,0146685
	(0,27601)
Tax*Tax Reform dummy	0,0454377**
	(0,1855977)
CEO Salary*Tax Reform dummy	0,00000011
	(0,0000001)
Industry average DPR*Tax Reform dumm	-0,2372912
	(0,0472226)
R2	0,1519
N obs	63708

Table 7: Selection of main factors T1

Factor	Kofeffisent (1)	z-stat (2)	Own r2 (3)	Cumalative r2(4)	BIC (5)	% in random
Provisons	-107733,10	-2,23	0,0002	0,0002	48520,21	50 %
CEO Salary	0,00	2,32	0,0023	0,0025	46101,92	100 %
Payroll Expences	0,00	2,19	0,0018	0,0036	46094,43	100 %
Leverage	-2,23	-2,99	0,0456	0,0541	45231,80	100 %
Total Investments	-0,16	-0,62	0,0000	0,0544	45231,80	0 %
Depreciation	-0,83	-1,85	0,0003	0,0549	45232,30	50 %
Tangibility	0,17	1,23	0,0002	0,0555	45230,76	0 %
Industry average DPR	0,52	2,04	0,0002	0,0557	45237,10	25 %
Tax	0,11	1,81	0,0007	0,0562	45238,24	50 %
Accounts Recivable	-0,28	-2,28	0,0005	0,0564	45243,94	50 %
Research and Developement	0,14	0,12	0,0000	0,0565	45252,52	25 %
Liabilities to fin. Institutions	-0,15	-1,23	0,0001	0,0566	45260,60	0 %
Profitability	0,17	2,71	0,0002	0,0566	45270,27	0 %
City	0,01	0,09	0,0000	0,0566	45279,96	25 %
Accounts Payable	-0,42	-1,39	0,0006	0,0566	45289,44	0 %

Table 8: Selection of main factors T2

Factor	Kofeffisent (1)	z-stat (2)	Own r2 (3)	Cumalative r2(4)	BIC (5)	% in random
Leverage	-0,65	-11,12	0,0296	0,0296	78653,68	100 %
Accounts Recivable	-0,28	-5,87	0,0021	0,0299	78650,55	20 %
Profitability	0,10	1,78	0,0003	0,0308	78615,34	80 %
Tangibility	-0,21	-4,43	0,0015	0,0313	78601,00	0 %
Liabilities to fin. Institutions	-0,27	-5,30	0,0013	0,0316	78594,14	40 %
Depreciation	-1,15	-3,46	0,0019	0,0319	78591,61	20 %
CEO Salary	0,00	2,55	0,0080	0,0345	74677,20	100 %
Total Investments	0,39	4,60	0,0006	0,0347	74678,62	20 %
Tax	0,07	1,45	0,0007	0,0351	74354,75	40 %
Payroll Expences	0,00	2,15	0,0043	0,0354	74349,78	0 %
Provisons	-42011,05	-2,27	0,0001	0,0354	74358,41	20 %
Industry average DPR	-0,08	-2,22	0,0002	0,0355	74368,22	0 %
City	-0,06	-1,44	0,0001	0,0355	74378,61	20 %
Research and Developement	-0,93	-1,32	0,0001	0,0355	74389,27	0 %
Accounts Payable	-0,51	-7,40	0,0030	0,0355	74399,94	20 %

Table 9: Core factors T1

The below table shows the regression for T1. The top number for each factor is the associated coefficient from the regression. ***, **, * : significant-level 1%, 5% and 10%. The number below shows the standard error for the factor.

Provisions	-168785,***
	(37829,8)
CEO Salary	0,00000088***
	(0,00000024)
Payroll Expenses	-0,00000017***
	(0,00000003)
Leverage	-2,399189***
	(0,7193285)
Depreciation	-1,108373**
	(0,4763534)
Tax	-0,09459313
	(0,0582738)
Accounts Receivable	-0,2422152**
	(0,1183566)
R2	0,0556
N obs	16852

Table 10: Core factors T2

The below table shows the regression for T2. The top number for each factor is the associated coefficient from the regression. ***, **, * : significant-level 1%, 5% and 10%. The number below shows the standard error for the factor.

Leverage	-0,6284316***
	(0,0367175)
Profitability	0,2035581***
	(0,0514775)
Liabilities to Financial Institutions	0,1065167 ***
	(0,0367278)
CEO Salary	0,00000022***
	(0,00000009)
Tax	0,0483135**
	(0,023127)
R2	0,0339
N obs	46808

Table 11: CCGR variable list

Item	Name
item_94	Liabilities to financial institutions
item_15094	Liabilities to financial institutions
item_9	Revenue
item_15009	Revenue
item_11	Total operating revenue
item_15011	Total operating revenue
item_91	Total provisions
item_15091	Total provisions
item_98	Total other long-term liabilities
item_15098	Total other long-term liabilities
item_87	Total equity
item_15087	Total equity
item_78	Total current assets
item_15078	Total current assets
item_75	Total Investments
item_15075	Total Investments
item_65	Account receivable
item_15065	Account receivable
item_63	Total fixed assets
item_15063	Total fixed assets
item_61	Total financial assets
item_15061	Total financial assets
item_51	Total fixed assets (tangible)
item_15051	Total fixed assets
item_44	R&D, Research and development
item_15044	Research and development (R&D)
item_41	Dividends
item_15041	Dividends
item_34	Tax on income
item_15034	Tax on income
item_35	Income before extraordinary items
item_15035	Income before extraordinary items
item_39	Net Income
item_15039	Net Income
item_16	Impairment,write-down of fixed assets and intangible assets
item_15016	Impairment write-down of fixed assets and intangible assets
item_15	Depreciation
item_15015	Depreciation
item_14	Payroll expense
item_15014	Payroll expense
item_114	CEO salary
item_15114	CEO salary
item_109	Total current liabilities
item_15109	Total current liabilities
item_108	Other short-term liabilities
item_15108	Other short-term liabilities
item_102	Account payable
item_15102	Account payable
item_11103	Industry codes at level two
item_505	Is city - Yes or No
item_503	Full county number
item_202	Number Of Owners (direct ownership)
item_14005	Number Of Personal Owners (ultmate ownership)
item_14002	Number Of Owners (ultmate ownership)
item_13601	Share owned by CEO (direct ownership)
item_113	Number of employees
item_15113	Number of employees
item_13405	Number of employees
item_13421	Fundation year
item_14009	Number Of International Owners (ultmate ownership)
item_14010	Number Of Industrial Owners (ultmate ownership)
item_17002	Listing status on Oslo Børs or Oslo Axcess (1=listed, 0 other)
item_14503	Is Parent (ultmate ownership)
item_14504	Is Subsidiary (ultmate ownership)
item_14507	Is Independent (ultmate ownership)

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Master Thesis

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MSc

Preliminary Thesis

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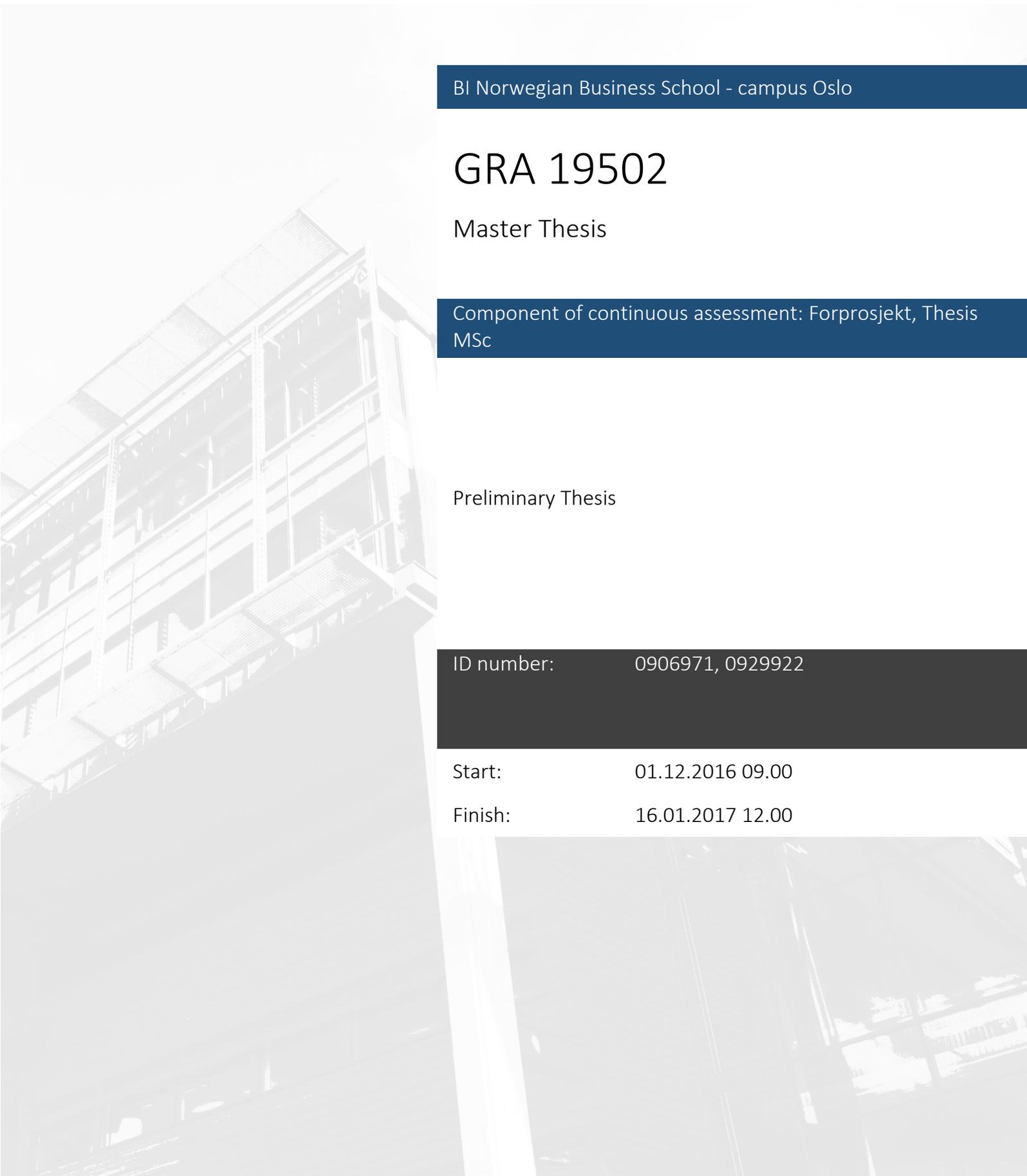Start: 01.12.2016 09.00

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1.0 Introduction

1.1 Motivation

Capital structure is an important part of any business, be publicly traded or privately held. Capital structure can enable or deter companies from achieving their goals, and needs to be closely monitored by management. The field of capital structure has been subject to many studies throughout the years, and a crucial part of many economic-related educations. Despite of the large amount of research, most of the studies conducted are on foreign companies, usually located in the US. This forms the basic motivation as to why we have chosen the subject at hand. We want to investigate the subject with regards to the Norwegian market, which would be the most relevant approach to the subject, given our Norwegian background. We want to investigate the subject by making use of renowned theories developed within the field, and put these theories to the test on a Norwegian case.

In addition to the research field being interesting in itself, we want to focus our efforts towards the renowned tax reform that took place in 2006. The reform will be addressed in-depth later in this paper, but the main aim was to avoid income shifting taking place in Norwegian businesses following the difference in tax levels between labor income and capital income. In our thesis, we want to investigate the long-term effects of this tax reform on capital structure and dividend policy.

Our preliminary thesis has been developed with a short introduction to the mentioned tax reform with the aim of creating a summary of the most important aspects. Following the introduction, we want to give a literature review of the research done in the research field with the aim of identifying potential knowledge gaps that would need investigation. Based on the knowledge gap we want to development our research question and hypotheses. In order to conduct our analysis, we will discuss our choice methodology and how we are going to collect data.

1.2 Background

Before moving on with an explanation of the 2006 tax reform, it is necessary to investigate the situation that lead to the reform. Without an understanding of the past, one cannot hope to fully grasp the changes that have occurred and why this is.

The previous system in place in Norway originated from a reform undertaken in 1992, commonly referred to as the "dual income tax" or the "Nordic tax system", since it was first implemented in the Nordic countries Denmark, Sweden, Finland, and Norway. This system operated with two different tax rates for income depending on how the income was generated. In general income from capital was taxed with a low, flat, rate, while labor income was taxed with a progressive rate (Alstadsæter, 2006). The main idea behind the reform was to lower the general tax rates and at the same time expanding the potential tax base. The dual income tax system could provide incentives for business owners to shift income from ordinary labor income, to dividends which was subject to a lower, flat, tax rate. Given the obvious benefits of income shifting, not committing to his would be irrational from an economic point of view.

In order to counter some of the effects following the dual income tax system, the split model was introduced. The model laid down regulations as to how companies could classify the income and dividends distributed to its owners. The main point of the split model was how the ownership were distributed. If the company was closely held, meaning that ⅔ or more were held by an active owner, working more than 300 hours annually, the income would always be treated as labor income regardless of the dividends policy of the company. In order to classify dividends as capital gains, hence subject to the low, flat, tax rate, the company in question had to be widely held, meaning that more than ⅓ of the shareholders were passive (Alstadsæter, 2006).

In order not to deter investors from investing in companies in which they own more than ⅔ as an active owner, the imputation system allows for some deviations from the split model. A small amount, equal to the value of the capital assets multiplied by a rate of return decided upon by the Parliament, was to be allowed considered as capital gains under the tax rates associated. In practice, this meant

that one would be as well of as if one had invested in another company which had financial results equivalent to that of the previously mentioned rate. As a result this could lead to artificially high book values, due to investments made in companies with the sole purpose of raising the book value in order to maximize the dividends made possible by the imputation rate (Alstadsæter, 2006).

The above described differences lead to an, at times immense, incentive for income shifting from labor income to capital income, and surveillance in order to deter this from happening would be highly costly (Sørensen, 1994). This was one of the most dominant criticisms of the dual income tax system, and played a role in the development of the 2006-reform.

1.3 Tax Reform 2006

The 1992-reform had obvious flaws, which lead to the mentioned "income-shifting-problem". As stated by the Parliament, the 2006-reform was introduced as a solution with the primary objective to ensure a more "fair" taxation of income (Ministry of Finance, 2005). The main aim was to close the difference between capital income and labor income, which had increased to 33,5 percentage points in 2005 (Ministry of Finance. 2005). The parliament appointed a committee, led by Arne Skauge, to developing suggestions to a new tax reform. The Skauge committee highlighted a need for a more predictable taxation system. The committee's recommendations would later play a significant role in the development of what became known as the shareholder model, which was applied in the reform (St.meld.nr.29, 2004).

The main elements of the shareholder model were to ensure that the possibility of income shifting appeared less attractive than before. This was done by applying double taxation on dividends, as well as lowering the existing progressive income tax, making sure that the difference was as small as possible (Ministry of Finance. 2016). Double taxation on dividends was achieved by applying a corporate tax on profits, as well as a shareholder tax on dividends. In order to ensure continued incentive for investing in companies, an allowance was given on dividends, equal to the yield of a perceived risk-free investment. The incentive is supposed to counter the opportunity cost associated with a risk-free investment, such as

government bonds. The development from 2006 to today has seen a decline in in this premium, which is closely linked with the falling key interest rate, and the allowance in 2015 was at a mere 0.6 percent (The Norwegian Tax Administration, 2015). If the allowance is not used, it can be carried to upcoming years. The Parliament viewed the 2006-reform superior to the 1992-reform, since the allowance would allow for smaller dividends not to be affected by the change. The allowance would ensure that only so-called "high dividends and capital gains" would be affected, and thus not deter investors from investing. However, as has been pointed out, the reform did not totally abolish the difference in taxation, but compared to the 1992-reform, it was considered a significant improvement (Ministry of Finance, 2016).

The shareholder model would allow for a continuance of the main ideas of the already existing dual income system, meaning that the main principles of capital being invested where it the most benefits the society would still be practiced. In addition the general population would not experience much of a difference, except the lower progressive tax-level.

The goal of the 2006-reform was to decrease the difference between labor income tax and dividend tax. Part of this goal was achieved by increasing the tax on dividends, while at the same time lowering the labor income tax.

2.0 Literature Review

In order to conduct a thorough analysis of the subject at hand, it is necessary to investigate the existing literature already available. The aim of the literature review is to investigate if there are any leading theories within the subject of capital structure, and give summary of these, as well as present empirical evidence already available. By doing so, this paper will not only educate the reader of capital structure, but also inform on what theories that are commonly accepted as the most renowned. By applying certain search-techniques we have uncovered some theories we want to pursue further, and these are presented in the paragraphs below.

2.1 Modigliani and Miller

Franco Modigliani and Merton Miller (1958) are considered to be the founding fathers of the study of capital structure. Their well-renowned article *The Cost of Capital, Corporation Finance and the Theory of Investment* concluded that the capital structure would have no effect when determining the value of a firm. They found that the only determining criterions were maximization of profits and maximization of market value. However, their theory are built on certain assumptions that might not hold true in the real world, such as the assumption of efficient market and the absence of tax.

The assumptions in Modigliani and Miller's paper were not fully compatible with the real world. In 1963 they constructed a second paper, *Corporate Income Taxes and the Cost of Capital: A Correction*, which addressed the unlikelihood of a no-tax economy. The slacking of the no-tax assumption allowed for investigation of the advantages associated with holding debt in a company, known as the "tax-shield". This new approach lead to a different conclusion on what would be an optimal capital structure. Where the capital structure before was viewed as irrelevant, the capital structure should now be financed entirely through debt. This new approach did not address the other assumptions associated with their first theory, neither did it account for obvious drawbacks in a scenario with 100 percent debt financing, such as the effects of financial stress on company performance. The development of the so-called "tax shield" is fairly similar to what would later be known as "Trade-off theory", further developed by Kraus and Litzenberger (1973). Trade-off theory suggests that in order to find the optimal capital structure there exists a trade-off between the tax-benefits of debt and the cost of bankruptcy, which could be said to take into account the above mentioned scenario of a completely debt-finance company. These findings has generated general principles of capital structure and formed the basis for further research.

2.2 Pecking Order Theory

A central theorem within the study of capital structure, is the *Pecking Order Theory,* refined by Myers and Majluf (1984). The main findings in the article is that companies have a "pecking order" when it comes to different sources of financing. A company would for instance prefer internal financing over external

financing, such as retained earnings over debt. Further down on the pecking order, companies would prefer debt over equity, where equity means issuing new shares. The reason for this priority is the knowledge gap, or an information asymmetry, between the managers in the company, and the investors outside of the company. Stemming from that the asymmetry is known to both parties, the external investors will want a reduction in the share price in order to provide equity to the company. The implied cost of a reduction in share price is the reason as to why this is the least preferred method of financing. The theory builds upon certain assumptions, some more likely than others. The assumption of information asymmetry comes from the three possible objectives of management identified by Myers and Majluf (1984);

- Management acts in the interest of *all* shareholders, and ignores any conflict of interest between old and new shareholders
- Management acts in old shareholders' interest, *and* assumes they are *passive*
- Management acts in old shareholders' interest, but assume they rationally *rebalance* their portfolios as they learn from the firm's actions

The combination of the information asymmetry and the different possible objectives of the management, may cause a situation of distress internally in the company, as well as causing external insecurity of the profitability. Since well performing companies are perceived to have a higher rate of retained earnings, the relationship between performance and debt are said to be negatively dependent upon each other. The goal of achieving financial independence through retained earnings, can be achieved through financial slacking. The authors suggest both replacing dividends with retained earnings, or to issue new shares in times with high degree of information symmetry.

2.3 Capital Structure Decisions

Developed from the works of Modigliani and Miller (1958) as well as Myers and Majluf (1984), Frank and Goyal (2009) developed the paper "*Capital Structure Decisions: Which Factors are Reliably Important?"* concerning decisions regarding capital structure in publicly traded, American, firms. They examined

different factors that previous research suggested could impact the capital structure decisions in publicly traded firms. From the factors expected to have an impact, they arrived at six factors that they argued provided a solid base of explanation of their data. The six main factors were;

- Firms that compete in industries in which the median firm has high leverage tend to have high leverage
- Firms that have a high market-to book ratio tend to have low levels of leverage
- Firms that have more tangible assets tend to have more leverage
- Firms that have more profits tend to have less leverage
- Larger firms (as measured by book assets) tend to have high leverage
- When inflation is expected to be high firms tend to have high leverage

In addition to the above mentioned factors, Frank and Goyal (2003) also found evidence that further supports the findings in the pecking order theory, being the negative correlation between dividends and leverage. Companies that pay dividends are perceived as more "healthy", and thus has a lower leverage. Despite this, Frank and Goyal maintains that the most important, single, factor is the leverage observed in the different industries.

Furthermore, they argue that the industry specific leverage can be explained by the earlier mentioned trade-off theory, in addition to the theory explaining several of the other six, core, factors in their model.

2.4 Norwegian Studies

In common for the previous discussions of theories and the articles of Frank and Goyal, is that they are focused on foreign, usually listed, companies. Annette Alstadsæter is one of the leading authors within the research on capital structure and dividends in Norway, related to the 2006 tax reform. She has conducted studies before and after the reform, and her publications are some of the very few that targets the Norwegian case. She investigates the taxation on dividends and how this affects the capital structure in private Norwegian firms, both through income shifting and leverage.

In 2006 she published an article called *The Achilles Heel of the Dual Income Tax -
The Norwegian Case* which discussed the flaws of the 1992 tax reform. The
article found evidence that self-employed could make use of real capital
investments to shift the tax base in which their income was taxed. She also found
concrete examples on how to avoid taxation under the split model, the main
example being one of passive ownership in each other's firms. The conclusion of
the article mentions the upcoming 2006 tax reform, and that this reform will target
the problems mentioned in her article. Hence, the article can be said functioning
as a stepping stone for her later research.

In 2009 Alstadsæter, together with Fjærli, published an article that closely
investigated the effects of the 2006 tax reform in Norway on non-listed
companies, partly building on her previous works. The article has over the years
functioned as a leading article as to what effects the 2006-reform had, and was
conducted amongst more than 75.000 Norwegian non-listed companies in the time
period 1999-2006. The main focus of the article was to investigate the
development in dividend policy and capital structure, and to identify possible
trends. The article presents three main findings;

- A strong time effect on dividend payments which was evident through the
  82 percent increase in dividends the last year before the reform, as well as
  a decrease of 41 percent the first year after.
- Support of a life-cycle view of corporations, meaning more mature
  companies, older than 10 years, are more likely to pay out dividends.
- Intertemporal shifting of income through the timing of dividends may
  increase the debt-equity ratio

These findings are done over a limited time window, and with limited amounts of
data following the new reform. Hence, the authors themselves point out that this
might limit the value of the article to some extent. The article concludes with
naming concrete suggestions for further research, some of which will be discussed
later in this paper, under identification of a possible "knowledge gap".

2.5 Knowledge Gap

There are several theories and articles investigating capital structure theories and factors that determine the capital structure. Most of the previous research has been done related to American listed firms. Myers and Majluf examined listed companies and focused on different states of information asymmetry and their effect on share prices. They also considered how firms chose to different types of financing according to the degree of information symmetry. In private firms, this information asymmetry will not occur in the same way, since the companies are not listed.

Frank and Goyal's six factors are, as well, only tested on American public listed firms, and offers no indication as to how these factors might apply to Norwegian firms (naturally). In general, there has been done little research on factors influencing capital structure in private Norwegian firms. The research that has been done, has been carried out by Alstadsæter and Fjærli. They do in fact touch on the theories mentioned above, and could thus be said to contribute with research to the Norwegian scene. However, this does not mean that there exists extensive data on the topic, quite the contrary. The small amount of data that exists where done close to the 2006-reform, which means that any findings cannot fully be conclusive as to say that there has been a possible permanent change in the capital structure and dividend policy of small and medium sized Norwegian privately held companies.

In our opinion, there is a knowledge gap in the field of capital structure and dividend policy in privately held Norwegian firms, due to the lack of recent studies. Our goal is to examine the effects of the 2006 tax reform in this area. We also want to find out whether the classical theories can be adapted to privately held Norwegian firms, or if there is a need to develop theories specific for our area.

3 Research Question and Objective

3.1 Research Question

The research question will limit the thesis to the mentioned field of study. Our main objective for this thesis is to uncover the long-term effects on capital structure and dividend policy in privately held Norwegian companies, and our research question is as follows:

What where the long term effects of the 2006 tax reform on capital structure and dividend policy in privately held Norwegian companies?

3.2 Research Question Limitations

Our research question and objective limits our thesis to some extent. For instance, we have specified that the main focus will be on small and medium firms, meaning that larger, privately held, firms will most likely be excluded. The reason behind this is that many of the largest companies in Norway are privately held, and their size make income shifting less approachable (Alstadsæter, 2006). The difference amongst these few, big, privately held companies and the majority of smaller companies appear to us as rather significant. This exclusion will not damage the thesis in any considerable way, given that most companies can be considered small or medium, with 95 percent of companies (with employees) having between 1 to 49 employees (Statistics Norway, 2016).

The 2006 tax reform is a natural "breaking point", given the change in jurisdiction. We therefore find it natural to divide our studies into two different time frames; before and after the reform. By doing so we will achieve a longer, and more reliable outcome than what has been the case in previous studies. Since our data have yet to be collected, we cannot at the current time give a precise time period, but it will be in the interest of the thesis to extend this period as close to today as possible in order to strengthen the relevancy of the thesis.

We have not limited our thesis to any geographical differences, besides limiting ourselves to Norway. This does not mean that we will not do this later in the development of the actual thesis. If we find it useful, it can be imagined that we

want to pursue differences across Norway, or across differences in location of the company, such as cities versus less urban areas.

The 2006-reform was mainly meant to affect individuals or companies that permanently reside in Norway, and could possibly make use of income shifting. We therefore find it natural to exclude shareholders that permanently does not reside in Norway. This selection of data will take place when the datasets needed have been collected, and we will therefore not discuss this further at the current time.

3.3 Possible Hypotheses

According to Alstadsæter and Fjærli (2009), there was a distinct difference in capital structure and dividend policy as an effect of the 2006-reform. However, as mentioned, the study was conducted closely to the reform, and suffered from a lack of long term data. Thus, our first hypothesis are as follows;

H1: The average dividend payments are lower after the 2006-reform, in the long run, than what was the case before the reform.

According to the theory of Pecking Order, companies have preferences in how they want to finance their business. The most preferred source of funding is from retained earnings. However, as Alstadsæter and Fjærli points out in their study, following the 2006 tax reform was a sharp increase in the debt-equity ratio amongst the investigated firms. This is only natural given that the new ruleset would tax dividends harder, and thus owners of companies would want to swap retained earnings for debt. However, in the long run, pecking order theory would argue that retained earnings once more would grow, given that this is the most preferred source of funding. Our second hypotheses are therefore as follows:

H2: The capital structure, in the long run, will resemble that of the capital structure before the 2006 tax reform.

Based on the study undertaken by Frank and Goyal (2003), there seems to be some factors that are more important than others in deciding capital structure. The main important factor were industry specific capital structure, followed by five

more "supporting" factors. Even though the dataset on which this study was conducted differs significantly from the data set this thesis is intended to use, we cannot rule out the possibility that some of the factors identified might apply to our dataset as well. We therefore want to investigate this further, and will do so by proposing the following three hypothesis;

H3a: The capital structure of companies depends on the industry in which they operate

H3b: Profitability is negatively correlated with leverage

H3c: Companies with a large asset-base will have a higher debt-equity ratio

4.0 Methodology, Data Collection and Progression

4.1 Methodology

The objective of the thesis constitutes that the focus should rely on quantitative data and quantitative techniques. We want to examine a large dataset, and try to identify tendencies among different firms. The biggest upside by applying a quantitative approach is that the external validity will be high. Any findings uncovered will most likely be of relevance, to some degree, to similar scenarios and research fields. The drawback, on the other hand, is that the internal validity will suffer to some extent. This due to the fact that no single company will be investigated in-depth. However, given the nature of the field at hand, the advantages of a quantitative approach outweighs the disadvantages.

As for which quantitative techniques that will be applied, regression techniques are preferred at the moment. When we start analyzing the dataset, other techniques might present themselves as more favorable, but if this is the case or not will have to be assessed after investigating the dataset. The software in which we plan to conduct most of the statistical and econometric analysis are Stata. Once again, this is not to say that other software not will be used, but at the current time Stata presents itself as the software of choice.

Given the extent of our research-scope and our methodology, we will want to make use of secondary data. We plan to investigate a considerable number of

firms over a large time span. Secondary data are data collected by others than the researchers themselves. By making use of secondary data, we will ensure that the external validity of this thesis is satisfying, and in accordance with the previous mentioned research methodology and technique.

4.2 Data Collection

In our thesis we will use accounting data on privately held Norwegian firms to conduct our analysis. Private firms are generally not obliged to publicly disclose financial information to the same extend as public firms, but according to Norwegian accounting rules, they are still imposed to send financial statements to the authorities. This is one of the main reasons why there has been conducted little research on private firms. We therefore must rely on data collected by agencies that have access to these non-public data. Center for Corporate Governance Research at BI Norwegian Business School will provide us data from the CCGR-database. Through this database we will access data from the periods before and after the 2006 tax reform. We will request data on accounting numbers, industry codes, geographical location and ownership structure, as these are the most relevant variables to our analysis.

4.3 Thesis Progression Plan

The deadline for the thesis are 1st of September 2017. This gives us a scope of nine months to develop the thesis. In order to ensure an efficient use of the time at hand, we have developed a progression plan. We want to stress that at the current time this is only a plan and deviations from the plan may occur. This is also the reason as to why we do not want to operate with specifics dates, but operate with somewhat larger time-intervals. The initial plan is as follows:

January: Complete Preliminary Thesis Report. Apply for access to the CCGR-database.

February: Review existing literature and compare with the data we have received. Start assessing the data from CCGR-database, and begin with the quantitative analysis.

March: Continue our quantitative analysis.

April: Finalize the first draft of thesis.

May: Review feedback on first draft, and adjust accordingly.

June - September: Finalize thesis.

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