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The real effects of Norway's wealth tax policy

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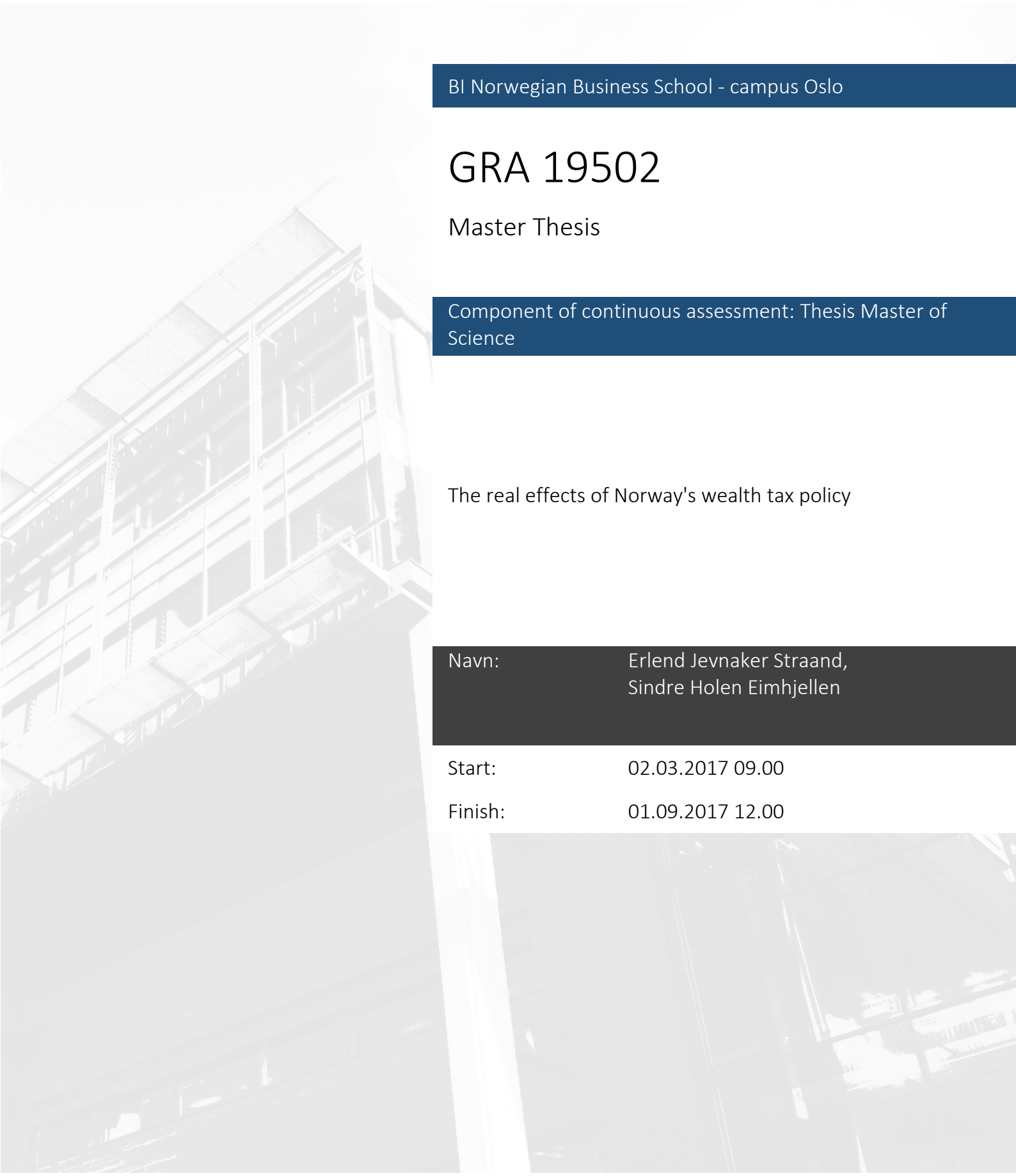

Acknowledgment

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Abstract

Norway is one of the few countries in the world that still has taxation on wealth. Even though the tax is incremental in size, the policy is much debated in the media and there are strong conflicting opinions on the effects of this tax policy. The aim of the thesis was to analyze the effect changes in Norway's wealth tax policy has on company investments and firms' decisions to enter or exit the market.

Analyzing effects of a policy change, is best covered using a quasi-experimental research design. Therefore, we have applied regression analysis and difference-in-differences technique as the main method for data analysis.

The regression results imply that small firms' investment opportunities are negatively affected by Norway's wealth tax policy. More specifically, we found that investments in fixed assets are the main driver of effect on investments caused by a change in the wealth tax policy. Furthermore, our results imply that firms' decisions to enter or exit the market is unaffected by the wealth tax policy.

1 Introduction

1.1 Outline

In the first chapter, the thesis topic is introduced, as well as our motivation for choosing the topic and the problem that will be analyzed. Chapter two includes an overview of the Norwegian tax system and how the wealth tax fits in to this. Moreover, the chapter displays the development of the wealth tax in Norway in recent years, as well as the political discussions about this tax. The third chapter presents a literature review on wealth tax, consisting of the most relevant articles, as well as international and national research on the topic. Chapter four introduces the procedure for data collection and variables used in the thesis. The fifth chapter describes the methodology behind the chosen methods for data analyses and the assumptions that follows. All analyses are presented in chapter six, where the research questions are analyzed through various methods of data analysis. Furthermore, the last chapter includes a summary of the main findings, conclusive arguments and recommendations for further research on wealth tax.

1.2 Motivation

In this master thesis, we have decided to do empirical research on Norway's wealth tax policy, to investigate if it affects company investment, exit or entry. The wealth tax has been changed several times, which makes Norway an ideal setup for such an analysis. There are many strong opinions on the topic, but little empirical research, which makes it interesting for us. Wealth tax is an important political subject, as the main political parties in the Norwegian parliament are divided in their opinions on this tax. Consequently, Norway's wealth tax policy has been a regularly debated topic in politics and in the media.

Many economists argue that taxation on wealth is counterproductive, as it results in double taxation, penalize success, decrease savings and investments, lower firm entry, and increase the firms risk of bankruptcy. Some even believe it incentives usage of corruption and tax havens (Eikeland, 2013). Professor Gernot Doppelhofer states that wealth tax leads to lower investments by small and medium-sized firms, as it forces the investors to use dividends to pay wealth tax, instead of investing them (Stranden, 2016).

The Confederation of Norwegian Enterprises (NHO) wants to withdraw the wealth tax, as they claim it slows down the wealth creation in the society (NHO 2014). Kristin Skogen Lund, director general of NHO, argues that the rich people already pay a substantial amount of tax through the companies they own as well as tax on dividends from these companies. In Norway, the opponents of the wealth tax argue that the different valuation of asset classes stimulate investments based on tax advantages rather than on gross investment returns. Another argument that is pointed out, is that the wealthiest inhabitants will leave the country as a direct consequence of the wealth tax. This causes not only loss in income for the government, but also loss of creativity and job creators. It is also argued that wealth tax is making Norwegian-owned companies less competitive and incentivizes them to look for growth and investment opportunities abroad. Especially, a concern has been voiced that the wealth tax has negative effects on small business owners.

Norway's wealth tax policy has recently been subject to criticism due to large differences in the valuation between asset classes. Jarle Møen, professor at Norwegian School of Economics, argues that some kinds of wealth are valued too low for tax purposes relative to others. Especially, primary residence and non-listed stocks (Stranden, 2016). Hence, the tax rules lead to large differences on taxation of wealth between business owners with equally real wealth.

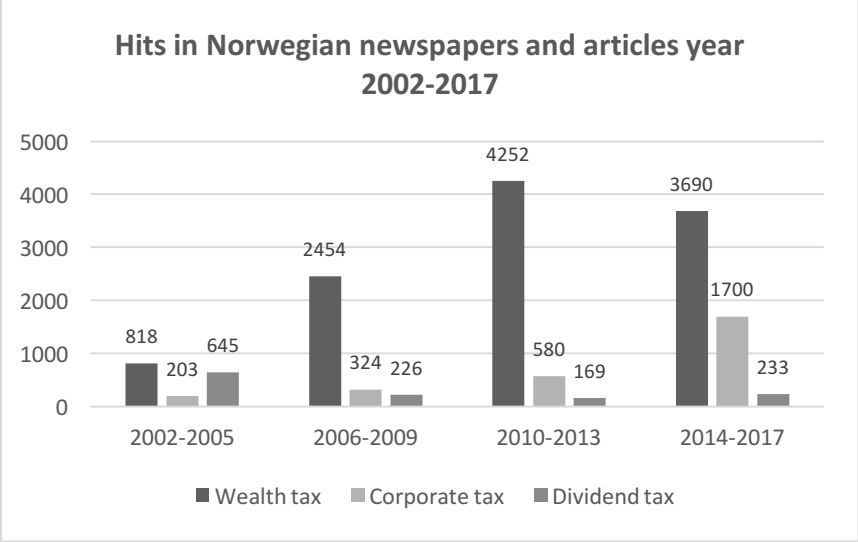
The advocates for Norway's wealth tax policy argue that the tax helps reducing wealth inequalities and that the tax has little negative effect on firms' savings and investments (Grünfeld, Grimsby & Theie, 2015). Further, they state that wealth tax is an important tool to maintain a progressive taxation of individuals in relation to their wealth.

Apart from Norway, there are few OECD-countries that still use wealth tax. Examples of such countries are Italy, France, Spain and Switzerland. In 1995, Austria and Denmark abolished wealth tax, while Germany removed it in 1997. More recently, Finland and Luxembourg withdraw the tax in 2006, and lastly Sweden in 2007. Iceland temporarily reintroduced the tax from 2010-2014 as a measure to stabilize the economy after the financial crisis. Spain abolished the tax in 2009, but reintroduced it in 2012, as an emergency economic measure (OECD,

2012). In France, the threshold for the lowest wealth tax percentage of 0.5% starts at EUR 0.8 million, which is approximately NOK 7.4 million (Anglo Info France, 2017). This is roughly five times higher than the Norwegian threshold. Spain has a similar wealth tax setup as France, with an initial threshold of EUR 0.7 million (Expactica, 2017). Also, Iceland has a threshold limit starting at ISK 75 million, which is approximately NOK 5.6 million (Ministry of industries and Innovation, 2017).

As a consequence of conflicting opinions, wealth tax has become a controversial and highly debated topic in Norway. According to the digital database, A-tekst (2017), "formuesskatt" (wealth tax) has been mentioned considerably more than for example "selskapsskatt" (corporate tax) and "utbytteskatt" (dividend tax) in Norwegian newspapers and articles, in the last decade.

Table 1.2: Historical overview of the number of hits in Norwegian media.



Source: A-tekst (2017)

1.3 Problem statement

We have chosen to do an empirical analysis on Norway's wealth tax policy. The problem statement is the following:

Does Norway's wealth tax policy affect Norwegian firms' ability to invest, and does it affect the entry or exit of firms?

The opponents of the wealth tax argue that the tax negatively affect firms' ability to invest and grow. Hence, we will test this empirically. Growth of firms and firms' investments are very important macroeconomic determinants that affects a country's economy. To analyze the problem statement, we have developed several research questions that need to be investigated individually.

1. *Based on company size, are there significant differences in how Norwegian companies are affected by Norway's wealth tax policy?*

One of the arguments from the wealth tax opponents in Norway, is that the tax undermines small business owners' willingness to invest. Consequently, we want to investigate how small businesses are affected by the wealth tax policy in relation to larger companies. This is an empirical question that we want to investigate.

2. *Does Norway's wealth tax policy affect Norwegian companies' willingness to invest and grow?*

A main argument against wealth tax is that it reduces investment made by corporations. Investments by firms are regarded as important for economic growth in a country. Whether or not the wealth tax policy impacts firms' investments, is an empirical question which we will investigate.

3. *How are Norwegian firms' different investment categories affected by changes in the wealth tax policy?*

This research question is linked to the previous one. If firm investments are affected by changes in wealth tax, it is interesting to analyze which investment categories that are affected. Firms takes several investment decisions, either they are directly or indirectly linked to operations with a short-term or long-term perspective. If some investment categories are affected more than others by changes in the wealth tax, is an empirical question which we will explore.

4. *Does Norway's wealth tax policy affect Norwegian entrepreneurs' willingness to establish a new company?*

An argument against wealth tax is that the tax affects the growth rate of new firms. Growth of new firms is perceived as important for economic growth and

innovation in a country. Whether or not wealth tax affects the growth rate of new firms is an empirical question which we will investigate.

5. *Does Norway's wealth tax policy affect Norwegian entrepreneurs' decision to exit the market?*

Some argue that the wealth tax negatively affects firms' survival opportunities in an competitive market. Hence, we also want to investigate if wealth tax has any effect on the number of firms exiting the market.

1.4 Purpose of the thesis

All conflicting arguments and opinions make Norway's wealth tax policy an interesting topic for us to study. The purpose of the research is to find out if wealth tax negatively affects investments by corporations and firms' decisions to enter or exit the Norwegian market. We hope to provide valuable contributions to the research on the wealth tax policy. Valid conclusions of this research will not only be of interest for academics, but may also provide valuable insights for the policy makers.

2 Theory

In this chapter, we present the fundamentals of tax and wealth tax. Furthermore, this chapter includes an overview of the wealth tax development in recent years as well as the political discussion surrounding the wealth tax and its development in Norway.

2.1 Tax

The government is dependent on tax to provide the welfare state with public goods and services. Meeting national budgets require complex calculations regarding tax, as individuals and corporations are committed to follow different taxing laws. The Norwegian Ministry of Finance (2016, 1) states in the national budget that *"Taxes should be structured to promote high output and efficient resource allocation"*. The challenge is to find a balance that meets national budgets, while keeping administrative costs as low as possible. The tax system also functions as a stabilizer of the economy by the fact that people pay more tax during economic upturns and less during downturns. Moreover, we can distinguish between direct and indirect taxes, where the direct tax includes income tax, wealth tax and recurrent tax, while the indirect tax consists of value-added tax, exercise duties and custom duties (Royal Ministry of Finance, 2016).

In Norway, the labor income tax is progressive. This means that the higher the income, the higher the labor income tax. However, for the richest individuals in Norway, capital income is much larger than labor income. The capital income tax is flat. Hence, the government does not manage to progressively tax the wealthiest in the country through the capital tax. Therefore, one of the intentions of the wealth tax is to make sure that the wealthiest will be progressively taxed.

2.2 Norway's wealth tax policy

Wealth tax is *"a tax which is assessed on the basis of your net wealth"* (Skatteetaten, 2017). The wealth tax is calculated as a percentage of an individual's net worth; assets minus liabilities, which determines the payable amount to the municipality and the state. This tax functions as supplement of the

income tax, contributing to a more progressive taxing system. Since wealth is unequally distributed in the society, the wealth tax has a redistributive effect, taxing the wealthiest population.

In Norway, the wealth tax is paid to the municipality and to the state by individual tax payers. Therefore, this tax is not payed directly by firms, but through the owners. When the firm owners' wealth exceeds the tax-free allowance, they are forced to use firm capital to fund the extra tax payment.

2.3 Development of Norway's wealth tax policy

The wealth tax policy in Norway has been changed several times over the last years, with increasingly higher threshold and a lower tax percentage in 2014 and 2015. Hence, less and less people are affected by the tax. In 2005, 33% of the population paid wealth tax, and in 2011 the number had decreased to 17%. The Norwegian government predicts that around 12% of the population must pay wealth tax today (2017). As of 2017, the municipal wealth tax is 0.7% and the state wealth tax is 0.15% (total of 0.85%) with a tax-free allowance of NOK 1 480 000 for individuals and NOK 2 960 000 for couples (Skatteetaten, 2017). In 2016, the Norwegian state and municipalities had a wealth tax income of NOK 13.8 billion (Grande & Oterholm, 2017). In 2014, this amount was NOK 15.3 billion (in today's value), equivalent to about 1% of the total tax income for the Norwegian government (Christensen, 2017).

In table 2.3 we see how the wealth tax policy has changed since year 2000 until year 2017. The largest part of the wealth tax is distributed to the municipality. This rate has been flat at 0.70% for the whole time-period. The state wealth tax was divided in two parts until the end of 2008. It consisted of a 0.2% tax for net income between threshold 1 and threshold 2 and 0.40% tax on net income exceeding threshold 2. Threshold 1 was removed in 2009. In 2014, the tax rate for state decreased by 0.10 percentage points to 0.30%. In the next year, it was further reduced to 0.15%. This reduced the total wealth tax percentage to 0.85%. Since then, the tax percentage has been unchanged, as we can see from year 2016-2017.

Table 2.3: Wealth tax policy development for year 2000-2017. This table assumes individual tax payers in tax class 1. Threshold represents the tax free allowance of net income.

	Municipality		**State**			
Year	**Threshold**	**Rate**	**Threshold 1**	**Rate 1**	**Threshold 2**	**Rate 2**
2000	NOK 120 000	0.70 %	NOK 120 000	0.20 %	NOK 540 000	0.40 %
2001	NOK 120 000	0.70 %	NOK 120 000	0.20 %	NOK 540 000	0.40 %
2002	NOK 120 000	0.70 %	NOK 120 000	0.20 %	NOK 540 000	0.40 %
2003	NOK 120 000	0.70 %	NOK 120 000	0.20 %	NOK 540 000	0.40 %
2004	NOK 120 000	0.70 %	NOK 120 000	0.20 %	NOK 540 000	0.40 %
2005	NOK 151 000	0.70 %	NOK 151 000	0.20 %	NOK 540 000	0.40 %
2006	NOK 200 000	0.70 %	NOK 200 000	0.20 %	NOK 540 000	0.40 %
2007	NOK 220 000	0.70 %	NOK 220 000	0.20 %	NOK 540 000	0.40 %
2008	NOK 350 000	0.70 %	NOK 350 000	0.20 %	NOK 540 000	0.40 %
2009	NOK 470 000	0.70 %	-	-	NOK 470 000	0.40 %
2010	NOK 700 000	0.70 %	-	-	NOK 700 000	0.40 %
2011	NOK 700 000	0.70 %	-	-	NOK 700 000	0.40 %
2012	NOK 750 000	0.70 %	-	-	NOK 750 000	0.40 %
2013	NOK 870 000	0.70 %	-	-	NOK 870 000	0.40 %
2014	NOK 1 000 000	0.70 %	-	-	NOK 1 000 000	0.30 %
2015	NOK 1 200 000	0.70 %	-	-	NOK 1 200 000	0.15 %
2016	NOK 1 400 000	0.70 %	-	-	NOK 1 400 000	0.15 %
2017	NOK 1 480 000	0.70 %	-	-	NOK 1 480 000	0.15 %

Source: Skatteetaten (2017)

When it comes to the threshold, it has been subject to several changes. After a flat period until 2005, the Government decided to increase the municipal tax-free allowance to NOK 151 000. This threshold was further increased in the years after, while the threshold for the state tax remained at NOK 540 000. This trend kept on until year 2009, where a decrease in threshold for the state tax made the tax rules simpler, as the threshold since 2009 has been the same for both the state and municipality tax.

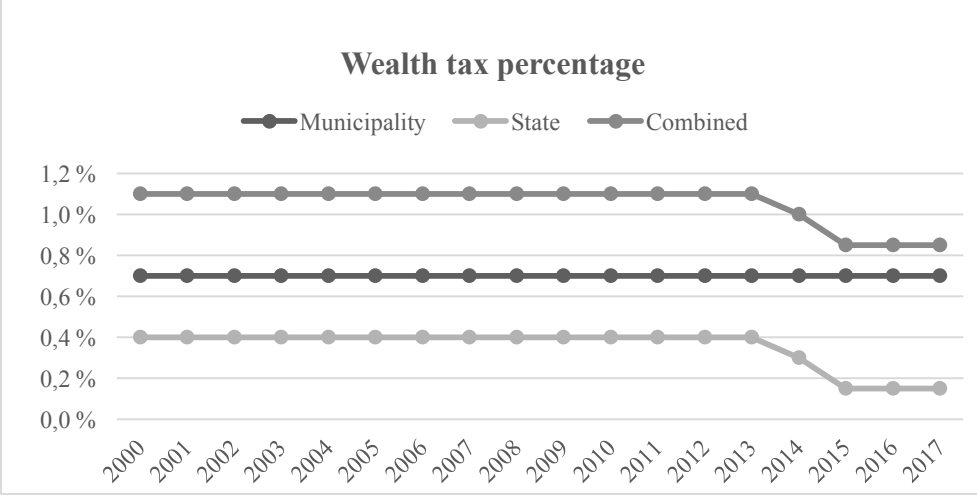
When we adjust for the different tax percentages, year 2010 represents the largest increase in threshold of almost 50%. Followed by no changes in 2011, and smaller changes in the years after. Largest decrease in tax percentage was in 2015 when it was reduced by 0.15 percentage points. However, the tax percentage was also reduced in 2014 with 0.1 percentage points.

Figure 2.3.1: Development of threshold for wealth tax to municipality and to state (disregarding threshold 1 for state).

Source: Skatteetaten (2017)

Figure 2.3.1 shows how the tax-free allowance has changed since year 2000. We see an upward trend in threshold since year 2004. This shows how the policy changes have excluded more and more individuals from a wealth tax position. In year 2016, individuals with a net wealth of slightly below NOK 1 400 000 would not be subject to any wealth tax. Without considering inflation and special taxation rules, the same net wealth would in year 2004 trigger a wealth tax of approximately NOK 13 000.

Figure 2.3.2: Development of wealth tax percentage to municipality and state (disregarding rate 1 for state).



Source: Skatteetaten (2017)

The national wealth tax rate has been reduced, leading to a larger distribution of the total wealth tax to the municipality, as we can see from figure 2.3.2. Until 2013, the 64% of the wealth tax was distributed to the municipalities and 36% to the state, while in 2017 the distribution is now 82% and 18% to the municipality and state, respectively.

The wealth tax policy has several other complex implications. Most notably is how the wealth tax is taxing assets of the same real value, differently across asset classes. In other words, some asset classes, like real estate, are subject to wealth tax for only a fraction of its total value. However, the Norwegian wealth tax policy's uneven treatment of asset classes are beyond the scope of this thesis, and will therefore not be discussed in detail.

2.4 The political discussion

The political parties in Norway have conflicting opinions on Norway's wealth tax policy. The red-green parties argue that wealth tax contributes to rightfully taxing of the wealthiest in the country and that it helps to reverse wealth inequality. The Labor Party (Arbeiderpartiet, 2016) states that they do not agree with the tax reductions initiated by the blue parties, the conservative party (Høyre) and the progressive party (Fremskrittspartiet) who govern in 2017. The Labor Party's argument for keeping the wealth tax is supported by a report by Menon Business Economics (Grünfeld 2015) which conclude that reducing wealth tax has little effect on corporate investments. A red-green coalition governed between 2005 to 2013, securing a steady wealth tax rate of 1.1%. However, the blue parties took over in 2013. The blue parties are against wealth tax as they believe it undermines small businesses ability to invest and pushes them to look abroad for investments and growth opportunities. The blue parties have systematically increased the threshold as well as decreased the tax percentage since 2013. They have plans to phase out the tax in the future, as the Conservative Party states in their election program (Høyre, 2016): "*The Conservative party wants to reduce the wealth tax with the aim of removing it completely"*. However, the red-green parties might win the election in 2017, which could lead to a reversal of these plans and quite possibly also to an increase in the wealth tax percentage.

3 Literature review

The literature review is a mixture of the most relevant articles and research on wealth tax. Some provide useful theory on wealth tax. Others, look at economic effects of wealth taxation in Norway and other countries in the past. Wealth tax is a well discussed topic in the Norwegian media, but research on wealth tax is quite limited both nationally and internationally. Hence, there is a large spread of the credibility of our sources. Note that less credible sources (like previous master theses) are included to get an idea of the conclusions drawn from similar research in Norway. By no means do we intend to base our research on these conclusions. However, research on Norway's wealth tax policy provides useful basis for comparison to our research, and are therefore included.

3.1 International research

Limited research on wealth tax makes it hard to know its impact for certain. "Better measurement of "wealth" and better theory that relates various measures of wealth are needed before economists can accurately predict, or provide sound policy direction regarding, the actual impact of taxing wealth" (McGrattan, 2015, p.1). McGrattan argues that there are huge variations in terms of the two most common measurements of wealth; fixed assets and net worth. Moreover, the reasons why they differ are yet to be identified. This makes it hard to accurately predict the effect of changes in wealth tax policies, as McGrattan argues, "the theory is not yet policy-ready" (McGrattan 2015, p.2).

In his popular book, Capital in the Twenty-First Century, Thomas Piketty (2014) suggests a global tax on wealth to reduce income inequality. The core of the book is the tendency that the rate of return on capital exceeds the growth rate in the economy. When this happens over long time, it results in high concentration of wealth and an unequal distribution of wealth which might cause economic and social instability. He suggests global wealth taxes as a solution. The conclusion of his research is that inequality is not made by accident, but is an inborn feature of capitalism, and can therefore only be neutralized through state interventions.

Glennerster (2012) discusses how UK, in 1974, introduced a wealth tax to tackle wealth distribution inequality and the growing importance of inherited wealth. The tax was abandoned only five years later. The paper concludes that introducing a wealth tax was not the ideal way to tackle the wealth inequality, as it generated little revenue for the government, involved large administrative costs, and lead to much political hassle.

In the World Tax Journal (2010), Åsa Hansson researched if wealth tax could potentially harm economic growth. With 20 years of data from 20 OECD-countries, her conclusion was that wealth tax had some negative effect on economic growth. Translation of the findings, tells us that a one percent increase in wealth tax decreases expected economic growth (GDP) with between 0.02 and 0.04 percent.

3.2 National research

Chapter two of the OECD (2012) report, analyses the Norwegian capital tax system. Three out of eleven issues found, were related to wealth tax. Firstly, it states that Norway's wealth tax policy favors some asset classes, which makes real estate, business property and independent pension solutions (IPS) much more favorable for investors. This has led to a more uneven distribution of asset classes than in any other OECD-countries. Secondly, the effective tax rates on wealth tax are very high, sometimes exceeding 100% for some asset classes. This can lead to tax avoidance and decreased opportunity to save and to invest. Thirdly, the OECD report does recommend to decrease or phase out the wealth tax in Norway.

Edson (2012) examined small privately held businesses and if the Norwegian wealth tax policy imposes capital constraints. Edson estimated two models of capital constraints. The results indicated that firms that do not pay wealth tax are marginally more constrained than the firms paying tax.

Grünfeld, Grimsby and Theie (2015) investigated how different tax schemes affect investments in the Norwegian business sector. They looked at investment effects of a reduction in three different tax schemes: corporate tax, wealth tax and dividend tax. Using elasticities, their findings show that a 1% percent reduction in

the corporate tax had a significantly higher effect on investments, than an equivalent reduction (in terms of tax reliefs on government budget) on wealth tax or dividend tax. The huge difference is mainly explained by how the tax reductions hit investors and owners. According to the research, the corporate tax affects investors to a much larger extent than wealth tax and dividend tax do. Investments from other countries play an important role here, as changes in wealth tax and dividend tax do not directly affect investors from other countries. Nevertheless, the researchers find wealth tax reduction to have a larger effect relative to dividend tax reduction. A study from Menon Business Economics (2015) showed that wealth tax had a high effect on older small firms with a high proportion of Norwegian ownership.

Bruer-Skarsbø (2015) investigated behavioral responses to Norway's wealth tax policy. The author used quasi-experimental research methods to investigate if wealth tax discourages private savings. Applying difference-in-difference estimation and regression discontinuity, the researcher was not able to support the hypothesis that the Norway's wealth tax policy discourages private savings.

A master thesis from 2013 got a lot of attention in the Norwegian media due to its interesting findings about the effects of Norway's wealth tax policy. Sakkestad and Skarsgaard (2013) studied the effect of the wealth tax on Norwegian non-listed companies. Using descriptive search method, they investigated if wealth tax caused any economic difficulties for non-listed firms. They explored if wealth tax caused liquidity problems and decreased capital, and which firms that had the highest exposure to these effects. Their research indicated that wealth tax is paid by owners of wealthy companies. Moreover, rather few companies experienced any economic challenges due to wealth tax. However, findings of this research could be criticized as it is based on quite few companies fulfilling certain criteria chosen by the authors.

4 Data collection

4.1 Sources of data

The data used in the thesis is obtained from Centre for Corporate Governance Research (CCGR), which is owned by the Department of Financial Economics at BI Norwegian Business School. The dataset is organized as panel data. That is, a combination of time-series data and cross-sectional data. Panel data gives us the possibility to study the behaviour of firms, across time. The dataset is unbalanced with yearly observations from 2000 to 2015. Unbalanced data implies that the dataset does not have information about every firm, on every year for every variable. The dataset has initially 31 variables containing firm-specific information and accounting information about companies in Norway. The raw dataset has over 3.4 million observations for over 470 000 firms. Note that the firms in the dataset are anonymized, but tracked with the anonymous company identifier variable.

4.2 Secondary data and validity

Data from CCGR (2017) is secondary data, collected for other purposes. Hence, we must carefully consider the validity of the data used here. The CCGR database is primarily used for research within business, finance and economics. Research teams are constantly monitoring the quality of CCGR through several control devices. The database is used by researchers that aim to publish articles in reputable academic journals. Hence, we consider data from CCGR to be valid and trustworthy to use for this thesis.

4.3 Data cleaning

For data analysis and data cleaning, we have chosen Stata 15 as statistical software. We started with a raw dataset of 3 461 962 observations. To be able to do analyses with these data we needed to shrink it down so that we were left with information tailored to meet our research objectives. Firstly, we needed to set the data to panel data with yearly observations. This enables each observation in the dataset to get linked with each firm, across time through the company identifier

"cid" and the year variable "yr". Secondly, we renamed the variables so they could be identified more easily. Thirdly, we needed to destring the variables that were not set in the right format. That is, control that variables were set in the correct level of measurement. Further on, we needed to construct new variables by merging existing variables. We generated a variable for total assets as the sum of total fixed assets and total current assets. In the raw dataset, there were three variables with information regarding the number of employees in firms, covering different time periods. We merged this in to one variable called "employees". A total liabilities variable was generated as the sum of total current liabilities, total long term liabilities and total provisions. Later, we generated a logarithmic version of all numeric variables in the dataset with "log" included before the variable name. Further on, we wanted to remove inactive firms, as they would not be useful for our research purposes. We did this by removing firms that had "employees" less or equal to zero and by removing companies with "total assets" less than NOK 100 000. In this operation, we also removed observations that had missing value of "employees" and "total assets". Specifically, we removed the following:

- 264 758 observations with less than NOK 100 000 in total assets
- 1 585 918 observations with zero or missing value of employees

This left us with 1 611 286 observations distributed over 15 years. For each analysis that we conducted, there were some individual data cleaning steps. We will not go into details of these exact steps here for reasons of space.

4.3.1 Dependent variables

The aim of the thesis is to investigate empirically the effect of wealth tax on company investments, firm exits, and firm entries. A critical point in the analysis is how to construct these variables. To be able to run regression analysis, we needed to construct appropriate dependent variables. In the dataset, information about company investments, firm entry and firm exit were not pre-specified variables. In this analysis, we define investments as the logarithmic change of total assets. This definition is also used by Frank and Goyal's academic paper (2009) about capital structure decisions. We also break investments down to sub-parts in the analysis of firm investment and wealth tax. Here we create additional

dependent variables such as the log change of fixed assets from the total fixed asset variable, log change of current assets from the total current assets variable, log change of tangible assets from the tangible assets variable, log change of intangible assets from the intangible asset variable, log change of R&D from the R&D variable, and log change of total investments from the total investments variable. Further on, dependent variables for firm entry and firm exit were constructed for the analysis about wealth tax and firm's entry and firm exit to the Norwegian market. Both firm entry and firm exit variables were created as dependent binary variables, coded as "1" in the year of entry or exit, and otherwise as "0". For the firm entry variable, we needed to make the dataset fully balanced, so that each firm had observations for every year in the dataset. This was done through the "tsfill, full" command is Stata 15. Further on, the firm entry dummy variable was created from the company age variable, where firm entry was equal to "1" if company age was equal to zero, and "0" otherwise. Moreover, firm exit variable was created using the company identifier variable "cid". Specifically, it was created as a dummy variable equal to "1" if the "cid" observation was the last observation for that firm, and "0" otherwise. That is, a dummy variable equal to "1" in the year that the firm exits the market, and "0" otherwise.

4.3.2 Variables

Table 4.3.2 shows an overview of the variables used in the thesis. We have sorted the variables in the categories; dependent, accounting, firm-specific, and ownership variables. Note that all numeric variables that are continuous, are used in their logarithmic forms. Using a logarithmic dependent variable is done to better satisfy the assumptions we must make for the panel regression model. Using logarithmic versions of numeric independent variables is a well-established method in econometrics to deal with the effect of extreme values and outliers. Also, note that we have generated many additional variables from the variable list below. This has been done to do necessary steps in the analysis. Nevertheless, the variable list in table 4.3.2 contains the basic variables of the research. Description of each variable can be found in the Appendix 1.

Table 4.3.2: Variables

Type	Variable name
Dependent Variable	Investment
Dependent Variable	Sub-part Investment Fixed
Dependent Variable	Sub-part Investment Current
Dependent Variable	Sub-part Investment Tangible
Dependent Variable	Sub-part Investment Intangible
Dependent Variable	Firm exit
Dependent Variable	Firm entry
Accounting - Assets	Total Assets
Accounting - Assets	R&D
Accounting - Assets	Total Intangible assets
Accounting - Assets	Total fixed assets
Accounting - Assets	Total current assets
Accounting - Assets	Total Investments
Accounting - Liabilities	Total Liabilities
Accounting - Liabilities	Total current liabilities
Accounting - Liabilities	Total other long-term liabilities
Accounting - Liabilities	Total provisions
Accounting - Profitability	Revenue
Accounting - Profitability	Net Income
Accounting - Profitability	ROA
Firm-Specific Information	Employees
Firm-Specific Information	CEO salary
Firm-Specific Information	CEO birth year
Firm-Specific Information	Company age
Firm-Specific Information	Industry codes at level two
Firm-Specific Information	Enterprise type
Firm-Specific Information	Foundation year
Ownership Information	Is Parent (ultimate ownership)
Ownership Information	Dividends payable
Ownership Information	Listing status on Oslo Stock Exchange
Ownership Information	Largest owner is International (direct ownership)
Ownership Information	Largest owner is Personal (direct ownership)
Ownership Information	Largest owner is State (direct ownership)
Ownership Information	Is Parent (ultimate ownership)
Ownership Information	Number of Owners (direct ownership)

5 Methodology

5.1 Quasi-experimental research design

This thesis will take a quasi-experimental research approach to uncover the effects of wealth tax on company investment and firms' entries or exits in Norway. The purpose of a quasi-experimental research design is to test causal hypotheses. In this research design, a program or policy (in our case, wealth tax policy) is interpreted as an "intervention" that splits two groups into different paths. This intervention is tested for how it changes outcomes for the group affected by it, measured by a pre-specified set of indicators. A quasi-experimental design lacks random assignment. However, assignment based on criteria (treatment or no treatment) is done by means of self-selection (White and Sabarwal, 2014). Quasi-experimental research design is a helpful way to uncover causal effects, using statistical insights and methods taken from ideal experiments that might not be possible to implement (Stock and Watson, 2012).

5.2 Difference-in-differences methodology (DID)

The most commonly used quasi-experimental method for data analysis is the difference-in-differences (DID) method. Since first developed by Ashenfelter and Card in 1985, it has been an important statistical tool when evaluating policies. In a standard DID-setup, we observe two groups over two time periods. The treatment group is exposed to a policy change in the second time-period, but not in the first. The control group is not affected to the policy change, in any of the time periods. For the first time-period, before the policy change, the average value from the control group is subtracted from the average value from the treatment group. This measure removes biases in the second period between the two groups that comes from permanent differences and the time trend difference from comparison over time.

Initial regression:

$$Y_{i,t} = \beta_0 + \beta_1 dB_{i,t} + \delta_0 d2_{i,t} + \delta_1 \left(dB_{i,t} * d2_{i,t}\right) + u_{i,t}$$

Where,

$Y_{i,t}$ *is the outcome variable in state i and time t*

$dB_{i,t} = 1$ *if observation i belongs in the state that will be treated*

$d2_{i,t} = 1$ *if observation i belongs in the second time period after the intervention*

$\left(dB_{i,t} * d2_{i,t}\right)$ *is the intervention term*

In the DID-setup, we observe two groups (treatment and control group) over two time-periods (pre- and post-intervention), creating one regression for each group in each time-period. Further, we take the difference between the treatment group in time-periods two and one, and the difference between the control group in time-periods two and one. Lastly, we take the second difference between these regressions. All terms cancel out, leaving us only with the coefficient for the interaction term, δ_1. This is expressed mathematically below.

First difference:

$$(\widehat{\boldsymbol{Y}}_{\boldsymbol{T,2}} - \widehat{\boldsymbol{Y}}_{\boldsymbol{T,1}}) = \beta_0 + \beta_1 dB_{i,t} + \delta_0 d2_{i,t} + \delta_1\left(dB_{i,t} * d2_{i,t}\right) - \beta_0 + \beta_1 dB_{i,t} + \delta_0 d2_{i,t} + \delta_1\left(dB_{i,t} * d2_{i,t}\right) = \beta_0 + \beta_1 - \beta_0 + \beta_1 + \delta_0 + \delta_1 = \delta_0 + \delta_1$$

$$(\widehat{\boldsymbol{Y}}_{\boldsymbol{C,2}} - \widehat{\boldsymbol{Y}}_{\boldsymbol{C,1}}) = \beta_0 + \beta_1 dB_{i,t} + \delta_0 d2_{i,t} + \delta_1\left(dB_{i,t} * d2_{i,t}\right) - \beta_0 + \beta_1 dB_{i,t} + \delta_0 d2_{i,t} + \delta_1\left(dB_{i,t} * d2_{i,t}\right) = \beta_0 + \delta_0 - \beta_0 = \delta_0$$

Second difference:

$$(\hat{Y}_{T,2} - \hat{Y}_{T,1}) - (\hat{Y}_{C,2} - \hat{Y}_{C,1}) = \delta_0 + \delta_1 - \delta_0 = \delta_1$$

δ_1 is the coefficient of interest, which multiplies the interaction term ($d2_{i,t}$*$dB_{i,t}$). This leads us to the DID-equation, consisting of four different regression estimates: $\boldsymbol{\delta_1} = (\widehat{\boldsymbol{Y}}_{\boldsymbol{T,2}} - \widehat{\boldsymbol{Y}}_{\boldsymbol{T,1}}) - (\widehat{\boldsymbol{Y}}_{\boldsymbol{C,2}} - \widehat{\boldsymbol{Y}}_{\boldsymbol{C,1}})$

As previous research on the topic is limited and inconclusive, our null hypothesis for the thesis must be the conservative view that company investments and firm entry or firm exit are not affected by the wealth tax policy. The alternative hypothesis is that δ_1 is significantly different from zero. That is, the change in

wealth tax policy has proven to influence outcomes of the treatment group in the post-intervention time-period.

Hypothesis:

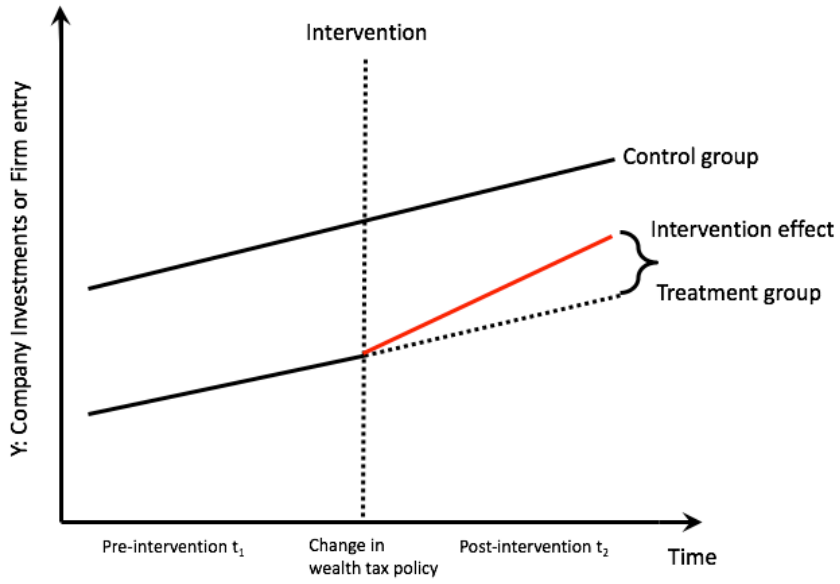
$$\boldsymbol{H_0 : (\widehat{Y}_{T,2} - \widehat{Y}_{T,1}) - (\widehat{Y}_{C,2} - \widehat{Y}_{C,1}) = 0}$$

$$\boldsymbol{H_A : (\widehat{Y}_{T,2} - \widehat{Y}_{T,1}) - (\widehat{Y}_{C,2} - \widehat{Y}_{C,1}) \neq 0}$$

The DID-setup provides us with many interesting opportunities. In this thesis, the outcome variable will measure firm entry, firm exit or firm's investment. For the intervention, we could either look at a significant change in the wealth tax rate or at a change in the threshold. The wealth tax rate was changed in 2014 from 1.1% down to 1%. The threshold has been changed almost every year. The most significant change was in 2010 where the threshold increased with 48.9 % from the previous year (from NOK 470 000 to NOK 700 000). These two interventions will be the foundations of the research.

Figure 5.2 is a graphical representation of the DID-method. The red line represents the intervention effect. That is, how the change in wealth tax policy affect the treatment group in the post-intervention period.

Figure 5.2: Illustration of difference-in-difference



5.3 Difference-in-differences model extensions

In this thesis, we will use several extensions of the basic DID-technique to improve the model. Firm fixed effect is one such extension. The firm fixed effect explores the relationship between the independent variables and dependent variables within a firm. Each firm will have some individual characteristics that could influence the independent variables. If it does, it means that we have heterogeneity across firms, which we want to remove. Hence, including the firm fixed effect in the model will remove the effect of time-invariant characteristics of firms, so that we can assess the net effect of the independent variables on the outcome variable. Another important assumption is that these time-invariant characteristics are unique for each firm, and are not correlated with other firms. There are also other types of fixed effect models, most importantly time fixed effect. Time fixed effect should be included if the individual characteristics for each firm varies across time. Hausman-test is recognized as the main workhorse test to check if the model should be a fixed effect or a random effect model. Note that we could have used industry fixed effect also if individual characteristics for each firm vary across industries. However, we did not find this useful for our analysis as our industry variable contained far too many different industries.

Another important extension to include is control variables. A vector, X_{it} of independent variables, might explain the dependent variable. There are two main reasons for including covariates in a DID-regression. Firstly, for identification of the treatment effect. That is, to check if the treatment effect will be affected by the inclusion of the covariates. Secondly, to reduce the error variance. That is, increasing the power of the statistical test. In our case the covariates will be a vector of independent variables that proves to be significant predictors of the outcome variable in the regression. That is, a list of variables that when included in the regression, will be significant at 1%, 5% or 10% levels. The control variables will be chosen from list of firm-specific, ownership and accounting variables we obtained from the CCGR database.

5.4 Treatment and Control group

One of the most important decisions that we must make in this thesis is how to categorize firms to treatment and control groups. There are no specific guidelines

for how this should be done. From the introduction part, we learn that wealth tax opponents' point of view is that the tax has a negative impact on small firms' ability to invest and grow. Hence, the treatment group should be a proxy for small firms, while the control group should be a proxy for larger firms. Globally recognized standard measures of firm size are total assets (Balance sheet total), number of employees and turnover. We have defined small firms as firms that have four or less employees and less than NOK 2 million in total assets. Larger firms will therefore be firms that have more than NOK 2 million in total assets and five or more employees. Note that we will change the assumptions for the treatment and control group in the robustness check analyses.

5.5 Time-period

Further, we must choose an appropriate time interval for our research. From the CCGR database, we got 15 years of data. However, we have reduced the number of years included in the model for several reasons. Firstly, because it will give us a more even distribution of observations before and after the intervention. Secondly, because it reduces the effect of shocks and trend changes over time. Hence, one might argue that including the total time interval might reduce the validity of the results. For the data sample testing the threshold change in 2010, we have chosen an interval of four years before and four years after the intervention (2006-2013). For the data sample testing the tax rate change in 2014, we have chosen an interval of four years before and two years after the intervention (2010-2015). Note that we will change assumptions for the time intervals in the robustness check, to see if it affects the results.

5.6 Validity of the methodology

Quasi-experiments can potentially be subject to validity problems, both internally and externally (Stock and Watson, 2015). While the internal validity is the extent to which the causal relationship is true, the external validity determines whether the results can be generalized, or not.

We do not have specific information about business owner's wealth and exact wealth tax payments. Hence, we will categorize firms in to treatment and control groups using proxies. This could potentially weaken the validity of our research. Moreover, validity of the results weakens if there are other reasons than wealth tax that influence the outcome variable. A threat to the internal validity can occur if we fail to randomize the treatment level, which could make the ordinary least square (OLS) estimator biased. However, this problem will be tackled by looking for systematic differences between control group and treatment group. Further, sample selection bias can occur if attrition leads to correlation between treatment level and error term. The external validity of our research could be weakened by the fact that special features of Norway's wealth tax policy make it hard to generalize the results for Norwegian firms. That is, the uneven taxation treatment across asset classes.

5.7 Limitations of the research

We have limited the scope of the thesis to wealth tax. We will not look at how changes in other taxes could possibly affect a firm's entry and exit to the market, as well as corporate investments. There may also be other effects caused by the wealth tax that are beyond the scope of this thesis. Examples of such could be capital outflow out of the country and investments decisions based on tax planning rather than expected gross returns.

6 Wealth tax analysis

6.1 Outline

In the analysis, we investigate the effect of changes in wealth tax on firm investment and firm entry and exit. The focus of the thesis is set on firms' investment as we consider this the most important part of the analysis. The reason for this is that we consider it more likely to find an effect of the change of wealth tax policy on firms' investments. We will base the research mostly on two datasets exploring two different interventions. One for the tax rate change in 2014 and one for the threshold change in 2010. Both interventions are perceived as positive for firms. Analyses are done through panel regression and pooled probability regression, where the difference-in-differences technique explained in the methodology is applied. The most relevant results are presented in tables in the text.

In the first part of the analyses, we have descriptive statistics for the two datasets. This gives us an overview of the characteristics of a typical firm in the treatment and control group. That is, to identify that small and large firms are separated into treatment and control groups, respectively. Moreover, descriptive statistics presents information regarding location and variability of the variables used in the analysis. This allows us to interpret the impact of the regression coefficient and the standard error for each variable in the analysis.

In the second part of the analysis we introduce the main analysis, where we investigate the effect that the wealth tax has on firm investments. We used panel regression and the DID-technique, where the logarithmic change of total assets is the dependent variable representing a proxy for firm investments.

In the third part of the analysis, we introduce robustness analysis to investigate the validity of the findings in the main analysis. Here, different assumptions are tested.

In the fourth part of the analysis, we break investments down to several sub-parts. This is done to investigate how different investment categories are affected by the

wealth tax policy change, if any. This concludes the main topic of the thesis, which is analysing the relationship between wealth tax and firm investments.

In the final chapter, we look at how the change in wealth tax policy might affect firms entering or leaving the market. For this analysis, the appropriate method is pooled probability regression combined with the DID-technique. This is because the dependent variables, firm entry and firm exit are dichotomous variables, with a value of zero or one. In other words, the dependent variables are not continuous for this analysis.

Each part will have discussion and a small conclusion before we summarize the most important findings in the final discussion and conclusion in the end of the thesis.

6.2 Descriptive statistics

Descriptive statistics are used to describe the basic features of the data in a study. It provides a collection of measurements' location and variability. Measurement location represents the central values of the variables. We will include both median and mean as measurements of variable location. Since we are working with a large data set, it is useful to describe the central tendency of each variable. Variability refers to the spread of the data from the center value. We will include both standard deviation, variance, skewness and kurtosis as measurements for variability of the variables. In addition, we have included the minimum and maximum values, as well as the number of observations for each variable. The descriptive statistics are separated between the threshold sample and the tax rate sample, as they contain observations from different time-intervals and a different pool of firms. Hence, the measurements of location and variability of the same variables, can differ between the tax rate sample and the threshold sample. In the first part, we present simple summary statistics of the main variables used in the thesis, shown for treatment and control group. This is basically done to observe that we have successfully divided observations in the treatment and control group. That is, to investigate and confirm that we have successfully managed to separate small and large firms in the dataset. In the second part, there is a table of summary statistics of all variables used in the regression analyses. This table can be used to

understand and evaluate the size and sign of coefficient and standard error for each variable in the regression. That is, to understand the true effect each variable has on the dependent variable in the regression.

6.2.1 Tax rate change sample

Table 6.2.1 contain the summary statistics for the main variables used in the thesis, splitted between the treatment and control group. We see that the average firm in the treatment group has a mean average of NOK 804 734 for total assets and 1.92 for employees. Further on, we see that there are 219 093 observations in the treatment sample. For the control group, we see that the average firm in the control group has NOK 8 814 000 in total assets and 12 employees. Note, that we look at the median values for the control group since the observations in the group are not bounded. The mean average will therefore be inflated due to some extremely large companies in the control group. Further, we see that there is a quite similar amount of observations in the control group of approximately 246 000. There are large differences of the central tendency of total assets and number of employees in the two groups, where the observations with smaller values are in the treatment group and the observations with larger values are in the control group. Also, the treatment and control group are quite similar in number of observations. Hence, we have succeeded in dividing the tax rate sample in groups of small and large firms.

Table 6.2.1: Summary Statistics, Tax rate 2014 Sample

	Treatment Group		Control Group	
Variable	Mean	Observations	Median	Observations
Total Assets	804734	219093	8814000	245971
Employees	1.9161	219093	12.0000	245996

In table (6.2.1.1) descriptive statistics for the tax rate sample is presented. That is, statistical measurements of location and variability in the dataset of all variables used in the regression analysis. Note that these variables are in the exact form as they are in the regression analysis. Hence, most variables are in its logarithmic form. Included here are both dependent and independent variables used in the regression analysis.

Table 6.2.1.1: Descriptive Statistics, Tax rate 2014 Sample

Variable	Mean	SE (Mean)	Median	Std. Dev.	Variance	Skewness	Kurtosis	Min	Max	N
Log Change of Total Assets	0.0325	0.0005	0.0218	0.3996	0.1597	0.0586	24.5662	-9.8647	10.4918	583670
Log R&D	0.5158	0.0031	0.0000	2.5844	6.6790	4.9983	27.0116	0.0000	25.8674	674197
Log Intangible Assets	4.2920	0.0071	0.0000	5.7927	33.5557	0.7290	1.8012	0.0000	25.8674	674076
Log Tangible Assets	10.0273	0.0071	12.1007	5.8464	34.1806	-0.8722	2.3296	0.0000	26.5356	674160
Log Total Fixed Assets	11.8812	0.0059	12.9215	4.8585	23.6053	-1.4223	4.5448	0.0000	27.1287	673932
Log Total Current Assets	14.4894	0.0022	14.3876	1.8158	3.2970	0.0706	7.8302	0.0000	27.5628	673866
Log Total Investments	1.0784	0.0045	0.0000	3.6697	13.4665	3.3179	12.7890	0.0000	27.1493	674178
Log CEO Salary	1.0784	0.0059	13.0433	4.5364	20.5787	-1.9539	5.0747	0.0000	20.6826	588645
Log Company Age	2.1174	0.0013	2.3026	1.0892	1.1863	-0.4235	2.5175	0.0000	6.6039	672009
Log Revenue	14.0365	0.0056	15.0964	4.5794	20.9711	-2.2695	7.5506	0.0000	26.8979	673767
Log Net Income	12.6759	0.0033	12.7855	2.2264	4.9569	-1.3183	10.8005	0.0000	25.5243	465816
Log ROA	0.3310	0.0024	0.3293	1.7918	3.2104	-212.8207	58354.3400	-598.2667	2.3026	579364
Log Owners Number	0.4668	0.0008	0.0000	0.6072	0.3686	1.2779	4.5728	0.0000	3.9120	603965
Log Total Current Liabilities	14.0160	0.0024	13.9386	1.9825	3.9302	-0.9044	12.9365	0.0000	27.1283	673299
Log Total Long Term Liabilities	6.4227	0.0087	0.0000	7.1450	51.0503	0.2906	1.2443	0.0000	26.3319	673612
Log Total Provisions	3.0584	0.0064	0.0000	5.2361	27.4168	1.2996	3.1064	0.0000	26.7473	673811
Log Dividends Payable	1.8631	0.0057	0.0000	4.6483	21.6065	2.1395	5.7174	0.0000	23.8279	674153
Log Total Assets	15.0313	0.0022	14.8674	1.7919	3.2107	0.8480	4.6440	11.5129	27.7265	674214
Log Employees	1.4823	0.0015	1.3863	1.2594	1.5860	0.8799	4.0739	0.0000	10.1834	674239
Log Total Liabilities	14.4886	0.0024	14.3888	1.9906	3.9626	-0.4395	10.5366	0.0000	27.1463	673637

6.2.2 Threshold change sample

In table 6.2.2 we present the summary statistics for the variables used to split observations between treatment and control group. We see that the average firm in the treatment group has a mean average of NOK 837 334 in total assets and 1.98 in employees. Further on, we see that there are 258 500 observations in the treatment group. Secondly, we look at the control group. We see that the average firm in the control group has total assets of NOK 8 522 000 and 12 employees. Further on, we see that there are approximately 300 000 observations that lie in the control group. There are large differences in the central tendency of total assets and employees between treatment and control group, where the observations with small values are in the treatment group and the observations with larger values are in the control group. Hence, we have succeeded in separating the threshold sample in groups of small and large firms.

Table 6.2.2: Summary Statistics, Threshold 2010 Sample

	Treatment Group		Control Group	
Variable	Mean	Observations	Median	Observations
Total Assets	837335	258500	8522000	301615
Employees	1.9816	258500	12.0000	301635

In table (6.2.2.1) descriptive statistics for the threshold sample is presented. That is, statistical measurements of location and variability in the dataset of all variables used in the regression analysis. Note that these variables are in the exact form as they are in the regression analysis. Hence, most variables are in its logarithmic form. Included here are both dependent and independent variables used in the regression analysis.

Table 6.2.2.1: Descriptive Statistics, Threshold 2010 Sample

Variable	Mean	SE (Mean)	Median	Std Dev.	Variance	Skewness	Kurtosis	Min	Max	N
Log Change of Total Assets	0.0445	0.0005	0.0294	0.4065	0.1652	0.1275	24.6129	-13.1258	10.4918	714437
Log R&D	0.9952	0.0039	0.0000	3.5151	12.3559	3.3812	12.9664	0.0000	25.8674	801882
Log Intangible Assets	4.4861	0.0065	0.0000	5.8294	33.9820	0.6507	1.6896	0.0000	25.8674	801808
Log Tangible Assets	10.3482	0.0063	12.2259	5.6325	31.7254	-1.0018	2.6585	0.0000	26.5356	801885
Log Total Fixed Assets	12.0446	0.0052	12.9692	4.6417	21.5449	-1.5219	5.0634	0.0000	27.1381	801697
Log Total Current Assets	14.5269	0.0020	14.4122	1.7737	3.1460	0.1665	7.7536	0.0000	27.6052	801649
Log Total Investments	1.1100	0.0041	0.0000	3.6918	13.6291	3.2334	12.2279	0.0000	27.1493	801886
Log CEO Salary	11.2800	0.0052	12.9575	4.3554	18.9696	-2.0947	5.6636	0.0000	20.6826	704923
Log Company Age	2.1044	0.0012	2.3026	1.0634	1.1308	-0.4072	2.6147	0.0000	6.6012	800712
Log Revenue	14.1568	0.0050	15.1808	4.5108	20.3476	-2.3481	7.9504	0.0000	27.0503	801464
Log Net Income	12.7186	0.0029	12.8104	2.1717	4.7163	-1.2133	10.5859	0.0000	24.9714	556389
Log ROA	0.7646	0.0019	0.4762	1.6691	2.7860	-111.7759	29199.4500	-509.7876	9.1297	737958
Log Owners Number	0.4743	0.0007	0.0000	0.5795	0.3359	1.0202	3.5858	0.0000	3.9120	719349
Log Total Current Liabilities	14.0958	0.0021	14.0053	1.9140	3.6635	-0.7373	12.6359	0.0000	27.5883	801288
Log Total Long Term Liabilities	6.8393	0.0080	0.0000	7.1480	51.0938	0.1661	1.1886	0.0000	25.8189	801456
Log Total Provisions	3.1765	0.0059	0.0000	5.3266	28.3729	1.2462	2.9444	0.0000	26.4680	801532
Log Dividends Payable	1.6244	0.0049	0.0000	4.3772	19.1597	2.3725	6.7883	0.0000	23.8627	801893
Log Total Assets	15.0499	0.0020	14.8733	1.7510	3.0659	0.8980	4.8189	11.5129	27.7265	801927
Log Employees	1.5059	0.0014	1.3863	1.2371	1.5305	0.8872	4.2270	0.0000	10.1414	801947
Log Total Liabilities	14.5621	0.0022	14.4621	1.9284	3.7186	-0.3535	10.5319	0.0000	27.6263	801530

6.3 Wealth tax policy and firm investment

In order to analyse the effect of a change in wealth tax policy on company investments, we use panel regression analysis and the DID-method. In this setup, the DID interaction term (denoted δ_1 in the methodology part) is the main coefficient of interest, as it captures the effect of the change in wealth tax policy on company investments for the treatment group. The outcome variable is the logarithmic change of total assets, which is the proxy for company investments. In columns (1) and (6) the regressions have the standard DID setup without any

extensions. For the regressions in columns (2) and (7), we have added firm fixed effect as an extension to the model. Through the Hausman-test (appendix 2 and 3) we find that a fixed effect model is more appropriate than a random effect model for our data, as firms have individual heterogenetic characteristics. More specifically, the coefficient estimated from the random effect model and fixed effect model are compared. Then the differences between the estimates are put in an equation together with estimates for the standard errors. This equation gives us a chi-squared test-statistics, which is compared with the critical value of the chi-squared distribution. In our case, the test-statistics is way above the critical value, which means that we can reject the null hypothesis and go for the alternative. That is, the fixed effect model is appropriate. In the regressions in columns (3) and (8), extensions of both firm fixed effect and year fixed effect are included. Through a test of parameters (appendix 4 and 5), we find that year fixed effect is appropriate, as the test-statistics are way above the critical value. This implies that there is heterogeneity across firms and years in the dataset. Also in this test, the test-statistics are way above the critical value. For regressions in columns (4) and (9) we have also added a vector of predictor variables to the firm fixed effect regression model. Note that we have only included the covariates that are significant at 1%, 5% or 10%-levels in this model. Lastly, in columns (5) and (10) we include all extensions, including firm fixed effect, year fixed effect and vector of predictor variables. We will evaluate and compare results from all these models.

The regression analysis in table 6.3.A Panel A, utilizes data from 2006 to 2013, where the policy of interest is the change in threshold for paying wealth tax in 2010. We see that coefficients of the DID interaction term in the columns from panel A (1-5) are all statistically significant and positive. This implies that the reduction in wealth tax rate had a positive impact on investments for the firms in the treatment group. More specifically, the first five regressions suggest an intervention effect on the treatment group of about 0.86% to 6.59% for the post-intervention period, depending on which model that is applied. By including the control variables, the number of observations in the model decreases. However, the DID coefficient increases as well as the explanatory power of the model denoted R^2.

Table 6.3.A: Main regression, Panel A

Intervention	Threshold change (2010)				
Dependent Variable	Investment: Log change of Total Assets				
	(1) Main model	(2) Firm FE	(3) Firm FE, Year FE	(4) Control, Firm FE	(5) Control, Firm FE, Year FE
DID interaction term	0.0248***	0.0126***	0.00855***	0.0659***	0.0613***
	(0.00212)	(0.00237)	(0.00236)	(0.00248)	(0.00248)
d2	-0.0476***	-0.0709***	-0.185***	-0.00292**	-0.104***
	(0.00112)	(0.00121)	(0.00211)	(0.00143)	(0.00298)
dB	-0.168***	-0.277***	-0.281***	-0.0366***	-0.0320***
	(0.00180)	(0.00265)	(0.00263)	(0.00280)	(0.00279)
Log_R_D				-0.00109***	-0.00133***
				(0.000236)	(0.000237)
Log_Intangible_Assets				-0.00245***	-0.00241***
				(0.000186)	(0.000186)
Log_Tangible_Assets				-0.00251***	-0.00271***
				(0.000248)	(0.000248)
Log_Total_Fixed_Assets				-0.00408***	-0.00425***
				(0.000340)	(0.000339)
Log_Total_Current_Assets				0.0476***	0.0485***
				(0.00185)	(0.00184)
Log_Total_Investments				-0.00323***	-0.00342***
				(0.000260)	(0.000259)
Log_CEO_Salary				-0.00414***	-0.00423***
				(0.000267)	(0.000266)
Log_Company_Age				-0.236***	-0.197***
				(0.00223)	(0.00252)
Log_Revenue				-0.00432***	-0.00421***
				(0.000333)	(0.000332)
Log_Net_Income				0.0274***	0.0284***
				(0.000467)	(0.000468)
ROA				0.00264***	0.00194***
				(4.73e-05)	(6.25e-05)
Log_Owners_Number				-0.00611***	-0.00446**
				(0.00224)	(0.00224)
Log_Total_Current_Liabilities				0.0415***	0.0418***
				(0.00203)	(0.00203)
Log_Long_Term_Liabilities				-0.000295*	-0.000608***
				(0.000151)	(0.000151)
Log_Total_Provisions				-0.00136***	-0.00120***
				(0.000179)	(0.000178)
Log_Dividends_Payable				-0.00191***	-0.00237***
				(0.000116)	(0.000119)
Log_Total_Assets				0.237***	0.253***
				(0.00318)	(0.00320)
Log_Employees				-0.122***	-0.124***
				(0.00178)	(0.00178)
Log_Total_Liabilities				0.0977***	0.0889***
				(0.00262)	(0.00263)
2007.yr			-0.0322***		-0.0595***
			(0.00194)		(0.00185)
2008.yr			-0.113***		-0.0661***
			(0.00196)		(0.00230)
2009.yr			-0.155***		-0.0841***
			(0.00196)		(0.00237)
2010.yr			0.0463***		0.0345***
			(0.00188)		(0.00207)
2011.yr			0.0535***		0.0374***
			(0.00185)		(0.00193)
2012.yr			0.0203***		0.0103***
			(0.00181)		(0.00183)
2013o.yr			-		-
Constant	0.117***	0.162***	0.245***	-5.664***	-5.828***
	(0.00108)	(0.00106)	(0.00166)	(0.0258)	(0.0263)
Observations	714,437	714,437	714,437	416,205	416,205
R-squared	0.028	0.028	0.043	0.237	0.242
Number of cid	141,688	141,688	141,688	107,228	107,228
Firm FE	NO	YES	YES	YES	YES
Control Variables	NO	NO	NO	YES	YES
Year FE	NO	NO	YES	NO	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The analysis in Panel B utilizes data from 2010 to 2015, where the policy of interest is the change in the wealth tax rate in 2014. Regressions (6) to (10) are all positive and significant at a 1%-level. The DID interaction coefficient implies a

positive effect for the treatment group of between 0.51 to 6.82%. Like the results of Panel A, we get an increased effect in the DID coefficients and explanatory power of the model when we include the control variables.

Table 6.3.B: Main regression, Panel B

Intervention	Tax-rate change (2014)				
Dependent Variable	Investment: Log change of Total Assets				
	(6)	(7)	(8)	(9)	(10)
	Main model	Firm FE	Firm FE, Year FE	Control, Firm FE	Control, Firm FE, Year FE
DID interaction term	0.0203***	0.00997***	0.00508*	0.0682***	0.0653***
	(0.00236)	(0.00266)	(0.00266)	(0.00300)	(0.00301)
d2	-0.0295***	-0.0615***	-0.103***	-0.0202***	-0.0414***
	(0.00124)	(0.00133)	(0.00198)	(0.00158)	(0.00297)
dB	-0.151***	-0.286***	-0.289***	-0.0299***	-0.0272***
	(0.00172)	(0.00285)	(0.00285)	(0.00319)	(0.00319)
Log_R_D				0.00180***	0.00136***
				(0.000267)	(0.000270)
Log_Intangible_Assets				-0.00225***	-0.00217***
				(0.000227)	(0.000227)
Log_Tangible_Assets				-0.00289***	-0.00304***
				(0.000297)	(0.000297)
Log_Total_Fixed_Assets				-0.00363***	-0.00369***
				(0.000404)	(0.000403)
Log_Total_Current_Assets				0.0507***	0.0500***
				(0.00279)	(0.00279)
Log_Total_Investments				-0.00240***	-0.00254***
				(0.000347)	(0.000347)
Log_CEO_Salary				-0.00412***	-0.00415***
				(0.000340)	(0.000339)
Log_Company_Age				-0.299***	-0.269***
				(0.00297)	(0.00347)
Log_Revenue				-0.00395***	-0.00384***
				(0.000421)	(0.000421)
Log_Net_Income				0.0293***	0.0291***
				(0.000530)	(0.000530)
ROA				0.00241**	0.00280**
				(0.00119)	(0.00118)
Log_Owners_Number				-0.0194***	-0.0137***
				(0.00284)	(0.00285)
Log_Total_Current_Liabilities				0.0422***	0.0434***
				(0.00346)	(0.00346)
Log_Long_Term_Liabilities				-0.000844***	-0.000940***
				(0.000192)	(0.000192)
Log_Total_Provisions				-0.00136***	-0.00132***
				(0.000216)	(0.000216)
Log_Dividends_Payable				-0.00259***	-0.00237***
				(0.000139)	(0.000140)
Log_Total_Assets				0.366***	0.375***
				(0.00425)	(0.00428)
Log_Employees				-0.0887***	-0.0925***
				(0.00202)	(0.00206)
Log_Total_Liabilities				0.0854***	0.0810***
				(0.00347)	(0.00347)
2011.yr			0.00132		-0.00227
			(0.00181)		(0.00174)
2012.yr			-0.0320***		-0.0296***
			(0.00183)		(0.00188)
2013.yr			-0.0462***		-0.0319***
			(0.00184)		(0.00210)
2014.yr			0.0406***		-0.00935***
			(0.00172)		(0.00210)
2015o.yr			-		-
Constant	0.0875***	0.137***	0.159***	-7.440***	-7.570***
	(0.00101)	(0.00106)	(0.00158)	(0.0337)	(0.0344)
Observations	583,670	583,670	583,670	303,823	303,823
R-squared	0.028	0.028	0.032	0.285	0.287
Number of cid	139,936	139,936	139,936	97,019	97,019
Firm FE	NO	YES	YES	YES	YES
Control Variables	NO	NO	NO	YES	YES
Year FE	NO	NO	YES	NO	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Overall the regressions in the main analysis result in positive and statistically significant DID coefficients for all models. This strongly suggests that there is a positive effect on the treatment group after the intervention. This implies that a positive change in the wealth tax policy from the firms' perspective, will make small firms invest more relative to large firms. Hence, there seems to be evidence that company investments are affected by the wealth tax.

6.3.1 Intervention effect on small firms in NOK

An interesting and natural question, would then be, how the result in the main analysis affect the average firm in the treatment group. In table 6.3.1.1 we have tried to answer this. Here we have used the mean average of total assets in the treatment group, the number of firms in the treatment group and the estimated intervention effect for the treatment group from the regression models. In table 6.3.1, we see that the average firm in the threshold sample invested between NOK 7 159 and NOK 55 180 more relative to large firms, in the period after the change in wealth tax policy. For all the small firms in the threshold sample, this suggests an increase in investments of between NOK 1.85 billion to NOK 14.26 billion.

Table 6.3.1: Small firms' investment effect in NOK, Threshold sample 2010

	(1)	(2)	(3)	(4)	(5)
Regression model	Main model	Firm FE	Firm FE, Year FE	Control, Firm FE	Control, Firm FE, Year FE
DID	2.48 %	1.26 %	0.86 %	6.59 %	6.13 %
Firms	258 500	258 500	258 500	258 500	258 500
Mean of Total Assets	NOK 837 334	NOK 837 334	NOK 837 334	NOK 837 334	NOK 837 334
Investment effect	NOK 20 766	NOK 10 550	NOK 7 159	NOK 55 180	NOK 51 329
Total investment effect	NOK 5 367 980 807	NOK 2 727 280 571	NOK 1 850 654 673	NOK 14 264 110 290	NOK 13 268 436 431

In table 6.3.1.2 we see that the average firm in the tax rate sample, invested between NOK 4 088 and NOK 54 880 more relative to large firms, in the period after the change in wealth tax policy. For all the small firms in the threshold sample, this suggests an increase in investments of from NOK 0.89 billion to NOK 12.02 billion.

Table 6.3.2: Small firms' investment effect in NOK, Tax rate sample 2014

	(6)	(7)	(8)	(9)	(10)
Regression model	Main model	Firm FE	Firm FE, Year FE	Control, Firm FE	Control, Firm FE, Year FE
DID	2.03 %	1.00 %	0.51 %	6.82 %	6.53 %
Firms	219093	219093	219093	219093	219093

Mean, Total Assets	804734	804734	804734	804734	804734
Investment effect	16336	8023	4088	54883	52549
Total investment effect	NOK 3 579 125 201	NOK 1 757 826 515	NOK 895 662 858	NOK 12 024 450 183	NOK 11 513 146 583

6.4 Robustness testing

Robustness testing is an empirical way to study the validity and quality of our results. In the robustness check we use the same setup as in the main analysis in table 6.3. However, to ensure that the outcome of our main analysis is certain, we want to change some of the assumptions taken at the earlier stages. More specifically, we want to see how the DID-coefficient behave if we modify one or more of the underlying assumptions taken in the main analysis.

6.4.1 Removal of subsidiaries

In this robustness test, we use the same setup as the main analysis. In addition, we add the assumption of removing all the firms that are subsidiaries from the dataset. Technically, this is done by removing all observations where the dummy variable "Is Parent" is equal to zero. The objective of this is that one might argue that subsidiaries are biased, as they can more easily move capital across firms. This makes it harder to capture the true investments made by each firm. This leaves us with less observations compared to the main analysis, as subsidiaries counted for over 90% of the data. Nevertheless, the analysis still contains between 8 000 - 10 000 firms.

All ten regression models in table 6.4.1 has a positive and significant DID coefficient at a 10%-level. However, the statistical significance of the regressions is weaker than in the main analysis. We also note that there are fewer variables that are significant predictors in this analysis, compared to the main analysis. In panel A (column 1-5) where we investigate the threshold change in 2010, we find that the effect of the treatment group is positive and between 2.28% to 4.28% larger than for the control group. In panel B (column 6-10) where we investigate the tax rate change in 2014, we find that the effect on the treatment group is positive and between 3.18% to 7.74% larger than for the control group. The results of this robustness test causes a tighter and more precise range of the resulting DID coefficients. However, the cost of this is a drop in observations of

around 90% and less significant and trustworthy coefficients. This robustness test yield results in the same direction as the main analysis. That is, smaller firms are affected more by a change in the wealth tax policy than large firms. The findings of this test support the findings in the main analysis in table 1, as the relationship holds when subsidiaries are removed.

Table 6.4.1.1: Removal of subsidiaries, Panel A

Intervention	Threshold change (2010)				
Dependent Variable	Investment: Log change of Total Assets				
	(1)	(2)	(3)	(4)	(5)
	Main model	Firm FE	Firm FE, Year FE	Control, Firm FE	Control, Firm FE, Year FE
DID Interaction term	0.0228*	0.0391**	0.0317**	0.0428**	0.0366**
	(0.0122)	(0.0154)	(0.0153)	(0.0167)	(0.0167)
Observations	38,272	38,272	38,272	26,653	26,653
R-squared	0.0280	0.029	0.043	0.245	0.249
Number of cid	10,847	10,847	10,847	9,068	9,068
Firm FE	NO	YES	YES	YES	YES
Control Variables	NO	NO	NO	YES	YES
Year FE	NO	NO	YES	NO	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6.4.1.2: Removal of subsidiaries, Panel B

Intervention	Tax-rate change (2014)				
Dependent Variable	Investment: Log change of Total Assets				
	(6)	(7)	(8)	(9)	(10)
	Main model	Firm FE	Firm FE, Year FE	Control, Firm FE	Control, Firm FE, Year FE
DID Interaction term	0.0418***	0.0348**	0.0318**	0.0774***	0.0687***
	(0.0127)	(0.0161)	(0.0160)	(0.0167)	(0.0168)
Observations	34,071	34,071	34,071	24,961	24,961
R-squared	0.0309	0.032	0.034	0.301	0.303
Number of cid	10,450	10,450	10,450	8,953	8,953
Firm FE	NO	YES	YES	YES	YES
Control Variables	NO	NO	NO	YES	YES
Year FE	NO	NO	YES	NO	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

6.4.2 Increasing the time-interval

In this robustness test, we use the same setup as the main analysis. In addition, we remove the assumption of shrinking the time-interval. More explicitly, we use data from the whole time-interval (2000-2015). This will increase the number of firms and observations in the analysis, especially for the pre-intervention period. Some might argue that a larger dataset with more observations could increase the validity of the results. On the other hand, the long pre-intervention period might also include shocks which increase likelihood of biased results. For both the tax rate sample and the threshold sample, four out of five regressions yields positive and significant DID coefficients (table 6.4.2). Models (3) and (8) where firm fixed

effect and year fixed effect are included lead to insignificant results. Not surprisingly, the model that adjusts for year effect, thus removing the time trend, is insignificant for a dataset with such a long time-interval. Also, the size of the DID-coefficient varies more from model to model than in the main analysis. In table 6.4.2.1, (column 1-5) where we investigate the threshold change, we find that the effects on the DID coefficients are positive and between 0.79% to 6.94% larger for treatment group than for the control group. In panel B (column 6-10), where we investigate the tax rate change, we find that the effect on the treatment group is positive and between 0.56% to 6% larger than for the control group. To summarize, smaller firms are affected more than larger firms, by a change in the wealth tax policy also in this analysis. This robustness test supports the findings of the main analysis as the results are in the same direction, when the whole dataset of 15 years is used.

Table 6.4.2.1: Time-period, Panel A

Intervention	Threshold change (2010)				
Dependent Variable	Investment: Log change of Total Assets				
	(1)	(2)	(3)	(4)	(5)
	Main model	Firm FE	Firm FE, Year FE	Control, Firm FE	Control, Firm FE, Year FE
DID Interaction term	0.0225***	0.00799***	0.00221	0.0694***	0.0677***
	(0.00170)	(0.00193)	(0.00193)	(0.00204)	(0.00204)
Observations	1,335,750	1,335,750	1,335,750	821,442	821,442
R-squared	0.0224	0.023	0.032	0.180	0.186
Number of cid	199,329	199,329	199,329	156,074	156,074
Firm FE	NO	YES	YES	YES	YES
Control Variables	NO	NO	NO	YES	YES
Year FE	NO	NO	YES	NO	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6.4.2.2: Time-period, Panel B

Intervention	Tax-rate change (2014)				
Dependent Variable	Investment: Log change of Total Assets				
	(6)	(7)	(8)	(9)	(10)
	Main model	Firm FE	Firm FE, Year FE	Control, Firm FE	Control, Firm FE, Year FE
DID Interaction term	0.0267***	0.00563**	-0.000179	0.0600***	0.0555***
	(0.00226)	(0.00256)	(0.00255)	(0.00278)	(0.00278)
Observations	1,335,750	1,335,750	1,335,750	821,442	821,442
R-squared	0.0196	0.020	0.032	0.178	0.185
Number of cid	199,329	199,329	199,329	156,074	156,074
Firm FE	NO	YES	YES	YES	YES
Control Variables	NO	NO	NO	YES	YES
Year FE	NO	NO	YES	NO	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

6.4.3 Micro-firms as Treatment group

In this robustness test, we use the same setup as the main analysis. However, we modify the assumptions that are used to split the dataset in small and large firms (treatment and control group). Since wealth tax is an individual tax, we want the treatment group to be at an individual level, with each firm having one employee. Also, the cut-off of total assets for the treatment group is set to the wealth tax threshold cut-off in the year of the intervention. This means that the total assets for the 2014 tax rate sample is NOK 1 million, while for the 2010 threshold sample it is NOK 700 000. Like the main analysis, all ten regression models in table 6.4.3, result in significant and positive DID coefficients. The DID coefficients in table 6.4.3 are also larger in size than for the ones in the main analysis. In table 6.4.3.1, (column 1-5) where we investigate the threshold change, we find that the effect of the treatment group is positive and between 4.13% to 8.89% larger than for the control group. In table 6.4.3.2, where we investigate the tax rate change, we find that the effect of the treatment group is positive and between 3.84% to 9.41% larger than for the control group. In other words, firms that are smaller and on an individual level are affected more by a change in the wealth tax policy. This implies that the smaller the firms, the more their investments are affected by the wealth tax policy. Intuitively, it makes sense as smaller firms are less financially stable and that small firms tend to seek growth. Hence, small firms tend to re-invest their earnings, which means that the wealth tax is in direct conflict to these firms' investment opportunities. On the other hand, larger firms might already have enough earnings to invest in the projects they believe will create value (positive net present value projects), independent of the change in wealth tax policy. For large firms, changes in the wealth tax policy could therefore affect other parts of the business, like payout decisions, salaries, employer benefits, corporate social responsibility etc.

Table 6.4.3.1: Small-sized Treatment group, Panel A

Intervention	Threshold change (2010)				
Dependent Variable	Investment: Log change of Total Assets				
	(1)	(2)	(3)	(4)	(5)
	Main model	Firm FE	Firm FE, Year FE	Control, Firm FE	Control, Firm FE, Year FE
DID Interaction term	0.0465***	0.0499***	0.0413***	0.0889***	0.0853***
	(0.00403)	(0.00473)	(0.00470)	(0.00590)	(0.00588)
Observations	714,437	714,437	714,437	416,210	416,210
R-squared	0.0247	0.025	0.038	0.236	0.241
Number of cid	141,688	141,688	141,688	107,228	107,228
Firm FE	NO	YES	YES	YES	YES
Control Variables	NO	NO	NO	YES	YES

Year FE	NO	NO	YES	NO	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6.4.3.2: Small-sized Treatment group, Panel B

Intervention	Tax-rate change (2014)				
Dependent Variable	Investment: Log change of Total Assets				
	(6)	(7)	(8)	(9)	(10)
	Main model	Firm FE	Firm FE, Year FE	Control, Firm FE	Control, Firm FE, Year FE
DID Interaction term	0.0384***	0.0475***	0.0429***	0.0941***	0.0905***
	(0.00380)	(0.00444)	(0.00444)	(0.00523)	(0.00522)
Observations	583,670	583,670	583,670	340,750	340,750
R-squared	0.0185	0.019	0.021	0.277	0.278
Number of cid	139,936	139,936	139,936	103,104	103,104
Firm FE	NO	YES	YES	YES	YES
Control Variables	NO	NO	NO	YES	YES
Year FE	NO	NO	YES	NO	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

6.4.4 Medium-sized firms as Treatment Group

In this analysis, the objective is to explore how medium-sized companies are affected by the wealth tax change, in relation to large companies. Hence, the treatment group will consist of medium-sized firms and the control group of large firms. We have defined medium-sized firms to have between 2 and 5 million in total assets and between 5 and 10 employees. Apart from the change in treatment and control group, this analysis has the same setup as the main analysis. In table 6.4.4, we see the results from the regression analysis. In the threshold sample where 2010 is the intervention year, we see that the two first regression models yields insignificant DID coefficients. While regression model (3), (4) and (5) show positive and significant effects of 0.74% to 1.29%. Similarly, in the tax rate sample where 2014 is the intervention year, we see that the two first regressions are insignificant. While regression model (8), (9) and (10) yields positive and significant DID coefficients of between 0.76% and 1.79%.

The interpretation of these results is that medium-sized firms seem to be affected more by a change in the wealth tax policy than large firms. However, medium-sized firms are far less affected than the small firms are. This indicates that the larger a firm is, the less it is affected by a change in the wealth tax policy. This robustness test supports the findings in the main analysis and strengthens the view from the wealth tax opponents, that small firms are hurt most by the wealth tax.

Table 6.4.4.1: Medium-sized Firm as Treatment Group, Panel A

Intervention	Threshold change (2010)				
Dependent Variable	Investment: Log change of Total Assets				
	(1)	(2)	(3)	(4)	(5)
	Main model	Firm FE	Firm FE, Year FE	Control, Firm FE	Control, Firm FE, Year FE
DID Interaction term	-0.00277	0.00420	0.00745**	0.0129***	0.0125***
	(0.00346)	(0.00377)	(0.00374)	(0.00336)	(0.00335)
Observations	714,437	714,437	714,437	416,210	416,210
R-squared	0.0063	0.006	0.020	0.235	0.240
Number of cid	141,688	141,688	141,688	107,228	107,228
Firm FE	NO	YES	YES	YES	YES
Control Variables	NO	NO	NO	YES	YES
Year FE	NO	NO	YES	NO	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6.4.4.2: Medium-sized Firm as Treatment Group, Panel B

Intervention	Tax-rate change (2014)				
Dependent Variable	Investment: Log change of Total Assets				
	(6)	(7)	(8)	(9)	(10)
	Main model	Firm FE	Firm FE, Year FE	Control, Firm FE	Control, Firm FE, Year FE
DID Interaction term	0.00621	0.00630	0.00769*	0.0175***	0.0179***
	(0.00403)	(0.00441)	(0.00441)	(0.00387)	(0.00387)
Observations	583,670	583,670	583,670	340,750	340,750
R-squared	0.0040	0.004	0.007	0.276	0.277
Number of cid	139,936	139,936	139,936	103,104	103,104
Firm FE	NO	YES	YES	YES	YES
Control Variables	NO	NO	NO	YES	YES
Year FE	NO	NO	YES	NO	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

6.4.5 Robust standard errors

In table 6.4.5 we take the same assumptions as in the main analysis. However, in this robustness test, we have added robust standard errors to all the regressions. The reason for using robust standard errors in panel data is because idiosyncratic errors can have autocorrelation and/or heteroscedasticity. When robust standard errors are added to the regression, the standard errors are clustered to help tackle potential autocorrelation and heteroscedasticity. In table 6.4.5, we see that all ten regression models result in positive and significant DID coefficients. In panel A (columns 1-5) where we investigate the threshold change, we find that the effect of the treatment group is positive and from 0.85% to 6.59% larger than for the control group. In panel B (columns 6-10) where we investigate the tax rate change, we find that the effect of the treatment group is positive and from 0.99% to 6.82% larger than for the control group. The DID coefficients in table 6.4.5 are almost identical to the ones in the main analysis. This is a good sign, because it implies that the standard errors in the main analysis are robust and are not

influenced by autocorrelation or heteroscedasticity. This robustness test supports the findings in the main analysis.

Table 6.4.5.1: Robust Standard Errors, Panel A

Intervention	Threshold change (2010)				
Dependent Variable	Investment: Log change of Total Assets				
	(1)	(2)	(3)	(4)	(5)
	Main model	Firm FE	Firm FE, Year FE	Control, Firm FE	Control, Firm FE, Year FE
DID Interaction term	0.0248***	0.0126***	0.00855***	0.0659***	0.0613***
	(0.00228)	(0.00252)	(0.00252)	(0.00299)	(0.00300)
Observations	714,437	714,437	714,437	416,205	416,205
R-squared	0.0280	0.028	0.043	0.237	0.242
Number of cid	141,688	141,688	141,688	107,228	107,228
Firm FE	NO	YES	YES	YES	YES
Control Variables	NO	NO	NO	YES	YES
Year FE	NO	NO	YES	NO	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6.4.5.2: Robust Standard Errors, Panel B

Intervention	Tax-rate change (2014)				
Dependent Variable	Investment: Log change of Total Assets				
	(6)	(7)	(8)	(9)	(10)
	Main model	Firm FE	Firm FE, Year FE	Control, Firm FE	Control, Firm FE, Year FE
DID Interaction term	0.0203***	0.00997***	0.00508*	0.0682***	0.0653***
	(0.00266)	(0.00294)	(0.00266)	(0.00367)	(0.00369)
Observations	583,670	583,670	583,670	303,823	303,823
R-squared	0.0278	0.028	0.032	0.285	0.287
Number of cid	139,936	139,936	139,936	97,019	97,019
Firm FE	NO	YES	YES	YES	YES
Control Variables	NO	NO	NO	YES	YES
Year FE	NO	NO	YES	NO	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

6.4.6 Young Firms as Treatment group

In this robustness test, we change the assumptions that split the data in treatment and control groups. Young firms are likely to have less employees and less assets than older firms. Young firms also tend to be small firms, which are therefore also likely to have more capital constrains than older firms which tend to be larger in size. Hence, we want to test the assumption that young firms are affected more by a change in the wealth tax, than older firms. In Frank Goyal's research paper, Capital structure decisions (2009), mature firms are defined as firms that are more than five years old. Hence, we will use the company age variable to create a dummy variable that is equal to "1" if company age is five years or less, and "0" otherwise. The treatment group will consist of the young firms, while the control group will consist of the older firms.

In table 6.4.6, we see that regressions in columns (1), (3), (4) and (7) are positive and significant at 0.4% to 6.1%. Regression in column (8) are insignificant, while regressions in columns (2), (5) and (6) are negative and significant at -0.6% to -10.1%.

These conflicting results make us think that company age is not an important factor in the wealth tax discussion. Even though this is a bit surprising, it can be argued that many young firms become large very quickly with an easy access to capital from venture capitalists and private investors, while others stay small even when they are older. Even though many young firms also are small, there are too many young firms that are not. Hence, the effect the young and small firms might generate is cancelled out by the opposite effect young and large firms have. Hence, we cannot conclude that the age of the company affects how firms are affected by changes to the wealth tax policy. In other words, we find that company age is not very relevant in the wealth tax discussion.

Table 6.4.6.1: Young Firms as Treatment Group, Panel A

Intervention	Threshold change (2010)				
Dependent Variable	Investment: Log change of Total Assets				
	(1)	(2)	(3)	(4)	(5)
	Main model	Firm FE	Firm FE, Year FE	Control, Firm FE	Control, Firm FE, Year FE
DID Interaction term	0.00515**	-0.0482***	-0.0838***	0.0653***	0.0257***
	(0.00237)	(0.00307)	(0.00314)	(0.00329)	(0.00368)
Observations	714,437	714,437	714,437	416,205	416,205
R-squared	0.0071	0.008	0.022	0.237	0.241
Number of cid	141,688	141,688	141,688	107,228	107,228
Firm FE	NO	YES	YES	YES	YES
Control Variables	NO	NO	NO	YES	YES
Year FE	NO	NO	YES	NO	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6.4.6.2: Young Firms as Treatment Group, Panel B

Intervention	Tax-rate change (2014)				
Dependent Variable	Investment: Log change of Total Assets				
	(6)	(7)	(8)	(9)	(10)
	Main model	Firm FE	Firm FE, Year FE	Control, Firm FE	Control, Firm FE, Year FE
DID Interaction term	0.00262	-0.104***	-0.121***	0.0222***	-0.0101**
	(0.00261)	(0.00348)	(0.00351)	(0.00405)	(0.00453)
Observations	583,670	583,670	583,670	303,823	303,823
R-squared	0.0033	0.007	0.010	0.283	0.285
Number of cid	139,936	139,936	139,936	97,019	97,019
Firm FE	NO	YES	YES	YES	YES
Control Variables	NO	NO	NO	YES	YES
Year FE	NO	NO	YES	NO	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

6.4.7 Emerging Firms as Treatment group

In this robustness test, we change the assumptions that split the data in treatment and control groups. We want to look at emerging and mature firms. If a firm pays dividend it is likely that the firm is mature. In the research paper, "Valuation of corporate growth opportunities" by Richard Ottoo (2000), emerging and mature firms are separated according to dividend payouts. That is, firms that have never paid dividend are classified as emerging firms. In the research paper, Ottoo finds among other things, that emerging firms are usually younger, have less employees and less total assets. In this analysis, we use dividends payable to separate the treatment and control group, where the treatment group will have dividends payable equal to zero and the control group have dividends payable above zero.

In table 6.4.7, we see that regressions in columns (1), (3), (4), (7) and (8) are positive and significant. Regression in columns (2) and (5) are insignificant, while regression in column (6) is negative and significant. The conflicting result in column (6) is only significant at a 10% level, and the size of the coefficient is very small. It seems clear that investments by emerging firms are affected more than investments by mature firms, after a change in the wealth tax policy. The effect varies from 0.6% to 1.05% in the tax rate sample, while it varies from -0.6% to 1.21% in the threshold sample. Even though there is evidence of some effect from the wealth tax policy on emerging firms, it is generally much lower than for the main analysis where the treatment group consist of small firms in terms of assets and employees.

Table 6.4.7.1: Emerging Firms as Treatment Group, Panel A

Intervention	Threshold change (2010)				
Dependent Variable	Investment: Log change of Total Assets				
	(1)	(2)	(3)	(4)	(5)
	Main model	Firm FE	Firm FE, Year FE	Control, Firm FE	Control, Firm FE, Year FE
DID Interaction term	0.0225***	0.0198***	0.00392	0.0270***	0.0154***
	(0.00284)	(0.00306)	(0.00307)	(0.00246)	(0.00251)
Observations	714,357	714,357	714,357	416,188	416,188
R-squared	0.0082	0.009	0.023	0.235	0.240
Number of cid	141,684	141,684	141,684	107,228	107,228
Firm FE	NO	YES	YES	YES	YES
Control Variables	NO	NO	NO	YES	YES
Year FE	NO	NO	YES	NO	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6.4.7.2: Emerging Firms as Treatment Group, Panel B

Intervention	Tax-rate change (2014)				
Dependent Variable	Investment: Log change of Total Assets				
	(6)	(7)	(8)	(9)	(10)
	Main model	Firm FE	Firm FE, Year FE	Control, Firm FE	Control, Firm FE, Year FE
DID Interaction term	0.00778***	-0.000381	0.00442	0.0109***	0.0123***
	(0.00294)	(0.00322)	(0.00322)	(0.00275)	(0.00275)
Observations	583,560	583,560	583,560	303,812	303,812
R-squared	0.0065	0.007	0.010	0.283	0.285
Number of cid	139,925	139,925	139,925	97,018	97,018
Firm FE	NO	YES	YES	YES	YES
Control Variables	NO	NO	NO	YES	YES
Year FE	NO	NO	YES	NO	YES

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

6.4.8 International Owner as Control group

In this robustness test, we change the assumptions that split the data in treatment and control groups. International owners are not affected by changes in the Norwegian wealth tax policy. In this analysis, the dummy variable that indicates whether largest owner in the firm is international, is used for robustness checks. More specifically, if the dummy variable "International owner" is equal to one, then the observation is included in the control group. However, since the variable is not enough to separate small and large firms, we will use the same assumptions of treatment and control group as the main analysis, but as an extension, only firms where largest owner is international is included in the control group. This operation drastically reduces the number of observations in the control group, from several hundred thousand to just a few thousands.

In table 6.4.8, we see that seven out of eight regressions are positive and significant at a 1%-level, where the effect varies from 0.96% to 6.76% depending on the model specifications. Regression in column (2) is also positive, but insignificant. In fact, this robustness test yields very similar results as the main analysis which is positive. It implies that large firms are affected less than small firms, and that large firms are affected similarly when they have international or domestic owners.

Table 6.4.8.1: International owner, Panel A

Intervention	Threshold change (2010)				
Dependent Variable	Investment: Log change of Total Assets				
	(1)	(2)	(3)	(4)	(5)
	Main model	Firm FE	Firm FE, Year FE	Control, Firm FE	Control, Firm FE, Year FE
DID Interaction term	0.0224***	0.0114***	0.0117***	0.0662***	0.0613***

	(0.00221)	(0.00247)	(0.00245)	(0.00249)	(0.00249)
Observations	714,437	714,437	714,437	416,205	416,205
R-squared	0.0161	0.016	0.032	0.237	0.242
Number of cid	141,688	141,688	141,688	107,228	107,228
Firm FE	NO	YES	YES	YES	YES
Control Variables	NO	NO	NO	YES	YES
Year FE	NO	NO	YES	NO	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6.4.8.2: International owner, Panel B

Intervention	Tax-rate change (2014)				
Dependent Variable	Investment: Log change of Total Assets				
	(6) Main model	(7) Firm FE	(8) Firm FE, Year FE	(9) Control, Firm FE	(10) Control, Firm FE, Year FE
DID Interaction term	0.0106***	0.00213	-0.000884	0.0682***	0.0656***
	(0.00249)	(0.00280)	(0.00280)	(0.00304)	(0.00304)
Observations	583,670	583,670	583,670	303,823	303,823
R-squared	0.0178	0.018	0.022	0.285	0.287
Number of cid	139,936	139,936	139,936	97,019	97,019
Firm FE	NO	YES	YES	YES	YES
Control Variables	NO	NO	NO	YES	YES
Year FE	NO	NO	YES	NO	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

6.4.9 Falsification testing

In this test, we want to test the key assumption of the difference-in-differences method, known as the "Parallel Paths" assumption. This assumption states that in the absence of intervention, the average change in outcome for the treatment group should equal the average change in outcome for the control group. Intuitively, this means that in the absence of a change in wealth tax policy, the regression models should yield insignificant DID coefficients.

We test the parallel path assumption, by running the same regression as in the main analysis, but for a time-interval where there is little to no change in the wealth tax policy. From year 2000 to 2004 there were no changes in the wealth tax policy in Norway. In this period, the tax was divided into 0.7% to the municipality and 0.4% to the state with a threshold of respectively 120 000 NOK and 540 000 NOK for municipality and state. In 2005, 2006 and 2007 there where a small yearly increase in the threshold to the municipality. Specifically, the threshold for municipality increased to 151 000 NOK in 2005, 200 000 NOK in 2006 and 220 000 NOK in 2007, while the percentage and the threshold for state remained the same.

We start by using 2002 as intervention year. Moreover, we repeat the analysis several times, only moving the intervention year. Note, that we include three years in the pre-intervention period and three years in the post-intervention period in this test. However, for the first intervention in 2002, only two years are included in the pre-intervention period, as we only have data from 2000.

Table 6.4.9 below shows the DID coefficients and the year-column represents the year used as intervention year. For the years where there was little to no change in the wealth tax policy, most of the regression model result in insignificant DID coefficients. There are a few exceptions, in 2002 two out of three models result in a treatment effect of 0.73% to 0.78%. However, the significance level is very weak at a 10% level. That is, a 10% probability that the there is no actual effect. Also, in 2004, the models find a negative effect on the treatment group of -0.59% to -0.76%. Again, the significance level is weak, and the coefficient size is very small. Hence, the parallel path assumption seems to hold for the years without any real intervention. This becomes clearer, when we look at the years where there are real changes to the wealth tax policy.

All regression models from 2006 to 2015 yields positive and significant DID coefficients. This coincides with how the wealth tax policy has been changed in Norway. When looking at historical data, we see that the wealth tax policy has been changed yearly, in the same direction in all these years. Based on the results of this analysis, we see that there is a distinct difference between choosing an intervention where the government made changes to the wealth tax policy, and an intervention where they did not. This indicates that the parallel path assumption is fulfilled.

Table 6.4.9: Falsification test

		(1)	(2)	(3)
Year	VARIABLES	Main model	Fixed Effects	FE Year FE
2002	DID	0.00584	0.00780*	0.00731*
2003	DID	0.000727	-0.000193	-0.000818
2004	DID	-0.00764***	-0.00597**	-0.00668**
2005	DID	-0.00196	0.000490	-0.00389
2006	DID	0.0192***	0.0193***	0.0132***
2007	DID	0.0172***	0.0134***	0.0103***
2008	DID	0.0345***	0.0256***	0.0249***
2009	DID	0.0341***	0.0229***	0.0223***
2010	DID	0.0248***	0.0126***	0.00855***
2011	DID	0.0250***	0.0101***	0.00590**
2012	DID	0.0230***	0.00901***	0.00459**

2013	DID	0.0215***	0.00799***	0.00383
2014	DID	0.0203***	0.00997***	0.00508*
2015	DID	0.0132***	0.00839**	0.00545
Firm FE		NO	YES	YES
Control Variables		NO	NO	NO
Year FE		NO	NO	YES

*** p<0.01, ** p<0.05, * p<0.1

6.5 Break down investments

In this chapter, we want to break down investments to several sub parts, to investigate how they are individually affected by changes in the wealth tax policy. Each sub part of investment will be compared to the results of the main analysis. This analysis has the same setup as the main analysis. However, we change the dependent variable, to be sub parts of investments. Firstly, we know that the total assets variable is constructed from total fixed assets and total current assets. So, we will start by looking at them individually. Further on, we will look at tangible assets, intangibles assets, total investments, and R&D.

6.5.1 Fixed assets

In this analysis, we will investigate the effect the changes of wealth tax policy have on investments in fixed assets. From theory, we know that fixed assets are long-term assets that firms buy for production or supply of goods or services, for rental to third parties, or for use in the organization. In this analysis, the logarithmic change of total fixed assets is the dependent variable. For the average firm in our dataset, total fixed assets accounts for approximately 15% of total assets. The regression results are shown in table 6.5.1.

Firstly, we look at the threshold sample where 2010 is the intervention year. The average firm in the treatment group has an average of NOK 272 000 in total fixed assets. On the other hand, the average firm in the control group has an average of NOK 1 731 000 in total fixed assets. All regression models in the threshold sample (columns 1-5) result in positive and significant DID coefficients at a 1%-level. The intervention effect on the treatment group varies from 2.73% to 13.3% depending on the model specification.

Secondly, we look at the tax rate sample where 2014 is the intervention year. The average firm in the treatment group has an average of NOK 268 000 in total fixed

assets. The average firm in the control group has an average of NOK 1 722 000 in total fixed assets. In the tax rate sample, regression in columns (6), (9) and (10) are positive and significant DID coefficients at a 1%-level. The regression where fixed effect is included in column (7) gets insignificant DID coefficient, while regression with fixed effect and year effect in column (8) has negative and significant DID coefficient at a 5%-level. The conflicting results in columns (7) and (8) have weak significance levels and the sizes of the coefficients are very small in relation to the other regression models. The intervention effect on the treatment group varies from -1.62% to 9.48% depending on the model specification.

Overall the regression model in columns (1), (2), (3), (4), (5), (6), (9) and (10) in table 6.5.1 yield positive and significant DID coefficients. This implies that there is a positive effect on the treatment group after the intervention. As the size of the DID coefficients are larger than for the main analysis in table 6.3, it indicates that investments in total fixed assets are affected more by a change in the wealth tax policy, compared to investments in total assets. That is, a positive change in the wealth tax policy from the firms' perspective, will make small firms invest more in fixed assets relative to large firms. Also, the small firms will invest percentage wise more in fixed assets than in total assets relative to large firms, after the policy change. Hence, we conclude that investments through fixed assets are largely affected by the wealth tax.

Table 6.5.1.1: Fixed Assets, Panel A

Intervention	Threshold change (2010)				
Dependent Variable	Investment: Log change of Total Assets				
	(1)	(2)	(3)	(4)	(5)
	Main model	Firm FE	Firm FE, Year FE	Control, Firm FE	Control, Firm FE, Year FE
DID Interaction term	0.0442***	0.0315***	0.0273***	0.133***	0.129***
	(0.00460)	(0.00546)	(0.00546)	(0.00599)	(0.00597)
Observations	634,999	634,999	634,999	439,730	449,291
R-squared	0.0048	0.005	0.007	0.268	0.270
Number of cid	128,785	128,785	128,785	110,308	111,475
Firm FE	NO	YES	YES	YES	YES
Control Variables	NO	NO	NO	YES	YES
Year FE	NO	NO	YES	NO	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6.5.1.2: Fixed Assets, Panel B

Intervention	Tax-rate change (2014)				
Dependent Variable	Investment: Log change of Total Assets				
	(6)	(7)	(8)	(9)	(10)
	Main model	Firm FE	Firm FE, Year FE	Control, Firm FE	Control, Firm FE, Year FE
DID Interaction term	0.0142***	-0.0101	-0.0162**	0.0938***	0.0948***
	(0.00529)	(0.00627)	(0.00628)	(0.00719)	(0.00722)
Observations	513,119	513,119	513,119	330,643	330,643
R-squared	0.0037	0.004	0.005	0.307	0.307
Number of cid	125,348	125,348	125,348	98,042	98,042
Firm FE	NO	YES	YES	YES	YES
Control Variables	NO	NO	NO	YES	YES
Year FE	NO	NO	YES	NO	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

6.5.2 Current assets

In this analysis, we will investigate the effect, changes on the wealth tax policy have on investments in total current assets. From theory, we know that current assets are important to businesses because they can be used to fund day-to-day operations and pay ongoing expenses. Current assets are liquid assets such as cash, receivables and inventories (inventories are not always liquid). Since current assets are used to fund day-to-day operations and products the company sell, we usually think of current assets as short-term assets. In this analysis, the logarithmic change of total current assets is the dependent variable. For the average firm in our dataset, total current assets accounts for approximately 85% of total assets. The results are shown in table 6.5.2.

Firstly, we look at the threshold sample where 2010 is the intervention year. The average firm in the treatment group has an average of NOK 871 000 in total current assets. The average firm in the control group has an average of NOK 6 024 000 in total current assets. Regression in columns (1), (4) and (5) in panel A, result in positive and significant DID coefficients at a 1%-level. Regression in columns (2) and (3) yields insignificant DID coefficients. The intervention effect on the treatment group varies from 0% (insignificant) to 5.84% depending on the model specification.

Secondly, we look at the tax rate sample where 2014 is the intervention year. The average firm in the treatment group has an average of NOK 898 000 in total current assets, while the average firm in the control group has an average of NOK

5 845 000 in total current assets. Regression in columns (6), (9) and (10) in panel A, result in positive and significant DID coefficients at a 1%-level. But regression in columns (7) and (8) yields insignificant DID coefficients. The intervention effect on the treatment group varies from 0% (insignificant) to 6,27% depending on the model specification.

Overall, regression model in columns (1), (4), (5), (6), (9), (10) yield positive and significant DID coefficients. This implies that there is a positive effect on the treatment group after the intervention. As the size of the DID coefficients are smaller in this analysis than for the main analysis in table 6.3, it indicates that investments in current assets are affected less by the wealth tax change, compared to investments in total assets. Hence, a positive change in the wealth tax policy from the firms' perspective, will make small firms invest more in current assets relative to large firms. Also, the small firms will invest (percentage wise) less in current assets than in total assets relative to large firms, after the policy change. These results are not surprising, as our main analysis investigates total assets (current and fixed combined), and we found a larger effect on the fixed assets than for the total assets. Hence, we conclude that investments through current assets are affected by the wealth tax, but less than total assets and fixed assets.

Table 6.5.2.1: Current Assets, Panel A

Intervention	Threshold change (2010)				
Dependent Variable	Investment: Log change of Total Assets				
	(1)	(2)	(3)	(4)	(5)
	Main model	Firm FE	Firm FE, Year FE	Control, Firm FE	Control, Firm FE, Year FE
DID Interaction term	0.0126***	0.00177	-0.00280	0.0396***	0.0584***
	(0.00305)	(0.00353)	(0.00351)	(0.00382)	(0.00339)
Observations	713,381	713,381	713,381	415,728	440,710
R-squared	0.012	0.012	0.022	0.148	0.301
Number of cid	141,555	141,555	141,555	107,076	113,334
Firm FE	NO	YES	YES	YES	YES
Year FE	NO	NO	YES	NO	YES
Control Variables	NO	NO	NO	YES	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6.5.2.2: Current Assets, Panel B

Intervention	Tax-rate change (2014)				
Dependent Variable	Investment: Log change of Total Assets				
	(6)	(7)	(8)	(9)	(10)
	Main model	Firm FE	Firm FE, Year FE	Control, Firm FE	Control, Firm FE, Year FE
DID Interaction term	0.0131***	0.00625	0.00125	0.0627***	0.0559***
	(0.00349)	(0.00406)	(0.00406)	(0.00429)	(0.00430)
Observations	582,604	582,604	582,604	322,956	322,956
R-squared	0.0114	0.012	0.014	0.314	0.316

Number of cid	139,785	139,785	139,785	104,970	104,970
Firm FE	NO	YES	YES	YES	YES
Control Variables	NO	NO	NO	YES	YES
Year FE	NO	NO	YES	NO	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

6.5.3 Tangible assets

In this analysis, we will investigate the effect changes in wealth tax policy have on investments in tangible assets. This variable is a large sub-part of the total fixed assets variable, and in our dataset it makes up for about 30% of the total fixed assets variable. From theory, we know that tangible assets are physical assets like plant, machinery, buildings etc. The logarithmic change of tangible assets will be the dependent variable in the analysis. The results are shown in table 6.5.3.

Firstly, we look at the threshold sample. The average firm in the treatment group has an average of NOK 197 000 in tangible assets while the average firm in the control group has an average of NOK 985 000 in tangible assets. Regression in columns (1), (4) and (5) in panel A, result in positive and significant DID coefficients at a 1%-level. Regression in column (2) yields insignificant DID coefficient. While regression in column (3) yields negative and significant DID coefficient at a 5%-level. The intervention effect on the treatment group varies from -1.18% to 9.00% depending on the model specification.

Secondly, we look at the tax rate sample. The average firm in the treatment group has an average of NOK 194 000 in tangible assets while the average firm in the control group has an average of NOK 1 001 000 in tangible assets. Regression in columns (9) and (10) in panel B, result in positive and significant DID coefficients at a 1%-level. Regression in column (6) yields insignificant DID coefficient. While regression in columns (7) and (8) yields negative and significant DID coefficient at a 1%-level. The intervention effect on the treatment group varies from -4.76% to 7.28% depending on the model specification.

Overall, regression model in columns (1), (4), (5), (9) and (10) yields positive and significant DID coefficients while regression model in columns (3), (7) and (8) yields negative and significant DID coefficients. These results are quite conflicting. However, we lean towards a positive treatment effect. The reason for

this is that the significance and size of the negative DID coefficients are a lot smaller and weaker than for the positive DID coefficients. Also, the models that yield positive DID coefficients are considered the most reliable, as they have higher explanatory power and more extensions are included. Specifically, the significant control variables are included, which is considered as very important. Moreover, the tangible assets variable is part of the total fixed assets variable, which proved to be strongly and positively affected by the wealth tax changes. This carefully lead us to the conclusion that a positive change in the wealth tax policy from the firms' perspective, results in higher investments in tangible assets for small firms relative to large firms, after the change. This implies that investments through tangible assets are affected by the wealth tax policy.

Table 6.5.3.1: Tangible Assets, Panel A

Intervention	Threshold change (2010)				
Dependent Variable	Investment: Log change of Total Assets				
	(1)	(2)	(3)	(4)	(5)
	Main model	Firm FE	Firm FE, Year FE	Control, Firm FE	Control, Firm FE, Year FE
DID Interaction term	0.0273***	-0.00579	-0.0118**	0.0900***	0.0892***
	(0.00488)	(0.00599)	(0.00598)	(0.00674)	(0.00670)
Observations	558,938	558,938	558,938	391,532	398,223
R-squared	0.0063	0.007	0.010	0.283	0.283
Number of cid	116,845	116,845	116,845	100,089	100,928
Firm FE	NO	YES	YES	YES	YES
Control Variables	NO	NO	NO	YES	YES
Year FE	NO	NO	YES	NO	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6.5.3.2: Tangible Assets, Panel B

Intervention	Tax-rate change (2014)				
Dependent Variable	Investment: Log change of Total Assets				
	(6)	(7)	(8)	(9)	(10)
	Main model	Firm FE	Firm FE, Year FE	Control, Firm FE	Control, Firm FE, Year FE
DID Interaction term	0.00587	-0.0409***	-0.0476***	0.0683***	0.0728***
	(0.00576)	(0.00699)	(0.00700)	(0.00788)	(0.00792)
Observations	445,189	445,189	445,189	315,648	315,648
R-squared	0.0024	0.005	0.006	0.322	0.323
Number of cid	111,823	111,823	111,823	96,009	96,009
Firm FE	NO	YES	YES	YES	YES
Control Variables	NO	NO	NO	YES	YES
Year FE	NO	NO	YES	NO	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

6.5.4 Intangible assets

In this analysis, we will investigate the effect changes on wealth tax policy have on investments in intangible assets. Intangible assets are non-physical assets like corporate intellectual property and goodwill. The intangible assets variable is also

a sub-part of the total fixed assets variable. The dependent variable in this analysis is the logarithmic change of intangible assets. Most firms in the dataset do not have intangible assets, as almost 60% of the observations are removed when we drop observations with intangible assets equal to zero or less.

Firstly, we look at the threshold sample with 2010 as the intervention year. The average firm in the treatment group has an average of NOK 197 000 in intangible assets while the average firm in the control group has an average of NOK 985 000 in intangible assets. Regression in columns (1), (2), (4) and (5) in table 6.5.4.1, result in positive and significant DID coefficients at a 1%-level and 5%-level for the regression in column (2). While the regression in column (3) yields insignificant DID coefficient. The intervention effects on the treatment group varies from 0% (insignificant) to 5.76% depending on the model specification.

Continuing with the tax rate sample, we used 2014 as intervention year in table 6.5.4.2. The average firm in the treatment group has an average of NOK 49 000 in intangible assets while the average firm in the control group has an average of NOK 195 000 in intangible assets. Regression in columns (9) and (10) in panel B, result in positive and significant DID coefficients at a 1%-level. Regression in columns (6) and (7) yields insignificant DID coefficients, while regression in column (8) result in negative and significant DID coefficient. The intervention effect on the treatment group varies from -3.82% to 5.00% depending on the model specification.

Overall, the regression model in columns (1), (2), (4), (5), (9) and (10) yields positive and statistically significant DID coefficients. This implies that there is a positive effect on the treatment group after the intervention. As the size of the DID coefficients are smaller in this analysis than for the main analysis in table 6.3, it indicates that investments in intangible assets are affected less by the wealth tax change, compared to investments in total assets. Hence, a positive change in the wealth tax policy from the firms' perspective, will make small firms invest more in intangible assets relative to large firms. Also, the small firms will invest (percentage wise) less in intangible assets than in total assets relative to large firms, after the policy change.

Table 6.5.4.1: Intangible Assets, Panel A

Intervention	Threshold change (2010)				
Dependent Variable	Investment: Log change of Total Assets				
	(1)	(2)	(3)	(4)	(5)
	Main model	Firm FE	Firm FE, Year FE	Control, Firm FE	Control, Firm FE, Year FE
DID Interaction term	0.0300***	0.0269**	0.0170	0.0576***	0.0483***
	(0.00945)	(0.0119)	(0.0119)	(0.0139)	(0.0140)
Observations	248,572	248,572	248,572	178,204	176,143
R-squared	0.0002	0.001	0.004	0.028	0.030
Number of cid	62,687	62,687	62,687	52,562	52,119
Firm FE	NO	YES	YES	YES	YES
Year FE	NO	NO	YES	NO	YES
Control Variables	NO	NO	NO	YES	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6.5.4.2: Intangible Assets, Panel B

Intervention	Tax-rate change (2014)				
Dependent Variable	Investment: Log change of Total Assets				
	(6)	(7)	(8)	(9)	(10)
	Main model	Firm FE	Firm FE, Year FE	Control, Firm FE	Control, Firm FE, Year FE
DID Interaction term	0.0134	-0.0191	-0.0382***	0.0500***	0.0380**
	(0.0114)	(0.0142)	(0.0142)	(0.0189)	(0.0190)
Observations	196,475	196,475	196,475	125,218	125,218
R-squared	0.007	0.007	0.012	0.034	0.035
Number of cid	57,028	57,028	57,028	44,621	44,621
Firm FE	NO	YES	YES	YES	YES
Year FE	NO	NO	YES	NO	YES
Control Variables	NO	NO	NO	YES	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

6.5.5 Research & Development and Total investments

We also tried to do the same analysis using logarithmic change of R&D and logarithmic change of total investments as dependent variables. All results were insignificant, meaning that investments in R&D and Total investments were not affected by changes to wealth tax policy. Note that very few firms had information regarding these variables, which made the analyses weak. That is, when removing observations with zero or less in R&D or total investments, we were left with only very few observations.

6.5.6 Conclusion of break-down investments analysis

We wanted to better understand which part of investments that is affected by the wealth tax. After breaking down investments in several sub-parts, we conclude that fixed assets are most affected by the wealth tax policy. That is, small firms are likely to invest more in total fixed assets, relative to large firms, after a positive change in the wealth tax policy from the firms' perspective. These

investments are usually long term investments, that cannot be converted easily in to cash. Current assets are also affected by the wealth tax change. Current assets are more often short term investments, used for day-to-day operations, like inventories and receivables. Current assets tend to be more liquid. When we broke investments further down to tangible and intangible assets, the results were more volatile and less valid. This could be due to large variations from firm to firm or due to the high amount of observations that dropped out of the analysis. In any way, we found that investments in intangible assets were less affected by changes in the wealth tax policy. This is not so surprising, as intangible are not physical by nature. Moreover, investments in tangible assets were more affected by changes in the wealth tax policy. However, as part of the total fixed asset variable, tangible assets and intangible assets were less affected than the other parts of the total fixed assets variable. From the CCGR database, we found that the existing part of total fixed assets is total financial assets and other fixed assets.

To summarize, we conclude that small businesses are more likely to invest in fixed assets after a positive change in the wealth tax policy from the firms' perceptive. These assets are typically long-term investments as they tend to be costly and kept for several years, often depreciated. Also, these investments tend to have an indirect effect on the business. For example, a company will buy new equipment, plant or machinery that could increase efficiency or quality of a product or service that the business is selling. Hence, investments through long-term indirect assets are the main driver of the effect found on investments caused by a change in the wealth tax policy.

6.6 Wealth tax policy and firm entry and exit

In order to analyse the effect of wealth tax on firm entry and firm exit, we apply the difference-in-difference (DID) technique on pooled probability regressions. This is used as panel data regressions are not appropriate in this analysis because the binary dependent variable is not changing at firm level. Both Firm Exit and Firm Entry are binary dependent variables. They take either the value of one if the observation is in the year the firm enters or exits the market, and zero otherwise. The same treatment and control groups as previously are used for this analysis with the same data samples (threshold and tax rate sample). In the two tables in

this analysis, columns (1) and (3) are the pooled probability regressions. That is, a probability regression with a binary dependent variable, where the extension of year fixed effect is included. In columns (2) and (4), a vector of control variables is included in addition to the year fixed effect. Note that we have only included the covariates that are significant at a 10%-level or less in this model. Same as in the investment analysis, the DID interaction term from the regression is the coefficient of interest, as it captures the effect of the change in wealth tax policy on firm entry and firm exit for the small firms relative to large firms.

6.6.1 Firm Exit

In this analysis, we will investigate the effect changes in the wealth tax policy have on firms exiting the market. If DID coefficient is negative and significant, it implies that small firms exit less relative to large firms after the change in tax or threshold. This is the alternative hypothesis for this analysis, while the null hypothesis is that firm exit is unaffected by changes on the wealth tax policy.

Table 6.6.1.1 and 6.6.1.2 shows the summary statistics. In the threshold sample, we see that 33 573 firms exit the market from the treatment group, while 14 152 exit from the control group. In other words, 12.99% of the firms in the treatment group exit, while 4.69% of the firms in the control group exit. In the tax rate sample, we see that 22 653 firms exit from the treatment group. This is 12.96% of the firms in the treatment group. From the control group, 8 756 firms exit, which is 4.43% of the firms in the control group. Not surprisingly, small firms exiting the market is more common than large firms exiting the market.

Table 6.6.1.1: Table Threshold 2010 sample

Year	Firm Exit	Treatment	Control
2006	7155	3484	1624
2007	8689	4157	2019
2008	8048	4030	1665
2009	7923	3981	1695
2010	8515	4218	1757
2011	8420	4177	1758
2012	9370	4807	1841
2013	8996	4719	1793
Total	67116	33573	14152
Mean	8.37 %	12.99 %	4.69 %

Table 6.6.1.2: Tax rate 2014 sample

Year	Firm Exit	Treatment	Control
2010	8515	4218	1757
2011	8420	4177	1758
2012	9370	4807	1841
2013	8996	4719	1793
2014	8762	4732	1607
2015	0	0	0
Total	44063	22653	8756
Mean	8.21 %	12.96 %	4.43 %

Regression results are summarized in the table 6.6.1.3. We see that for the threshold sample, the DID coefficients are significant and positive at 3.39% and 9.06%, for the regressions in columns (1) and (2). For the tax rate sample, the DID coefficients are significant and positive, both for the standard model in column (3) and when control variables are added in column (4), at 2.41% and 8.96% respectively.

Table 6.6.1.3: Firm Exit

Intervention	Threshold change 2010		**Intervention**	Tax rate change 2014	
Dependent variable	Firm Exit		**Dependent variable**	Firm Exit	
	(1) Year FE	(2) Control Year FE		(3) Year FE	(4) Control Variables
DID Interaction term	0.0339***	0.0906***	**DID Interaction term**	0.0241*	0.0896***
	(0.00825)	(0.0159)		(0.0125)	(0.0251)
Observations	801,947	453,150	**Observations**	536,910	297,637
Year FE	YES	YES	**Year FE**	YES	YES
Control Variables	NO	YES	**Control Variables**	NO	YES
Standard errors in parentheses			Standard errors in parentheses		
*** p<0.01, ** p<0.05, * p<0.1			*** p<0.01, ** p<0.05, * p<0.1		

The results imply that small firms exit more frequently relative to large firms after the positive change in the wealth tax policy from firms' perspective. There are several reasons why these results are doubtful. Firstly, the model seems to be a very weak predictor of firm exit, as the r-squared is low. Secondly, the number of firms exiting in the control sample is very low, especially for the tax rate sample which has only one year of post-intervention data. Small firms are less financially stable and will therefore exit more often as we also see in the summary statistics. Hence, small changes in firm exit for the control group, will generate large impact percentagewise. More importantly, the wealth tax is incremental in size compared to other taxes, so it is highly unlikely that changes in the wealth tax alone, would force companies to bankruptcy. This implies that firm exit is not affected much by the wealth tax. It seems clear that there are other factors, outside the model that influence the results. In other words, there are other reasons than the wealth tax, outside the model, that leads to percentagewise more exits for small firms, in the years after a wealth tax policy change. Hence, we must keep the null hypothesis. That is, firm exit is unaffected by the wealth tax policy.

6.6.2 Firm Entry

In this analysis, we will investigate the effect changes on wealth tax policy have on firm entering the market. If the regression yields positive and significant DID coefficients, it implies that small firms enter more relative to large firms after the positive change in tax or threshold. This is the alternative hypothesis for this analysis, while the null hypothesis is that firm entry is unaffected by changes on the wealth tax policy.

Tables 6.6.2.1 and 6.6.2.2 shows the summary statistics. In the threshold sample, we see that 18 217 firms enters the market from the treatment group, while 3 888 enter from the control group. In other words, 7.05% of the firms in the treatment group enter, while 1.29% of the firms in the control group enter. In the tax rate sample, we see that 17 123 firms enter from the treatment group. This is 7.82% of the firms in the treatment group, while 3 358 firms enter from the control group, which is equivalent to 1.37% of the firms in the control group. Not surprisingly, small firms entering the market are a lot more common than large firms entering.

Table 6.6.2.1: Threshold 2010 sample

Year	Firm Entry	Treatment	Control
2006	3417	1997	498
2007	3205	1920	502
2008	3257	1909	515
2009	2750	1705	381
2010	3208	1966	470
2011	3406	2146	465
2012	5381	3673	562
2013	4315	2901	495
Total	28939	18217	3888
Mean	1.44 %	7.05 %	1.29 %

Table 6.6.2.2: Tax rate 2014 sample

Year	Firm Entry	Treatment	Control
2010	3208	1966	470
2011	3406	2146	465
2012	5381	3673	562
2013	4315	2901	495
2014	4385	2857	501
2015	6208	3580	865
Total	26903	17123	3358
Mean	1.79 %	7.82 %	1.37 %

Regression results are summarized in the table 6.6.2.3. For the threshold sample, the DID coefficient is significant and positive at 8.81% for the regression in column (1). Meaning that small firms enter more frequently relative to large firms after the change in the threshold in 2010. However, when we include the control variables in the regression, the DID coefficient is insignificant. For the tax rate sample, the DID coefficients are largely significant and negative, both for the main regression and when control variables are added, at -16.4% and -19.9%,

respectively. This implies that in the tax rate sample, small firms enter less than large firms after a positive change in wealth tax policy from the firm' perspective.

Table 6.6.2.3: Firm Entry

Intervention	Threshold change 2010		**Intervention**	Tax rate change 2014	
Dependent variable	Firm Entry		**Dependent variable**	Firm Entry	
	(1)	(2)		(3)	(4)
	Main model	Control Variables		Main model	Control Variables
DID interaction term	0.0881***	0.0148	**DID interaction term**	-0.164***	-0.199***
	(0.0102)	(0.0272)		(0.0110)	(0.0322)
Observations	2,007,840	37,629	**Observations**	1,505,880	30,564
Number of cid	250,980	29,934	**Number of cid**	250,980	24,268
Year FE	YES	YES	**Year FE**	YES	YES
Control Variables	NO	YES	**Control Variables**	NO	YES
Standard errors in parentheses			Standard errors in parentheses		
*** p<0.01, ** p<0.05, * p<0.1			*** p<0.01, ** p<0.05, * p<0.1		

The threshold sample and the tax rate sample give us conflicting results to positive changes on the wealth tax policy. This immediately make us think that there are other factors and not wealth tax, that drives changes in firm entry. Also, the r-squared is very low for the model implying that the model is a very weak predictor of firm entry. Moreover, the number of firms entering in the control sample is very low, especially for the tax rate sample, since most newly established firms entering the market will be categorized as small firms for obvious reasons. Hence, when a few large firms enter the market in the tax rate sample, the effect on the DID coefficient is large. This is especially important, since we only have one year of observations in the post-intervention period. Consequently, we end up by keeping the null hypothesis, which states that firm entries are unaffected by changes in the wealth tax policy.

6.6.3 Conclusion of wealth tax and firm exit and entry

A firm's decision to exit or enter a market is a very large decision. Probably the most important decision a firm must take. Such a decision tends to be influenced by main macroeconomic factors and business cycles of the economy. Wealth tax is a tax that is incremental in size. Intuitively, it seems clear that the conservative and most likely scenario is that small changes in the wealth tax, hardly would affect the largest decision a firm must make, to enter or exit a market. After analysing firm entry and exit of small and large firms, applying the DID-technique, we find exactly that. Both in the firm exit and in the firm entry analysis, we find conflicting results, that seem to be driven by factors outside the

regression model. Consequently, these factors indicate that there is no significant relationship between a change in the wealth tax policy and a firm's decision to enter or exit a market.

6.7 Thesis discussion and conclusion

The opponents of Norway's wealth tax policy, argue that the tax hurts small firms' ability to grow and invest. On the other hand, the supporters of the tax state that the tax does not affect small firms negatively, and that the tax is essential for maintaining a progressive tax-system in Norway. Small firms are the largest segment of firms in an economy and their value creation should not be underestimated. Most large corporations we see today, once started as small firms. Therefore, entrepreneurship and innovation by small firms must be considered as very important macroeconomic determinants for a country's overall economic growth.

In this thesis, the objective was to empirically test these conflicting views, to better understand the impact wealth tax has on small firms. We have investigated if the wealth tax affects small firms' ability to grow and invest. In other words, we have analysed the effect of changes to the wealth tax policy on company investments and firm entry or firm exit. Both changes on the wealth tax policy that are analysed in the thesis, are considered as positive for small firms.

The main findings from the firm investment analysis, imply that small firms' investment opportunities are negatively affected by the Norway's wealth tax policy. Intuitively, after the threshold limit increased with 48.9% in 2010, small firms invested between 0.86% to 6.59% more relative to large firms, as a direct consequence of the positive change in the wealth tax policy. Rough estimates of the NOK value this increase in investments have for the average small firm in the treatment group is between NOK 7 159 and NOK 55 180, or between NOK 1.85 billion to NOK 14.26 billion for all small firms in the threshold sample. Similarly, the regression results imply that in the period after the tax reduction of 0.10 percentage points, small firms invested between 0.51% to 6.82% more relative to large firms, as a direct consequence of the positive change in the wealth tax policy. Rough estimates of the NOK value this increase in investments had for the

average small firm in the treatment group, is between NOK 4 088 and NOK 54 880, or between NOK 0.89 billion to NOK 12.02 billion for all small firms in the tax rate sample. In the robustness test chapter, we find that a similar relationship holds when the assumptions behind the model are tested. This includes removal of subsidiary firms, inclusion of the whole time-interval, inclusion of robust standard errors and restricting large firms to have international owners. Moreover, we find that the firm size is negatively correlated with the impact of wealth tax on firm investment. In other words, the effect the wealth tax has on company investment increases as the firm gets smaller, and reduces as the firm becomes larger. Moreover, we find that young firms in terms of company age not necessarily are affected differently than older firms. We find that emerging firms are affected more than mature firms, when looking at firms' dividend pay-out policy, where emerging firms are defined as firms that do not pay dividend. Through a falsification test, where the intervention is set at years with no change in the wealth tax policy, we find evidence that supports the "parallel path" assumption. To be able to correctly interpret results in a difference-in-differences world, the parallel path assumption must hold.

In the break-down investment analysis, we find that investments in long-term indirect assets are the main driver of the effect found on investments, caused by a change in the wealth tax policy.

We find that firms' decision to enter or exit the market, is unaffected by the wealth tax policy.

In this thesis, we have found that small business owners' investment opportunities, are negatively affected by the wealth tax. The estimates indicate that the effect is large enough, to question if today's wealth tax policy is optimal. Hence, we suggest that the policy should be evaluated. On the other hand, the wealth tax has an important role in maintaining the tax system progressive. Removing the wealth tax completely, therefore suggest that a replacement tax would be needed to properly tax the wealthiest in the country. There is still much research to be done on the topic before one could conclude with a removal of the wealth tax. Instead, we would recommend that the Norwegian government increased the threshold limit for the wealth tax, so that small business owners

would not be exposed to the tax. If we look at the few European neighbours that still use wealth tax, the initial threshold limit are four to five times higher than in Norway. In other words, small business owners in Spain, France and Iceland are not exposed to wealth tax in these countries.

6.8 Weaknesses

The most important weakness to mention is due to the restricted dataset. Since we do not have information about business owners' wealth and exact wealth tax payments, we had to use proxies to develop treatment and control groups. Even though we have tested our proxies in several ways, we can never know their accuracy for certain.

It is also important to notice that we do not account for complex changes in the taxing system, related to for example different treatment of asset classes like stocks and real estate and debts etc. Norwegian firms might also be affected by more complex wealth tax changes, which would be interesting to look at for further research.

6.9 Suggestions for further research

Wealth tax is a very complex tax that has not been researched much at this point. Hence, there are a lot of possibilities for further research. However, the main problem is that the tax has so many toeholds and usable data are hard to come by for researchers. In other words, the wealth tax is constructed in a way that makes it hard for researchers to analyse the effect of it. Suggestions for further research include evaluating the effect wealth tax has on company investments as compared to other taxes like corporate tax and dividend tax. A second suggestion could be to analyse if Norway's wealth tax policy affects people and firm's decision to leave the country, and thereby bringing wealth and capital with them. This has been identified as a negative effect of the wealth tax in France, in which they haven't been able to solve. A third suggestion could be to research if the wealth tax lead firms to invest based on tax planning with after-tax returns rather than highest gross returns. This suggestion is particularly interesting in Norway, as it is no secret that the taxation on wealth in various asset classes is very different. A

fourth option could be to analyse how the tax potentially increases inequality between municipalities in Norway. Wealth tax together with property tax is the main source of tax income for municipalities with 82% of the total wealth tax income, distributed to municipalities. Hence, municipalities with many rich individuals are getting a lot more tax revenue than the rest.

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Appendices

Appendix 1

Type	Variable name	Description
Dependent Variable	Investment	Log change of total assets = LN(Total Asset-L.Total Asset)
Dependent Variable	Sub-part Investment Fixed	Log change of fixed assets = LN(Fixed Asset-L.Fixed Asset)
Dependent Variable	Sub-part Investment Current	Log change of current assets = LN(Current Asset-L.Current Asset)
Dependent Variable	Sub-part Investment Tangible	Log change of total assets = LN(Tangible Asset-L.Tangible Asset)
Dependent Variable	Sub-part Investment Intangible	Log change of intangible assets = LN(IntangibleAsset-L.Intangible Asset)
Dependent Variable	Firm exit	Dummy variable equal to one on the last year of obs. for that company
Dependent Variable	Firm entry	Dummy variable equal to one if Company Age is zero
Accounting - Assets	Total Assets	Total Assets = Total fixed assets + Total current assets. Used in logarithmic form
Accounting - Assets	R&D	Research and development. Continuous numeric variable, used in logarithmic form.
Accounting - Assets	Total Intangible assets	Continuous numeric variable, used in logarithmic form
Accounting - Assets	Total fixed assets	Continuous numeric variable, used in logarithmic form
Accounting - Assets	Total current assets	Continuous numeric variable, used in logarithmic form
Accounting - Assets	Total Investments	Continuous numeric variable, used in logarithmic form
Accounting - Liabilities	Total Liabilities	Total Liabilities = current liabilities + provisions + other long term liabilities. Log form
Accounting - Liabilities	Total current liabilities	Continuous numeric variable, used in logarithmic form
Accounting - Liabilities	Total other long-term liabilities	Continuous numeric variable, used in logarithmic form
Accounting - Liabilities	Total provisions	Continuous numeric variable, used in logarithmic form
Accounting - Profitability	Revenue	Continuous numeric variable, used in logarithmic form
Accounting - Profitability	Net Income	Continuous numeric variable, used in logarithmic form
Accounting - Profitability	ROA	Return on asset. Numeric ratio variable, used in logarithmic form
Firm-Specific Information	Employees	Merged from three variables with information of number of employees in the firms
Firm-Specific Information	CEO salary	Continuous numeric variable, used in logarithmic form
Firm-Specific Information	CEO birth year	Continuous numeric variable, used in logarithmic form
Firm-Specific Information	Company age	Continuous numeric variable, used in logarithmic form
Firm-Specific Information	Industry codes at level two	Categorical variable of industry affiliation at level 2
Firm-Specific Information	Enterprise type	Categorical variable (AS, ASA, DA. etc.)
Firm-Specific Information	Foundation year	Used in logarithmic form

Ownership Information	Is Parent (ultimate ownership)	Dummy variable equal to one if parent firm and zero if it is a subsidiary
Ownership Information	Dividends payable	Amount of dividend the company paid in total each year. Used in logarithmic form
Ownership Information	Listing status on Oslo Stock Exchange	Dummy variable equal to one if company is listed on OSE
Ownership Information	Largest owner is International (direct ownership)	Dummy variable equal to one if the largest owner is international
Ownership Information	Largest owner is Personal (direct ownership)	Dummy variable equal to one if the largest owner is private
Ownership Information	Largest owner is State (direct ownership)	Dummy variable equal to one if the largest owner is state
Ownership Information	Is Parent (ultimate ownership)	Dummy variable equal to zero if the company is a subsidiary.
Ownership Information	Number of Owners (direct ownership)	Used in logarithmic form

Appendix 2

Hausman-Test 1

Dependent variable	Investment: Log change of Total Assets			
Intervention	Threshold sample 2010			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	Fixed	Random	Difference	Standard Error
DID	0.0126024	0.0247586	-0.0232785	0.0004484
d2	-0.0708912	-0.0476127	-0.1096973	0.0019492
dB	-0.2772859	-0.1675886	-0.0121562	0.0010699

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(3) = (b-B)'[(V_b-V_B)^(-1)](b-B)

chi2(3) = 7154.81

Prob>chi2 = 0,0000

Result: Ho rejected. Fixed effect model is appropriate

Appendix 3

Hausman-Test 2

Dependent variable	Investment: Log change of Total Assets			
Intervention	Tax-rate sample 2014			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	Fixed	Random	Difference	Standard Error
DID	0.0099672	0.0203104	-0.0103432	0.0012196
d2	-0.0614507	-0.0294564	-0.0319943	0.000492
dB	-0.2858093	-0.1509116	-0.1348977	0.0022799

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(3) = (b-B)'[(V_b-V_B)^(-1)](b-B)

chi2(3) = 8286,55

Prob>chi2 = 0,0000

Result: Ho rejected. Fixed effect model is appropriate

Appendix 4

Parameter test 1

Dependent variable	Investment: Log change of Total Assets					
Intervention	Threshold sample 2010					
Number	(1)	(2)	(3)	(4)	(5)	(6)
Year	2007.yr	2008.yr	2009.yr	2010.yr	2011.yr	2012.yr
Result	0	0	0	0	0	0

Omitted years: 2006.yr, 2013.yr

Parameter test

F(6,572740) = 1484.75

Prob > F = 0.0000

Result: Ho rejected. Year fixed effect model appropriate

Appendix 5

Parameter test 2

Dependent variable	Investment: Log change of Total Assets			
Intervention	Tax-rate sample 2014			
Number	(1)	(2)	(3)	(4)
Year	2011.yr	2012.yr	2013.yr	2014.yr
Result	0	0	0	0

Omitted years: 2010.yr, 2015.yr

Parameter test

F(4,443727) = 389,68

Prob > F = 0,0000

Result: Ho rejected. Year fixed effect model appropriate