

JOINT AUDIT AND THE MARKET PERCEPTION

This thesis examines the market perception to the abolishment of mandated joint audit in Denmark. Proponents of joint audit argue that joint audit increases audit quality and opponents argue that the cost outweighs the benefits. However, the evidence that joint audit increases audit quality is limited. This thesis contributes to the existing literature by examining the market perception as a subset for audit quality. This thesis finds that the market positively perceives the abolishment of mandated joint audit. Further research is needed to determine if the positive market perception is caused by firms, that have adopted voluntary joint audit or singular audit. This research assumes that the market is efficient. This is included as a limitation.

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Contents

| | | |
|-----------|---|-----------|
| 1. | Introduction | 1 |
| 2. | Literature review | 3 |
| | 2.1. Joint audits and the European Commission; | 3 |
| | 2.2. Implementation of joint audits in different countries | 4 |
| | 2.3. Joint audits and audit fees | 5 |
| | 2.4. Joint audits and audit quality | 6 |
| | 2.5. Literature overview | 8 |
| | 2.6. Summary | 10 |
| 3. | Hypothesis development | 10 |
| 4. | Research design | 11 |
| | 4.1. Earnings response coefficient | 11 |
| | 4.2. Difference-in-difference design | 12 |
| | 4.3. Regression model | 12 |
| 5. | Data collection | 14 |
| | 5.1. Motivation choice of sample | 14 |
| | 5.2. Sample selection | 14 |
| | 5.3. Data preparation | 15 |
| 6. | Data analysis | 16 |
| | 6.1. Descriptive statistics | 16 |
| | 6.2. Pearson correlation | 17 |
| | 6.3. Regression results | 19 |
| 7. | Conclusion | 20 |
| | 7.1. Result | 20 |
| | 7.2. Implications | 21 |
| | 7.3. Future research | 21 |
| | 7.4. Limitations | 22 |
| | References | 23 |
| | Appendix I. Variable Definition | 27 |

1. Introduction

This thesis examines the market perception to the abolishment of mandated joint audit in Denmark. The research question is as follows:

Does the market perceive the abolishment of mandated joint audit positively or negatively?

Joint audit is a concept where two audit firms are working together to issue one audit opinion regarding the financial statements of a firm. Prior research has examined joint audit from different angles with the objective to find evidence whether joint audit is associated with higher audit fees and higher audit quality in comparison with singular audits. This thesis uses the term singular audit as the audit method in which one audit firm issues one audit opinion for one firm. Prior research has found evidence that the audit fees increase if a firm is jointly audited (Andre, 2012). Prior research has also found that voluntary joint audit is associated with higher audit quality, but mandated joint audit is not associated with higher audit quality (Velt and Azibi, 2015; Zerni et al., 2012).

Denmark has abolished mandated joint audit in 2005. This abolishment provides opportunities of investigation on whether joint or single audits are valued higher by the market. Proponents of joint audits argue that audit quality increases when a firm chooses for joint audit. Stakeholders have additional assurance by a second audit firm. Furthermore, the audit firms that perform joint audit can issue an individual opinion when there is a disagreement regarding the audit. This can provide further insight to stakeholders to review the audit opinion that has been issued. Finally, the work of each audit firm can be checked by the other audit firm. These factors can all increase audit quality, however the evidence that joint audit is associated with higher audit quality is limited (Ratzinger-Sakel et al., 2013). On the other hand, opponents of joint audits argue that the cost increases and that these costs outweighs the benefits. Furthermore, Deng et al. (2014) theorized that the auditor independence and therefore the audit quality decreases because of free-riding and opinion shopping concerns.

This thesis will answer the research question by comparing the earnings response coefficient (ERC) of Danish listed firms before and after the abolishment of mandated joint audit (treatment group) with the ERC of French listed firms where joint audit is still active (control group). This research method is called the difference-in-difference design and will be

discussed later in this thesis. All data have been collected from 2003 until 2006. Further, firm quarter data has been collected namely from DataStream, Bloomberg, Compustat and I/B/E/S. After preparing the data, this thesis used 751 firm quarter observations from Danish listed firms and 3,654 firm quarter observations from French listed firms for statistical analysis.

This thesis finds that the market positively perceives the abolishment of mandated joint audit. This result could be explained by the fact that singular audit is the normal way of auditing worldwide. Furthermore, the result could strengthen the arguments of the opponents of mandated joint audit. However, Denmark did allow for voluntary joint audit after abolishing mandated joint audit. This results could also suggest that the market values voluntary joint audit higher than mandated joint audit. This is in line with prior research, where evidence has been found that voluntary joint audit is associated with higher audit quality (Zerni, 2012). The discussion whether joint audit is better than single audit is still an open discussion, which provides opportunities for investigation.

This thesis contributes on different aspects to the existing discussion whether joint audit is better than singular audit. First, this thesis examines how the market values the abolishment of mandated joint audit. To my knowledge, this has not been researched. The valuation of the market is an important aspect of audit quality because the reliability of an audit opinion is based on the valuation of the market. Second, the results of this thesis provides opportunities for further investigation as mentioned before.

This thesis acknowledges that there are limitations. First, this thesis assumes that the market is efficient. This assumption is needed to use the ERC as proxy for market perception. Second, this thesis acknowledges the possibility that omitted variables could bias the association between the dependent variable CAR3 and the independent variable POST*TREAT*FERR. Finally, this thesis acknowledges that the data of the treatment group is relatively low compared with the data of the control group.

2. Literature review

After the scandal of Enron, the audit profession was questioned. There was a growing concern regarding the auditor independence (Strohm, 2006). The managing partner of the audit firm of Enron, Arthur Andersen, had only Enron as a client which leads to independency threat. The reputation of auditors was at stake. Since the audit profession is based on the trust of the market, auditors must act to ensure that the reputation damage is minimized as much as possible (Windmoller, 2000). Auditors became more conservative after the Enron scandal because the profession was held in question (Lindberg, 2004). In 2002, the United States implemented the Sarbanes-Oxley Act (SOX) to ensure that the market's trust is restored. SOX include regulations that impact auditors directly. The EU also took action and implemented the revised 8th Directive proposed by the European Commission. The revised 8th Directive include severe penalties to protect the market from fraudulent behavior. The European Commission proposed several measurements to improve audit quality in the following years. For example, the European Commission proposed in the green paper to implement joint audit on all EU-countries to decrease market concentration (European Commission, 2010).

2.1. Joint audits and the European Commission;

Joint audit is a method where two independent audit firm work together to issue one audit opinion to a firm (PwC, 2011). This method of auditing is viewed as a way to increase auditor independence (Ratzingel-Sankel et al., 2013). Joint audit should not be confused with dual audit. Dual audit is where two audit firms issue their own audit opinions. According to the European Commission, joint audits can help 'dynamise' the market because it allows for smaller audit firms to have an opportunity to grow by auditing larger firms (European Commission, 2010). After the proposal of the European Commission, there was a widely discussion about the implementation of joint audits (European commission, 2011b). The main counterarguments for the implementation of joint audits was that the audit fees will increase and that joint audit will lead to increased time of communication and extra paper work. The big four audit firms were namely against this proposition. On the contrary, non-big four firms were not against this proposition. The European Commission took the criticism into account and made a new proposition in 2011. The European Parliament implemented a directive for statutory audit (European commission, 2014). This directive include that joint audits are on voluntary basis. The firms that choose to let their financial statements being jointly audited are

allowed to extend the audit firm tenure with 10 to 14 years. This legislation has become applicable for 28 Member States of the EU from 17 June 2016 onward.

2.2. Implementation of joint audits in different countries

The EU uses joint audits as a way to decrease market concentration. However, there are countries that already have implemented joint audits to increase the auditor independence. There are several countries that have implemented joint audits in different settings.

France implemented mandated joint audits in 1966 (Ratzingel-Sankel et al., 2013). At that time, France's mandated joint audit is required for all firms that meet a specific criteria. The scope of mandated joint audit expanded twenty years later in 1984 to all firms that prepare consolidated financial statements. The mandatory joint audit had some practical implications including allocating auditor tasks and agreed methodology (Ratzingel-Sankel et al., 2013). Over the years, France implemented several standards to address these implications. It is now required that the statutory auditors first agree on the chosen audit procedures that is required to implement the audit plan. Also, the auditors will share the tasks with the quantity and quality of auditor taken into account. Finally, it is possible for auditors to issue their own opinions if there is difference in opinion.

Denmark also implemented joint audit for listed companies. Denmark implemented joint audit in 1930. In contrary to France, Denmark did not specify how auditors should work together to perform the audit. This results to inefficient teamwork which leads to higher audit fees (Holm & Thinggaard, 2014). Denmark proposed in 2001 that the mandated joint audit is to be abolished after 2004. This proposition has been triggered by several reasons. The parliament of Denmark stated that joint audits are associated with 'unnecessary high audit costs'. Further, the global market considers it to be normal that firms are singular audited. The increased cost of joint audits in comparison with singular audits are therefore unnecessary according to the Danish authorities. Furthermore, the Danish authorities assume that singular auditors can be performed based on a more holistic approach. After 2004, it was not mandatory for Danish firms to have their financial statements audited by joint statutory auditors. Joint audit is still allowed but only on a voluntary basis.

Sweden had mandated joint audit only for the banks and insurance firms up until 2006 and respectively 2010. After 2006, the Swedish financial authority is not obliged to appoint a second auditor to banks. The Swedish financial authority still has the right to appoint a second auditor to banks and insurance firms but only in certain situations. However, this right is rarely exercised by the Swedish financial authority (Ratzingel-Sakel et al., 2013).

Canada had implemented mandated joint audit in 1923 after the failure of the Home Bank where more than 60,000 customers were impacted. The objective of the mandated joint audit was to provide credibility to the market about the loan portfolios of banks (Green, 2006). In 1985, the Canadian Commercial Bank ceased its operations. This was the first bank in more than 60 years that has fallen due to failure. The joint audit method implemented in Canada did not prevent this failure from happening. In 1991, the Canadian Bank Act abolished the mandatory joint audit and only permits singular audit (Lew & Richardson, 1991). Similarly to the arguments of the Danish authorities, Canada decided that the cost does not outweigh the benefits of joint audits. In contrast to Denmark, Canada does not allow voluntary joint audits.

The other countries that also implemented joint audits, mandatory or otherwise, are Algeria, Congo, India, Ivory Coast, Germany, Kuwait, Morocco, Tunisia, Saudi Arabia, South Africa and Switzerland. The implementation of joint audit by different countries and the EU Parliament has triggered researchers to examine the concept of joint audit. Researchers focused primarily on France and the Scandinavian countries because data regarding joint audit in these countries are the most comprehensive compared to the data from other countries that have implemented joint audit.

2.3. Joint audits and audit fees

Prior research has examined joint audit from different angles with the objective to find evidence that joint audits increase audit fees and audit quality in comparison with singular audits. Thinggaard & Kiertzner (2008) examined how joint audit affects audit fees in Denmark. Thinggaard & Kiertzner (2008) finds that two independent auditors that audit one firm in a competitive environment is likely associated with reduced total audit fees. This association is only significant for large companies in Denmark. Holm & Thinggaard (2008) argue that small companies are being assisted and therefore billed by auditors, which leads to higher audit fees. The authors further state that the audit fees of joint audits would be lower if a system of real competition between auditors would be established. Holm & Thinggaard (2014) further investigated what the effect is of joint audit on audit fees. This time, the authors examined if switching from joint to singular audit affects audit fees. The authors find that audit fees are

reduced when firms switch from two to one auditor in the first three years compared with firms that did not switch from two to one auditor. Holm & Thinggaard (2014) investigated this association further and find that this association is only significant in the first year audit after switch. This is in line with the theory that joint audits is associated with higher audit fees. Holm & Thinggaard focused primarily on Denmark as their source of investigation. Andre et al. (2015) examined in their paper how the audit fees of mandated joint audits in France is different from audit fees of singular audits in the UK and Italy. Andre et al. (2015) find that mandatory joint audit in France leads to higher audit fees compared to the audit fees by single audits in the UK and Italy. Lesage et al. (2016) examined what the effect is of joint audit on audit fees in Denmark. Lesage et al. (2016) also find that mandatory joint audit is associated with higher audit fees. These researches have all found results that indicate that mandatory joint audit are associated with higher audit fees. The arguments of Denmark, Sweden, Canada and other opponents of mandatory joint audits are therefore confirmed by these studies. However, joint audit could also be implemented voluntary instead of mandatory. Researchers also focused on voluntary joint audit. Ittonen & Peni (2012) examined voluntary joint audit in the Scandinavian countries Denmark, Sweden and Finland. As mentioned before Denmark and Sweden had abolished mandatory joint audit but still allowed joint audit on a voluntary basis. Ittonen & Peni (2012) find that firms that choose for joint audit are associated with lower audit fees. Zerni et al. (2012) find similar results in their research. In a Swedish setting, they found that firms that choose joint audits voluntary are associated with lower audit fees than for firm that did not choose joint audit. Prior research regarding audit fees suggest that mandatory joint audits have the expected drawbacks mentioned by opponents of joint audits that joint audits is associated with higher audits fees. However, when firms have the opportunity to choose between joint audits and singular audits, the firms that do choose joint audits are associated with lower audit fees. Based on my knowledge, there is still no explanation why the results of mandatory and voluntary joint audits differ. This leaves room for further investigation between joint audits and audit fees.

2.4. Joint audits and audit quality

Prior research focused also on the discussion whether joint audit improves or impairs audit quality. Many researches tried to find an association between joint audit and audit quality but were not successful (Lesage et al., 2016; Ratzingel-Sakel et al., 2013; Velt & Azibi, 2015). Zerni et al. (2012) tried to find an association between joint audit and audit quality in Sweden. The authors find that Swedish firms that choose joint audit voluntary are associated with higher

audit quality. More specifically, those firms are associated with higher degree of conservatism, lower abnormal accruals, higher credit ratings and lower risk of forecast error. Zerni et al. (2012) explained that this association is possible due to the fact that all shareholders with at least 10 per cent of the shares can appoint a second auditor. This means that even if a shareholder has a minority in shares, a second auditor could still be appointed by this shareholder. The higher degree of conservatism could be explained by this fact. Another research to find whether joint audit affects audit quality by Zerni et al. (2010) was conducted in Sweden. The authors examined whether joint audit can mitigate entrenchment discounts. Zerni et al. (2010) describes entrenchment discount as expropriations by large shareholders to minority shareholders by taking action to their own interest without consideration of the interest of the minority shareholders. Zerni et al. (2010) find that higher audit quality mitigates equity discounts that are caused by entrenchment problems. Furthermore, the authors find that firms that choose singular audits are associated with entrenchment discounts and firms that choose for joint audits are not associated with entrenchment discounts. These results indicate that voluntary joint audit are associated with higher audit quality because joint audits lead to more monitoring (Lesage, 2016). Researches with significant evidence regarding the association between joint audits and audit quality are limited. Those researches find that joint audit increases audit quality (Zerni et al., 2010; Zerni et al., 2012). As the first theoretical paper, Deng et al. (2014) discusses that the arguments of proponents regarding joint audits do not give a complete picture of the cost and benefits of joint audits. The authors theorized that free-riding is a factor that should be considered. Deng et al. (2014) state that free-riding occurs when one of the audit firms save audit resources by performing less audit work and taking advantage of the hard work of the other audit firm. The authors mention that free-riding can reduce information precision and therefore reduce audit quality. This theory is according to Deng et al. (2014) only valid when the structure of joint audit is formed of one big audit firm and one small audit firm. Deng et al. (2014) further theorized that joint audits could impair auditor independence and therefore audit quality by means of opinion shopping. In case of joint audits, a company has the opportunity to ‘shop’ between two auditors. Deng et al. (2014) state that because the opportunity of opinion shopping exists, the capital market cannot fully understand the company’s strategy. This leads to reduced audit evidence compared to audit evidence from singular audit. Therefore, the authors conclude that the quality of information provided by joint audits are lower than the quality of information by singular audit. The European Commission states that joint audit is a method to increase competition within the audit profession. This statement of the European Commission together with the audit quality impairment theorized by

Deng et al. (2014) warrant for further research. The study of Holm & Thinggaard (2016) is the first study that tests the theory of Deng et al. (2014). Holm & Thinggaard (2016) find that the audit fees are higher when in a joint audit, the small audit firm has less than 25 per cent of the audit fees compared with singular audit. Holm & Thinggaard (2016) argue that this result could indicate free-riding concern. Big audit firms are likely to increase the audit fees in case of free-riding because they want to be compensated for their work performed.

2.5. Literature overview

There are still many researches that examined joint audit from different perspectives. Here below is an overview of the most relevant papers regarding joint audits. This overview will help to provide a better understanding regarding the research conducted on joint audits.

TABLE 1 – Literature Overview

| Author | Year | Research question | Sample | Variable | Main findings |
|------------------------------|------|---|---|---|---|
| Andre et al. | 2012 | Does mandatory joint audits lead to higher audit fees? | 177 French, 102 Italian and 210 UK listed firms | Audit fees | Mandatory joint audits is associated with higher audit fees. |
| Audoussset-Coulier | 2012 | What is the consequence of joint audit on audit fees? | 254 listed French firms | Audit fees | Joint audits that include a big 4 firm lead to premium pricing. |
| Audoussset-Coulier | 2015 | How does the selection of joint auditors influence the amount of audit fees paid? | French, 121 (133) non-financial listed companies in 2002 (2003) | Audit fees | Decision to hire two Big 4 auditors as joint auditors does not require the payment of a higher Big 4 premium compared to the choice of one Big 4 auditor paired with a smaller auditor, other things being equal. |
| Ballas and Fafaliou | 2008 | Does the fall of Arthur Andersen affect the market concentration? | 2862 firms from 15 European countries, years | Audit market concentration | The demise of Arthur Andersen is associated with lower market concentration. |
| Bennouri, Nekhili and Touron | 2015 | Does auditors' reputation affect party transactions? | 85 listed French companies, years 2002-2008 | Auditor choice on audit quality | Joint audits comprised of two big 4 firms is associated with lower party transactions. |
| Deng et al. | 2014 | Do joint audits improve or impair audit quality? | Theoretical study | Audit quality | Joint audits by one big firm and one small firm may impair audit quality, because, in that situation, joint audits induce a free-ridings problem between audit firms and reduce audit evidence precision. |
| Francis et al. | 2009 | Does having two Big 4 audit firms improve the auditees' financial statement quality as compared to other auditor pairs? | 467 listed French companies, year 2003 | Determinants of joint auditor pair choice and effect of auditor choice on audit quality | Companies with less concentrated ownership structures and lower rates of family ownership are more likely to appoint at least one Big 4 audit firm. |

| | | | | | |
|------------------------------|------|--|--|-------------------------------|--|
| Gonthier-Besacier and Schatt | 2007 | What are the determinants of audit fees ? | 127 listed French firms | Audit fees | Audit fee/client size ratio is lower for client companies audited by two Big 4 firms. |
| Holm and Thinggaard | 2016 | Does joint audit impair audit quality? | 261 listed Danish companies, years 2005-2007 | Audit fees | Audit fees are higher when a big four auditor is working with a small audit firm that has less than 25 per cent of the audit fees compared with single audit. This results could lead to free-riding concerns. |
| Holm and Thinggaard | 2014 | Can audit fee discounts be obtained from using a single audit firm rather than two? | Denmark, all Non-financial companies listed on the Copenhagen Stock Exchange | Audit fees | Short-term fee reductions in companies switching to single audits, but only where the former joint audit contained a dominant auditor. |
| Ittonen and Peni | 2012 | The effect of voluntary joint audit on audit fees. | 715 non-financial listed firms from Denmark, Finland and Sweden | Audit fees | Voluntary joint audit leads to lower audit fees compared to singular audits. |
| Lesage et al. | 2016 | What are the effects of audit quality and audit costs of the abandonment of mandatory joint audit? | Denmark, 582 observations | Audit quality and audit costs | Joint audit is associated with higher audit fees but the association between audit fees and accruals are insignificant. Therefore, audit fees is not associated with audit quality |
| Piot | 2007 | How has the market concentration changed in a joint audit setting? | 817 listed French firms | Audit market concentration | The French market concentration is lower than other market concentrations in Europe. |
| Piot | 2008 | Is the French audit market still competitive after the Big 6 to Big 4 mergers? | French listed firms observed in year 1997 and year 2003 | Audit market concentration | Market concentration has increased after the Big 4 merger. |
| Ratzinger-Sakel et al. | 2013 | Literature review | Literature review | Literature review | Literature review |
| Velte and Azibi | 2015 | Are joint audits a proper instrument for increased audit quality? | France and Germany, 307 enterprises in the years 2008-2012 | Audit quality | Joint audits are not significantly associated with audit quality and market concentration. |
| Zerni et al. | 2010 | Can joint audit effectively mitigate the entrenchment problem? | 1171 listed non-financial firms form Sweden, years 2000-2006 | Audit quality | Joint audit is associated with less entrenchment discounts. |
| Zerni et al. | 2012 | Do voluntary joint audits improve audit quality | 1160 observations from the years 2001-2007 | Audit quality and audit cost | Voluntary joint audit is associated with higher audit fees and audit quality. |

2.6. Summary

Proponents of joint audits argue that the audit quality increases when implementing joint audit. Prior research shows that voluntary joint audit is associated with higher audit quality. However, there is limited evidence that shows that mandatory joint audit is associated with higher audit quality. Opponents of joint audit argue that the audit fees increases when implementing joint audit. Prior research show that the audit fees increases when implementing mandatory joint audit. This motivates researchers to further examine joint audit. In the next section, this thesis will discuss the hypothesis development where will be explain how this thesis contributes to the ongoing discussion regarding joint audit.

3. Hypothesis development

Prior research attempts to assess whether joint audit affects audit quality by using abnormal accruals and audit fees as proxy for audit quality.

This thesis primarily focuses on the market perception to joint audits to assess how joint audit affects the perceived audit quality. To my knowledge, there is no research conducted that examined the market perception to joint audit. This is surprising because the objective of an auditor is to give credibility to the market by giving an opinion about the financial statements. The opinion only has value when the market finds the audit opinion useful. This means that the audit profession is based on the valuation of the market. The market cannot value the actual independence directly. The market can only value the independence in appearance by examining what actions auditors take when performing an audit. Therefore, the market perception to the audit opinion can be seen as a subset of measuring audit quality. The assumption that the market perception to the audit opinion can be seen as a subset of audit quality, is also stated in the Code of Ethics for auditors. In the Code of Ethics, it is stated that auditor independence can be divided in two part: independence in mind and independence in appearance. Auditor independence is widely viewed as a part of audit quality, therefore auditor independence in appearance is a subset of audit quality (Ratzinger-Sakel et al., 2013).

This thesis examines how the market perceives the abolishment of mandated joint audit. This setting provides insights on whether joint or singular audits are valued more or less by the market. Proponents of joint audits argue that audit quality increases when a firm chooses joint audit. Stakeholders have additional assurance by a second audit firm. Furthermore, the audit firms that perform joint audit can issue an individual opinion when there is a disagreement regarding the audit. This provides further insight to stakeholders to review the audit opinion

that has been issued. Also, Zerni et al. (2012) finds that voluntary joint audit is associated with higher degree of conservatism, lower abnormal accruals, higher credit ratings and lower risk of forecast error. Finally, the work of each audit firm can be checked by the other audit firm which decrease the chance of mistakes during an audit. These factors can all increase audit quality, however the evidence is limited (Ratzinger-Sakel et al., 2013; Velte and Azibi, 2015). On the other hand, opponents of joint audits argue that the cost increases and that these costs outweighs the benefits. Andre et al. (2012) finds that mandatory joint audit is associated with higher audit fees. Furthermore, Deng et al. (2014) theorized that the auditor independence and therefore the audit quality decreases because of free-riding and opinion shopping concerns. Holm and Tinggaard (2016) find evidence that supports the theory of Deng et al. (2014).

This thesis formulates the hypothesis in the NULL form:

H1: The market perception is not associated with the abolishment of mandated joint audits.

This hypothesis is formulated in the NULL form because the results of prior research is inconclusive. Therefore, this thesis does not expect an association between the market perception and the abolishment of mandated joint audit.

4. Research design

4.1. Earnings response coefficient

This thesis uses the earnings response coefficient to capture the market perception to the abolishment of mandated joint audit in Denmark. The earnings response coefficient measures the extent of abnormal market return that is affected by unexpected earnings. This paper calculates the earnings response coefficient based on the model of Choi and Salamon (1989):

$$UR_{jt} = \frac{\sigma^2_{jt}}{\sigma^2_{jt} + \phi^2_{jt}} FERR_{jt}$$

UR_{jt} denotes the abnormal return of firm j in period t . Abnormal return is the realized return subtracted from the expected return. $\frac{\sigma^2_{jt}}{\sigma^2_{jt} + \phi^2_{jt}}$ is the expression used to reflect the earnings response coefficient as a function of σ^2_{jt} and ϕ^2_{jt} . σ^2_{jt} denotes the variance of future random

cash flows. ϕ^2_{jt} denotes the variance of the residual. The expression $\frac{1}{\sigma^2_{jt} + \phi^2_{jt}}$ expresses the quality of accounting earnings signal (Francis & ke, 2006). $FERR_{jt}$ is the earnings surprise for firm j in period t . Similar to abnormal return, earnings surprise is the realized earnings subtracted from the expected earnings. This model has been used widely by researchers to calculate earnings response coefficient (Frankel et al. 2002; Ashbaugh et al. 2003; Francis & Ke; 2006). The ERC can be used to examine how investors perceive the financial statements. In this thesis the financial information is the abolishment of mandated joint audit.

4.2. Difference-in-difference design

This thesis uses the difference-in-difference design to determine whether there is a difference in ERC after the abolishment of mandated joint audit. The method works by having a control group and a treatment group. The treatment group is the group where researchers try to find a difference over time. The control group is the group that have not experienced any changes and are therefore compared with the treatment group to determine if the changes in time series data are significant.

This thesis examines whether the ERC of Danish listed firms differs from France listed firms. Denmark is the treatment group, whereas France is the control group. As mentioned in the literature review, mandatory joint audit is still active in France. The difference-in-difference design allows this thesis to control for events that could impact the relation between the ERC and abolishment of mandated joint audit. An example is the IFRS adoption of the EU in 2005. This could have impacted the market perception and weaken the association between ERC and abolishment of mandated joint audit. However, since France also adopted the IFRS in 2005, this event is included in the control group. This strengthens the association between ERC and abolishment of mandatory joint audit.

4.3. Regression model

The hypothesis is tested using the following regression model:

$$\begin{aligned}
 CAR3 = & \beta_0 + \beta_1 POST + \beta_2 FERR + \beta_3 TREAT + \beta_4 FERR * POST + \beta_5 FERR * \\
 & TREAT + \beta_6 POST * TREAT + \beta_7 FERR * POST * TREAT + \beta_8 FERR * X + \\
 & INDUSTRY + YEAR + \varepsilon
 \end{aligned}
 \tag{1}$$

The main variable **CAR3** is the cumulative market adjusted abnormal return over a period of three days, one day before and one after day the quarterly earnings announcement. The use of cumulative abnormal returns is widely preferred above abnormal returns because the expansion of the event period captures the price effect before and after the stock market closes. Furthermore, CAR3 is calculated by subtracting actual returns from expected returns. The expected return is calculated based on the market model. The market model is as follows:

$$R_{it} = \alpha_i + \beta_1 R_{mt} + \varepsilon_{it} \quad (2)$$

R_{it} is the expected return of firm i in period t . R_{mt} is the return on the market portfolio of firm i on period t . ε_{it} is the term for zero mean disturbance. α , β and σ^2 are the parameters that are being used to calculate the expected return based on the market model.

FERR is the earnings surprise, measured by analyst' forecast error and defined as actual quarterly earnings per share for firm i in quarter t minus the most recent median consensus analyst forecast, scaled by the fiscal year end stock price for quarter $t-1$. The median analyst forecast is calculated using analyst's latest forecast before the earnings announcement, but after the prior quarter's earnings announcement date. The variable **POST** denotes the distinction between the period before and after the abolishment of mandated joint audit. Since Denmark abolishment the mandated joint audit in 2005, this will be used to determine the variable **POST**.

TREAT is the variable used to separate the control group from the treatment group. The treatment group in this thesis are the listed firms from Denmark because the abolishment of mandated joint audit occurs in that country. The control group of this thesis is France.

X denotes a set of control variables. This thesis will include the coefficient of **FERR** to all control variables (Francis & Ke, 2006) The control variables are included because they can potentially affect the association between ERC and the abolishment of mandated joint audit. Prior studies have determined four factors that could influence the ERC. The control factors are growth opportunities, risk, earnings persistence and risk-free rate. The market to book ratio is used as a proxy to control for growth opportunities (Chen & Zhao, 2006; Zhang, 2013). To control for risk, this thesis will include the variable **DE** which is the total debt/equity ratio. This variable implies that the higher the debt is relative to equity, the higher the risk of a firm. The variable **LOSS** is a proxy for earnings persistence. **ABSFERR** is included to control for nonlinearity in the ERC (Freeman & Tse, 1992). **FQTR4** is included because prior studies show that the market perception from the fourth quarter observations could differ from other quarter

observations (Mendenhall & Nichols, 1988). **LNMV** is used to control for the effect of firm size on the association between ERC and the abolishment of mandated joint audit (Francis & Ke, 2006). Finally, **INDUSTRY** and **YEAR** are included to control for various industry and year effects. The total variable definitions are included in the Appendix.

The coefficient on **FERR*POST*TREAT** is the main coefficient of interest. This coefficient denotes how the market perceives the abolishment of mandated joint audit in comparison with the market perception of France listed firms.

5. Data collection

5.1. Motivation choice of sample

This thesis focuses around the abolishment of mandated joint audit in Denmark. As mentioned in the literature review, Denmark has abolished mandated joint audit in 2005. This thesis has collected firm quarter observations two years before and one year after the abolishment of mandated joint audit. The literature review also mentions that prior researchers primarily focused on the Scandinavian countries and Canada. This thesis focuses on Denmark, since Denmark is the only country that had mandated joint audit for all listed firms. Sweden and Canada also had mandated joint audit but only for the financial sector. This thesis will not include Sweden and Canada, because the financial sector differs from other sectors. Further, Denmark has abolished mandatory joint audit in 2005. To examine the market perception of the abolishment of mandated joint audit, this thesis collects firm quarter observations two year before and one after abolishment of mandated joint audit. This setting allows this thesis to determine whether the market perceptions has changed in 2005. Finally, the market perception of Denmark is compared with the market perception of France were mandatory joint audit is still active.

5.2. Sample selection

The data collection starts with obtaining the TICKER and ISIN codes of all listed firms from Denmark and France that were active between 2003 and 2006. This list with TICKER and ISIN codes are obtained from DataStream¹.

¹ Based on my knowledge DataStream is the most comprehensive database that provides data regarding European listed firms.

To calculate the dependent variable CAR3, quarterly earnings announcement date has been collected from the Bloomberg database for each firm. Bloomberg has been chosen above DataStream because the Bloomberg is more comprehensive than DataStream regarding quarterly earnings announcements. The quarterly earnings announcement dates have been used to calculate the dependent variable CAR3. Data regarding CAR3 have been obtained from the DataStream event tool. This tool is designed to calculate the CAR3 based on the market model. All stock prices are collected from the CAC 40 index and Copenhagen stock exchange.

The data regarding actual earnings per share and median forecast earnings per share are obtained from I/B/E/S. However, the data is limited due to missing variables (see table 2). Stock price t-1 that is used to scale the earnings surprise, has been collected manually. The control variables have been obtained from Compustat and DataStream. Furthermore, table 2 shows that most missing observations are from the variable FERR. More specifically, the median analyst forecast is not available for every firm of the sample. The sample for statistical analyses could increase significantly by measuring earnings surprise based on the time-series approach. This thesis will nevertheless use median analyst forecast because prior research has shown that analyst forecast provides a more normative view than the time series approach (Lobo, 1992).

TABLE 2 Sample selection

| | Denmark | France |
|-----------------------------------|---------|--------|
| Total raw sample | 2,023 | 8,994 |
| Missing data FERR | -1,205 | -5,131 |
| Missing data CAR3 | -14 | -109 |
| Missing data DE | -34 | -100 |
| Missing data GROWTH OPPORTUNITIES | -19 | |
| Sample for statistical analysis | 751 | 3,654 |

5.3. Data preparation

The data collected from databases are merged through the use of Excel. All missing firm quarter observation from main and control variables have been dropped. Finally, this thesis did not remove any outliers. This thesis winsorized the outliers instead. This method has been

chosen because prior studies shows that winsorized means are more stable than means where outliers have been removed (Turkey, 1962). The outliers have been winsorized at a 1% level (Veenman, 2013).

6. Data analysis

6.1. Descriptive statistics

Table 3 provides the descriptive statistics of the total sample. The dependent variable CAR3 has a mean of 0.153 and median of 0.152. CAR3 has a relatively low standard deviation of 0.014. This suggests that most of observation have positive cumulative abnormal returns. FERR also show the same results with a positive mean of 0.911 and a positive median of 0.895. POST has a mean of 0.533. Since this variable is a dummy variable, this result show that the sample has almost the same amount of data regarding firm year observation before and after the abolishment of mandated joint audit. Contrary to POST, TREAT has a mean of 0.171. TREAT show that the sample contains more observations of French list firms than Danish listed companies.

TABLE 3 Descriptive statistics

| <u>Variable</u> | <u>n</u> | <u>Mean</u> | <u>Std. Dev.</u> | <u>Median</u> |
|------------------------------|----------|-------------|------------------|---------------|
| <i>Dependent variable</i> | | | | |
| CAR3 | 4,408 | 0.153 | 0.014 | 0.152 |
| <i>Independent variables</i> | | | | |
| FERR | 4,408 | 0.911 | 0.234 | 0.895 |
| POST | 4,408 | 0.533 | 0.499 | 1 |
| TREAT | 4,408 | 0.171 | 0.377 | 0 |
| POST*TREAT | 4,408 | 0.093 | 0.290 | 0 |
| POST*FERR | 4,408 | -0.001 | 0.382 | 0 |
| POST*TREAT*FERR | 4,408 | 0.000 | 0.025 | 0 |
| TREAT*FERR | 4,408 | 0.000 | 0.057 | 0 |
| <i>Control variables</i> | | | | |
| FERR*ABSFERR | 4,408 | 22.593 | 96.757 | 18.457 |
| FERR*LNMV | 4,408 | -0.684 | 28.033 | 0.022 |
| FERR*GROWTH | 4,408 | -1.259 | 43.502 | 0.004 |
| FERR*DE | 4,408 | -9.540 | 314.559 | 0.000 |
| FERR*LOSS | 4,408 | -0.082 | 2.434 | 0 |
| FERR*FQTR4 | 4,408 | -0.007 | 0.931 | 0 |
| INDUSTRY | 4,408 | 38.028 | 25.341 | 34 |
| YEAR | 4,408 | 1.628 | 1.195 | 2 |

6.2. Pearson correlation

Table 5 provides the correlation matrix of all variables used in this thesis. This matrix is used to identify whether there are correlations among the variables. Among the independent variables, it is shown that there is a strong correlation between TREAT and POST*TREAT. An explanation for this correlation could be that TREAT is included in POST*TREAT which strengthens the correlation between these variables. Further, the control variables have strong correlations among other control variables. FERR*ABSFERR has a strong negative correlation between FERR*LNMV, FERR*GROWTH, FERR*DE and FERR*LOSS. These correlations could be caused because the variable FERR is included in all the control variables. Similarly, there are strong correlations between the other control variables where FERR is included in both variables.

TABLE 5 Correlation matrix

| | CAR3 | FERR | POST | TREAT | POST*TREAT | POST*FERR | POST*TREAT*FERR | TREAT*FERR | FERR*ABSFERR |
|-----------------|-------|-------|-------|-------------|------------|-----------|-----------------|------------|--------------|
| CAR3 | 1.00 | | | | | | | | |
| FERR | 0.00 | 1.00 | | | | | | | |
| POST | 0.00 | -0.01 | 1.00 | | | | | | |
| TREAT | 0.03 | -0.03 | 0.01 | 1.00 | | | | | |
| POST*TREAT | 0.03 | -0.02 | 0.30 | 0.70 | 1.00 | | | | |
| POST*FERR | 0.00 | 0.47 | 0.00 | 0.00 | 0.00 | 1.00 | | | |
| POST*TREAT*FERR | 0.02 | 0.00 | 0.01 | 0.03 | 0.04 | 0.07 | 1.00 | | |
| TREAT*FERR | -0.01 | 0.00 | 0.01 | 0.02 | 0.02 | 0.03 | 0.44 | 1.00 | |
| FERR*ABSFERR | 0.03 | 0.03 | -0.03 | -0.02 | -0.01 | -0.29 | 0.00 | 0.00 | 1.00 |
| FERR*LNMV | -0.04 | 0.13 | 0.03 | 0.01 | 0.01 | 0.15 | 0.01 | 0.03 | -0.88 |
| FERR*GROWTH | 0.00 | 0.03 | 0.03 | 0.01 | 0.01 | 0.04 | 0.00 | 0.00 | -0.66 |
| FERR*DE | 0.00 | 0.00 | 0.03 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | -0.67 |
| FERR*LOSS | -0.03 | 0.04 | 0.03 | 0.01 | 0.01 | 0.00 | 0.00 | 0.01 | -0.85 |
| FERR*FQTR4 | 0.00 | 0.07 | 0.01 | 0.00 | 0.00 | 0.05 | 0.00 | 0.03 | -0.25 |

TABLE 5 Correlation matrix (continued)

| | FERR*LNMV | FERR*GROWTH | FERR*DE | FERR*LOSS | FERR*FQTR4 |
|-------------|-------------|-------------|-------------|-----------|------------|
| FERR*LNMV | 1.00 | | | | |
| FERR*GROWTH | 0.75 | 1.00 | | | |
| FERR*DE | 0.77 | 0.95 | 1.00 | | |
| FERR*LOSS | 0.98 | 0.82 | 0.85 | 1.00 | |
| FERR*FQTR4 | 0.34 | 0.51 | 0.44 | 0.37 | 1.00 |

6.3. Regression results

Table 6 provides the results of the regression performed to reject or accept the hypothesis. POST*TREAT*FERR has a coefficient of 0.022 that is significant at the 5% level. This result shows that the market has valued the abolishment of mandated joint audit positively. This result could be explained by the fact that singular audit is the normal way of auditing worldwide. The abolishment of mandated joint audit could therefore be perceived as positive. This result could strengthen the arguments of the opponents of mandated joint audit that the cost outweighs the benefits of joint audit. However, Denmark did allow for voluntary joint audit after abolishing mandated joint audit. This result could also suggest that the market values voluntary joint audit higher than mandated joint audit. This is in line with prior research, where they found evidence that voluntary joint audit is associated with higher audit quality (Zerni, 2012). This result does not mean that single audit is better than joint audit. This result can only be interpreted as that the market positively values the abolishment of mandated joint audit. The coefficient POST*FERR indicate the results of the market perception after the abolishment of mandated joint audit. As expected, this results are insignificant. Since TREAT is not included in this variable, the IFRS adoption in 2005 could influence the association between joint audit and market perception. The other independent variables FERR, POST, TREAT, POST*TREAT and TREAT*FERR are all insignificant at all levels. Among the control variables, FERR*DE is significant at a 5% level. However, the coefficient of this variable are close to zero. This means that FERR*DE has a very weak correlation with the dependent variable CAR3. This results provides evidence that these control variables have an insignificant impact on the association between POST*TREAT*FERR and CAR3. All other control variables are insignificant at all levels.

TABLE 6 Regression results H1

| CAR3 | | |
|----------------------|--------------------|----------------|
| <u>Variable</u> | <u>Coefficient</u> | <u>p-value</u> |
| Intercept | 0.151 *** | 0.000 |
| FERR | 0.001 | 0.617 |
| POST | 0.000 | 0.878 |
| TREAT | 0.001 | 0.225 |
| POST*TREAT | 0.001 | 0.719 |
| POST*FERR | -0.001 | 0.316 |
| POST*TREAT*FERR | 0.022 ** | 0.018 |
| TREAT*FERR | -0.005 | 0.188 |
| | | |
| FERR*ABSFERR | 0.000 | 0.316 |
| FERR*LNMV | 0.000 | 0.591 |
| FERR*GROWTH | 0.000 | 0.986 |
| FERR*DE | 0.000 ** | 0.037 |
| FERR*LOSS | -0.001 | 0.203 |
| FERR*FQTR4 | 0.000 | 0.874 |
| | | |
| R^2 | | 0.09 |
| Observations Denmark | | 751 |
| Observations France | | 3.654 |

OLS regression is performed with CAR3 as dependent variable. All p-values are two-tailed test because this thesis investigate whether the market perception is different after abolishment of mandated joint audit. *, **, *** are the statistical significance at the 0.10, 0.05, and 0.01 levels. Industry and year effects are omitted from the results because these effects are fixed effects and are not treated as control variables.

7. Conclusion

7.1. Result

This thesis investigates whether the market perception differs after the abolishment of mandated joint audit. More specifically, the abolishment of mandated joint audit in 2005 by Denmark. This thesis answers the following research questions:

Does the market perceive the abolishment of mandated joint audit positively or negatively?

This thesis found evidence that the market positively values the abolishment of mandated joint audit. The coefficient between CAR3 and POST*TREAT*FERR is 0.022 is significant at 5% level. This results is strengthened using French listed firms as control group because France still mandates joint audit for all listed firms. By comparing the listed firms of Danish listed firms with French listed firms, this thesis controls for any events that could have affect the association between POST*FERR and CAR3. This evidence contributes to the discussion whether joint audit increases or impairs audit quality. The positive market perception suggest that mandated joint audit is valued negatively, compared with singular audit, which can be used as an argument for opponents of joint audit. However, voluntary joint audit is still allowed after abolishment of mandated joint audit. This could also mean that voluntary joint audit is valued higher than mandated joint audit. Which could be used as an argument for proponents of joint audits.

7.2. Implications

The question still remains whether joint audit should be implemented or not. The result of this thesis implies that further research is needed to determine whether this result strengthen the arguments of opponents or proponents of joint audit. If future research finds that the positive market perception is caused by firms that have adopted voluntary joint audit then that could mean that voluntary joint audit is perceived higher than singular audit. The justification to implement voluntary joint audit by the European Parliament is then further strengthened. Furthermore, if the market values voluntary joint audit higher than singular audit than it is logical to implement voluntary joint audit because the audit profession is based on the valuation of the market. Therefore, voluntary joint audit could be used as a way to increase the value of the audit opinion. Finally, the coefficient of CAR3 and POST*TREAT*FERR indicate the abolishment of mandated joint audit is justified since the market values the abolishment positively.

7.3. Future research

Future research could focus on how the market perceive the adaptation of voluntary joint audit and singular audit separately after abolishment of mandated joint audit in Denmark. This research setting contributes to existing literature by examining whether the positive market perception is caused by firms that have adopted voluntary joint audit or firms that abolished joint audit entirely. Further, future research could replicate this research setting by using other

countries like Canada or Sweden that have abolished mandated joint audit. However, these countries have mandated joint audit only for the bank and insurance industry. This should be taken into consideration. Finally, future research could also imitate this research by using a larger sample, increasing the power of the results shown in this thesis. The discussion whether joint audit is better than single audit is still an open discussion, which provides for opportunities for investigation.

7.4. Limitations

This thesis acknowledges that there are limitations. First, this thesis assumes that the market is efficient. This means that the prices reflect all information on the market. This assumption is needed to use the ERC as proxy for market perception. Second, this thesis acknowledges the existence of omitted variables that could bias the association between CAR3 and POST*TREAT*FERR. Third, this thesis used the market model to calculate cumulative abnormal returns. The reliability of the market model increases as the adjusted 2-squared is higher. However, the r-squared is 0.09 which is relatively low. This could affect the reliability of CAR3. Future research could calculate CAR3 using a model that fits this research more. Finally, this thesis acknowledge that the data of the treatment group is relatively low compared with the data of the control group.

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Appendix I. Variable Definition

| Dependent variables | Definition |
|----------------------------|--|
| <i>CAR3</i> | Cumulative abnormal return over a period of three days, one day before and one day after the quarterly earnings announcement |

| Independent variables | Definition |
|------------------------------|---|
| <i>FERR</i> | Earnings surprise, measured by analyst forecast error. |
| <i>POST</i> | 1 = firm quarter observations after abolishment of mandated joint audit, zero otherwise |
| <i>TREAT</i> | 1 = firm quarter observations from Denmark, 0 = firm quarter observations from France |

| Control variables | Definition |
|--------------------------|--|
| <i>DE</i> | Market-to-book ratio |
| <i>LOSS</i> | 1 if firm has a negative net income, zero otherwise |
| <i>ABSFERR</i> | Absolute value of FERR |
| <i>FQTR4</i> | 1 if the firm quarter observations is the last quarter, zero otherwise |
| <i>LNMV</i> | Logarithm of common equity at the beginning of quarter t |

| Fixed effects | Definition |
|----------------------|---|
| <i>INDUSTRY</i> | Dummy variable for different industries |
| <i>YEAR</i> | Dummy variable for different years |
