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Effects of the Removal of Statutory Audit Requirements in Norway: A Quantitative Study

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This thesis is a part of the MSc programme at BI Norwegian Business School. The school takes no responsibility for the methods used, results found, and conclusions drawn.
Preface

The master thesis is the final part of the Master of Science in Business and Economics (Siviløkonom) program with a major in Business Law, Tax and Accounting at BI Norwegian Business School in Oslo.

It has been a very gratifying and educative journey. In the process of writing our thesis, we have been able to use a great deal of the knowledge that we have acquired throughout the past five years as business students.

We would like to thank our supervisor, John Christian Langli, for supportive and constructive feedback on our thesis during the previous year. We are grateful for the time and effort Mr. Langli has put into guiding us. We also want to thank the Centre for Corporate Governance Research (CCGR) for access to the data that has been absolutely pivotal for our thesis. Finally, we want to thank our respective families and friends for their continuous support and positive feedback.

Oslo, August 2015

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Summary

The purpose of our paper is to look at earnings quality in small Norwegian limited companies before and after they opt out of auditing due to the legislation changes in 2011 on Revisorloven § 2-1 CF. and Aksjeloven § 7-6 yielding companies. These businesses must fulfill a set of requirements in order to choose not to audit their financial statements. Using internationally acclaimed models verified in existing research adds reliability to this study. In particular, we use three different approaches to measure abnormal accruals, and in turn, the earnings quality: the Kothari, Leone and Weasley (2005) model for total accruals, the modified cross-sectional Dechow-Dichev model for working capital accruals, as presented by Hope, Thomas and Vyas (2013), and the Stubben (2010) model for discretionary revenues.

In our tests, we found that the legislation change has led to a statistically significant decline in earnings quality in six out of our nine tests. The Kothari, Leone and Weasley (2005) model and the Stubben (2010) model indicate a decline in earnings quality in all of our samples. Meanwhile, the modified cross-sectional Dechow-Dicvhev model shows no statistically significant difference in earnings quality in either of our samples.

Due to the non-conclusive results of our research, we are not able to generalize our results and conclude that the earnings quality in unaudited Norwegian limited companies—as measured by abnormal accruals in our models—has declined after the change in legislation in 2011. However, we can point out that the unaudited companies in our sample indicate a lower earnings quality than the audited companies. This is true for all three of our sub-samples that were tested.
1. Introduction

Our goal is to investigate whether or not there are observable effects of Norway's 2011 amendment of statutory audit laws on earnings quality. Earnings quality is measured by abnormal accruals in small Norwegian companies that can opt out of the audit process. The main changes in legislation were made in Revisorloven § 2-1 CF. and Aksjeloven § 7-6. Thus, the central theme of our thesis is as follows: *Is it reasonable to state that the change in statutory audit laws in 2011 had an effect, and if so, should it be kept, revised, or reset?*

The changes in Revisorloven § 2-1 CF. and Aksjeloven § 7-6 were implemented on May 1, 2011, and made the auditing of financial statements voluntary for companies that met all of the following requirements:

1. Have less than MNOK 5 in yearly revenue,
2. Have less than MNOK 20 in total assets,
3. Have less than an average of 10 full-time employees of equal status,
4. Are not parent companies.

*Figure 1–Number of Norwegian limited companies opting not to audit.*

As seen in Figure 1, in 2011, 48 000 opted out of the voluntary audit process, while in 2012, the number was 73 954. In 2013, 94 992 did not audit their financial statements, and figures for 2014 show that the number grew further to 112 325. This means that 42% of Norwegian limited companies (Aksjeselskap) do not audit their financial statements. Of the 25 885 limited companies founded in
2014, 74% opted out of the audit process (Brønnøysundregistren 2012b, 2014, 2015).

The main argument in the Ministry of Finance’s proposition to alter the Norwegian audit laws was that the cost of auditing annual financial statements outweighs the gains for small limited companies. Implicitly, Ministry officials say that a firm’s cost of auditing can be put to better use in other ways, i.e., investing in growth prospects. In the same proposition, the Finance Ministry points out the potential effects of decreased earnings quality and tax evasions as possible negative factors that may emerge after implementing the new laws (Ministry of Finance 2010).

Due to the limited timeframe since the new laws' 2011 implementation, the amount of quantitative research on small Norwegian limited companies for pre- and post-removal of statutory audits is inadequate. For this reason, research from other countries such as Denmark, the UK, the US, Germany, and Finland will constitute a major segment of our literature review. They have all removed statutory auditing although it is important to note that the definition of a small limited company varies significantly among different nations (Langli 2009).

Based on the existing literature and data available for this thesis, our research question is as follows:

*What effects did the new laws on eliminating statutory auditing in 2011 have on Norwegian limited companies that fulfilled the different requirements to opt out of the auditing process in terms of possible decreased earnings quality as measured using abnormal accruals?*

2. Statutory audits in Norway and other European countries

It is imperative to elaborate on the historical changes of Norway's statutory audit legislation. This must be done by comparing the current thresholds in Norway to those used in other European countries. Such analysis will provide a broader perspective on why audit exemptions have been allowed for small companies.
2.1. The EU’s Fourth Directive

On July 25, 1978, the European Council’s Fourth Directive was released. It gave its member countries, including EEA nations, the ability to permit companies that were classified as small to legally opt out of the statutory audit process for financial statements. To be classified as small, companies had to fulfill at least two of the following criteria (The Council of the European Communities 1978):

1. Annual turnover must not be more than € 8.8 million.
2. The balance sheet total must not be greater than € 4.4 million.
3. The average number of employees must not be more than 50.

In addition to this, a company opting out of auditing could not be a parent or subsidiary organization (The Council of the European Communities 1978, 2013).

2.2. Statutory auditing in Norway

In the following section, we will summarize the historical changes in Norway's statutory audit laws from the early 19th century up until 2011, followed by a look at the current-day thresholds.

2.2.1. Historical perspective

In the first half of the 19th century, banks started to demand assurance that the financial reports they received from their customers were accurate and reliable. There was no specific profession that had a formal mandate to perform such analyses, so mostly bookkeepers and bankers performed them. Moreover, changes in Aksjeloven in 1910 aimed to secure the interests of creditors and stockholders in a professional and highly regulated way. Audit regulations have been present since this progression. Revisorloven (Norwegian audit law) was introduced in 1964 and included requirements for the practice, education, and professional qualifications of Norwegian auditors. Both Aksjeloven and Revisorloven have since then continuously been extended and changed in order to meet the requirements of a dynamic market (NOU 2008:12 2008).

By the Royal Decree of May 11, 2007, Revisjonsutvalget was given the mandate to assess the possibility of introducing audit exemptions to small Norwegian companies. The assessment was delivered to the Ministry of Finance of Norway on June 27, 2008, and the majority voted against the possibility of audit
exemption for small companies. This measure was taken in order to retain the status quo and continue enforcing mandatory audits for all companies. Surprisingly, no further research was conducted on the possible economic effects of a legislation change other than a report presented by the Econ (Econ, 2007), which was assigned to the organization by Den Norske Revisorforeningen (DNR). Such action could have been considered biased as the DNR was part of the majority vote (NOU 2008:12 2008).

On the other side, the minority voted for small-company audit exemption given that such companies fulfilled a set of requirements. Minority voters argued that a business with very little revenue and even less of a bottom line would have a better chance at survival and further growth if it did not have to pay a significant amount in auditing fees. They also argued that a decrease in earnings quality at the individual company level would be adjusted by other laws, the involvement of professional accountants, and the government (Bråthen 2008; NOU 2008:12 2008).

Minister of Export and Enterprise Trond Giske presented the changes in Aksjeloven and Revisorloven under the Stoltenberg II Government on December 17, 2010. These changes gave companies that fulfilled the proposed requirements the ability to opt out of the auditing process. Due to this change, small businesses that opt out of auditing will be able to save a total of NOK 1,5-2 billion in costs related to audits every year (Fadnes 2011). However, we are not able to say whether or not these cost savings mitigate the potential increase of other expenditures such as higher accounting costs or increased debt-capital costs.

2.2.2. The current-day situation

The changes made in Revisorloven § 2-1 CF. and Aksjeloven § 7-6 gave companies that fulfilled the said conditions an exemption from participating in the audit process. However, these criteria must be met in two successive fiscal years in order to acquire the exemption. The criteria are as follows (NOU 2008:12 2008):

1. Annual turnover must not be more than NOK 5 million.
2. The balance sheet total must not be greater than NOK 20 million.
3. The average number of employees must not be greater than 10.
4. The company cannot be the parent company of a group and/or be eligible to report consolidated financial statements.

2.2.3. Opting out of the auditing process

In addition to fulfilling all the aforementioned requirements, a Norwegian company that seeks exemption from the auditing process must have its general assembly give its board the authority to make that decision. If such power is given, then it is up to the company's board to conclude whether or not to actively drop the auditing process. It is also possible for a company to opt out of having its financial statements audited in the same year that the exemption is granted. This exemption runs in opposition to other countries such as Denmark and Sweden where the decision to opt out of auditing comes does not come into fruition until the following fiscal year (Brønnøysundregistrene 2012a; NOU 2008:12 2008).

2.3. Statutory auditing in other countries

In order to provide a wider perspective on this issue, a short summary of the historic changes in statutory audits as well as a summary of the current-day thresholds for audit exemption in the United Kingdom, Germany, Denmark, and Finland will be presented. These thresholds will then be compared to those of Norway.

2.3.1. The United Kingdom

In the United Kingdom, the choice for small private companies to voluntarily opt out of the auditing process was implemented in 1994. This allowance was a result of the EU Fourth Company Law Directive of 1978 but with exemption thresholds much lower than those that the Directive granted (Collis 2010; The Council of the European Communities 1978). From the Companies Act in 2006, all UK companies that are defined as small, depending on the financial year, may qualify for audit exemption. For organizations whose financial years end after October 1, 2012, the following requirements must be met for them to be defined as a small companies (Companies House 2014):

1. Annual turnover must not be more than £6.5 million.
2. The balance sheet total must not be greater than £3.26 million.
3. The average number of employees must be no more than 50.
2.3.2. Germany

Germany implemented the Fourth Directive in 1985. This statute allowed companies defined as small to opt out of the auditing process given that they satisfied the small-business classification in two successive fiscal years (Evans and Honold 2007). As of December 14, 2014, the following criteria must be met to be classified as a small German company (Baker Tilly International 2014):

1. Annual turnover must not be more than €9,68 million.
2. The balance sheet total must not be greater than €4,84 million.
3. The average number of employees must be no more than 50.

Contrary to what it might seem like, Germany has audit-exemption thresholds that surpass the thresholds given in the Fourth Directive by about 10% (Baker Tilly International 2014).

2.3.3. Denmark

While the option for small companies to opt out of the audit process has existed since 1978 in Denmark, the nation waited 28 years until 2006 before formally allowing for audit exemption. It was, as in the UK, implemented with lower thresholds than permitted by the Fourth Directive (Collis 2010). Thus, in Denmark, for companies to be defined as small companies and to qualify for audit exemption, the following requirements must be met (Erhvervsstyrelsen 2014):

1. Annual turnover must not be more than DKK 4 million.
2. The balance sheet total must not be greater than DKK 8 million.
3. The average number of employees must be no more than 12.

2.3.4. Finland

By introducing the voluntary auditing option for small companies in 2005, both Finland and Denmark made similar moves (Niaemi, Kinnunen and Troberg 2012). As such, Finland’s thresholds for audit exemption are lower than many other European countries. A company qualifies for audit exemption in Finland if at least two of the following requirements are met in two successive years (Urbach Hacker Young International Limited 2013):

1. Annual turnover must not be more than €0,2 million.
2. The balance sheet total must not be greater than €0,1 million.
3. The average number of employees must be lower than 3.
2.3.5. Comparison

Table 1–Audit exemption thresholds in other countries.

<table>
<thead>
<tr>
<th>Country</th>
<th>Implementation Year</th>
<th>Revenue (a)</th>
<th>Balance Sheet (a)</th>
<th>Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU Thresholds (a)</td>
<td>1978</td>
<td>75,15</td>
<td>37,58</td>
<td>50</td>
</tr>
<tr>
<td>Germany (b)</td>
<td>1985</td>
<td>82,75</td>
<td>41,37</td>
<td>50</td>
</tr>
<tr>
<td>United Kingdom (c)</td>
<td>1994</td>
<td>76,05</td>
<td>38,14</td>
<td>50</td>
</tr>
<tr>
<td>Denmark (d)</td>
<td>2005</td>
<td>4,57</td>
<td>9,14</td>
<td>12</td>
</tr>
<tr>
<td>Finland (e)</td>
<td>2005</td>
<td>1,71</td>
<td>0,85</td>
<td>3</td>
</tr>
<tr>
<td>Norway (f)</td>
<td>2011</td>
<td>5,00</td>
<td>20,00</td>
<td>10</td>
</tr>
</tbody>
</table>

All numbers are in NOK million as of February, 26, 2015.
(a) The Council of the European Communities (2013)
(b) Baker Tilly International (2014)
(c) Companies House (2014)
(d) Erhvervs styrelsen (2014)
(e) Urbach Hacker Young International (2013)
(f) NOU 2008:12 (2008)

Germany was the first of the countries listed above to implement the Fourth Directive in 1985, with current audit-exemption thresholds surpassing the Fourth Directive's thresholds by about 10% (Baker Tilly International 2014). This measure allowed small German companies to opt out of auditing and had the same effect on the other nations listed and finally Norwegian companies in 2011. From the comparison chart, we can see that the definition of small companies has varied significantly across countries, and the average measure of such companies has increased over time (Bråthen 2008).

By comparing Norwegian audit exemption thresholds to those of the other countries presented, we can see that Norway’s laws are in a ‘middle ground’. Finland is by far the most conservative while Germany and the UK are nearly identical with thresholds close to the thresholds defined by the EU. These numbers have been effective as of February 26, 2015, and in NOK million. As such, the different currency fluctuations do affect the figures. We should also note how the three countries that introduced voluntary audits later have much more conservative thresholds than the countries where voluntary audits had been in effect for longer. Nonetheless, due to the small sample of countries compared, no generalized conclusions can be drawn.

3. Literature review

In this part of our thesis, we will present literature and reports that we have found to be relevant to our topic. This procedure will enable us to gain a deeper
understanding of the subject under investigation so that we will be able to find the
gaps in earlier research.

3.1. Defining earnings quality

In order to determine whether or not the change in legislation has led to lower
earnings quality in small Norwegian companies, earnings quality needs to be
defined. There is a range of definitions for earnings quality, and one should use
whichever definition is best suited for the specific task at hand. Dechow’s, Ge’s,
and Schrand’s (2010) definition of earnings quality is applied in our thesis:

“Higher quality earnings provide more information about the features of a firm’s
performance that are relevant to a specific decision made by a specific decision
maker” (Dechow, Ge and Schrand 2010).

In light of this quote, earnings quality as a term by itself is meaningless. This is
because the context in which the term is used defines what earnings quality is
(Dechow, Ge and Schrand 2010).

Three different models are used to estimate the abnormal accruals required in
order to test whether or not earnings quality has changed after the amendment in
legislation. The deviation from accrual normality given as the residuals in the
indicator regressions is labeled as an abnormal accrual. Therefore, we define
earnings quality in this paper as such:

The absence of abnormal accruals indicates higher earnings quality.

Along these lines, companies reporting accruals that deviate from the sample
mean are defined as having lower earnings quality. The reader is advised at this
point to keep in mind that no differentiation between positive and negative
deviation from normal accruals has been made. Instead, our definition is a
consequence of our testing for the absolute deviation from mean values.

3.2. Information asymmetry

Information asymmetry in our thesis is defined as the difference of knowledge
about a company’s financial health between the managers of the company and the
rest of the stakeholders. When the managers have more information about a
company's financial situation than the stakeholders, the balance of information is
disturbed. Richardson (2000) notes a positive correlation between earnings
management and information asymmetry based on Dye’s (1988) and Trueman’s and Tritman’s (1988) proposition that there exists a relationship between information asymmetry and earnings management. The presence of information asymmetry makes it possible for managers to perform earnings-management tasks (Richardson 2000; Trueman and Tritman 1988; Dye 1988).

A study from Denmark examined whether or not voluntary disclosure affects information asymmetry. It concluded that disclosing such information will lower the information asymmetry component of a firm’s debt-cost capital. This means that information asymmetry is negatively affected by a disclosure of financial information (Petersen and Plenborg 2006). It was also found that agency relationships with stakeholders that are more distant from the company encourage management to disclose more precise information in their financial statements as a positive sign to their stakeholders. These findings are consistent with the statement that poor earnings quality will most likely result in greater information asymmetry (Jensen and Meckling 1979; Rees 1985).

For our purposes, it will be interesting to determine if managers of small unlisted companies in Norway will have an incentive to create information asymmetry by choosing not to hire an auditor. Some experts have indeed argued that companies with higher creditworthiness are more likely to choose auditing while those that are less creditworthy might use earnings management to secure for themselves a better credit ranking and acquire lower cost-of-debt capital (Lennox and Pittman 2011).

3.3. Earnings management

A company’s result for the period "t" can be split into cash flow from operations (CFO$_t$), discretionary total accruals (DTA), and non-discretionary total accruals (NDTA) (Healy 1985). Because the DTA is open for interpretation and influence from earnings management, we have to assume that management will—in some cases—use these posts in order to affect results for the period. Company managers will do this given that they have the ability(ies) and incentive(s) to perform earnings management and that information asymmetry exists. This also means that when earnings management occurs, earnings quality will decrease (Healy and Wahlen 1999; Healy 1985)
Dechow and Skinner (2000) argue that there are three different perceptions of earnings management: academics are sanguine, practitioners are pervasive, and regulators feel the need for remediate action (Dechow and Skinner 2000). The differences are based on how academics usually make generalized statements about very large samples. Such scholars also rely on the reality of earnings management due to having market efficiency, having very limited significance for the general public, and having little transparency while practitioners observe actual cases and face the problems at their core (Dechow and Skinner 2000).

There is evidence that earnings provide more accurate information about a company's performance than cash flows, partially because earnings are smoother than underlying financials (Dechow 1994). Accrual choices can therefore be used in order to help relate important information and help investors form “rational expectations”. The problem is determining when an appropriate exercise of managerial discretion becomes a case of active earnings management. There are several researchers who try to define this distinction including Shipper (1989) and Healy (1999), but definitions prove to be difficult for working on a general basis (Schipper 1989; Healy and Wahlen 1999).

An extreme form of earnings management—also known as fraud—has clearly been defined by the National Association of Certified Fraud Examiners in 1993 (National Association of Certified Fraud Examiners 1993):

“The intentional, deliberate misstatement or omission of material facts, or accounting data, which is misleading and, when considered with all the information made available, would cause the reader to change or alter his or her judgment or decision” (National Association of Certified Fraud Examiners 1993).

Actions can be divided into accounting choices (overvaluation, overstatement of write-offs, understatement of debt, etc.) and real cash-flow choices (timing sales, postponing expenses, accelerating sales, etc.). Real cash-flow choices range from conservative to aggressive accounting but are practiced within the GAAP framework. Accounting choices—such as recording fictitious sales, backdating invoices, and overstatement of inventory—are considered fraudulent accounting practices.
Scholars have also proven that the US GAAP preserves a higher quality of financial statements when compared with other bookkeeping methods (Watts and Zimmerman 2006). This is why GAAP is used by SEC in earnings management discussions and can be an important consideration when looking at the significance of auditing. Lewitt (1998) argues that actions under GAAP can still be considered earnings management if these measures are used to mask the true economic situation or mislead investors (Lewitt 1998). This point again brings us back to the managerial-intent definition issue. Applying GAAP requires managers to use their judgment, so strictly setting policy is not an option.

Considering all the points mentioned above, it is easier to use the GAAP frameset as a benchmark for fraud (Lewitt 1998). Yet we are then posed with a question: What if earnings management is visible to the investors and is not a hidden practice? In this case, academics regularly think of market efficiency and say that it is not substantial as a part of the information flow. Meanwhile, practitioners and regulators often believe that numbers and practices are important in their own right (Dechow and Skinner 2000).

In countries that are similar to Norway with regard to legal standards, we find according to Danish research, a consistently higher frequency of mistakes in financial statements for companies that have not been submitted for voluntary audits. The same companies were confirmed as being less likely to give managers illegal loans (Ervhvervsstyrelsen 2014; Erhvervs og Selskabsstyrelsen 2012). This observation could indicate that by opting out of auditing, companies are less likely to commit fraud. Gooderham et al. (2004) bring up the fact that smaller companies are more vulnerable as they are usually lacking in the areas of specialized expertise; therefore, they are more dependent on external sources such as accountants and auditors (Gooderham et al. 2004).

From the previous discourse, we could assume that smaller companies opting out of the auditing process might experience a greater number of errors in their financial statements. They are more likely to use conservative earnings-management techniques, for they might simply lack the expertise to use aggressive earnings-management practices or commit fraud. It is difficult to
distinguish between mistakes and the use of earnings management, so we advise the reader to keep this point in mind when examining our thesis.

3.3.1. Incentives

When it comes to incentives used to enhance earnings management, the different types are countless. We will define these entities by distinguishing the main differences among the perceptions of academics. These scholars mostly look at contractual incentives, such as bonuses, and practitioners who focus on capital markets and incentives as being linked to improving the valuation of a company (Dechow and Skinner 2000). Among the most common incentives that managers struggle with are not reporting losses and violation of debt contracts, earnings declines, and advertising of continued growth in order to improve pricing in the long term (Barth, Elliott and Finn 1999).

In the short term, there is an incentive for company managers to meet their benchmarks and forecasted performances. Teoh et al. (1998) show that there is a clear correlation between aggressively managed accruals and peaks in net income before the second equity offering (SEO). Later in the companies’ lifecycles, firms with aggressively managed accruals were found to be underperforming. Scholars argue that these findings prove how overly optimistic investors can use pre-issue financial information and accounting figures in their decision-making process (Teoh, Welch and Wong 1998).

When the incentive is contractually based, and the performance of the firm has a direct effect on managers’ income, the research shows conflicting results. Although there is a clear connection between the accrual policies of managers and the changes these individuals make in relation to modifications of their personal bonus schemes, there are some very important factors that are not being considered. For example, most of the research available ignores the earnings-management definition of the plans. It does not consider how managers could choose something other than income-increasing procedures. This reality makes the conclusions understated (Healy 1985).

As previously mentioned, managers might use income-increasing procedures to boost their current awards. But if a company’s financial situation cannot be
improved through accounting procedures, the same managers might have an incentive to reduce these procedures even further. This method is known as the *cold shower approach* and has seemingly resulted in better outcomes for subsequent financial years. The cold shower approach has consequently increased the probability of managers meeting future earnings targets. This situation is rarely considered since income-increasing accruals are being prioritized (Holthausen 1981).

Healy (1985) has performed a test on both low- and high-selection bias cases in 250 of the largest US industrial corporations using contingency testing. His results are consistent with the cold shower hypothesis: while the portfolio is low, managers exhibit an incentive to use income-decreasing discretionary accruals (Healy 1985). The incentives for managers usually come in the form of bonuses that encourage them to maximize profit or opt for the cold shower approach. Either way, creative accounting is a problem that is more common in larger companies than in small, family-owned ones (Poutziouris, Michaelas and Chittenden 1998).

Collis, Jarvis and Skerratt (2004) look at the different factors that might affect auditing choices for smaller companies such as the management's education level, debt levels, and perception of benefits. Nonetheless, these factors only account for 30% of the variance. This figure means that many of the decision factors are still unknown (Collis, Jarvis and Skerratt 2004).

It is argued by some that since smaller companies are mostly family owned or closely managed, they will seek stability and survival rather than growth or profit (Jarvis et al. 1996). It should also be noted that Norwegian limited company managers are often the majority owners of their companies, with ownership being on the average at 87% of non-listed firms' capital (Berzins, Bøhren, and Rydland 2008). Larger companies will thusly be more inclined to seek the experience of a professional auditor because they have more incentive to do so than companies simply struggling to survive in unstable environments (Carey and Tanewski 2000).
Existing research reveals that managers might have an incentive to manage earnings in cases where unmanaged earnings do not meet the expectations of dividend payments (Daniel, Denis and Naveen 2008). These results have subsequently been challenged on their robustness, and new research suggests that managers placed in this situation would rather cut dividends than manage earnings (Jaewoo, Lee and Lie 2012).

3.3.2. Creditors and taxation

Apart from the owners, survey evidence indicates that the main users of financial statements are tax authorities, lenders, and—to a lesser extent—employees, suppliers, or major customers (Collis and Jarvis 2000). Creditors often use financial statements so that they can evaluate the creditability of a company. Hope et al. (2011) have found that higher financial-reporting credibility reduced external financing costs (Hope, Thomas and Vyas 2011). Blackwell et al. (1998) and Allee and Yogn (2009) support this idea by showing how auditing yields lower capital costs by provoking cheaper financing options from banks. Most likely, this outcome resulted because the auditing companies were considered a safer investment when compared to unaudited firms. Indeed, auditing secures earnings quality and serves as an insurance protection (Blackwell, Noland and Winters 1998; Allee and Yogn 2009). This actuality is especially profound in cases where financial reporting is unregulated.

On the other hand, there is some disagreement over whether or not this is a fact both for small and large companies or just for large ones (Marriott, Collis and Marriott 2006; Collis and Jarvis 2000). The existence of an effect on credit ratings by voluntarily auditing when the option not to audit is present has been confirmed by Lennox and Pittman (2011). It has also been found that clean audit reports as well as multiple auditors and/or Big 4 auditors affect credit ratings in a positive way. In particular, positive credit ratings decrease the costs of debt capital. This observation correlates with what researchers have found in UK research (Karjalainen 2011; Lennox and Pittman 2011).

While Carey and Tanewski (2000) argue that small companies just want to survive and create a stable environment, Berry, Jarvis et al. (1987) and Blackwell, Noland et al. (1998) find affirmative correlations between credit ratings and the
positive sign sent by companies choosing to audit financial statements. This relationship especially applies when the audit process is voluntary (Berry, Jarvis and Citron 1987; Blackwell, Noland and Winters 1998; Carey and Tanewski 2000).

According to Collis, Jarvis and Skerratt (2004), tax authorities—as an entity—are some of the main users of financial statements in companies. A study from Finland illustrates that the presence of cost-efficient tax services in a country where taxation is mostly based on financial performance reduced the likelihood of companies choosing to audit their financial statements (Niaemi, Kinnunen and Troberg 2012; Collis, Jarvis and Skerratt 2004). Companies that have an incentive to create information asymmetry in this situation are those with significant revenues. Most of the organizations we are looking at in our study lack such revenues (Collis and Jarvis 2000).

### 3.4. Auditing

The role of auditors is to give additional credibility to a firm’s financial statements (Simunic and Stein 1987). Auditors give creditors and other involved parties an independent, third-party opinion and in this way serve a purpose both for the authorities and for the managers of companies. Management representatives might try to avoid auditing if they feel like the results of an audit might be unfavorable, but they might also submit to auditing voluntarily in order to gain credibility. Many companies realize the advantages of auditing their financial statements. Nevertheless, when these companies do not have certain asset and revenue levels, they do not seem to consider a gain in credibility as being significant enough (Simunic and Stein 1987).

The main purpose of auditors is to enforce the application of appropriate accounting practices, but they might go along with a management’s use of earnings management in order to avoid losing clients. Conversely, as investor-protection regimes become stricter, the incentive for auditors to keep clients by going along with questionable practices is largely reduced (Francis and Wang 2008). In Norway, the investor-protection regimes (Scandinavian civil-law legal regimes) ensure that auditors have a great incentive to avoid sanctions and loss of reputation (La Porta et al. 2000). Logically, Big 4 auditing companies will be
more sensitive to the cost of clients misreporting and less sensitive to clients dismissing them as opposed to smaller auditing companies. The audit companies defined as belonging to the Big 4 label are as follows: “Deloitte & Touche”, “EY” (formerly known as Ernst & Young), “PwC” and “KPMG” (Boone, Khurana and Raman 2010). The Big 4 “label” is often representative of high earnings quality. Therefore, we will make an assumption that small limited companies in Norway that choose to audit with Big 4 companies will have a higher earnings quality than those that choose to opt out of auditing. This concept accords with existing research results, which reveal that using Big 4 audit companies will indeed yield higher earnings quality (Boone, Khurana and Raman 2010; Francis and Wang 2008; Francis, Maydew and Sparks 1999). It has been found that earnings quality gets higher as investor-protection regimes become stricter over time. Accordingly, it is logical to assume that strict governmental control is necessary in order to ensure high earnings quality (Francis and Wang 2008).

3.4.1. Audit-related costs

The matter of cost is discussed frequently in relation to voluntary audits. Den Norske Revisorforening (2007) argues that potential economic gain for companies choosing not to audit will be limited to zero. Due to the increase of mistakes that are made due to lack of auditing (Dedman and Kausar 2012), the public will carry the cost of additional fees for controlling finances in alternative ways (Den Norske Revisorforening 2007). Collis (2010) has supported this theory in her UK research when defining the determinants that influenced a company's choice for auditing. The most interesting finding was that the importance of auditing in order to keep up relationships with consumers and shareholders was found to be more significant than its effects on the creditability and financing opportunities for the company (Collis 2010).

There is a main obstacle here and a major reason as to why small private companies choose not to audit. Simply put, the auditing standard in Norway is not set with consideration for smaller companies but medium-sized and large ones. This assessment is justified by the need for auditing to be more prominent in companies with substantial assets due to their larger impact on society. As a result, smaller companies end up paying a very large portion of their overall
revenue when compared to larger companies. Studies have accordingly shown that large companies have a greater need for auditing than smaller firms (Collis 2010).

3.5. Accruals

There are three main properties of earnings that are frequently used in earnings-management studies: likelihood of reporting a loss, abnormal accruals, and earnings conservatism using the timely loss recognition theory as presented by Basu in 1997 and Ball, Kothari and Robin in 2000 (Francis and Wang 2008). Out of these three entities, only one falls under our category as we are considering mistakes in financial reporting rather than fraudulent reporting.

Previous studies found that there is a significant effect on accruals and therefore also on earnings quality due to a lack of auditing. This impact is most likely due to the adoption of different accounting practices with and without an auditor’s involvement (Dedman and Kausar 2012). Accruals are often used to improve or decrease the profits, and subsequently, the earnings of a company. Dedman and Kausar (2012) demonstrate that companies opting out of the auditing process reported income-decreasing accruals later and income-increasing ones earlier (Dedman and Kausar 2012). In order to define total accruals, we will use Jones’ (1991) definition: Total accruals are calculated as the sum of changes in noncash working capital, before income taxes payable and less the depreciation expenses (Jones 1991). As mentioned earlier, such accruals constitute the direct measurement of a firm's performance and are often used to manipulate the perception of profitability and creditability. Managers will try to make their companies look desirable in order to help increase their stock prices or their own compensations based on the perceived results of their companies (Sloan 1996).

In the UK, researchers have looked at the impact of using accruals and have found that companies that preferred not to audit reported income-decreasing accruals later and increasing ones earlier. This outcome proves that the earnings quality of these companies’ financial statements has decreased (Dedman and Kausar 2012). Nevertheless, there is not enough evidence to state that such is also the case for small limited companies in Norway.
From our literary review, we can recapitulate that small limited companies in Norway are less likely to have the expertise to commit severe fraud as compared to large companies. They would be more exposed to minor mistakes in their financial statements as a result of these statements being produced internally. Such errors also result from different accounting practices and those who have higher incentives to improve their valuation in situations where they need to raise capital (Moreira and Pope 2007). However, as seen previously, we are not able to discern whether or not our potential findings have resulted from mistakes and/or actual earnings-management issues. Burgstahler’s and Dichev’s (1997) assumption that the incentives for earnings management are homogeneous for the companies that need to raise capital is challenged by the empirical evidence as presented by Moreira and Pope (2007). The latter experts state that companies in danger of debt have higher incentives to manage earnings and avoid reporting losses (Burgstahler and Dichev 1997; Moreira and Pope 2007).

As we have discussed earlier, our sample may possibly showcase both aggressive earnings-management practices and a poor quality of accounting practices. Accordingly, the quality of financial statements and earnings quality will be considered as a whole, and we will not distinguish between the possibility of direct manipulation and indirect errors in accounting policies used by companies.

Even though most small limited companies do not have performance-based bonus schemes—as are more prominent in larger companies—there are incentives for the smaller firms to manipulate financial statements. Two examples in this respect include incentives to attain a lower cost of capital or to improve credit ratings. It should, nonetheless, be duly noted that in Norwegian small limited companies, owners and managers could be the same person or closely related persons (Berzins, Bøhren and Rydland 2008). Information asymmetry is of some significance here, but it must be noted that many companies of this size appear to be holding companies, rather than fully operating ones, and will have a very limited number of liabilities. They will not have enough incentive to create information asymmetry in the market. Thus, we will have to exclude those organizations from our sample (Dechow and Skinner 2000). This omission also includes companies with zero revenue and zero accounts receivable since these
firms are not able to manipulate financial statements using accrual the way companies with large revenues and cash flows can.

Even though we have removed the aforementioned types of companies from our analysis, we will still have to consider them when our conclusion on the legislation change is presented because they are directly affected by these kinds of changes. The managers of these companies are more likely to seek stability and growth before they seek personal gain. Supporting this assertion is the argument used by companies that opt out of auditing: they invoke the common perception that they will be able to invest that money in order to create more rapid growth (NOU 2008:12 2008).

Since the occurrence of errors in financial statements might prove to be low, we initially decided to look at the earnings property most frequently manipulated or altered by managers: accruals. The use of accruals is one of three earnings properties that can influence earnings quality directly. This outcome could also occur without the intention of company managers. By looking at accruals, we maximize the likelihood of finding significant results with our criteria. If we do find noteworthy differences in terms of earnings quality between small limited companies that audit their financial statements and those that choose not to, we will have the grounds to make a logical conclusion: the new, more lenient legislation has led to inferior earnings quality. Secondly, we will look at our assumption that Big 4 clients will have better earnings quality than companies that opt out of auditing. If this proves to be the case in Norway, we will have a basis for assuming that stricter investor-protection regimes and auditing policies are directly linked to higher earnings quality.

4. Hypotheses

We have a generalized research question, and now it is important to narrow it down by finding solid and specific hypotheses to test and present. Much of the basic research studies that have been done on auditing are unanimous in their findings. They have uniformly asserted that auditing improves the quality of financial statements (Marriott, Collis and Marriott 2006; Dedman and Kausar 2012; Berry, Jarvis and Citron 1987; Allee and Yogn 2009; Blackwell, Noland
and Winters 1998; Karjalainen 2011). Given our literature review, we believe that we will find these factors in our sample:

1. Small limited companies that decided to opt out of the auditing process will have lower earnings quality in the financial years not audited after the legislation change in 2011 as compared to the financial years in our sample from 2007-2013 that are audited.

2. Small limited companies that decided to opt out of the auditing process will have lower earnings quality in the financial years not audited after the legislation change in 2011 as compared to the financial years in our sample from 2011-2013 that are audited.

3. Small limited companies that decided to opt out of the auditing process will have lower earnings quality in the financial years not audited after the legislation change in 2011 as compared to the financial years in our sample from 2011-2013 that are audited by a Big 4 auditor.

Based on these assumptions, we have created three different sets of hypotheses. We believe that we will be able to reject the null-hypotheses that claims earnings quality has not been lowered in non-audited financial statements. It is likely that we will see a lower earnings quality after the legislation change in 2011. If this is the case, the difference in earnings quality between Big 4-audited companies and opt-out companies is even greater.

4.1.1. Whole sample

H1₀: Audited small limited Norwegian companies have higher or similar earnings quality as measured by abnormal accruals compared to the companies in our sample from 2007-2013 that opted out of the auditing process.

H1ₐ: Small limited companies in Norway that opt out of performing audits have lower earnings quality as measured by abnormal accruals compared to the companies in our sample from 2007-2013 that audited financial statements.

4.1.2. Post-legislation change

H2₀: Audited small limited Norwegian companies have higher or similar earnings quality as measured by abnormal accruals compared to the companies in our sample that opted out of the auditing process after the legislation change.
H2A: Small limited companies in Norway that opt out of performing audits have lower earnings quality as measured by abnormal accruals compared to the companies in our sample that opted out of the auditing process after the legislation change.

4.1.3. Post-legislation change by a Big 4 auditor

H3B: Big 4-audited small limited Norwegian companies have higher or similar earnings quality as measured by abnormal accruals compared to the companies in our sample that opted out of the auditing process after the legislation change.

H3A: Small limited companies in Norway that opt out of performing audits have lower earnings quality as measured by abnormal accruals compared to the companies in our sample that have had financial statements audited by a Big 4 auditor after the legislation change.

5. Research Design

Using a quantitative approach, we will conduct a natural experiment based on a dataset extracted from the Centre for Corporate Governance Research (CCGR). We have based our analysis of the effects of the law's changes on earnings quality on a study by Hope et al. (2013). This analysis is about reporting quality in US private and public companies in which Hope et al. use models and assumptions from other research. We will accordingly present this data in detail as we examine the various models (Hope, Thomas and Vyas 2013).

5.1. Accrual models

In order to determine if the 2011 change in Revisorloven § 2-1 CF. and Aksjeloven § 7-6 has had any effect on the earnings quality in small Norwegian limited companies, we will use an accrual-based approach. There is a range of different models in the literature, and Bartov et al. (2000) identify the six most popular regression models by which to detect earnings management in financial statements (Bartov, Gul and Tsui 2000). Peasnell et al. (2000) conclude that the form of earnings management determines which accrual model should be used—either expense- or income-based earnings management. When such presumptions are absent, the use of several models is advised (Peasnell, Pope and Young 2000). Supporting this view, Dechow et al. (2010) state that there are
ranges of different models that one can choose to measure earnings quality using accruals as proxies, and one universally accepted model is lacking. Each model has its pros and cons, and therefore, researchers should not rely on one single model but rather test several as a means of achieving a nuanced result (Dechow, Ge and Schrand 2010).

In order for us to test if a company opting out of auditing yields lower earnings quality, we will employ three different models. First, the Kothari et al. (2005) model will be used to estimate total discretionary accruals (Kothari, Leone and Weasley 2005). Then, to estimate discretionary working capital accruals, we will use the modified cross-sectional Dechow-Dichev model as modified by McNichols (2002) and Francis et al. (2005). Ball and Shivakumar (2006) and Givoly et al. (2010) adjusted the model for negative cash flows, demonstrating progress in the literature in the last 10-15 years (Dechow and Dichev 2002; McNichols 2002; Francis et al. 2005; Ball and Shivakumar 2006; Givoly, Hayn and Katz 2010). Our third and final model will be Stubben’s (2010) model, which will enable us to estimate discretionary revenues. By using three different models, we will be able to conclude more accurately on what effect the change in legislation has had on earnings quality in small Norwegian limited companies.

5.1.1. The Kothari et al. 2005 model

Kothari et al. (2005) point out that performance matching the Jones (1991) model and the modified Jones model, with ROA as an additional regressor, yields better results than the original linear regression (Kothari, Leone and Weasley 2005; Jones 1991; Dechow, Sloan and Sweeney 1995). Kothari et al. also reveal that the addition of ROA as a performance-matching regressor yields a better specification on the original Jones (1991) model than on the modified Jones model. This is because the performance-matched Jones (1991) model seems to have eliminated the bias in low sales-growth samples, and the performance-matched abnormal accruals measure is as good—as an alternative—as other models in the literature (Kothari, Leone and Weasley 2005).

In order to estimate total accruals using the Kothari et al. 2005 model, we estimate total accruals for all companies in the sample. Then we match each company within every industry with a company in the same industry that has a performance
closest to the original company. Here, we use ROA as a performance-matcher. Based on this standard, we then compute total accruals that deviate from the “normal” total accruals in the sample. It is then used as an indicator for lower earnings quality—the greater the deviation from the “normal” total accruals as estimated, the lower the earnings quality.

\[ Accr_{i,t} = \alpha_0 + \alpha_1 \left( \frac{1}{Assets_{1,t-1}} \right) + \alpha_2 \Delta Rev_{i,t} + \alpha_3 PPE_{i,t} + \alpha_4 ROA_{i,t} + \varepsilon_{i,t} \]

Where:

- \( Accr \) = total accruals, measured as the change in non-cash current assets minus the change in current non-interest bearing liabilities, minus depreciation and amortization expenses for firm \( i \) in year \( t \), scaled by lagged total assets;
- \( \Delta Rev \) = annual change in revenues scaled by lagged total assets;
- \( PPE \) = property, plant, and equipment for firm \( i \) in year \( t \) scaled by lagged total assets; and
- \( ROA \) = net income for firm \( i \) in year \( t \) scaled by average total assets.

5.1.2. The modified cross-sectional Dechow-Dichev model

Dechow-Dichev (2002) have developed a model for expected accruals using the strength of the relation between accruals and past, present, and future cash flows. Estimating the expected accruals by using this model, they find the deviation from this value. Then, it is used as a proxy for earnings quality (Dechow and Dichev 2002).

\[ \Delta WC_t = \alpha_0 + \alpha_1 OCF_{t-1} + \alpha_2 OCF_t + \alpha_3 OCF_{t+1} + \varepsilon_t \]

The Dechow-Dichev model was later modified by McNichols (2002) and Francis et al. (2005). They combined the model with the Jones (1991) model and added the “change in revenue” and “property, plant and equipment (PPE)” scaled by average assets, which led to a more highly specified model with more explanatory power. Adding “change in revenues” and “PPE” enables the structuring of expectations in current accruals more readily than the operating cash flows. This situation made it possible to adjust the errors of discretionary (management induced) accruals as found in the Jones model (McNichols 2002; Francis et al. 2005; Jones 1991).
Ball and Shivakumar (2006) and Givoly et al. (2010) added adjustments for negative cash flows. We end up with the following model as presented by Hope et al. (2013). This model measures the estimation errors in current accruals, which cannot be explained by being associated with operating cash flows. In addition, they do not result from the change in revenue or the level of PPE. This residual value is a direct proxy for accrual quality; it is a proxy for earnings quality (Ball and Shivakumar 2006; Givoly, Hayn and Katz 2010; Hope, Thomas and Vyas 2013).

\[ TCA_{j,t} = \alpha_0 + \alpha_1 OCF_{j,t-1} + \alpha_2 OCF_{j,t} + \alpha_3 OCF_{j,t+1} + \alpha_4 \Delta REV_{j,t} + \alpha_5 PPE_{j,t} + \varepsilon_{j,t} \]

where:

- \( WCA = \) working capital accruals, measured as the change in non-cash current assets minus the change in current liabilities other than short-term debt and taxes payable, scaled by lagged total assets;
- \( OCF = \) operational cash flow, measured as the sum of net income, depreciation, and amortization minus WCA, where all amounts are scaled by lagged total assets (Chen et al. 2011);
- \( \Delta REV = \) annual change in revenues scaled by lagged total assets;
- \( PPE = \) property, plant, and equipment, scaled by lagged total assets; and
- \( DOCF = \) an indicator variable for negative operating cash flows.

By using this model, we can estimate the residuals in working capital accruals. And by implementing these residuals, we estimate what could be seen as the “normal” working capital accruals for each firm. Normality, in this case, is the size of each firm’s working capital accruals if every firm had good earnings quality, given the working capital accruals of the other companies in the sample. A deviation from this standard is a sign of lower earnings quality.

5.1.3. The Stubben 2010 model for discretionary revenues

One of the main disadvantages of traditional accrual-models is the lack of information about which parts of the financial statements are being manipulated and thusly yielding lower earnings quality. This model has been devised by McNichols and Stubben (2008) and Stubben (2010). The model provides
advantages over other discretionary accrual models because discretionary revenues show fewer measurement errors, and revenue manipulation is the most common form of earnings management (McNichols 2008; Stubben 2010).

\[
\Delta AR_{i,t} = \alpha_0 \alpha_1 Rev_{i,t} + \varepsilon_{i,t}
\]

where:

- \(AR\) = annual accounts receivable, scaled by lagged total assets.
- \(\Delta Rev\) = annual change in revenue, scaled by lagged total assets.

We use the absolute value of the residual from the regression above multiplied by -1. Therefore, higher values mean higher earnings quality.

6. Data

6.1. Data collection

When it comes to data collection, we have two main types: primary data, which is collected by the researcher for the first time, and secondary data, which is already collected by a third party (Ghauri and Grønhaug 2010). Our focus will be on secondary data because this is a quantitative study, and we are fortunate enough to be able to use CCGR’s database for our thesis.

6.1.1. Secondary data

As explained above, secondary data is already collected by someone else for a different or similar purpose. The main advantage here is that secondary data is significantly less time consuming to obtain. As such, the data is easily accessible. On the other hand, this type of data is less reliable since there is no way of knowing about what type of bias the researcher held (Hellevik 2002). By using real company data extracted from Brønnøysundregistrene by CCGR, our hope is that the data used will not be subject to biases other than faulty financial reporting.

The main empirical evidence in our thesis will be based on secondary data. Furthermore, the main source of secondary data for our quantitative section will be the Centre for Corporate Government Research (CCGR). CCGR will supply us with a sample of Norwegian companies and their financial information as well as other information regarding their ownership structure.
6.2. Population and sample selection

Our research question is based on the changes in Revisorloven § 2-1 CF. and Aksjeloven § 7-6 made in 2011. Therefore, our population will consist of Norwegian private limited companies with revenues under NOK 5 million, fewer than 10 employees, and a balance sheet of less than NOK 20 million. Firms that are parent companies or subsidiaries are excluded from our sample. As already stated, these are the requirements for opting out of auditing. A quantitative analysis will be performed on the companies that chose not to audit while those who do audit will be our control group. Comparing the difference in earnings quality and defining whether or not this difference is significant will be our focus.

The data sample used in our analysis contains 30,207 Norwegian firm-year observations from 2007 to 2013. The table data set we extracted from CCGR initially contained more observations, but based on a set of criteria, we reduced this sample according to Table 2:

<table>
<thead>
<tr>
<th>Sample Selection Criteria</th>
<th>Firm-Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private limited liability companies 2007-2013</td>
<td>1,457,308</td>
</tr>
<tr>
<td><strong>Exclusion criteria:</strong></td>
<td></td>
</tr>
<tr>
<td>Revenue &gt; 5 000 000</td>
<td>327,692</td>
</tr>
<tr>
<td>Total Assets &gt; 20 000 000</td>
<td>114,583</td>
</tr>
<tr>
<td>Employees &gt; 10</td>
<td>455,459</td>
</tr>
<tr>
<td>Parent companies</td>
<td>89,579</td>
</tr>
<tr>
<td>Subsidiaries</td>
<td>133,124</td>
</tr>
<tr>
<td>Missing information on parent &amp; subsidiary</td>
<td>35,367</td>
</tr>
<tr>
<td>Missing values of audited prior to 2011</td>
<td>4,801</td>
</tr>
<tr>
<td>Firms with only one observation</td>
<td>29,162</td>
</tr>
<tr>
<td>Financial-, insurance-, auditing-, and accounting firms and lawyers</td>
<td>72,571</td>
</tr>
<tr>
<td>Observations with missing information on industry-code</td>
<td>5,789</td>
</tr>
<tr>
<td>Observations with logical flaws</td>
<td>4,107</td>
</tr>
<tr>
<td>Revenue = 0</td>
<td>131,229</td>
</tr>
<tr>
<td>Accounts receivable = 0</td>
<td>23,638</td>
</tr>
<tr>
<td><strong># of observations in final sample</strong></td>
<td><strong>30,207</strong></td>
</tr>
</tbody>
</table>

The requirement of audited statements for parent companies yields a requirement for the subsidiary to be audited as well. This is a result of the auditors’ need to properly validate subsidiary values and requires the audit of the subsidiary’s financial statements as well. Calculations show that the percentage of subsidiaries that opted out of auditing was 7%, 22%, and 28% in 2011, 2012, and 2013 respectively. For the sample as a whole, the percentage of companies opting not to audit was 8%, 35% and 44% in 2011, 2012 and 2013 respectively. Because of
these figures, parents, subsidiaries, and observations that are missing information on whether or not they were parents or subsidiaries are dropped. Of the 35 367 firm years dropped due to missing information on parent/subsidiary, 100% have zero employees, and 78% have zero revenue.

Observations from companies classified as financing and/or insurance companies as well as companies belonging in industries related to the aforementioned two have been removed. In addition, the industry classification has been made with the SN2007 classification system provided by Statistisk Sentralbyrå (Statistisk Sentralbyrå 2007). Companies within these industries are typically banks, insurance companies, holding companies, pension funds, and debt-collection agencies among others. All of these companies need authorization from Finanstilsynet to conduct their business. In order to be authorized, they must have their financial statements audited in accordance with “Lov om tilsynet med finansinstitusjoner” § 4-1, if Finanstilsynet demands it—which it does. Auditing and accounting companies in addition to law companies, classified by SN2007 as industry code 69, also need to be authorized. All of these company observations were dropped (Statistisk Sentralbyrå 2007). Furthermore, all observations that are missing information on industry classification were removed.

Our data set contained observations of illogical character: negative revenues, positive expense accounts, and negative balance accounts. As this could potentially affect our results, 4 107 observations were deleted. Companies with revenue and accounts receivable equal to zero were also excluded. These companies cannot possibly manage their earnings. When all observations were dropped, the final sample included 30 207 firm-year observations.

7. Descriptive Statistics
In this chapter, we will present a set of descriptive statistics. This is being done in order to provide our reader with some background information about our sample. First, we will define the industry composition in our table using the standard industry classifications of 2007 (Statistisk Sentralbyrå 2007). Then, we will present the general descriptive statistics of our sample. Before we conclude with a correlation test using Pearson’s correlation matrix, we will look into the
development of Norwegian firms that opt out of the auditing process. The last part in this chapter illustrates the different variables we used in our tests.

### 7.1. Industry composition

As portrayed in Table 3, our final sample consists of 30 207 observations. Below is the industry composition of our sample. The industry codes are based on the standard industrial qualifications of 2007. Norwegian authorities applied these codes in 2009, enabling a consistent reporting of the different industries. Moreover, the industry codes of 2007 and 2008 were set equal to the individual firm’s industry code in 2009 (Statistisk Sentralbyrå 2007).

#### Table 3—Industry composition 2007-2013.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(01-03) Agriculture, forestry and fishing</td>
<td>40</td>
<td>53</td>
<td>66</td>
<td>71</td>
<td>58</td>
<td>66</td>
<td>73</td>
<td>427</td>
</tr>
<tr>
<td>(05-09) Mining and quarrying</td>
<td>22</td>
<td>35</td>
<td>32</td>
<td>34</td>
<td>34</td>
<td>40</td>
<td>40</td>
<td>237</td>
</tr>
<tr>
<td>(10-33) Manufacturing</td>
<td>161</td>
<td>196</td>
<td>183</td>
<td>223</td>
<td>229</td>
<td>257</td>
<td>241</td>
<td>1492</td>
</tr>
<tr>
<td>(35) Electricity, gas, steam and water supply</td>
<td>69</td>
<td>89</td>
<td>98</td>
<td>94</td>
<td>119</td>
<td>120</td>
<td>125</td>
<td>714</td>
</tr>
<tr>
<td>(36-39) WWS</td>
<td>35</td>
<td>32</td>
<td>19</td>
<td>23</td>
<td>24</td>
<td>25</td>
<td>28</td>
<td>186</td>
</tr>
<tr>
<td>(41-43) Building and construction</td>
<td>177</td>
<td>267</td>
<td>337</td>
<td>352</td>
<td>375</td>
<td>472</td>
<td>452</td>
<td>2432</td>
</tr>
<tr>
<td>(45-47) Retail trade, repair of motor vehicles</td>
<td>514</td>
<td>537</td>
<td>728</td>
<td>763</td>
<td>843</td>
<td>976</td>
<td>921</td>
<td>5382</td>
</tr>
<tr>
<td>(49-53) Transport and storage</td>
<td>219</td>
<td>157</td>
<td>105</td>
<td>115</td>
<td>114</td>
<td>138</td>
<td>140</td>
<td>988</td>
</tr>
<tr>
<td>(55-56) Accommodation and food services activities</td>
<td>42</td>
<td>56</td>
<td>52</td>
<td>54</td>
<td>69</td>
<td>87</td>
<td>74</td>
<td>434</td>
</tr>
<tr>
<td>(58-63) Information and communication</td>
<td>208</td>
<td>251</td>
<td>278</td>
<td>292</td>
<td>318</td>
<td>365</td>
<td>322</td>
<td>2034</td>
</tr>
<tr>
<td>(60) Sale and real estate</td>
<td>709</td>
<td>957</td>
<td>1 094</td>
<td>1 156</td>
<td>1 241</td>
<td>1 355</td>
<td>1 319</td>
<td>7831</td>
</tr>
<tr>
<td>(70-75) Professional, scientific and tech. activities</td>
<td>713</td>
<td>580</td>
<td>509</td>
<td>545</td>
<td>557</td>
<td>660</td>
<td>665</td>
<td>4238</td>
</tr>
<tr>
<td>(77-82) Business activities</td>
<td>207</td>
<td>276</td>
<td>305</td>
<td>321</td>
<td>331</td>
<td>371</td>
<td>322</td>
<td>2133</td>
</tr>
<tr>
<td>(83) Education</td>
<td>39</td>
<td>41</td>
<td>39</td>
<td>46</td>
<td>48</td>
<td>80</td>
<td>74</td>
<td>367</td>
</tr>
<tr>
<td>(86-88) Health and social services</td>
<td>33</td>
<td>51</td>
<td>48</td>
<td>45</td>
<td>55</td>
<td>74</td>
<td>78</td>
<td>384</td>
</tr>
<tr>
<td>(90-93) Cultural business, entertainment and recreation</td>
<td>91</td>
<td>84</td>
<td>91</td>
<td>105</td>
<td>118</td>
<td>141</td>
<td>136</td>
<td>766</td>
</tr>
<tr>
<td>(94-96) Other services</td>
<td>12</td>
<td>17</td>
<td>16</td>
<td>20</td>
<td>24</td>
<td>39</td>
<td>34</td>
<td>162</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>3 291</strong></td>
<td><strong>3 779</strong></td>
<td><strong>4 002</strong></td>
<td><strong>4 259</strong></td>
<td><strong>4 557</strong></td>
<td><strong>5 275</strong></td>
<td><strong>5 044</strong></td>
<td><strong>30 207</strong></td>
</tr>
</tbody>
</table>

For the years’ past changes in legislation (2011-2013), we have between 3 000 and 5 200 company-year observations in our sample for every year. Counting 6 787 (=22%) observations, “Professional, scientific and tech. activities” is the largest. The second largest category is “Sale and real estate”, with substantially fewer observations, ranging around 6 150 companies (=20%). This category is then followed by “Retail trade, repair of motor vehicles”, consisting of about 15% of the total observations.

#### Table 4—Industry composition post change in legislation.

<table>
<thead>
<tr>
<th>(SN2007) Industry label</th>
<th>2011 Opts Out</th>
<th>% Opts Out</th>
<th>2012 Opts Out</th>
<th>% Opts Out</th>
<th>2013 Opts Out</th>
<th>% Opts Out</th>
</tr>
</thead>
<tbody>
<tr>
<td>(01-03) Agriculture, forestry and fishing</td>
<td>58</td>
<td>7</td>
<td>12.1%</td>
<td>66</td>
<td>39</td>
<td>59.1%</td>
</tr>
<tr>
<td>(05-09) Mining and quarrying</td>
<td>34</td>
<td>-</td>
<td>0.0%</td>
<td>40</td>
<td>18</td>
<td>45.0%</td>
</tr>
<tr>
<td>(10-33) Manufacturing</td>
<td>229</td>
<td>18</td>
<td>7.9%</td>
<td>257</td>
<td>128</td>
<td>49.8%</td>
</tr>
<tr>
<td>(35) Electricity, gas, steam and water supply</td>
<td>119</td>
<td>9</td>
<td>7.6%</td>
<td>120</td>
<td>52</td>
<td>43.3%</td>
</tr>
<tr>
<td>(36-39) WWS</td>
<td>24</td>
<td>3</td>
<td>12.5%</td>
<td>25</td>
<td>6</td>
<td>24.0%</td>
</tr>
<tr>
<td>(41-43) Building and construction</td>
<td>375</td>
<td>23</td>
<td>6.1%</td>
<td>472</td>
<td>239</td>
<td>50.6%</td>
</tr>
<tr>
<td>(45-47) Retail trade, repair of motor vehicles</td>
<td>843</td>
<td>82</td>
<td>9.7%</td>
<td>976</td>
<td>560</td>
<td>57.4%</td>
</tr>
<tr>
<td>(49-53) Transport and storage</td>
<td>114</td>
<td>9</td>
<td>7.9%</td>
<td>138</td>
<td>65</td>
<td>47.1%</td>
</tr>
<tr>
<td>(55-56) Accommodation and food services activities</td>
<td>69</td>
<td>9</td>
<td>13.0%</td>
<td>87</td>
<td>51</td>
<td>58.6%</td>
</tr>
<tr>
<td>(58-63) Information and communication</td>
<td>318</td>
<td>32</td>
<td>10.1%</td>
<td>365</td>
<td>179</td>
<td>49.0%</td>
</tr>
<tr>
<td>(68) Sale and real estate</td>
<td>1 241</td>
<td>80</td>
<td>6.4%</td>
<td>1 355</td>
<td>538</td>
<td>39.7%</td>
</tr>
<tr>
<td>(70-75) Professional, scientific and tech. activities</td>
<td>557</td>
<td>54</td>
<td>9.7%</td>
<td>669</td>
<td>387</td>
<td>57.8%</td>
</tr>
<tr>
<td>(77-82) Business activities</td>
<td>331</td>
<td>22</td>
<td>6.6%</td>
<td>371</td>
<td>200</td>
<td>53.9%</td>
</tr>
<tr>
<td>(83) Education</td>
<td>48</td>
<td>5</td>
<td>10.4%</td>
<td>80</td>
<td>55</td>
<td>68.5%</td>
</tr>
<tr>
<td>(86-88) Health and social services</td>
<td>55</td>
<td>7</td>
<td>12.7%</td>
<td>74</td>
<td>49</td>
<td>66.2%</td>
</tr>
<tr>
<td>(90-93) Cultural business, entertainment and recreation</td>
<td>118</td>
<td>8</td>
<td>6.8%</td>
<td>141</td>
<td>88</td>
<td>62.4%</td>
</tr>
<tr>
<td>(94-96) Other services</td>
<td>24</td>
<td>4</td>
<td>16.7%</td>
<td>39</td>
<td>27</td>
<td>69.2%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>4 557</strong></td>
<td><strong>375</strong></td>
<td><strong>8.2%</strong></td>
<td><strong>5 275</strong></td>
<td><strong>2 081</strong></td>
<td><strong>50.8%</strong></td>
</tr>
</tbody>
</table>
In 2011, a modest number of 372 companies in our sample (8.2%) opted out of the auditing process. This number increased drastically in the following years to 50.8% in 2012 and 61.2% in 2013.

As a result of this categorization, a trend of opting out of the auditing process becoming increasingly popular amongst all industries can be observed. The largest growth in percentage of companies opting out from 2011 to 2012 was in the “Education industry” and the “Cultural business, entertainment and recreation industry”. Both categories display an increase of about 10 times as many companies while the smallest increase was in “Agriculture, forestry and fishing”, “Accommodation and food services activities”, as well as “Information and communication”. From 2012 to 2013, growth in the number of companies opting out of the auditing process was less pronounced than the growth from 2011 to 2012. Meanwhile, the growth in companies choosing not to audit was greatest in the “WWS industry”, where the number doubled. The number of companies opting out of auditing in the “Business activity” and “Other services” industries decreased during the same period of time.

7.2. General descriptive statistics

7.2.1. Sample company years 2007-2013

In Table 5, we present general statistics for the years 2007 to 2013 with selected variables. In the table, we chose to display a number of observations, means, medians, standard deviations, and the 5th and 95th percentiles. Only sample descriptive statistics after the reduction in observations are presented as we want to portray the differences between companies voluntarily auditing and companies opting out of auditing. Thus, we split the sample into total, audited, and non-audited companies. This strategy enables us to test for differences in means between the audited and non-audited companies and allow for unequal variances in error terms. Our sample contains 30 207 observations, but we see that this figure is lower in most of the variables due to the calculation of different ratios. Our sample ranges from 2007 to 2013, and as such, we will have missing values for several variables in 2007. Our actual sample size consists of 13 730 observations: 3 000 unaudited and 10 600 audited companies' years.
As presented in Table 5, we have 13,730 observations of some variables, while we have 30,207 observations of others. The reason for this is variables with fewer observations are calculated with lagged observations. Thus, the first observation of a given firm will be defined as ‘missing’ by Stata whenever a change from the previous year is to be calculated. Having more than 13,000 company years in our sample means it should be large enough to generalize our findings despite the fact that our sample is more than halved from 30,207 to 13,730 observations.

As presented in Table 5, we have 13,730 observations of some variables, while we have 30,207 observations of others. The reason for this is variables with fewer observations are calculated with lagged observations. Thus, the first observation of a given firm will be defined as ‘missing’ by Stata whenever a change from the previous year is to be calculated. Having more than 13,000 company years in our sample means it should be large enough to generalize our findings despite the fact that our sample is more than halved from 30,207 to 13,730 observations.

Table 6–General descriptive statistics: Scaled by lagged total assets.

As presented in Table 5, we have 13,730 observations of some variables, while we have 30,207 observations of others. The reason for this is variables with fewer observations are calculated with lagged observations. Thus, the first observation of a given firm will be defined as ‘missing’ by Stata whenever a change from the previous year is to be calculated. Having more than 13,000 company years in our sample means it should be large enough to generalize our findings despite the fact that our sample is more than halved from 30,207 to 13,730 observations.

Table 7–Comparative descriptive statistics: Audited, Big 4-audited and unaudited.

As presented in Table 5, we have 13,730 observations of some variables, while we have 30,207 observations of others. The reason for this is variables with fewer observations are calculated with lagged observations. Thus, the first observation of a given firm will be defined as ‘missing’ by Stata whenever a change from the previous year is to be calculated. Having more than 13,000 company years in our sample means it should be large enough to generalize our findings despite the fact that our sample is more than halved from 30,207 to 13,730 observations.
In our samples depicted above, audited companies are much larger than unaudited ones. The most considerable difference lies within "Total Assets" and "PPE". Unaudited companies, measured in TA and PPE, are only about half the size of audited companies (PPE ≈ 50% and TA ≈ 53%) and even smaller than the Big 4-audited companies (PPE ≈ 42% and TA ≈ 43%) in our sample. From this observation, we can conclude that companies choosing voluntarily to audit are bigger than the companies that opt out of auditing. The Big 4-audited firms are even larger. It should be noticed that audited companies report lower ROA than companies that opt out of auditing, and Big 4-audited companies report negative ROA. Another fact that should be duly noted is that all companies report income-decreasing "Total Accruals". Audited companies report significantly higher income-decreasing Total Accruals and Big 4-audited companies even more so. This statistic is also reflected in the fact that unaudited companies report higher returns on assets than audited and Big 4-audited companies.

7.3. Company year audit status

Table 8—Statistics company year audited status (2007-2013).

<table>
<thead>
<tr>
<th>Year</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Firms</td>
<td>3 291</td>
<td>3 779</td>
<td>4 002</td>
<td>4 259</td>
<td>4 517</td>
<td>5 275</td>
<td>5 044</td>
<td>30 207</td>
</tr>
<tr>
<td>Audited</td>
<td>3 291</td>
<td>3 779</td>
<td>4 002</td>
<td>4 259</td>
<td>4 185</td>
<td>2 594</td>
<td>1 958</td>
<td>24 068</td>
</tr>
<tr>
<td>Unaudited</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>372</td>
<td>2 681</td>
<td>3 086</td>
<td>6 139</td>
</tr>
<tr>
<td>Audited %</td>
<td>100 %</td>
<td>100 %</td>
<td>100 %</td>
<td>100 %</td>
<td>92 %</td>
<td>49 %</td>
<td>39 %</td>
<td></td>
</tr>
<tr>
<td>Unaudited %</td>
<td>0 %</td>
<td>0 %</td>
<td>0 %</td>
<td>0 %</td>
<td>8 %</td>
<td>51 %</td>
<td>61 %</td>
<td></td>
</tr>
<tr>
<td>Big4 Audited</td>
<td>519</td>
<td>622</td>
<td>699</td>
<td>751</td>
<td>744</td>
<td>524</td>
<td>378</td>
<td>4 237</td>
</tr>
<tr>
<td>Big4 % (total firms)</td>
<td>16 %</td>
<td>16 %</td>
<td>17 %</td>
<td>18 %</td>
<td>16 %</td>
<td>10 %</td>
<td>7 %</td>
<td></td>
</tr>
<tr>
<td>Big4 % (audited firms)</td>
<td>16 %</td>
<td>16 %</td>
<td>17 %</td>
<td>18 %</td>
<td>18 %</td>
<td>20 %</td>
<td>19 %</td>
<td></td>
</tr>
<tr>
<td>ΔTotal firms</td>
<td>0 %</td>
<td>15 %</td>
<td>6 %</td>
<td>6 %</td>
<td>7 %</td>
<td>16 %</td>
<td>-4 %</td>
<td>53 %</td>
</tr>
<tr>
<td>ΔAudited firms</td>
<td>0 %</td>
<td>15 %</td>
<td>6 %</td>
<td>6 %</td>
<td>-2 %</td>
<td>-38 %</td>
<td>-25 %</td>
<td>-41 %</td>
</tr>
<tr>
<td>ΔUnaudited firms (a)</td>
<td>0 %</td>
<td>0 %</td>
<td>0 %</td>
<td>0 %</td>
<td>∞ (a)</td>
<td>621 %</td>
<td>15 %</td>
<td>∞ (a)</td>
</tr>
<tr>
<td>ΔBig4 firms</td>
<td>0 %</td>
<td>20 %</td>
<td>12 %</td>
<td>7 %</td>
<td>-1 %</td>
<td>-30 %</td>
<td>-28 %</td>
<td>-27 %</td>
</tr>
</tbody>
</table>

(a) A growth from 0 to 372 unaudited companies is undefinable in %

In Table 8, we shed light on the development of the audit statuses of the different observations in our sample. We see that there is a somewhat steady growth in the total number of companies from 2007 to 2012, ranging between 6% and 16% growth in company years in our sample per year. From 2012 to 2013, there is a slight decline from 5 275 to 5 044 company-year observations. Moreover, from 2007 to 2010, there is a growth in observations audited by Big 4 companies for every year. This trend turns into a decline in the years following the legislation change in 2011. There is a slightly lower decline in Big 4-audited company years than with audited company years as a whole. In addition, the Big 4 audit companies keep a steady sample share of ≈ 19% of the company years audited throughout our sample years.
7.4. Correlation

In Table 9, Pearson’s correlation matrix for the most important variables used in our analysis are presented.

Table 9–Pearson's correlation matrix.

<table>
<thead>
<tr>
<th>Total Accruals</th>
<th>WCA</th>
<th>Change Acc. Rec.</th>
<th>Change Revenue</th>
<th>PPE</th>
<th>ROA</th>
<th>CFO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Accruals</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WCA</td>
<td>0.9658***</td>
<td>0.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change Acc. Rec.</td>
<td>0.1415***</td>
<td>0.1613***</td>
<td>0.0000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change Revenue</td>
<td>0.0072</td>
<td>0.0726***</td>
<td>0.2971***</td>
<td>7.0000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PPE</td>
<td>-0.0849***</td>
<td>-0.0317***</td>
<td>-0.0315***</td>
<td>-0.0315***</td>
<td>7.0000</td>
<td></td>
</tr>
<tr>
<td>ROA</td>
<td>0.3094***</td>
<td>0.3379***</td>
<td>0.2673***</td>
<td>0.2673***</td>
<td>0.0744***</td>
<td>7.0000</td>
</tr>
<tr>
<td>CFO</td>
<td>-0.6311***</td>
<td>-0.5905***</td>
<td>-0.2033***</td>
<td>7.0068</td>
<td>0.4357***</td>
<td>0.4357*</td>
</tr>
</tbody>
</table>

* p < 0.10, ** p < 0.05, *** p < 0.01

Pearson’s correlation matrix reveals that most variables are not heavily correlated. An exception to this tendency is "Total Accruals" and "WCA". These variables are almost perfectly correlated. ROA is correlated with both the Total Accruals category (0.3) and WCA (0.34). It should be noted that CFO has a very high negative correlation with both Total Accruals and WCA.

7.1. Variable list

Accr = total accruals = the change in non-cash current assets minus the change in current non-interest bearing liabilities, minus depreciation and amortization expenses for firm i in year t, scaled by lagged total assets.

AR = annual accounts receivable, scaled by lagged total assets.

DOCF = an indicator variable for negative operating cash flows.

OCF = CFO = cash flow from operations for firm i in year t, measured as the sum of net income, depreciation, and amortization minus WCA, where all amounts are scaled by lagged total assets.

OCF<sub>t-1</sub> = CFO<sub>t-1</sub> = cash flow from operations for firm i in year t-1, measured as the sum of net income, depreciation, and amortization minus WCA, where all amounts are scaled by lagged total assets.

OCF<sub>t+1</sub> = CFO<sub>t+1</sub> = cash flow from operations for firm i in year t+1, measured as the sum of net income, depreciation, and amortization minus WCA, where all amounts are scaled by lagged total assets.

PPE = property, plant, and equipment for firm i in year t scaled by lagged total assets.

ΔREV = change in revenue = annual change in revenues scaled by lagged total assets;

1/TA = 1 divided by total assets.
TA = total assets
ROA = net income for firm i in year t scaled by average total assets
WCA = working capital accruals, measured as the change in non-cash current assets minus the change in current liabilities other than short-term debt and taxes payable, scaled by lagged total assets.

8. Results

Now the results of our research will be presented. To begin, the regressions computed using the different models presented in Chapter 7 are detailed. Then, the results from the tests we have performed on the hypotheses presented in Chapter 6 will be showcased. This will be done by performing three regressions for each of our three models given in previous literature: first on the sample from 2007-2013 as a whole and second on the sample post of the legislation change from 2007-2013. Finally, we will examine our sample results regarding circumstances after the legislation change with unaudited companies and ones audited by Big 4 observations. We do not differentiate industries in our tests, and all regressions pertain to the different sub-samples as a whole. Each regression was run with the vce (robust) option in Stata to produce robust standard errors without estimation errors, and as such reliable results, due to correlated residuals in our regressions. Using these nine regressions, we test our hypotheses on the absolute, negative residuals they produce to verify if unaudited firms' earnings quality deviates from that of audited firms. Lower residuals indicate lower earnings quality. This means that the further from 0 our residual is, the lower the earnings quality is in the sample.

8.1. Regressions

In order to provide the reader with insight into the regressions, we present each regression as performed on the data sample. Since the WCA model includes both a “T-1” variable and a “T+1” variable, we will have missing variables in 2007 and 2013. As a consequence, the number of observations in the WCA model is lower than in the other two.
8.1.1. All years

Table 10–Sample company years: 2007-2013.

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>WCA</th>
<th>Total Accruals</th>
<th>Change In Acc. Rec.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFO(_{t-1})</td>
<td>0.0414</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0272)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CFO(_{t})</td>
<td>-0.623***</td>
<td>-0.0470***</td>
<td>0.0895***</td>
</tr>
<tr>
<td></td>
<td>(0.0372)</td>
<td>(0.0108)</td>
<td>(0.00622)</td>
</tr>
<tr>
<td>CFO(_{t+1})</td>
<td>0.0821***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0279)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change in Revenue</td>
<td>0.0916***</td>
<td>-16,690***</td>
<td>-4,132</td>
</tr>
<tr>
<td></td>
<td>(0.0166)</td>
<td>(0.0108)</td>
<td>(0.0147)</td>
</tr>
<tr>
<td>PPE</td>
<td>-0.00676</td>
<td>-0.234***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0491)</td>
<td>(0.0324)</td>
<td></td>
</tr>
<tr>
<td>DCFO</td>
<td>0.0329***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0120)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CFO(_{t}) x DCFO</td>
<td>-0.0565</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0357)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/TA</td>
<td>-16,690***</td>
<td>-13,729</td>
<td>-4,132</td>
</tr>
<tr>
<td>ROA</td>
<td>0.515***</td>
<td>0.0700***</td>
<td>0.158***</td>
</tr>
<tr>
<td></td>
<td>(0.0288)</td>
<td>(0.0147)</td>
<td>(0.000419)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.0318**</td>
<td>0.0700***</td>
<td>0.158***</td>
</tr>
<tr>
<td></td>
<td>(0.0158)</td>
<td>(0.0147)</td>
<td>(0.000419)</td>
</tr>
</tbody>
</table>

Observations 3,282 13,729 13,729
R-squared 0.587 0.097 0.081
Number of cid 1,624 6,925 6,925

(a) Robust standard errors in parentheses
(b) *** p<0.01, ** p<0.05, * p<0.1
(c) Regressions are done with fixed effects
(d) All input variables are winsorized at the 5% level
(e) All input variables are scaled by lagged total assets

In the modified cross-sectional Dechow-Dichev model, the CFO\(_{t-1}\), PPE, and CFO\(_{t}\) x DCFO variables do not have a major impact on WCA. The R\(^2\) in the WCA-model is much higher compared to the two other models, with an explanatory power of 58.7%. In the Kothari et. al (2005) model, all independent variables have a substantial impact on the total accruals at the 1% level with R\(^2\) of 9.7%. In the Stubben (2010) model, the change-in-revenue variable is also statistically significant, with an R\(^2\) of 8.1%.
8.1.2. Post-legislation change

Table 11–Sample company years: Post-legislation change 2011-2013.

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>WCA</th>
<th>Total Accruals</th>
<th>Change In Acc. Rec.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFO&lt;sub&gt;t-1&lt;/sub&gt;</td>
<td>0.0759*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0420)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CFO&lt;sub&gt;t&lt;/sub&gt;</td>
<td>-0.597***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0617)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CFO&lt;sub&gt;t+1&lt;/sub&gt;</td>
<td>0.161***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0488)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change in Revenue</td>
<td>0.126***</td>
<td>-0.0424***</td>
<td>0.0853***</td>
</tr>
<tr>
<td></td>
<td>(0.0243)</td>
<td>(0.0164)</td>
<td>(0.00913)</td>
</tr>
<tr>
<td>PPE</td>
<td>0.0148</td>
<td>-0.303***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0928)</td>
<td>(0.0549)</td>
<td></td>
</tr>
<tr>
<td>DCFO</td>
<td>0.0346*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0185)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CFO&lt;sub&gt;t&lt;/sub&gt; x DCFO</td>
<td>-0.0296</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0537)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I/TA</td>
<td></td>
<td>-22.042***</td>
<td>-7.514</td>
</tr>
<tr>
<td>ROA</td>
<td></td>
<td>0.515***</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.0468)</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>0.0111</td>
<td>0.0972***</td>
<td>0.156***</td>
</tr>
<tr>
<td></td>
<td>(0.0305)</td>
<td>(0.0245)</td>
<td>(0.000687)</td>
</tr>
<tr>
<td>Observations</td>
<td>1,809</td>
<td>7,771</td>
<td>7,771</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.654</td>
<td>0.092</td>
<td>0.078</td>
</tr>
<tr>
<td>Number of cid</td>
<td>1,186</td>
<td>4,813</td>
<td>4,813</td>
</tr>
</tbody>
</table>

(a) Robust standard errors in parentheses
(b) *** p<0.01, ** p<0.05, * p<0.1
(c) Regressions are done with fixed effects
(d) All input variables are winsorized at the 5% level
(e) All input variables are scaled by lagged total assets

In the sample of companies after the legislation change, all variables except PPE and CFO<sub>t</sub> x DCFO have a statistically significant impact, at least on the 10% level. The R<sup>2</sup> in the modified cross-sectional Dechow-Dichev model is 65.4%.

Moreover, in the Total Accrual model, all independent variables have a considerable impact on the dependent variables at the 1% level with R<sup>2</sup> of 9.2%.

Meanwhile, in the Stubben (2010) model, the Change in Revenue variable is also statistically significant, with an R<sup>2</sup> of 7.8%.
8.1.3. Big 4 and unaudited companies, post-legislation change

Table 12–Sample company years: Big 4 and unaudited 2011-2013

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>WCA</th>
<th>Total Accruals</th>
<th>Change In Acc. Rec.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFO_{t-1}</td>
<td>0.0717</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0754)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CFO_{t}</td>
<td>-0.886***</td>
<td>-0.0655**</td>
<td>0.0753***</td>
</tr>
<tr>
<td></td>
<td>(0.0873)</td>
<td>(0.0270)</td>
<td>(0.0143)</td>
</tr>
<tr>
<td>CFO_{t+1}</td>
<td>0.0273</td>
<td>0.0273</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0591)</td>
<td>(0.0873)</td>
<td></td>
</tr>
<tr>
<td>Change in Revenue</td>
<td>0.100***</td>
<td>-0.313***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0273)</td>
<td>(0.191)</td>
<td></td>
</tr>
<tr>
<td>PPE</td>
<td>0.183</td>
<td>-0.313***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.191)</td>
<td>(0.0819)</td>
<td></td>
</tr>
<tr>
<td>DCFO</td>
<td>0.00548</td>
<td>-33,667**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0275)</td>
<td>0.135***</td>
<td></td>
</tr>
<tr>
<td>CFO_{t} x DCFO</td>
<td>0.140***</td>
<td>-13,251</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0274)</td>
<td>(0.0610)</td>
<td></td>
</tr>
<tr>
<td>1/TA</td>
<td>-33,667**</td>
<td>0.543***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-13,251</td>
<td>(0.0664)</td>
<td></td>
</tr>
<tr>
<td>ROA</td>
<td>0.543***</td>
<td>0.0207</td>
<td>0.160***</td>
</tr>
<tr>
<td></td>
<td>(0.0610)</td>
<td>(0.0610)</td>
<td>(0.00132)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.135***</td>
<td>0.160***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0450)</td>
<td>(0.00132)</td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>729</td>
<td>3,988</td>
<td>3,988</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.751</td>
<td>0.112</td>
<td>0.062</td>
</tr>
<tr>
<td>Number of cid</td>
<td>578</td>
<td>2,784</td>
<td>2,784</td>
</tr>
</tbody>
</table>

(a) Robust standard errors in parentheses
(b) *** p<0.01, ** p<0.05, * p<0.1
(c) Regressions are done with fixed effects
(d) All input variables are winsorized at the 5% level
(e) All input variables are scaled by lagged total assets

The last sample of companies consists of firms opting out of auditing and firms voluntarily audited by Big 4 companies. In this regression, only CFO_{t}, Change in Revenue, and CFO_{t} x DCFO have a statistically significant impact on WCA, at least at the 10% level. The R^2 in the working capital accruals model is 75.1%. In the Kothari et. al (2005) model, all independent variables have a significant impact on the dependent variables, at least at the 5% level where R^2 is 11.2%. Finally, in the Stubben (2010) model, the Change in Revenue variable is also statistically noteworthy, with an R^2 of 6.2%.
8.2. Earnings quality tests

In our tests, all measures are absolute and negative. There is no differentiation made between income-increasing and income-decreasing accruals. We only test the actual deviation from what is considered to be of ‘normal accrual size’ in our regressions. This outcome is achieved by performing tests on the model residuals since the different residuals that are computed comprise a measure of the deviation from what is considered to be a ‘normal-sized accrual’. In other words, according to our tests, the further from zero the residual is, the lower the earnings quality in the given sub-sample is. In order to be able to discard our \( H_0 \)’s and conclude that the legislation change has led to lower earnings quality in companies that opt out of auditing, we must see a mean for the unaudited firm that deviates more from zero than the means of the audited companies. To conclude that our results are significant on at least the 5% level, we must see a T-value in the T-test for difference in mean of \( T \geq 1,96 \) or \( T \leq -1,96 \).

8.2.1. All years

<table>
<thead>
<tr>
<th></th>
<th>All firms (N=13 649)</th>
<th>Unaudited firms (N=3 069)</th>
<th>Audited firms (N=10 571)</th>
<th>T-test for difference in mean</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>St. Dev</td>
<td>Median</td>
<td>Mean</td>
</tr>
<tr>
<td>Total Accruals</td>
<td>-0,0886</td>
<td>0,0753</td>
<td>-0,0638</td>
<td>-0,0888</td>
</tr>
<tr>
<td>WCA (a)</td>
<td>-0,1200</td>
<td>0,1275</td>
<td>-0,0751</td>
<td>-0,1258</td>
</tr>
<tr>
<td>Disc. Rev</td>
<td>-0,1637</td>
<td>0,0446</td>
<td>-0,1578</td>
<td>-0,1668</td>
</tr>
</tbody>
</table>

All accrual measures are absolute and negative.

* Significant on 5% level

Our hypothesis for the sample as a whole is that the legislation change in 2011 has yielded lower earnings quality for the companies that opted out of auditing after 2011 than the companies that were audited before the legislation change. This outcome also pertains to the companies voluntarily auditing their financial statements. Looking at the Total Accruals measure computed using the Kothari, Leone and Weasley (2005) model, we see a mean in the total sample of -0,0886. The mean for unaudited companies is -0,0888 and -0,0847 for audited companies. This means, in accordance with our hypothesis, that we see a lower earnings quality in the unaudited companies than in the audited companies in our sample.

Using working capital accruals (WCA) in the modified cross-sectional Dechow-Dichev model, we compute a mean of -0,1200 for the total sample. The mean for unaudited companies is -0,1258, and for the audited companies in our sample from 2007-2013, a mean of -0,1190 is observed.
Our final measure is the Stubben (2010) model for discretionary revenues, with a mean for the total sample of -0.1637. Looking at the companies that chose not to audit after 2011 in our sample, we see a mean of -0.1668. Those companies that voluntarily audited their financial statements have a mean of -0.1628. Such mean values point towards a lower earnings quality in companies opting out of the auditing process in this measure as well. Hence, our first sub-conclusion for this sub-sample is that the earnings quality is lower in companies not auditing compared to companies auditing their financial statements.

When testing for differences in means, we see that the T-value for the means in the Kothari model is 2.643, yielding a significant difference in mean. Therefore, it is concluded that for this model, there is a statistically significant lower earnings quality in companies opting not to audit than those auditing their financial statements. Using the same test for the modified cross-sectional Dechow-Dichev model, we see a T-value of 1.074. This figure is not high enough to conclude that the difference in means is statistically significant on a 5% level. Testing the difference in means in the Stubben (2010) model yields a T-value of 4.0706, which is high enough to assert that the difference is statistically significant. Conclusively, when using this model, there is a lower earnings quality in companies that opt out of auditing as compared to those that do audit.

As discussed in the previous paragraph, a second sub-conclusion for this sample can be devised. There is a statistically significant lower earnings quality in two of our models used. The third model shows no major difference in the earnings quality. This means that we are able to discard our H_0 for the whole sample in two of our three models (Kothari and Stubben models). However, we are not able to discard the H_0 for the modified cross-sectional Dechow-Dichev model.

8.2.2. Post-legislation change

Table 14–Earnings quality post legislation change (2011-2013).

<table>
<thead>
<tr>
<th>All firms (N = 7,720)</th>
<th>Unaudited Firms (N = 3,069)</th>
<th>Audited Firms (N = 4,651)</th>
<th>T-test for difference in mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>St. Dev</td>
<td>Median</td>
<td>Mean</td>
</tr>
<tr>
<td>Total accruals</td>
<td>-0.1078</td>
<td>-0.0959</td>
<td>-0.0781</td>
</tr>
<tr>
<td>WCA (a)</td>
<td>-0.1204</td>
<td>0.1277</td>
<td>-0.0766</td>
</tr>
<tr>
<td>Disc. Rev</td>
<td>0.0433</td>
<td>0.1561</td>
<td>0.1647</td>
</tr>
</tbody>
</table>

All accrual measures are absolute and negative. * Significant on 5% level

Our second hypothesis regards the fact that after the legislation change, the companies that opt out of auditing have a lower earnings quality measured by our
three models than the companies that have voluntarily audited their financial statements.

In the Kothari, Leone and Weasley (2005) model, a mean of -0,1078 can be observed for the sample as a whole. For audited companies, the mean is -0,1058. Meanwhile, with a mean for the unaudited companies of -0,1109, there is lower earnings quality in the unaudited companies in the sample as compared to voluntarily audited companies.

Using working capital accruals (WCA) in the modified cross-sectional Dechow-Dichev model, we have a mean of -0,1187 for audited companies. And for the unaudited companies in our sample, the mean is -0,1249. These mean values point to lower earnings quality in unaudited companies.

In the discretionary revenues model, the companies that opt out of auditing have a mean of -0,1657, and the mean in the audited firm sample is -0,1609. As in the test on the total sample, our first sub-conclusion for this sub-sample will be that the earnings quality is lower in companies not audited when compared to companies performing voluntary audits.

The T-value for difference in means with the Kothari model is 2,2980. This figure yields a significant difference in mean. There is a statistically significant lower earnings quality in companies that opt out of auditing than those choosing to audit their financial statements. In the test for working capital accruals, the T-value is 0,9187. These results are too far below the thresholds to conclude that the difference in means is statistically significant on a 5%-level. At the same time, testing the difference in means on the discretionary revenue model yields a T-value of 3,6689. This measure is high enough to affirm that the difference is statistically significant. We therefore can conclude that there is lower earnings quality in companies opting out of the auditing process than in companies that audit.

Considering all of the above information, our second sub-conclusion yields a statistically significant lower earnings quality in two of our models used. In the third model, there is no significant difference in the earnings quality, and we are
able to discard our $H_0$ for the whole sample in two of our three models (Kothari and Stubben models). As for the total sample, we are not able to discard the $H_0$ for the modified cross-sectional Dechow-Dichev model.

8.2.3. **Big 4 post-legislation change**

Table 15–Earnings quality post legislation change Big 4-audited companies (2011-2013)

<table>
<thead>
<tr>
<th></th>
<th>All firms (N = 3,943)</th>
<th>Unaudited Firms (N = 3,060)</th>
<th>Big4 Audited firms (N = 883)</th>
<th>T-test for difference in mean T-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total accruals</td>
<td>-0.1393</td>
<td>-0.1419</td>
<td>-0.1303</td>
<td>-2.513*</td>
</tr>
<tr>
<td>WCA (a)</td>
<td>-0.1710</td>
<td>-0.1772</td>
<td>-0.1583</td>
<td>-1.6934</td>
</tr>
<tr>
<td>Disc. Rev</td>
<td>-0.1675</td>
<td>-0.1682</td>
<td>-0.1651</td>
<td>-2.3094*</td>
</tr>
</tbody>
</table>

All accrual measures are absolute and negative.
* Significant on 5% level

Our third and final hypothesis is that companies choosing to opt out of auditing have lower earnings quality when compared to companies with Big 4-audited financial statements. For the Total Accruals model, the mean for the total sample is -0.1393 while the Big 4-audited companies have a mean of -0.1303. Comparing the unaudited companies with a mean of -0.1419, we see that unaudited companies report lower earnings quality measured using total accruals than the Big 4-audited companies in our sample after 2011.

Using the modified cross-sectional Dechow-Dichev model, we see that the mean for unaudited companies is -0.1772. For the Big 4-audited companies in this sub-sample, we see a mean of -0.1583, causing us to conclude that the unaudited companies have lower earnings quality.

Our final measure is the Stubben (2010) model for discretionary revenues. The companies that opt out of auditing have a mean of -0.1682, and those that voluntarily used a Big 4 auditor to audit their financial statements have a mean of -0.1651. This means that companies voluntarily choosing to undergo Big 4 audits have a higher earnings quality than those choosing to opt out of the auditing process.

When testing for a difference in means, we observe that the T-value in the Kothari model is -2. Consequently, there is a statistically significant lower earnings quality in companies opting out of the auditing process than those with Big 4-audited financial statements.
Testing for a difference in means in the modified cross-sectional Dechow-Dichev model, we see a $T$-value of -1.6934. That statistic is not enough to conclude that there is a statistically significant difference in means. Conversely, the difference-in-means test in the Stubben (2010) model yields a $T$-value of -2.3094. This means that the difference in means when using this model is statistically significant, and there is a lower earnings quality standard in companies that opt out of auditing as compared to Big 4-audited companies.

The second sub-conclusion for this sub-sample is that there is a statistically significant lower earnings quality in two of our models used. But in the third model, there is no major difference in the earnings quality. Thus, we are able to discard our $H_0$ for the entire sample in two of our three models (Kothari and Stubben models) while we are not able to discard the $H_0$ for the modified cross-sectional Dechow-Dichev model.

9. Assumptions for linear regression

When using multiple regressions to analyze a dataset, one first has to determine whether the dataset can be analyzed using this method. Verifying all of the assumptions will ensure that the regression can produce reliable results. It is important to keep in mind that a real dataset may commonly violate one or several of the assumptions we are about to discuss. Testing economic theory in the available dataset is dependent on our being able to see the underlying assumption of every condition. The modeling for this procedure has three steps: we first make an economic model with an error term, then unknown parameters are measured by OLS, and lastly, specification tests are performed. Along these lines, it is vital to test for heteroscedasticity, multicollinearity, and the fit of the model.

9.1. Theoretical backdrop

Since we use recognized methods and models to estimate abnormal accruals, we will not test whether or not these models are specified well enough. After all, these models have previously been used and proved in several research papers as with Hope, Thomas and Vyas (2013). The three models we used, as mentioned earlier, have been criticized for their lack of explanatory power. Due to this difficulty, we might face the problem of left-out explanatory variables correlating
with both dependent variable(s) and independent variable(s) in the indicator regressions (Hope, Thomas and Vyas 2013; McNichols 2008; Stubben 2010). There are three ways of running a regression: fixed, between, and random effects. Fixed effects help us consider the assumption that some observations come from certain units by adding on a $u_i$ variable to the alpha (Statacorp LP–Hardin J 1996). All in all, we are looking at eight assumptions for OLS that have to be fulfilled for the multiple regressions. In turn, we seek for the tests conducted on the error terms to be of use and significant and for reliable results that can be generalized to the whole population (Lærd Statistics 2013).

9.1. Listing-regression assumptions

Now we list and test all of the assumptions in the same order as they are presented. Note that some of the assumptions did not require for us to perform actual tests.

9.1.1. Assumption 1: Dependent Variable

It is important that all explanatory variables are present and that the dependent variable is measured continuously. Continuality in this variable could either be presented by ratio or interval variables.

9.1.2. Assumption 2: Independent Variables

In a multiple regression, there are usually several independent variables. It is important that these are measured on a continuous or categorical level.

9.1.3. Assumption 3: Independence of Observations

This element is difficult in a practical case as we almost always will assume some sort of connection between the independent variables in the dataset. The main theory is that every explanatory variable should have an independent effect on our independent variable.

9.1.4. Assumption 4: Linearity

We need to test for linear relationships between the variables. If we do not find a linear relationship, it is possible to perform a nonlinear or polynomial regression. We can also transform the data we have and create a linear relationship. If this assumption does not hold, then our predictions are likely to be faulty and unreliable, especially when they are used to generalize a conclusion.
9.1.5. Assumption 5: Homoscedasticity

We need to assume homoscedasticity in the dataset. This means that all of the variables are spread evenly around a straight, fitted line. Heteroscedasticity makes it hard to measure the true standard deviation of the forecast errors, usually resulting in confidence intervals that are too wide or too narrow. A very common problem is heteroskedasticity and autocorrelation between the variables, where the covariance of two, or more, variables is not equal to zero. In a data set containing real-world data, it is important to understand that the covariance will never be equal to zero. As such, it may be hard to completely satisfy this assumption. Therefore, it can be very difficult to interpret results.

9.1.6. Assumption 6: Multicollinearity

Multicollinearity occurs when two or more variables are highly correlated with each other and could distort the results (Statacorp LP–Hardin J 1996).

9.1.7. Assumption 7: No Unusual Observations

This essentially means that the dataset should not have any significant outliers and also means that the dataset must not have points with high leverage or high influence on the dataset.

9.1.8. Assumption 8: Approximate Normal Distribution of Residuals

Normal distribution should be assumed from residuals of a linear regression or at least a close approximation. This enables a generalization of the results, which is important when our sample should be representative of our population.

9.2. Testing -regression assumptions

9.2.1. Assumptions 1 & 2:

For the first and second assumptions, we do not need to perform any tests. We know that the dependent variable—accruals—is continuous and that all the variables in the model exist. This is assumed to be true when we use the known models from earlier research, and as such, we assume that all the standards' models are sound regarding other explanatory variables. We can conclude that these assumptions are fulfilled in our case. As we employ models that have been used in earlier research, we have to assume that our models are additive. Hence,
we find this assumption to be fulfilled. We also know that our independent variables are continuous, like change in revenue and OCF.

9.2.2. Assumptions 3 & 4:

We test the assumption of a linear relationship between the independent and dependent variables by using a diagram ACPRplot. We see that although the relationship varies somewhat, it is linear and very closely related. This proves that there is a linear relationship between the independent and dependent variables. We can conclude that Assumption 3 is fulfilled.

Figure 2–ACPR plot: Change in revenue.

(a) Variable is winsorized at the 5% level

As previously discussed, it is difficult to assume that the variables are independent in a practical case. There will always be some sort of connection. However, we have used acknowledged models, and we are not able to change explanatory variables. A slight violation of Assumption 4 must be tolerated in this case.
Assumptions 5 & 6:

Figure 3–RVF plot: Kothari et al. (2005) model.

In Figure 3, we observe that there is a problem with heteroscedasticity in our dataset. This is most likely due to the fact that we have used winsorized variables. As this is likely to be the cause of the problem, we can conclude that for the type of research we are performing, this slight inclination is not significant.

We avoid correlated residuals by using robust standard errors. This procedure is carried out by using the “xtreg vce(cluster)” command instead of using the standard-regression command. By using this command, correlated residuals in our regressions will not affect our results. We should also look at the variable inflation factor (VIF). Multicollinearity is an issue if VIF > 10. Looking at the table below, we see that in our case, this assumption is fulfilled.

<table>
<thead>
<tr>
<th>Variable</th>
<th>VIF</th>
<th>Variable</th>
<th>VIF</th>
<th>Variable</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFO_{t-1}</td>
<td>2,86</td>
<td>1/TA</td>
<td>1,20</td>
<td>Change in Revenue</td>
<td>1</td>
</tr>
<tr>
<td>DCF0</td>
<td>1,93</td>
<td>PPE</td>
<td>1,17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CFO_{t-1}</td>
<td>1,61</td>
<td>Change in Revenue</td>
<td>1,11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CFO_{t+1}</td>
<td>1,42</td>
<td>ROA</td>
<td>1,09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PPE</td>
<td>1,06</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change in Revenue</td>
<td>1,05</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(a) Variable is winsorized at the 5% level

(a) All variables are winsorized at the 5% level
We are able to conclude that like other practical real data samples, this sample does not completely pass all of the assumptions. There is some heteroscedasticity within the sample, and there will always be some connection between the variables. Since we are working with real data, we conclude that the results of the different assumption tests are within the acceptable range by which to generalize our results.

9.2.3. Assumption 7:
Before we analyze the data and run our multiple regressions, we must make sure that no illogical data exists because this problem is not ameliorated by winzorizing. The problem of extreme values and outliers is taken care of when we use winzorized variables. However, this is not the same as simply removing the lower and upper tail values. It rather means setting the upper 5% of the data as a value equal to the 5th percentile and lower than 5% equal to the 95th percentile. We use the 5th percentile since we want to winzorize at the 5% level. We could also do this at a 1% or a 10% level, but even quality data will usually show gross error larger than 1% on each end (Hampel et al. 2011).

9.2.4. Assumption 8:
The average value of the residuals should be zero. This is always the case when using OLS, and we can therefore say that this assumption holds. A generalization of the results might be possible if the residuals are close to being normally distributed. Testing for normality of distribution is very important, and we can use the Kernel Density Estimate to do this. In Figure 4, a slight problem with kurtosis is observed as the bandwidth value is slightly smaller than what we would prefer it to be. Nevertheless, our results satisfy the assumption that due to normality of the curve, we are able to generalize the results and conclusions that we draw from this dataset.
9.3. **Concluding on our assumption testing**

We conclude that similar to other practical, real data samples, our sample does not completely pass all of the assumptions. Most of the assumptions are fulfilled in the proper design of the study, and since we use known and verified models, these assumptions are satisfied.

There is some heteroscedasticity within the sample, most likely due to the fact that we use winzorised and not standardized variables. Also, because this is real data, there will always be some connection between the variables although they appear to be essentially independent. Some of the assumptions are more robust to inaccuracy, like normal distribution, where our having a slight kurtosis is not a concern.

Bearing in mind that we are working with real data, we believe that the results of our assumption tests are within an acceptable range in order for us to legitimately generalize our results.

10. **Limitations**

There are some limitations to our study, which are important to keep in mind while considering our research and results. At the same time, we consider possibilities for further research and alterations by which to improve the research we have presently carried out.
One of the main limitations of this study is that most earnings-management studies have been performed on financial data from listed companies. There is not much existing research on private limited companies in other countries—especially not on such small companies as in our sample. This outcome is a consequence of the information on private companies usually not being publically available. As a result, we are forced to use models that have been fitted for larger companies, and we cannot say for certain what implications this has for our study.

The change in legislation came into effect in 2011 so that another of our main limitations is the lack of data from more than three years after the change. Our sample consists of observations from a total of seven years from 2007 to 2013. We believe that the results would be more robust and substantial if there were more years to look at. Also, we believe that the error term would be reduced with more data. Our literature analysis is limited by the amount of research done in such a short period of time after the legislation change.

In addition, cross-sectional data is limited when it comes to the primary goal of empirical science, which is to look at the causal effects between variables and make any causally based inferences. The main limitations in this regard are unobserved variable bias (Duncan 1972), endogeneity bias (Finkel 1995), and indeterminacy over the sequence of the causal mechanism (Berrington, Smith and Sturgis 2006). Because we use panel data, we can avoid many of these limitations and get a handle on the time ordering of variables as well as the possibility of tracking trajectories over time.

Taking all of these limitations into consideration, it should be mentioned that the statistical models best fitted for our data are complex and difficult to estimate correctly. We need to take into account that observations of the same variable over time are usually not independent of one another. They are very different from the more simplistic models used for analysis of cross-sectional data. It is also important to note that even though panel data allows for many improvements from cross-sectional data, there are still fundamental limitations in unequivocally identifying causal relationships. This issue exists mostly because we need to understand dynamic processes within the dataset.
Along with the difficulties mentioned above, one of the largest flaws with the measurement models we used in our thesis is that alone, they simply cover too little to give significant and reliable results. We were hoping to counteract this dilemma by using three different models and combining the results from each model to form a complete picture and draw our conclusions. There were some obvious advantages to using the uncontrolled environment in our research with respect to the effects of factors on the quality of financial statements. Despite this advantage and the added time from existing research, we have not been able to produce significant results for all three of our models. It is therefore not possible to come to a conclusion.

We have seen that there is a statistically significant decrease of quality with 2/3 of our tests, but we believe that this figure is not enough to draw any conclusions about the importance of auditing for small, private companies. Consequently, it is essential for us to discuss the possible additions and alterations we would implement within this field of study.

It could be argued that there is a different approach that might give us more substantial variability and conclusive results, but due to the limitations on our time and other resources, we were not able to examine all of the perspectives. As discussed, only three years of data after the legislation change is one of the largest limitations. By performing the same tests with five to ten years’ worth of data, we believe that we could attain more conclusive results.

Secondly, it is possible that the lack in our research is due to many smaller companies possibly using external accountants because they are lacking expertise in the area. External accountants are professionals, and their job is to make sure that financial statements are in accordance with law and international accounting standards (Benjamin and Stanga 1977). However, some of the company owners who choose not to audit also do their books themselves, which we believe could lead to serious shortcomings in financial-statement quality. In the research we performed, we do not differentiate between internal and external accountants. We believe that differentiating and looking at these two groups separately could be
important. At the same time, it could be interesting to see which of these groups is more likely to opt out of auditing.

Thirdly, we look at Big 4 customers and the companies that choose not to audit while comparing the earnings quality and potential for earnings management. We think that this study could benefit from a comparison between small audit companies and Big 4 audit companies. It can be argued that the “Big 4” brand stands for quality, and companies that choose them to do their books are looking for the best possible quality in their financial statements. If we split Big 4 and non-Big 4 customers, we could look at which of these have the highest probability of opting out of the auditing process, which has better earnings quality, and lastly, which has the greater difference concerning quality before and after the limited companies that choose not to audit.

Further research, also in qualitative form, would provide greater insight into the reason for small private companies choosing not to audit. Also, including a thorough analysis of financial statements by random sampling might give us more reliable results. Earnings management might be well hidden in the notes as to not appear in the financial-statement figures reported to Brønnøysundregistrene.

11. Conclusion

The goal of this thesis was to investigate whether amendments to the Norwegian statutory audit regulation in 2011 has had an effect on the earnings quality of our sample companies that now have the option not to audit. Our main assumption for all of our sample subsets was that the changes in Revisorloven § 2-1 CF. and Aksjeloven § 7-6, and the consecutive number of Norwegian limited companies without audited financial statements has lowered the earnings quality. This was measured by abnormal accruals defined as accruals deviating from what would be the norm in the sample. The effects of lower earnings quality means that there will be increased information asymmetry, and in turn, a devaluation of the trust different stakeholders have in the financial information published (Richardson 2000).

In order to test if the legislation change has affected earnings quality, we have used three different internationally acclaimed accrual-based models: The Kothari,
Leone and Weasley (2005) “Total Accruals Model”, “The Modified Cross-Sectional Dechow-Dichev for Working Capital Accruals” as presented by Hope, Thomas and Vyas (2013), and the “Discretionary Revenues Model” presented by Stubben (2010). These different accrual-based models have individually been criticized for the lack of explanatory power (Hope, Thomas and Vyas 2013). Yet by combining the results from these three different models, we managed to compensate for this lack of explanatory power. As a result of using the three different models, we hoped to have a sufficient basis upon which to conclude our findings.

We have carried out three tests on three different sample subsets for a total of nine different tests: First, we tested our models on our total sample of 30 207 company years from 2007 to 2013 based on the different exclusion criteria discussed in Chapter 10.2: Population and sample selection. The second sample subset we performed our tests on was the 8 737 company years post including the legislation change in 2011. Our third and final sample subset tests were performed on the unaudited and the Big 4-audited company years in 2011 to 2013.

All nine of our tests showed, in accordance with our assumptions, a decline in earnings quality measured by abnormal accruals for the unaudited companies in our different sub-samples. When testing whether or not this decline is statistically significant, we found that the decline in earnings quality in working capital accruals measured through the modified cross-sectional Dechow-Dichev model is not statistically significant in any of our three sample subsets. This means that only six of our nine tests yield a statistically significant lower earnings quality as measured by abnormal accruals.

As a consequence of only 2/3 of our tests yielding a statistically significant lower earnings quality in companies that opt out of auditing, we cannot comfortably conclude that the legislation change in 2011 has led to a decline in earnings quality. We can only assert that there are indications of a lower earnings quality in unaudited companies given the different assumptions we have made throughout this thesis. Further research with observations over a longer time period is required before one can conclude whether or not the legislation change of 2011 has had a negative effect on earnings quality in Norwegian limited firms.
12. References


Niaemi, L., J. Kinnunen and P. Troberg. 2012. "Drivers of voluntary audits in Finland: To be or not to be audited?" *Journal of Accounting Research*, 49 (2).


13. Appendix 1: Stata DO-files

** Rename and sample selection **

rename yr year
rename item_6 enterprise_type
rename item_9 revenue
rename item_15 depreciation
rename item_16 impairment
rename item_30 otherintexp
rename item_31 otherfinexp
rename item_45 deftaxass
rename item_46 totintass
rename item_47 landbuildothprop
rename item_48 machineryplant
rename item_49 shipsrigsairpl
rename item_50 fixtandfitt
rename item_51 totalfixasstang
rename item_61 totfinass
rename item_62 otherfixass
rename item_63 totalfixass
rename item_65 accrec
rename item_66 otheraccrec
rename item_69 totrec
rename item_76 cash
rename item_77 othercurass
rename item_78 totcurass
rename item_87 toteq
rename item_89 deftax
rename item_91 totprov
rename item_94 liabtofininst
rename item_98 tototherlongtermliab
rename item_101 shortliabtofininst
rename item_103 taxpayab
rename item_105 dividpayab
rename item_108 othershorttermliab
rename item_109 totcurrlia
rename item_113 employees
rename item_115 audfee
rename item_117 firmsize
rename item_124 cf
rename item_126 roe
rename item_127 roa
rename item_11102 indcode
rename item_13401 founddate
rename item_13405 numberofemp
rename item_13411 auditor
rename item_13420 compage
rename item_11103 indcodelev2
rename item_404 obicompid
rename item_15401 obicid
rename item_13410 audorgid
rename item_14503 isparent
rename item_14504 issubsid
rename item_14506 isassociated
rename item_14507 isindep
rename item_14502 groupid
rename item_14505 jointcontrol
rename item_39 net_income
drop if year < 2007
encode enterprise_type, generate(enterprise_type2)
keep if enterprise_type2==5
drop if revenue > 5000000
generate totalassets = totcurass+totalfixass
drop if totalassets > 20000000
drop if employees > 10
sort cid, stable
encode firmsize, generate(firmsize2)
encode indcode, generate(indcode2)
encode founddate, generate(founddate2)
encode auditor, generate(auditor2)
encode indcodelev2, generate(indcodelev22)
drop enterprise_type2
encode enterprise_type, generate(enterprise_type2)
gen aud = 0
replace aud=1 if audorgid==.
tabulate aud year, row
count if issubsid==1 & year==2011 & aud==1
count if issubsid==1 & year==2011
count if issubsid==1 & year==2012 & aud==1
count if issubsid==1 & year==2012
count if issubsid==1 & year==2013 & aud==1
count if issubsid==1 & year==2013
drop if isparent==1
drop if issubsid==1
drop if isparent==.
drop if issubsid==.
tabulate year
drop if audorgid==. & year<2011
bysort cid: drop if _N==1
label list indcodelev22
drop if indcodelev22 == 279
drop if indcodelev22 == 280
drop if indcodelev22 == 281
drop if indcodelev22 == 282
drop if indcodelev22 == 283
drop if indcodelev22 == 284
drop if indcodelev22 == 285
drop if indcodelev22 == 308
drop if indcodelev22 == 309
drop if indcodelev22 == 310
drop if indcodelev22 == 311
drop if revenue<0
drop if depreciation>0
drop if impairment>0
drop if otherintexp>0
drop if otherfinexp>0
drop if deftaxass<0
drop if totintass<0
drop if landbuildothprop<0
drop if machineryplant<0
drop if shipsrigsairpl<0
drop if fixtandfitt<0
drop if totalfixasstang<0
drop if totfinass<0
drop if otherfixass<0
drop if totfinass<0
drop if accrec<0
drop if otheraccrec<0
drop if totrec<0
drop if cash<0
drop if othercurass<0
drop if totcurass<0
drop if deftax<0
drop if totprov<0
drop if liabtofininst <0
drop if tototherlongtermliab<0
drop if shortliabtofininst<0
drop if taxpayab<0
drop if dividpayab<0
drop if othershorttermliab<0
drop if totcurriab<0
drop if indecodelev22==.
drop if revenue ==0
drop if accrec ==0

** Descriptive statistics and linear regression assumptions **

clear all
import delimited "/Users/eiriknesvold/Dropbox/Master Thesis Daria & Eirik/Master thesis/Data/The Data file/Eksobservasjoner.csv"
xset cid year
bysort cid: gen laggedtotass = totalassets[_n-1] if year[_n] - year[_n-1]==1
gen changecurrliab1 = totcurriab - shortliabtofininst - taxpayab
bysort cid: generate changeincurrliab = (changepcurrliab1[_n]-changepcurrliab1[_n-1]) if year[_n]-year[_n-1]==1
gen noncash = totcurass - cash
bysort cid: generate changeinnoncash = noncash-noncash[_n-1] if year[_n]-year[_n-1]==1
gen wca = changeinnoncash - changeincurrliab
gen wca_s = wca/laggedtotass
gen amort_koth = -1*(depreciation)
gen ocf_t = (net_income + amort_koth - wca)
gen ocf_t_s = ocf_t/laggedtotass
bysort cid: gen ocf_0= ocf_t[_n-1] if year[_n] - year[_n-1]==1
gen ocf_0_s = ocf_0/laggedtotass
bysort cid: gen ocf_2 = ocf_t[_n+1] if year[_n+1]-year[_n]==1
gen ocf_2_s = ocf_2/laggedtotass
bysort cid: generate revenuechange = revenue[_n]-revenue[_n-1] if year[_n]-year[_n-1]==1
generate revenuechange_s = revenuechange/laggedtotass
gen ppe = landbuildothprop + machineryplant + shipsrigsairpl + fixtandfitt
gen ppe_s = ppe/laggedtotass
gen docf = 0
replace docf = 1 if ocf_t<0
gen nonintliabl = totcurriab - shortliabtofininst
bysort cid: gen changeinnonint = nonintliabl[_n] - nonintliabl[_n-1] if year[_n] - year[_n-1]==1
gen depamort = depreciation* -1
gen totalaccruals = changeinnoncash - changeinnonint - depamort
bysort cid: gen roa2 = net_income/((totalassets+L.totalassets)/2)
Passed all the linear regression assumptions
bysort cid: generate accrecchange = accrec[_n]-accrec[_n-1] if year[_n]-year[_n-1]==1
generate accrecchange_s = accrec/laggedtotass
gen b0 = wca_s
gen b1 = ocf_0_s
gen b2 = ocf_1_s
gen b3 = ocf_2_s
gen b4 = ppe_s
gen b5 = docf
gen b6 = ocf_1_s*docf
gen b7 = totalaccruals_s
gen b8 = 1/laggedtotass
gen b9 = revenuechange_s
gen b10 = ppe_s
gen b11 = roa2
gen b12 = accrrecchange_s
winsor b0, generate(newvar) p(0.05)
drop b0
rename newvar b0
winsor b1, generate(newvar) p(0.05)
drop b1
rename newvar b1
winsor b2, generate(newvar) p(0.05)
drop b2
rename newvar b2
winsor b3, generate(newvar) p(0.05)
drop b3
rename newvar b3
winsor b4, generate(newvar) p(0.05)
drop b4
rename newvar b4
winsor b6, generate(newvar) p(0.05)
drop b6
rename newvar b6
winsor b7, generate(newvar) p(0.05)
drop b7
rename newvar b7
winsor b8, generate(newvar) p(0.05)
drop b8
rename newvar b8
winsor b9, generate(newvar) p(0.05)
drop b9
rename newvar b9
winsor b10, generate(newvar) p(0.05)
drop b10
rename newvar b10
winsor b11, generate(newvar) p(0.05)
drop b11
rename newvar b11
winsor b12, generate(newvar) p(0.05)
drop b12
rename newvar b12
pwcorr b7 b0 b12 b9 b10 b11 b2, sig star(0.01)
pwcorr b7 b0 b12 b9 b10 b11 b2, sig star(0.05)
pwcorr b7 b0 b12 b9 b10 b11 b2, sig star(0.10)
correlate b7 b0 b12 b9 b10 b11 b2
winsor totalaccruals, generate(newvar) p(0.05)
drop totalaccruals
rename newvar totalaccruals
winsor wca, generate(newvar) p(0.05)
drop wca
rename newvar wca
winsor accrecchange, generate(newvar) p(0.05)
drop accrecchange
rename newvar accrecchange
winsor revenuechange, generate(newvar) p(0.05)
drop revenuechange
rename newvar revenuechange
winsor ppe, generate(newvar) p(0.05)
drop ppe
rename newvar ppe
winsor roa2, generate(newvar) p(0.05)
drop roa2
rename newvar roa2
winsor totalassets, generate(newvar) p(0.05)
drop totalassets
rename newvar totalassets
winsor ocf_t, generate(newvar) p(0.05)
drop ocf_t
rename newvar ocf_t
summarize totalaccruals
summarize totalaccruals if aud==1
summarize totalaccruals if aud==0
summarize wca
summarize wca if aud==1
summarize wca if aud==0
summarize accrchange
summarize accrchange if aud==1
summarize accrchange if aud==0
summarize revenuechange
summarize revenuechange if aud==1
summarize revenuechange if aud==0
summarize ppe
summarize ppe if aud==1
summarize ppe if aud==0
summarize roa2
summarize roa2 if aud==1
summarize roa2 if aud==0
summarize ocf_t
summarize ocf_t if aud==1
summarize ocf_t if aud==0
summarize totalassets
summarize totalassets if aud==1
summarize totalassets if aud==0
ttest totalaccruals, by(aud) unequal
ttest wca, by(aud) unequal
ttest accrchange, by(aud) unequal
ttest revenuechange, by(aud) unequal
ttest ppe, by(aud) unequal
ttest roa2, by(aud) unequal
ttest ocf_t, by(aud) unequal
ttest totalassets, by(aud) unequal
regress b0 b1 b2 b3 b9 b10 b5 b6
acprplot b9, mspline
regress b7 b8 b9 b10 b11
acprplot b9, mspline
regress b12 b9
acprplot b9, lowess
regress b0 b1 b2 b3 b9 b10 b5 b6
predict resid4
kdensity resid4, normal
regress b7 b8 b9 b10 b11
predict resid2
kdensity resid2, normal
regress b12 b9
predict resid3
kdensity resid3,normal
regress b0 b1 b2 b3 b9 b10 b5 b6 b12
rvfplot
regress b7 b8 b9 b10 b11
rvfplot
regress b12 b9
rvfplot
regress b0 b1 b2 b3 b9 b10 b5 b6 b12
estat vif
regress b7 b8 b9 b10 b11
estat vif
regress b12 b9
estat vif

** Regressions **

* Modified Cross-Sectional Dechow-Dichev Model *

clear all
import delimited "/Users/eiriknesvold/Dropbox/Master Thesis Daria & Eirik/Master thesis/Data/The Data file/Eksobservasjoner.csv"
xtset cid year
encode auditor, generate(audorg)
gen Big 4=0
replace Big 4=1 if audorg==547
replace Big 4=1 if audorg==548
replace Big 4=1 if audorg==549
replace Big 4=1 if audorg==212
replace Big 4=1 if audorg==213
replace Big 4=1 if audorg==214
replace Big 4=1 if audorg==215
replace Big 4=1 if audorg==724
replace Big 4=1 if audorg==268
gen utvalg=0
replace utvalg=1 if Big 4==1
replace utvalg=1 if aud==1
generate after = 0
replace after = 1 if year==2011
replace after = 1 if year==2012
replace after = 1 if year==2013
bysort cid: gen laggedtotass = totalassets[_n-1] if year[_n] - year[_n-1]==1
gen changecurrliab1 = totcurrliab - shortliabtofininst - taxpayab
bysort cid: generate changeincurrliab = (changepurrliab1[_n]-changepurrliab1[_n-1]) if year[_n]-year[_n-1]==1
gen noncash = totcurass - cash
bysort cid: gen changeinnoncash = noncash-noncash[_n-1] if year[_n]-year[_n-1]==1
gen wca = changeinnoncash - changeincurrliab
gen wca_s = wca/laggedtotass
gen amort_koth = -1*(depreciation)
gen ocf_1 = (net_income + amort_koth - wca)
gen ocf_t_s = ocf_t/laggedtotass
bysort cid: gen ocf_0 = (net_income[_n-1] + amort_koth[_n-1] - wca[_n-1])
gen ocf_0_s = ocf_0/laggedtotass
bysort cid: gen ocf_2 = ocf_t[_n+1]
gen ocf_2_s = ocf_2/laggedtotass
bysort cid: generate revenuechange = revenue[_n]-revenue[_n-1] if year[_n]-year[_n-1]==1
generate revenuechange_s = revenuechange/ laggedtotass
gen ppe = landbuildothprop + machineryplant + shipsrigsairpl + fixtandfitt
gen ppe_s = ppe/ laggedtotass
gen docf = 0
replace docf = 1 if ocf_t<0
gen b0 = wca_s
gen b1 = ocf_0_s
gen b2 = ocf_t_s
gen b3 = ocf_2_s
gen b4 = revenuechange_s
gen b5 = ppe_s
gen b6 = docf
gen b7 = ocf_t_s*docf
winsor b0, generate(newvar) p(0.05)
drop b0
rename newvar b0
winsor b1, generate(newvar) p(0.05)
drop b1
rename newvar b1
winsor b2, generate(newvar) p(0.05)
drop b2
rename newvar b2
winsor b3, generate(newvar) p(0.05)
drop b3
rename newvar b3
winsor b4, generate(newvar) p(0.05)
drop b4
rename newvar b4
winsor b5, generate(newvar) p(0.05)
drop b5
rename newvar b5
label variable b0 "WCA"
label variable b1 "CFO,-1"
label variable b2 "CFO,t"
label variable b3 "CFO,+1"
label variable b4 "Change In Revenue"
label variable b5 "PPE"
label variable b6 "DCFO"
lable variable b7 "CFO,t x DCFO"
xrreg b0 b1 b2 b3 b4 b5 b6 b7, vce(cluster cid) fe
predict resid2
gen diswca = -abs(resid2)
summarize diswca, detail
summarize diswca if aud==0, detail
summarize diswca if aud==1, detail
ttest diswca, by(aud) unequal

* Kothari et al. (2005) model*
clear all
import delimited "/Users/eiriknesvold/Dropbox/Master Thesis Daria & Eirik/Master thesis/Data/The Data file/Eksobservasjoner.csv"
xset cid year
encode auditor, generate(audorg)
gen Big 4=0
replace Big 4=1 if audorg==547
replace Big 4=1 if audorg==548
replace Big 4=1 if audorg==549
replace Big 4=1 if audorg==212
replace Big 4=1 if audorg==213
replace Big 4=1 if audorg==214
replace Big 4=1 if audorg==215
replace Big 4=1 if audorg==724
replace Big 4=1 if audorg==268
gen utvalg=0
replace utvalg=1 if Big 4==1
replace utvalg=1 if aud==1
generate after = 0
replace after = 1 if year==2011
replace after = 1 if year==2012
replace after = 1 if year==2013
gen noncash = totcurass - cash
bysort cid: gen changeinnoncash2 = noncash-noncash[_n-1] if year[_n]-year[_n-1]==1
gen nonintliabl = totcurrliab - shortliabtofininst
bysort cid: gen changeinnonint = nonintliabl[_n] - nonintliabl[_n-1] if year[_n] - year[_n-1]==1
gen depamort = depreciation* -1
bysort cid: gen laggedtotass = totalassets[_n-1] if year[_n] - year[_n-1]==1

gen totalacccruals = changeinnoncash - changeinnonint - depamort

bysort cid: gen totalacccruals_s = totalacccruals/laggedtotass

generate revenuechange = revenue[_n]-revenue[_n-1] if year[_n]-year[_n-1]==1

generate revenuechange_s = revenuechange/laggedtotass

gen ppe = landbuildothprop + machineryplant + shipsrigsairpl + fixtandfitt

gen ppe_s = ppe/laggedtotass

bysort cid: gen roa2 = net_income/((totalassets+L.totalassets)/2)

gen lncompage2=ln(compage+1)

bysort indcodelev22 year (roa2) : gen matchid = cond((roa2[_n+1] - roa2) <= (roa2 < - roa2[_n-1]), cid[_n+1], cid[_n-1])

gen b0 = totalacccruals_s

gen b1 = 1/laggedtotass

gen b2 = revenuechange_s

gen b3 = ppe_s

gen b4 = roa2

winsor b0, generate(newvar) p(0.05)

drop b0

rename newvar b0

winsor b1, generate(newvar) p(0.05)

drop b1

rename newvar b1

winsor b2, generate(newvar) p(0.05)

drop b2

rename newvar b2

winsor b3, generate(newvar) p(0.05)

drop b3

rename newvar b3

winsor b4, generate(newvar) p(0.05)

drop b4

rename newvar b4

label variable b0 "Totalaccruals"

label variable b1 "1/TA"

label variable b2 "Change In Revenue"

label variable b3 "PPE"

label variable b4 "ROA"

xtreg b0 b1 b2 b3 b4, vce(cluster cid) fe

predict resid1

gen tamatchid=0

format %10.0g tamatchid

bysort indcodelev22 year (roa2) : replace tamatchid = cond((roa2[_n+1] - roa2) <= (roa2 - roa2[_n-1]), resid1[_n+1], resid1[_n-1])
gen ta1=resid1-tamatchid
replace ta1=-abs(ta1)
summarize ta1, detail
summarize ta1 if aud==1, detail
summarize ta1 if aud==0, detail
ttest ta1, by(aud) unequal

* Stubben (2010) model *

clear all
import delimited "/Users/eiriknesvold/Dropbox/Master Thesis Daria & Eirik/Master thesis/Data/The Data file/Eksobservasjoner.csv"
encode auditor, generate(audorg)
gen Big 4=0
replace Big 4=1 if audorg==547
replace Big 4=1 if audorg==548
replace Big 4=1 if audorg==549
replace Big 4=1 if audorg==212
replace Big 4=1 if audorg==213
replace Big 4=1 if audorg==214
replace Big 4=1 if audorg==215
replace Big 4=1 if audorg==724
replace Big 4=1 if audorg==268
gen utvalg=0
replace utvalg=1 if Big 4==1
replace utvalg=1 if aud==1
xtset cid year
generate after = 0
replace after = 1 if year==2011
replace after = 1 if year==2012
replace after = 1 if year==2013
bysort cid: gen laggedtotass = totalassets[_n-1] if year[_n] - year[_n-1]==1
bysort cid: generate accrecchange = accrec[_n]-accrec[_n-1] if year[_n]-year[_n-1]==1
generate accrecchange_s = accrec/laggedtotass
bysort cid: generate revenuechange = revenue[_n]-revenue[_n-1] if year[_n]-year[_n-1]==1
generate revenuechange_s = revenuechange/laggedtotass
gen b0 = accrecchange_s
gen b1 = revenuechange_s
winsor b0, generate(newvar) p(0.05)
drop b0
rename newvar b0
winsor b1, generate(newvar) p(0.05)
drop b1
rename newvar b1
label variable b0 "Change in Acc.Rec All Years"
label variable b1 "Change in revenue"
xtnreg b0 b1, vce(cluster cid) fe
predict resid
predict resid3
gen disrev = -abs(resid3)
summarize disrev, detail
summarize disrev if aud==0, detail
summarize disrev if aud==1, detail
ttest disrev, by(aud) unequal

PRELIMINARY THESIS REPORT

- Effects of removal of statutory audit requirements in Norway – A quantitative study

Hand-in date: 15.01.2015

Campus: BI Oslo

Examination code and name: GRA 19003 - Preliminary Thesis Report

Programme: Master of Science in Business: Tax, Law and Accounting
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Summary
Introduction

In our thesis we will investigate whether or not there are observable effects of the new rules of loss of statutory audit laws in Norway in 2011 on earnings quality measured by abnormal accruals in small companies. The main changes in legislation were made in Revisorloven § 2-1 CF. and Aksjeloven § 7-6. Thus, the main theme of our thesis is: *Is it reasonable to state that the change in statutory audit laws in 2011 had an effect, if so – should it be kept, revised or reset?*

The main argument in the Ministry of Finance’s proposition to alter the Norwegian audit laws was that the cost of auditing annual financial statements outweighs the returns small limited companies gain through the auditing process. Implicitly they say that the cost of auditing can be put to better use in other ways, i.e. investing in growth prospects. In the same proposition, the possible effects on decreased accounting quality and tax evasions are pointed out as possible negative factors that emerge after implementing the new laws (Ministry of Finance 2010).

Due to the limited timeframe since the new law was implemented in 2011, the amount of research on small Norwegian limited companies pre- and post-removal of statutory audit is very limited, and we will look at research from other countries, such as Denmark, UK, Germany and Finland. They have all removed statutory audit, but the definition a small limited company varies significantly (Langli 2009). As of December 31st 2013, almost 95 000 limited companies in Norway have decided not to audit their financial statements (Altinn 2014).

Based on the existing literature and data available for this thesis, our research question is as follows:

*What effects did the new laws on loss of statutory audit in 2011 have on small limited companies in Norway in terms of:*

1. Possible decreased accounting quality measured using abnormal accruals.
2. Possible increased cost of capital.

We will also look at the incentives the Norwegian companies have that are specific only to them.

This preliminary thesis will provide us with a review of the relevant existing literature on the subject, a chapter on the methodology to be used, along with an overview of the data sets we will use and a plan for further progression.
Differences in audit requirements in Norway and similar countries

In order to find comparable countries, we will now present the differences in legislation between countries that are, at least somewhat, comparable to Norway.

Changes in mandatory audit requirements in Norway

The minister of export and enterprise, Trond Giske, presented the changes in the mandatory auditing law under the Stoltenberg II government on the 17th of December 2010. Due to this change, small businesses with revenue lower than NOK 5 million will be able to save NOK 1.5-2 billion in costs in total related to audit every year (Fadnes 2011).

Initially the evaluation committee for the possibilities around the audit legislation had a majority that was against this change. They brought up the fact that the mandatory audit bears great significance when it comes to accounting quality and prevents economic crimes such as tax evasion. They also argued that transaction costs for these companies would be raised if the changes would be applied (Bråthen 2008; Revisjonspliktutvalget 2008).

The result of the first phase was to retain the status quo and continue enforcing mandatory audits for all companies. Surprisingly, there was no more research done on the possible economic effects of legislation change other than the report presented by the Standing Committee on Finance and Economic Affairs, which was assigned to them by the Norwegian Audit Organization (NAO). This could be considered a bias as the NAO was part of the majority vote (Revisjonspliktutvalget 2008).

The minority vote argued that a company with very little revenue and even less in their bottom line would have a better chance at survival and further growth if they didn’t have to pay a significant amount in auditing fees. They argued that a decrease in the accounting quality on an individual company level would be adjusted by other laws and the involvement of professional accountants (Bråthen 2008; Revisjonspliktutvalget 2008).

When looking at EU practices in general, Norway stood alone when it came to having mandatory audit for all companies independent on their revenue level.
Sweden and Malta are the only ones not applying exceptions to audit requirements and Sweden is the process of adjusting to the EU norm. The member countries can choose to have lower levels than those set by the EU, but they are not allowed to set them any higher.

The definition of a ‘small’ company varies across countries, while England and Germany use the ‘maximum level’, Denmark and Finland chose to operate with something they call “micro-companies”. The average measure for small companies is increasing over time (Bråthen 2008).

Further, it was argued that the evolution of auditing standards is to a large degree dependent on the needs of the largest entities in the industry. The evaluation board needed to consider the consequences arising from keeping the audit mandatory; the competing company entities such as the Foreign Business Enterprise and the SPE (Societas Privata Europaea) may have become more popular than the AS.

There is a larger risk that companies will use daughter firms based in other countries to avoid this, which will result in capital leaving the country of origin. The end result was the change in mandatory audit for companies that have revenue below 5 million NOK, a balance sheet below 20 million NOK and have over 10 employees (Revisjonspliktutvalget 2008).

Previous studies on this topic performed later than 2010 show varying results. Although there are some positive aspects to this change such as reduced costs and a higher degree of management control, the main negative consequence is a significant decrease in accounting quality (Bråthen 2008).

Statutory audit in other countries

In order to get more perspective we need to look at how the other governments are handling this setting in other countries, and we will now present the current-day situation in UK. Germany, Denmark and Finland.

United Kingdom

In UK the choice of undergoing audit for small private companies was implemented quite early, more precisely in 2004. There are already a lot of research done on the effects of this change in legislation, which could serve as pointer or inspiration for our research. It has been discovered that small
companies that chose to audit their books get cheaper financing options from banks (Blackwell, Noland and Winters 1998). Most likely this is due to them posing as a safer investment as audit secures accounting quality and serves as insurance (Allee and Yogn 2009). There has also been registered a positive effect or upgrades on the credit ratings of companies that keep auditing. It is important to note that this is a perception by the banks and has not been proven beyond doubt.

Most importantly there have been studies that found that there is a significant effect on the accruals and therefor also the accounting quality due to lack of auditing. This is most likely due to adoption of different accounting practice with and without auditor’s involvement (Dedman and Kausar 2012). More specifically, the companies that preferred not to audit reported income decreasing accruals later and increasing earlier. This proves that accounting quality of these companies has been decreased (Dedman and Kausar 2012).

Germany
In Germany it is not mandatory for small companies to submit their financial records for audit (Hursh 2012), however micro sized companies are not defined in German law. The problem with Germany is that companies are allowed to submit their financial statements in three different standards; German GAAP, IAS or US GAAP, which have various effect on the earnings quality, where there was found superior earning by use of US standards. Therefore, performing similar research to UK or Denmark proves to be difficult (Watts and Zimmerman 2006).

Denmark
Denmark was not far behind UK and introduced this practice in 2006 (Collis 2010). The case in Denmark is different in two ways: they introduce the practice with much lower threshold than both EU and UK and also because the auditors in DK are able to practice without being a part of the professional body and auditing society, which alters the definition of the profession slightly. The most interesting finding was the fact that the importance of auditing in order to upkeep the relationships with consumers and shareholders was found more significant than its effects on the creditability and financing opportunities for the company (Collis 2010).
Finland

Finland has the same auditing system as Denmark and implemented the volunteer audit practice about the same time, in 2005. There has been one interesting study on the drivers for choice of keeping audit for smaller private companies, where the findings show that presence of cost efficient tax services in a country where taxation is mostly based on performance according to financial statements reduced likelihood of audit (Niaemi, Kinnunen and Troberg 2012).

It has also been found that clean reports and multiple auditors as well as Big 4 auditors affect credit ratings in a positive way and decrease cost of debt for companies in question, which is basically the same that researches have found to be the case in UK (Karjalainen 2011). However, it is also important that companies in financial distress turned to auditors in order to solve the problems by reassuring shareholders and creditors and hopefully exit distress (Karjalainen 2011).

We can conclude that there is several researchers that have looked at the effects of this change in other countries and contrary to Norway they have had more data to work with in terms of the time frame. The previously mentioned countries removed statutory auditing much earlier than Norway and as such there is more data available. There seem to be an agreement that having an auditor sends out positive signals to the shareholders as well as the creditors. This choice is affected by the taxation system within the country and financial situation that the company is in. A company in distress will turn to auditors in order to reassure their shareholders and upgrade their credit ratings (Karjalainen 2011). Our research will hopefully contribute in terms of providing a clearer picture of the potential effects the removal of statutory audit has had on accounting quality.

Data Collection

When it comes to data collection we have two main types; primary data is collected by the researcher for the first time and secondary data, which is already collected by a third party (Ghauri and Grønhaug 2010). We will use both of these as they serve as complements to each other and help us get more reliable results.
Secondary data

As mentioned above, secondary data is data already collected by someone else for a different or similar purpose. The main advantage here is that it is much less time consuming to get and the data is easily accessible. On the other hand, this type of data is less reliable as one can never know what sort of bias the researcher had (Hellevik 2002).

Secondary data in this study will mostly include financial statements and annual reports of the companies within the given category. The main empirical evidence in the thesis will be based on secondary data which is already collected by other people. The main sources of secondary data for our quantitative section will be the Orbis database at BI and from Centre for Corporate Government Research (CCGR).

Primary data

Primary data is data we collect ourselves for the first time, with the sole purpose of using it in our study. This type of data collection is very time consuming and a factors around the collection of the data and will be completely sure of its reliability.

We will be interviewing auditors to get their view on what they think about the change in this law. This will be the basis for our own analysis concerning the quality of financial statements and its correlation with audit, as well as the growth in smaller companies before and after voluntary audit.

Here it is important to define how we will chose our sample and what challenges we will be facing. We will choose our interview subjects using a randomized method – picking one to three different auditors to interview. By picking our interview subjects using a randomized method, we believe we will be able to avoid any bias.

The structure of the interview will be semi structured, which allows us to have a general structure, but at the same time be able to explore anything interesting that might come up along the way in the interview. There will be a degree of flexibility and the setting will be non-formal so that the interviewee will feel relaxed and hopefully give truthful answers.

The interviews will be audio recorded. This will allow the interviewer to concentrate fully on the interview and will enable us to reproduce all the data with
all the details. We will then listen to the audio and write our transcripts of the interviews, which will be included in the appendix.

Population and sample selection

Our population will be AS registered companies with revenues under NOK 5 million, less than 10 employees and a balance sheet of less than NOK 20 million. For the quantitative section we will collect the data for all 120 000 companies belonging to this group, noting that this number is not precise and is an approximation as the number of companies falling under this category is not yet calculated. Langli estimated the number of companies within this category to be 115 741 in 2009, while the evaluation committee approximated the number of companies to be 144 000 in 2006 (Langli 2009). He explained the difference by the fact that he considered all the factors, while the other group focused on one dominating factor, revenue. We can assume that this number has grown since then, but further calculations will be done.

Literature Review

In this part of our thesis, we will present literature and reports that we find relevant to our topic in order to get a deeper understanding of the topic we will investigate. First we will present a table featuring short summaries of relevant articles, before we dig deeper into the literature.

<table>
<thead>
<tr>
<th>Article</th>
<th>Setting</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earnings quality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Watts and Zimmerman (2006)</td>
<td>Studying the effects on earnings quality when companies are allowed to submit their financial statements in three standards; German GAAP, IAS or US GAAP</td>
<td>Different practices have various effect on the earnings quality, where there was found superior earning by use of US standards</td>
</tr>
<tr>
<td>Selskabs og erhvervsstyrelsen (2014)</td>
<td>In Denmark the option to not to have the financial statements audited should be thoroughly examined, and based on financial</td>
<td>Of those who opted the audit process, in 2011 43% of the companies’ financial statements were filed with errors, as opposed to 35% for those who did not 7% of the firms who opted the audit process</td>
</tr>
<tr>
<td></td>
<td>Statements for the 2010 and 2011 financial years.</td>
<td>Had given illegal shareholder loans. 9% of the firms who did not opt the audit process had given illegal loans.</td>
</tr>
<tr>
<td>----------------</td>
<td>------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Gooderham, Tobiassen and Døving (2004)</strong></td>
<td>Looking at the importance of the relationship of the company with the external accountant and the probability of those companies demanding “one stop shop” services from their accountant.</td>
<td>As their second proposition they bring up the fact that smaller companies are more vulnerable as they are usually lacking in the areas of specialized expertise, therefore they are more dependent on external sources such as accountants and also auditors.</td>
</tr>
<tr>
<td><strong>Langli (2009)</strong></td>
<td>Looking at to whether or not the financials of a small company carry any significance for the society and the government in Norway.</td>
<td>Langli uses his findings to calculate that 21,499 of these companies have financial statements purely for the sake of the owner. In his conclusion he also takes into consideration that if the choice was available about 60-90% of companies would choose to not have audit.</td>
</tr>
</tbody>
</table>

**Accruals**

| **Dedman and Kasar (2012)** | The effect on the accruals and therefore also the accounting quality due to lack of auditing in the UK. | The companies that preferred not to audit reported income-decreasing accruals later and increasing earlier. This proves that accounting quality has been decreased. |

**Creditors**

<p>| <strong>Berry, Citron and Jarvis (1987)</strong> | A study of domestic and foreign banks operating in the UK. Looking closer at the requirement they have for financial statements. | Irrespective of the size, there is some evidence that bankers consider full statutory accounts the most important source of documentary information because they are more reliable than management. |
| <strong>Allee and Yohn (2009)</strong> | Examination of production and use of financial statements by small private entities not subject to SEG. | Positive effect or upgrades on the credit ratings of companies that keep auditing. |
| <strong>Blackwell, Noland and Winters (1998)</strong> | Looking at how bank evaluate financing options for companies based on auditors assurance. | Small companies that chose to audit their books get cheaper financing options from banks. |
| <strong>Collis and Jarvis (2000)</strong> | Looking at how the owners and managers use accounts to distribute information. Defining users. | Apart from the owners, survey evidence indicates that the main users are the tax authorities, lenders and, to a lesser extent, employees, suppliers or major customers. |</p>
<table>
<thead>
<tr>
<th>Marriott, Collis and Mariott (2006)</th>
<th>Looking at how filing full audited accounts affects credit ratings of companies.</th>
<th>Companies file full audited accounts to improve their credit rating, especially where financial reporting is unregulated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Karjalainen (2011)</td>
<td>Examine relevance of the audit in terms of who audits, as well as outcomes in terms of the auditor's opinion and accruals quality, in the pricing of debt for private large firms</td>
<td>It’s been found that clean reports and multiple auditors as well as big 4 auditors affect credit ratings in a positive way and decrease cost of debt for companies in question.</td>
</tr>
<tr>
<td><strong>Taxation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collis and Jarvis (2000)</td>
<td>Looking at how the owners and managers use accounts to distribute information. Defining users.</td>
<td>Apart from the owners, survey evidence indicates that the main users are the tax authorities, lenders and, to a lesser extent, employees, suppliers or major customers</td>
</tr>
<tr>
<td>Niemi et al (2012)</td>
<td>Study on the drivers for choice of keeping audit for smaller private companies in Finland.</td>
<td>The findings show that presence of cost efficient tax services in a country where taxation is mostly based on performance according to financial statements reduced likelihood of audit.</td>
</tr>
<tr>
<td><strong>Agency costs</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collis (2010)</td>
<td>Investigating the determinants of voluntary audit and the filing of voluntary full accounts using survey data from 592 small private companies in UK</td>
<td>The results show that for a significant number of small and micro companies, the benefits of placing full audited accounts on the public record outweigh the costs, suggesting that demand not command drives financial reporting in such companies</td>
</tr>
<tr>
<td>Den Norske Revisorforeningen (2007)</td>
<td>Report conducted by Econ.no for Den Norske Revisorforening (2007) on the possible impacts of removing statutory audit for small limited companies in Norway in 2007</td>
<td>A removal of statutory audit would increase the income (decrease the costs) of 0.6% in firms choosing not to audit. A potential economic gain would be low, if not zero. A potential removal of statutory audit laws is only a matter of redistribution of resources – instead of the small limited companies paying audit fees; the society would carry the costs of increased control measures.</td>
</tr>
<tr>
<td>Karjalainen (2011)</td>
<td>Study looking at how auditing the books affect</td>
<td>It’s been found that clean reports and multiple auditors as well as big 4 auditors</td>
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<td>------------------------------------------</td>
</tr>
<tr>
<td>creditability and cost of depth of small companies in Finland.</td>
<td>Looking closer at the financial decision-making process and management of smaller entities.</td>
<td>Studying the differences of small privately owned family businesses as oppose to large companies.</td>
</tr>
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| affect credit ratings in a positive way and decrease cost of debt for companies in question. | Small companies seek survival and stability, rather than the growth and profit-maximization strategies pursued by larger counterparts. | Most small companies are closely held, family-owned businesses. | The main factors that predict the demand for an NMA are:  
- Perception of benefits  
- Education of the principal director – the higher educated, the more likely he will demand an NMA.  
- Size measured by turnover.  
- Agency relationships between owners  
- Agency relationships between management and the company | The most significant descriptive result was the impact of debt on the demand for external audit, where these facts are concluded to be positively correlated. It is also concluded that larger companies are more likely to choose external audit, while the size didn’t make a difference when it comes to internal audit demand. |

Information asymmetry

| Jensen and Meckling (1976) | Define agency cost and perform an analysis of the nature of said cost, direct and indirect as well as factors influencing it. | Agency relationships with principals distant from management would provide incentives for small companies to publish full, audited accounts to mitigate the problem of information asymmetry and lack of transparency. |
This paper examines if the level of voluntary disclosure affects information asymmetry for industrial companies listed on the Copenhagen Stock Exchange. Disclosing more information should lower the information asymmetry component of a firm's cost of capital. Voluntary disclosure is negatively associated with proxies for information asymmetry.

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<th>Petersen and Plenborg (2006)</th>
<th>Previous research on factors affecting earnings quality</th>
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In this part of the paper we will look at the different factors affecting earnings quality of the company’s financial accounts. This plays a significant role when talking about the voluntary auditing. It is also proven that the US GAAP preserves higher quality of financial statements when compared with other ways of keeping books (Watts and Zimmerman 2006). This can be important to consider then looking at the importance of audit. Danish researches shows a consistently higher frequency of mistakes in the financial statements from companies that have not been submitted for voluntary audits, but the same companies were less likely to give managers illegal loans (Erhvervsstyrelsen 2014; Erhvervs og Selskabsstyrelsen 2012). Gooderham et al. (2004) bring up the fact that smaller companies are more vulnerable as they are usually lacking in the areas of specialized expertise, therefore they are more dependent on external sources such as accountants and also auditors (Gooderham et al. 2004).

**Accruals**

Accruals are often used to grow or lower the profits, and therefore also earnings of a company. In order to define total accruals, we will use Jones’ (1991) definition: Total accruals are calculated as the sum of changes in noncash working capital, before income taxes payable and less the depreciation expenses (Jones 1991). They are a direct measurement of performance of the firm and is therefore often used for manipulation of the perception of profitability and creditability.

Managers will try to make their company look desirable to increase the stock price (Sloan 1996).

In UK they have looked at the effects of the use of accruals finding that the companies that preferred not to audit reported income decreasing accruals later and increasing earlier. This proves that the accounting quality of these companies’ financial statements have been decreased (Dedman and Kausar 2012).
Creditors

Apart from the owners, survey evidence indicates that the main users are the tax authorities, lenders and, to a lesser extent, employees, suppliers or major customers (Collis and Jarvis 2000). Creditors often use financial statements in order to be able to evaluate the creditability of the company. This is especially profound where financial reporting is unregulated. However, there is some disagreement on whether this is a fact both for small and large companies of just for large companies (Marriott, Collis and Marriott 2006; Collis and Jarvis 2000).

While Carey and Tanewski (2000) argues that small companies just want to survive in a stable environment, both Berry, Jarvis et al. (1987) and Blackwell, Noland et al. (1998) find positive correlations between the credit ratings and the positive sign sent by choosing to audit the financial statements, especially when the audit process is voluntarily (Berry, Jarvis and Citron 1987; Blackwell, Noland and Winters 1998; Carey and Tanewski 2000).

Taxation

According to Collis, Jarvis and Skerratt (2004), tax authorities are one of the main users of financial statements of the company, and study from Finland illustrates that a the presence of cost efficient tax services in a country where taxation is mostly based on financial performance reduced likelihood of companies choosing to voluntarily audit their financial statements (Niaemi, Kinnunen and Troberg 2012; Collis, Jarvis and Skerratt 2004). Norway company taxation is based on the performance of companies as shown in their financial statements, and it is interesting for us to check whether this is true also in our case.

Agency cost

The matter of cost is discussed a lot in relation to voluntary audit. Den Norske Revisorforening (2007) argues that potential economic growth for companies choosing not to audit will be limited to zero. Due to the fact that more mistakes are made due to lack of auditing (Dedman and Kausar 2012), the public will carry the cost of additional fees for controlling finances in alternative ways due to decreasing in accounting quality (Den Norske Revisorforening 2007). Collis (2010) has supported this theory when defining the determinants that influence choice of auditing in their UK research. He finds that there is much
more to gain for small limited companies by undergoing an audit than what they save in financials by not auditing their books. Here companies would save money on getting better cost of debt and gaining a higher credit rating (Collis 2010). The existence of an effect on credit ratings by voluntarily auditing when the option to opt the audit process is present has been confirmed by Lennox and Pittman (Lennox and Pittman 2011).

Incentives

Collis and Jarvis (2004) look at the different factor that might affect the choice of auditing for smaller companies, such as education of the management, debt level and perception of benefits. However there factors only account for 30% of the variance, which still leave a lot of the decision is unknown (Collis, Jarvis and Skerratt 2004).

It is however also argued that since smaller companies are family owned or closely managed, they will seek stability and survival, rather than growth or profit (Jarvis et al. 1996). Larger companies will therefore be more inclined to seek experience of a professional auditor, as they have more incentives to do so than the companies just struggling to survive in a stable environment (Carey and Tanewski 2000). This is however not proven the other way around, which we can assume will be the case in Norway.

The incentives for managers usually come in form of bonuses that encourage them to maximize profit or go for the cold shower approach. Either way this is creative accounting that is a more of a common problem in larger companies rather than small, family owned once (Poutziouris, Michaelas and Chittenden 1998).

Information asymmetry

When we talk about the information asymmetry in this case we mean the differences of knowledge between the managers of the company and the rest of stakeholders. In the case of managers having more information about the financial situation within the company the balance of information is disturbed. This could be due to use of earnings management. Richardson (2000) found a positive correlation between earnings management and information asymmetry based on Dye’s (1988) and Trueman’s and Tritman’s (1988) proposition that there exists a
relationship between information asymmetry and earnings management (Richardson 2000; Trueman and Titman 1988; Dye 1988).

A study from Denmark looked at whether or not voluntary disclosure affects information asymmetry, finding that disclosing the information will lower the information asymmetry component of the firm’s cost of capital. Which means that the information asymmetry is negatively affected by disclosure of financial information (Petersen and Plenborg 2006). It was also found that agency relationships with stakeholders that are more distant from the company encourage management to disclose more correct information in their financial statement, as a positive sign to their stakeholders. These findings are consistent with the statement that poor earnings quality will most likely result in larger information asymmetry (Jensen and Meckling 1979; Rees 1985).

For us it is interesting look at whether or not managers of small listed companies in Norway will have an incentive to create information asymmetry by choosing not to hire an auditor. The more creditworthy companies are most likely to choose to audit, while less creditworthy might use earnings management to get themselves better credit ranking and get lower cost of capital (Lennox and Pittman 2011).

Research questions, hypotheses and research design

The main theme of our thesis is: Is it reasonable to state that the change in statutory audit laws in 2011 had an effect, if so – should it be kept, revised or reset?

One of the main liabilities associated with the removal of statutory audit was the possibility of a decrease in earnings quality in the financial statements if they were not audited. Thus we find it very interesting to be able to see if this has actually been the case. One of the possible rewards of removing statutory audit was the possibility of increased growth as the firms deciding not to audit their financial statements may use these resources on investments and other growth-supporting activities.

The research questions

From our theme we have devised the following research question for this thesis: What effects did the new laws on loss of statutory audit in 2011 have on small limited companies in Norway in terms of;
1. Possible decreased accounting quality measured using abnormal accruals.
2. Possible increased cost of capital.

**Hypotheses and methods to be used**

We have a somewhat generalized research question, and we find it important to narrow this down by finding good and specific hypotheses to test and present in our thesis. Much of the base research done on auditing is quite unanimous in their findings, and state that audit improves the quality in the financial statements of the firm being audited (Marriott, Collis and Marriott 2006; Dedman and Kausar 2012; Berry, Jarvis and Citron 1987; Allee and Yogn 2009; Blackwell, Noland and Winters 1998; Karjalainen 2011), and two sets of possible hypotheses regarding our research questions about earnings quality and cost of capital could be:

**Accounting quality**

H0$_1$: Small limited companies in Norway who have decided to opt out of performing an audit do not have lower earnings quality measured by abnormal accruals than the small limited companies that still have their books audited.

H1$_1$: Small limited companies in Norway who have decided to opt out of performing an audit have lower earnings quality measured by abnormal accruals than the small limited companies that still have their books audited.

**Cost of capital**

H0$_2$: Small limited companies in Norway who have decided to opt out of performing an audit do not have higher cost of capital than the small limited companies that still have their books audited.

H1$_2$: Small limited companies in Norway who have decided to opt out of performing an audit have higher cost of capital than the small limited companies that still have their books audited.

It should be duly noted that these are preliminary drafts of our hypotheses, as we must decide upon the models, variables and strategy to be used in our research before we decide on a set of final hypotheses.
Research design

We will conduct a natural experiment using a quantitative approach based on a set of historical company data extracted from one or several databases. Which databases to be used as well as a final research design will be further explained in our final thesis. We will also conduct a set of interviews with one or several auditors as a complementary qualitative part of our thesis.

Thesis progression plan:

In order to be able to finish the thesis before the deadline of the 1st September 2015 with two very demanding schedules with work, family and friends in addition to other subjects, we need a thesis progression plan. Hopefully this will help us to keep our motivation and progress up. What follows is a rough draft of what we hope to achieve on a monthly basis from January 2015 until the deadline on September 1st 2015.

January: We hope to finish the preliminary thesis by the deadline of January 15th. We also hope we will be able to further delve into the research that has been conducted on the topic.

February: By February we hope that all literature research has been done, and our main focus will be data collection and deciding on which models and variables we will be using in our analysis.

March: March will mainly consist of data analysis as well as simultaneously starting to write the final thesis.

April: By mid-April we hope to have conducted all of our analysis and have concluded on what we have found. We need to compare our results to the results of earlier and similar studies both in Norway as well as other countries that include voluntary audit for small limited companies.

May: A first draft should be handed in to the supervisor by early May, and when we receive feedback our focus will be on improvement according to the feedback received.

June: Late May and early June will be used on exams in other subjects. When this period is over, our focus will be on proofreading as well as making sure our reference list is complete.
**July:** Further proofreading. Putting the thesis away for a couple of weeks to have it 'settle' might also be a good idea.

**August:** Pick up the thesis work again, and finish proofreading and spell checks.

**September:** Deadline day: September 1st.

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**References**


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