

Special Examination – For Better or for Worse?

A study on the minority shareholder protection measure
special examination on Swedish companies.

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Abstract:

We study firms subject to the minority shareholder protection measure special examination in Sweden. First, we investigate common firm-level characteristics for companies subject to this action. Second, we investigate the financial outcomes of completing special examination. Firms subject to this are younger, carry a larger intangible assets-ratio and pay out higher dividends. They also have poorer financial performance relative to their peers. Financial outcomes for firms completing special examination are ambiguous and this study does not provide significant results. However, our results are in general coherent with previous research and we conclude in that special examination is highly correlated with poor corporate governance. We also suggest that special examination is solely a source of information for minority shareholders, rather than a call for management improvement.

Tutor: Daniel Metzger

Keywords: Special examination, corporate governance, minority shareholder protection, intangible assets, the agency problem

Acknowledgements

We would like to thank our tutor Daniel Metzger for his guidance throughout the writing of this thesis. Additionally, we also want to thank Clas Bergström and Per Strömberg for their extra support and valuable insights in the subject.

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1 Introduction

The objective of this paper is to investigate firm-level characteristics and effects of the minority shareholder protection measure special examination. The measure allows minority shareholders to appoint an external examiner to investigate certain events during a specified time period in order to get access to information regarding the management and accounts for a firm. This is a call for enhanced transparency demanded by minority shareholders, which creates an important connection between corporate governance and special examination. To the best of our knowledge, this is the first study investigating the company characteristics and financial effects of a special examination and we aim to provide a broad and general view of special examination as a function of various factors.

Previous research discuss different firm-level characteristics that affect the level of corporate governance within a company. The unified view is that firms with good governance are more profitable and higher valued than firms with bad corporate governance, as their operations are run more efficiently and the cost of capital is substantially lower. Martin & Alves (2010) and Himmelberg et al. (2004) discuss the importance of asset structure and level of corporate governance. They conclude that since it is easier to expropriate intangible assets than tangible, firms with a greater fraction of this asset type need a greater level of governance and stricter contracts to decrease information asymmetry and knowledge imbalance. Another area of interest is dividend payments, as this is highly prioritized by minority shareholders (Gomtsian, 2016). Dividends are an effective and important source of information for management to signal future expectations of firm performance.

To investigate this, we use two sets of data containing accounting data ranging from 1998 to 2015 as well as specific data in connection to application for special examination. This is to shed light over common firm-level characteristics of firms subject to application and completion of special examination.

Our results document several firm-level characteristics that differentiates companies subject to application from peers. Companies subject to special examination are younger, have a greater fraction of intangible assets, as well as pays out higher dividends on average. Another important finding is that firms subject to application are on average, in terms of RoE, EBITDA, and net income, performing worse than overall average performance of companies that are not subject to this action. This is true both before application, as well as after completing special examination. However, our study does not document these financial findings on a significant level, which could be due to several factors, such as sample sizes as well as the minor changes in financial and operational performance. Moreover, the results are overall pervaded by significantly low R^2 and Pseudo R^2 , which implies that there are other variables and aspects that affect our models.

Findings of size, age, asset structure, and financial performance are in line with previous literature. However, as firms subject to application are suggested to perform worse, higher dividend payments is not supported by previous research. Reasons for this could be a way of the management to satisfy the expectations of their shareholders and enabling future streams of external capital, even though

underlying firm performance is not expected to generate future profitability. Deeper analysis is required to substantiate these findings.

The full spectrum of firm-level characteristics and financial findings indicate bad corporate governance, which identify a positive correlation between bad corporate governance and application for special examination. However, we suggest that special examination is solely a source of information for minority shareholders, rather than a call for management improvement.

The paper proceeds as follows: the next section describes the background and previous research. Section 3 contains information regarding our research questions, section 4 describes the data selection process and sample construction. Section 5 describes the methodology used, section 6 provides our results and findings. Section 7 concludes, and section 8 presents suggestions for future research.

1.1 Contribution

Existing corporate governance and minority shareholder protection literature is extensive and intriguing. However, to the extent of our knowledge, previous research focus on ratings and current levels of corporate governance as well as on differences in firm-level profitability and market value between good and bad governance. Less focus has been placed on practical attempts to improve governance within a company and research lacks provision of data on differences before and after governance-altering events. Our contribution is to provide empirical findings concerning how a legal governance measure with purpose of protecting and empowering minority shareholders affect firm-level performance, and what firm-level characteristics increases the probability of a firm becoming subject to this action.

1.2 Delimitations

The scope of our study is restricted to Swedish limited liabilities companies (Swedish: *Aktiebolag*, henceforth LLCs) with focus on non-listed firms, as less than 20 listed firms has been subject to special examination. The time period investigated is 2008-2015 due to limitations in access to special examination cases as well as the range of accounting data. Since the majority of the treated companies are non-listed, we will rely on accounting data without access to extraordinary information as e.g., management compensation. Furthermore, as there are no clean events regarding special examinations we will not conduct an event study on stock prices and market reactions for the listed companies. The law has been practiced for several decades, however rephrased in 2005 in the new version of the Swedish Companies' Act. The decision about special examination is taken at shareholders meeting and is publicly announced jointly with other decisions taken during the same meeting, which makes the market reaction noisy. Furthermore, there is no distinct and official completion announcement since the outcomes are only sent directly to concerned shareholders, which problematize the quantification of abnormal stock returns as an effect of completion of special examination.

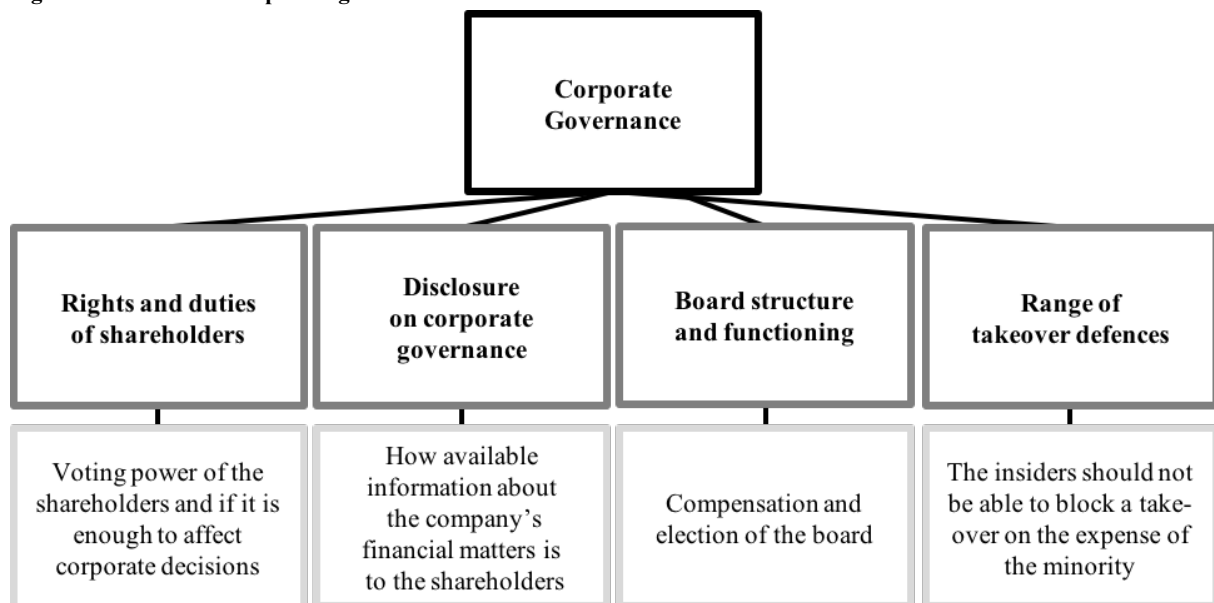
2 Background

2.1 Corporate governance

As defined by Shleifer & Vishney (1997), corporate governance deals with the ways in which suppliers of capital to corporations assure themselves of getting return on their investment. This can take form in terms of laws, accounting standards or general guidelines to make sure that the company is governed in a way that is preferable to shareholders. When rights of investors are better, investors are more willing to finance firms (La Porta et al. 2000). An example of shareholder rights is voting in general assemblies, that have gradually become a central mechanism to settle conflicts over corporate governance (Bach & Metzger, 2017).

Even though there are no international standards, there are several international institutions that rank companies' corporate governance levels. One of them is the Deminor Corporate Governance Ratings, which is used by Bauer, Guenstein & Otter (2003). They find that all categories are correlated with each other, which implies that well-functioning governance runs through the entire company. The Deminor levels of corporate governance are divided into four groups, shown in Figure 1.

Figure 1 Overview of corporate governance



Good corporate governance is highly correlated with better operating performance and market valuation (Klapper & Love, 2002). This is also shown by Gompers et al. (2003) where firms with good corporate governance generate higher profits, equity returns, market value and better operating performance than poorly governed firms. Drobetz et al. (2004) follow a similar procedure as Gompers et al. (2003) and their results show an annual excess return of 16.4% to a good corporate governance strategy. There are two main reasons to why good corporate governance increase firm value according to Bauer, Guenster & Otten (2003); first, it increases investor trust and thus make the investors demand

a lower risk premium which lowers the firm's cost of capital and hence increases firm value. Second, operations in a well-governed firm run more efficiently which results in higher future cash flows.

2.1.1 The agency problem

Corporate governance is generally referred to as the “separation of ownership and control” (e.g. by Fama & Jensen, 1983 and Shleifer & Vishny, 1997). Agency problems hence refer to when financiers (the principal) have problems assuring that invested funds will not be wasted by management (the agent) (Shleifer & Vishny, 1997). Even though contracts are conducted at the time of the transfer, to precisely limit what the management is allowed to do with funding is an impossible task. Information asymmetry between the principal and the agent leads to the risk of the financiers being expropriated by opportunistic company leaders. To hinder this, financiers can monitor the management by demanding better financial reporting and disclosure (Healy & Palepu, 2001) through for example a special examination (see further down). However, monitoring is a costly procedure and the trade-off between higher costs and losses due to wasting by the management has to be evaluated.

Furthermore, there is in fact a large dependency between management and investors. The investors need the management's expertise to run the firm successfully and hence get return on their investment, and the management need the funds in order to keep the operations going (Shleifer & Vishny, 1997). This dependency, as a result of the agency problem and information asymmetry, makes firms often deliver on their agreements due to reputation building (Kreps, 1996) and hence, repay investors to ensure future streams of additional external funding (Shleifer & Vishny, 1997). Gomes (1996) showed that dividend payments are a successful way of building this reputation and thus enable firms to raise future equity.

2.1.2 Dividend payments

Modigliani & Miller (1961) argue that under perfect market assumptions, e.g., non-frictional markets, dividend payments are irrelevant as investors are capable of generating cash-flow streams by selling a fraction of their shareholdings. Theories regarding the predictability of dividend behaviour are, however, usually based on the violation of non-frictional markets, and incorporates the presence of agency conflicts between internals and externals, e.g., managers and shareholders, and information asymmetry. According to previous literature (e.g. Bhattacharya, 1979, Miller & Rock, 1985, John & Williams, 1985, and Bernheim & Wantz, 1995), dividends are used as a tool of signalling to convey information regarding a firm's future profitability, i.e., firms expected to be profitable in the future should pay out higher dividends than firms assumed to perform worse.

Hence, when there is a great presence of agency problems and information asymmetry, dividends are assumed to be used as a communication channel to convey the estimations and beliefs regarding future earnings for the company. Also, as mentioned in previous section, Gomes (1996) showed that dividend payments are a successful way of reputation-building, and hence enables future raise of equity.

Also, signalling theories argue that managers have incentives to disclose their superior information to external investors through their financial choices, namely through financial structure (Ross, 1977) and also through dividend policy (Bhattacharya, 1979), as mentioned previously.

2.1.3 Transparency

Transparency and disclosure are integral to corporate governance by mitigating the agency problem (Patel, Balic & Bwakira, 2002). Whilst dividend payments are a signal about future profitability, good corporate governance in general enhances transparency and envisions an aligned set of objectives and regulations for directors, officers and shareholders. Skinner (1992) finds that earnings disclosures may reduce expected legal costs by reducing the likelihood of an imminent mandatory disclosure (such as a special examination). Furthermore, the amount of information disclosed is negatively correlated with market risk and positively correlated with valuations (Dallas & Patel, 2002). Patel, Balic & Bwakira (2002) show that firms with higher transparency and disclosure are valued higher than comparable firms with lower transparency. Lang & Lundholm (1993) find that corporate transparency is positively correlated with firm size and performance.

2.1.4 Intangible assets

Intangible assets are easier to expropriate than tangible, and thus require stricter governance and contracts (Himmelberg et al., 2004). Furthermore, Martin & Alves (2010) argue that the lack of effective control is the most common reason for the non-recognition of intangibles as assets on financial statements. This has an important potential impact on the levels of information asymmetry and agency costs associated with these sorts of assets. This implies that firms with a higher fraction of intangible assets will experience an increased dispersion between internals and externals, for example in terms of knowledge imbalance.

Long & Malitz (1985) argue that intangible assets are illiquid as there is a non-existence of organised markets for such assets. This implies, as described by Aboody & Lev (2000), that there are no market prices existent for intangible assets, which is an important reason for intangibles having a significant impact on the levels of information asymmetry and agency costs.

Also, the level of incompleteness of contracts between internals and externals is assumed to increase with the level of intangible assets. Fama & Jensen (1983) argue that agency problems arise because contracts are not written and enforced without costs. This means that firms with a greater fraction of intangible assets experience larger agency problems, which increases the shareholders' need for transparency.

2.1.5 Capital structure and debt

Jensen (1986) find that debt has a positive correlation with corporate governance since a higher debt ratio has a disciplinary effect on the management. By issuing debt, free cash flows are appropriated to interest payments instead of opportunistic spending. Thus, debt decreases the resources under the

management's control and thus also the possibilities for expropriation. However, Jensen (1986) also finds that this is not true for rapidly growing firms with many profitable projects but no free cash flow.

2.1.6 Firm size and age

The effect of firm size is, according to Klapper & Love (2002), ambiguous and could affect the governance in both positive and negative ways. Large firms have greater agency problems (Jensen, 1986) but smaller firms have a larger need of external financing, which makes them more dependent on a good reputation. Previous literature also states that age is positively related with good practices of governance (Carvahal & Leite, 2016).

2.1.7 Sector differences

Bauer, Guenstein & Otter (2003) find that corporate governance differences in between sectors are rather small but that companies within the industrial sector have the best corporate governance and companies within auto cyclical consumer goods have the worst. They also suggest that corporate governance may be more determined by country laws than firm-level characteristics.

2.1.8 Financial reporting regulations in Sweden

Depending on the size of a company, it is required to follow different financial reporting guidelines (The Swedish Accounting Standards Board, 2017). There are four categories for Swedish companies: K1-K4. The policies in category K1 are applicable for sole proprietorship companies (Swedish: *Enskild firma*), the K2 policies apply for small LLCs, K3 regulates the accounting for large but non-listed LLCs and K4, that is equal to the IFRS-rules, applies for listed companies (that also have to follow regulations in the Swedish Corporate Governance Act). The companies can choose to comply with policies in a higher category, but not in a lower. With higher categories follow more detailed regulations and higher demand on transparency. This means that smaller companies are allowed to be more flexible and less exhaustive in their financial reporting relative to larger companies.

2.2 Minority shareholder protection

Corporate governance principally supports shareholders as a class, but to some degree it also can and must address the agency conflicts jeopardizing interests of minority shareholders' (Kraakman et al., 2009). One of the key goals of corporate governance is to hinder expropriation of minority shareholders, and to protect them. This protection is, according to La Porta et al. (2000), crucial since this expropriation of minority shareholders by internals is extensive in many countries. Expropriation can be defined as the process of using one's control powers to maximize own welfare and redistribute wealth from others (Claessens et al., 1999). The agency problem between self-interested managers and dispersed shareholders means that outside investors face a risk to never receive returns on their investments (McCahery, 2009). The management and majority shareholders could essentially use the profits to benefit themselves rather than return the funds to the outside investors (Jensen & Meckling, 1976).

La Porta et al. (2000) find that internals' expropriation of minority shareholders can express itself in many different ways including stealing of profits, selling of output, assets, securities to another (competing) firm below market prices, transfer pricing, asset stripping and investor dilution. Other examples, that is more directly correlated with personal benefits for the internals, include e.g. plush carpets, private use of company airplanes, expanding the firm beyond rationale, pursuing pet projects et cetera (Shleifer & Vishny, 1997). Without regulations the majority shareholders of a company thus could pay too high compensation to company management, withhold dividends or decide on unfavourable expansion strategies (e.g. mergers and acquisitions), all of which are areas of special interest to minority shareholders (Gomtsian, 2016) and would undermine the value of the minority's shares.

Firms can improve investor protection rights by increasing disclosure, selecting well-functioning and independent boards, imposing disciplinary mechanisms to prevent opportunistic management spending, and controlling shareholders from engaging in expropriation of minority shareholders, et cetera (Klapper & Love, 2002).

2.2.1 Differences in listed and non-listed companies

The need for minority shareholder protection differs between listed and non-listed companies. Non-listed shares are less liquid which aggravates disposal of shares if shareholders are dissatisfied with the actions taken by management. The strong contractual freedom of non-listed firms also enables exploitation by parties with strong bargaining power; hence, the demand for good corporate governance is greater for non-listed companies (Gomtsian, 2016).

2.3 Minority shareholder protection in Sweden

2.3.1 The Swedish Companies' Act

The corporate governance regulations for LLCs in Sweden can be found in the Swedish Companies' Act (henceforth SCA). The purpose of the SCA is to protect the company and its shareholders as well as other stakeholders such as clients, suppliers, and creditors. Some laws in the SCA are compulsory whilst some are optional in order for them to be more far-reaching and adjustable. Companies that choose not to follow the optional regulations have to explain their reasons for doing so.

The majority principle is the fundamental basis for corporate decision-making in the SCA. However, the SCA contains many laws protecting minority shareholders that allow a share under 50% (but not under one tenth) to influence a company's steering. The regulations, among others, allow the minority to demand an extraordinary shareholders' meeting (Chapter 7, section 13, para. 2, SFS 2005:551), propose a minority auditor to act together with the regular auditor (Chapter 9, Section 9, SFS 2005:551), demand dividends (a maximum of 50% of last year's remaining net profits [less a few reductions] and a maximum of 5% of the total equity value) (Chapter 18, section 11, SFS 2005:551), and deny freedom of liability to the management (Chapter 29, section 7, SFS 2005:551). The SCA also

contains a general clause that forbids the shareholders' meeting to take actions that may cause inappropriate special treatments towards a certain shareholder group (Chapter 7, section 47, SFS 2005:55). One minority protection rule in the SCA that we find of certain interest and is the subject of this paper is special examination (Chapter 10, section 21, SFS 2005:551).

2.3.2 Special examination

All shareholders qualified to vote have the right to initiate a request for a special examination. The provisions regarding special examination give the minority shareholders a possibility to appoint an external examiner to review the company's accounting and stewardship during a certain time period, or for certain events and circumstances. The Swedish Companies Registration Office (SCRO), that took over after County Administrative Boards (henceforth CAB) in November 2013, handles the application procedure. According to legislative history, the primary occasions of a special examination have been exceptional and infrequent for when there was justified suspicion of irregularities. Irregularities that qualify for special examination are infinite, but could regard aspects such as controversial affairs, payments to and hiring of relatives and dividend payment sizes, ergo – all situations where a company is not run in a socially and financially acceptable way.

The application can, in theory, be made by anyone, but for the special examination to be accepted by the SCRO it has to comply with certain restrictions. First, the minority needs to hold an accumulated amount of 10% of the shares. Second they need to either send in the proposal to the annual general meeting or call for arranging an extraordinary shareholders meeting. For the proposal to be accepted at the meeting, the attending shareholders need to hold, as stated above, 10% of the total amount of shares or represent 1/3 of the votes present during the meeting where the subject of a special examination is discussed.

The theme for the examination needs to be clearly stated in both the application and present in the meeting records along with the voting list. The application to SCRO needs to contain a copy of the meeting records where the decision to apply for a special examination is clearly stated together with the theme and time period for the examination. However, even though the theme officially needs to be clearly formulated, the actual regulations regarding the examination-theme in the SCA are few which leads to a great majority of the themes sent in to the SCRO being unclear and vague. This opens up for misinterpretation and misuse that could, instead of improving the company, hurt it. This since a special examination is a costly procedure and minority shareholders with questionable objectives could get access to sensitive company information.

3 Research questions

This paper aims to study Swedish LLCs that have been subject to special examination. Firm-level characteristics as well as financial performance and their relationship with special examination will be investigated. As the majority of the special examination related companies (see dataset description in section 4) are non-listed, the study will be performed on accounting data. Information regarding the treated companies has been collected from the SCRO and CAB.

To the best of our knowledge, this is the first study with the objective to determine firm-level characteristics, as well as investigating financial effects of special examination using a quantitative approach. However, the legal aspects of special examination and the occurrence of misuse have previously been discussed (e.g. Ahlgren, 2015). To further investigate the connection between corporate governance and special investigation, we proceed by the investigating following hypotheses.

H_{1A}: Smaller firm size increases the probability of shareholders applying for special examination.

H_{1B}: Firms subject to special examination are smaller than firms that are not subject to this action.

In previous literature, the effect of firm size on corporate governance is ambiguous. Studies have found that corporate governance in larger companies are better as they experience greater agency problems (Jensen, 1986). On the other hand, corporate governance is also argued to be better in smaller companies as they are, in general, in a greater need of external financing and thus need to deliver good governance in order to attract investors (Klapper & Love, 2002).

However, we hypothesize that in Swedish LLCs, the firm size is negatively correlated with the probability of shareholders applying for special examination, as these companies are more likely to be in need of external financing and are not as regulated as larger Swedish companies which creates a greater information asymmetry.

H_{2A}: Younger firms have an increased probability of having shareholders apply for special examination.

H_{2B}: Firms subject to special examination are younger than other firms.

We hypothesize that younger firms have an increased probability of becoming subject of special examination. This is because it is argued that age is positively correlated with good corporate

governance (Carvahal & Leite, 2016). Also, older firms are usually more mature and not in need of external financing to the same extent.

H_{3A}: Lower financial and operational performance increases the probability of shareholders applying for special examination.

H_{3B}: Firms subject to special examination have poorer financial and operational performance than other firms.

Previous literature is united around the fact that good corporate governance has a positive correlation with good financial and operational performance (e.g. Gompers et al., 2003). Hence we hypothesize that low financial and operational performance increases the probability of a firm becoming subject to special examination.

H_{4A}: Lower dividend payments increase the probability of shareholders applying for special examination.

H_{4B}: Firms subject to special examination have lower dividend payments than other firms.

Previous literature states that dividends are a communication channel for a firm's expected future performance. This means that, as we hypothesize that firms subject to special examination are performing poorly, we also assume dividends to be low. Furthermore, since dividend payments are an area of high interest for external financiers (Gomtsian, 2016), we hypothesize that withheld or low dividend payments are increasing the minority shareholders' motivation to apply for special examination in order to increase transparency.

H_{5A}: Firms with a high proportion of intangible fixed assets-ratio have a higher probability of shareholders applying for special examination.

H_{5B}: Firms subject to special examination have a higher intangible assets-ratio than other firms.

We hypothesize that firms with intangible assets are more likely to become subject for special examination. This since intangible assets are more easily expropriated, as the level of intangible assets

is positively correlated with the level of information asymmetry between internals and externals (Himmelberg et al., 2004).

H_{6A}: A lower debt ratio increases the probability of shareholders applying for special examination.

H_{6B}: Firms subject to special examination have a lower debt-ratio than other firms.

We hypothesize that a higher debt ratio is positively correlated with corporate governance as it disciplines the company management spending (in line with Jensen, 1986).

H₇: Companies that complete a special examination improve their financial and operational performance afterwards.

We hypothesize that the financial and operational performance should improve for firms completing special examination. This as special examination decreases information asymmetry, and increases transparency, the execution of corporate governance should improve. Previous literature unites on the fact that good corporate governance has a positive correlation with firm performance (e.g. Klapper & Love, 2002).

H₈: Bad performing companies that complete special examination, turnaround their results afterwards.

We hypothesize that a share of the companies subject to special examination are performing poorly. Special examination is a measure to improve the corporate governance and thus also the financial and operational performance, hence we hypothesize that these companies will start generating positive results after completion.

4 Data

4.1 Data sources

The research questions defined in the previous chapter will be answered by using two different databases. The first database is the Serrano database, provided by the Swedish House of Finance. It includes company-specific accounting data collected from each company's balance sheets, income statements and other supplemental financial information. The database also includes information regarding industry affiliation of each firm, based on the globally acknowledged Standard Industrial Certification (henceforth SIC) codes. We have divided all firms into *major groups* by using the two first numbers in the four-digit system (Siccode.com, 2017).

The Serrano database contains information on around 500,000 listed as well as non-listed firms in Sweden, with data ranging from 1998-2015. This data takes the form of unbalanced panel data, where panel data refers to cross-sectional time-series data. In other words, the same individual firms are followed over time. There are several advantages with using panel data, and one main advantage is that this technique allows for a large number of data points and a greater number of degrees of freedom compared with other forms of data. It also reduces collinearity among the explanatory variables, as well as improves the efficiency of econometrical results (Inchausti, 1997). As some companies have gone bankrupt during the sample period, as well as new companies have been founded during the same period, not all companies have data for all years, which makes the data unbalanced. This needs to be considered in the analysis. Variables from the dataset have been selected based on the hypothesis that they impact the decision made by shareholders to apply for special examination. The specific variables extracted from the Serrano database are presented in Table 1-2.

The second database, Bolagsdata, is a manually collected dataset for all special examination cases between December 2007 and February 2017, i.e., up until this paper was produced. The dataset contains a total of 278 cases where 19 firms out of the 278 are listed; the remaining 259 are non-listed firms.

The application specific data is provided by the SCRO (2013-2017) and CAB (2008-2013), and assembles information about each case of special examination, such as application date and acceptance or rejection of the application. Cases of special examination have occurred at different points in time, where at each specific date, similar information has been collected from each company. The specific variables extracted from this database are displayed in Table 1-2.

Table 1 Overview of all variables extracted from Bolagsdata

Time-Series Variables Bolagsdata	Abbreviations	Definition
orgnr	ORGNR	Identification number, provided by SCRO
company_name	COMP	Name of the company
approval	ACC	Received ACCEPT or REJECT on application
arrived_authority	OUTCOME	Date when application arrived to authority
decision_date	DECIC	Date when authority communicated approval
company_type	TYPE	Private or public company
Misuse	MISUSE	Identified cases of law misuse by shareholders
Cross-sectional variables Serrano		
bransch_borsbansch_konv	SECTOR	Sector, based on SIC
ser_laen	COUNTY	County
Dependent Variables		
-	APP	Dummy for applying for SI, 1 for applying, otherwise 0
-	ACC	Dummy for completing SI, 1 for completion, otherwise 0

Table 2 Overview of all variables extracted from Serrano

Time-Series variables as named in Serrano	Abbreviations	Definition
rr01_ntoms	SALES	Sales
ny_avtokap	ROA	Return on Assets
ny_skuldgrd	DEBTR	Debt ratio, D/E
ny_avkegkap	ROE	Return on Equity
br01_imanlsu	intang	Tot. amount of intangible fixed assets
br02_matanlsu	tangl	Tot. amount of tangible fixed assets
br05_anltsu	Fixed_assets	Tot. amount of fixed assets
rr00_utdbel	Div	Dividend payment amount
br15_eksu	Equity	Total Equity
br10h_resarb	NETINC	Net income
ser_year	YEAR	Year, start date 1998 unless founded after that year
Orgnr	ORGNR	Identification number, provided by SCRO
-	TANGL	tangl/fixed_assets
-	INTANG	intang/fixed_assets
-	DIV	div/NETINC
-	DUMMYDIV	1 if a firm pays dividend, 0 otherwise
-	SIZEA	Ln (Sales) as a proxy for size
-	SIZEB	Sales as a proxy for size
-	SIZEC	Ln(assets) as a proxy for size
-	SIZED	Assets as a proxy for size

4.2 Data selection

The data both from Serrano and Bolagsdata have been adjusted for further analysis. In Serrano, all observations with missing values for the following variables have been dropped: RoA, RoE, debt-ratio, total amount of assets, equity, SIC code, and county code. If following variables were missing, they were assumed to be 0: sales, dividend payments, EBITDA, net income, total amount of intangible assets, and total amount of tangible assets. For Bolagsdata, all missing values were manually added by collecting annual reports for the corresponding firms (Appendix 39). If a value was still missing after this procedure, the observations were dropped for the following variables: RoA, RoE, debt-ratio, total amount of assets, equity, SIC code, and county code, otherwise replaced by zero for remaining variables.

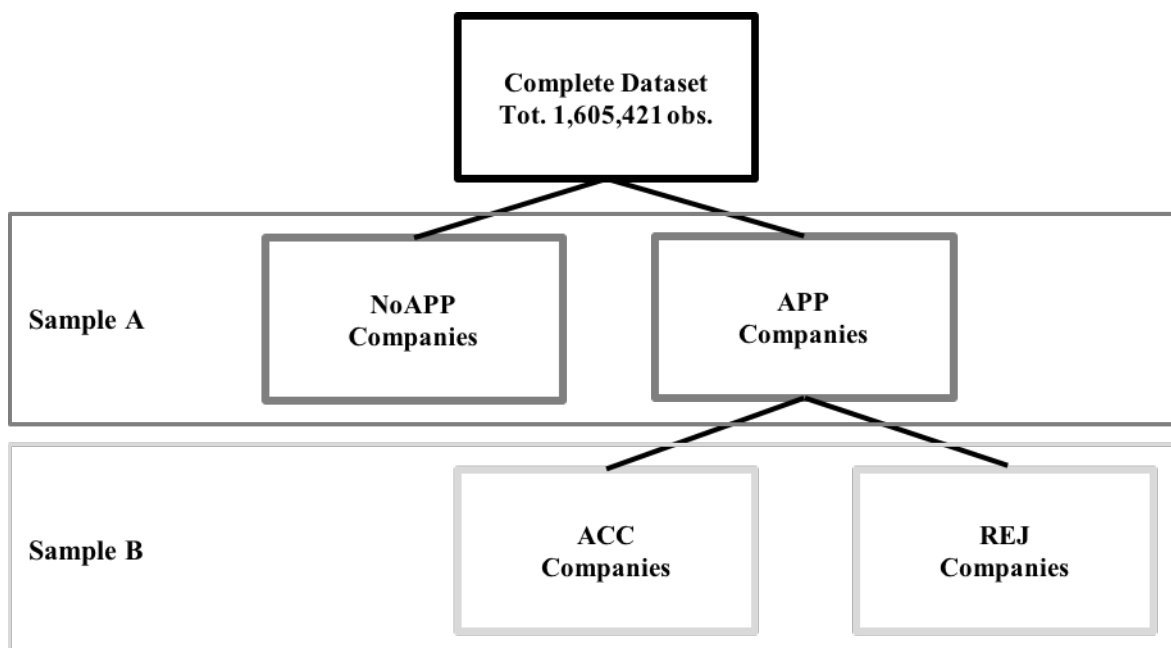
After this, 10th and 90th percentile values of companies subject to special examination for each variable were identified, and values greater or smaller than these values were dropped from the total dataset. This was made in order to create a more coherent dataset with firms similar to each other

regarding size, profitability and sector classification et cetera for later analyses. Also, for the section regarding financial performance changes, all observations with ongoing applications were dropped. However, these are included when investigating firm-level characteristics, as this part considers firms subject to application, and not the outcome of the application.

4.3 Sample construction

After the adjustments made in section 4.2, the data is divided into separate samples in order to investigate our hypotheses. Sample A contains all observations, listed and non-listed firms, in Serrano divided into two subgroups: companies subject to special examination applications (henceforth APP companies), and other (henceforth NoAPP companies). Sample B consists of the APP companies and is further divided into two sub-groups: companies where shareholders have received acceptance (henceforth ACC companies) or rejection on their application (henceforth REJ companies). The sample structure and division can be seen in Figure 2.

Figure 2 Overview of sample structure



5 Methodology

5.1 Determination of company characteristics

The aim is to investigate company differences as well as to determine whether certain firm-level characteristics are more likely to affect the probability of a firm becoming subject to special examination.

5.2 Determination of company performance

To determine financial and operational performance, different variables are measured before and after completion of special examination. We compare APP and ACC companies, with both themselves (within change) as well as with the control group consisting of NoAPP companies.

5.3 Statistical methods

5.3.1 Company differences

Firm-level characteristics will be investigated through tests of the differences between samples. To test whether there are significant differences in characteristics between APP and NoAPP companies, as well as between ACC and NoAPP companies, student's t-tests and Wilcoxon signed rank tests will be used.

T-tests are useful due to their high statistical power. However, the test is dependent on the sample i) being normally distributed, ii) containing no outliers and iii) being continuous and independent. As the data on financial and operational performance is measured based on variables that can take on any value, our data fulfils the criteria of being continuous. We have winsorized all variables (but age), which decrease the risk of the data containing outliers. We also assume independency in the dataset, as well as test for normal distribution using the skewness and kurtosis test, described in section 5.3.5.1.

Due to the large number of observations in sample A and B, nonparametric Wilcoxon signed rank test will also be used. In order for Wilcoxon signed rank tests to be applicable, the sample needs to be assumed to contain ordinal data. However, in contrast to t-tests the advantage of Wilcoxon signed rank tests is that the data is not required to follow a normal distribution. According to Barber and Lyon (1996) the Wilcoxon signed rank test is preferable when working with accounting data, as this type of data usually contains many outliers. This argues for using Wilcoxon as our main test, even though t-tests provide higher statistical power.

5.3.2 Company characteristics relationship

In our regression models, the dependent variables APP and ACC are binary. APP takes on the value of 1 if a company has been subject to special examination, and 0 otherwise. The dependent variable ACC takes on the value of 1 if a company has completed special examination, and 0 otherwise. Since our dependent variables are of dichotomous character (i.e. only take on a value of 0 and 1) the linear probability model (henceforth LPM) as well as the non-linear logit model (henceforth LM) will be used. Our explanatory variables are continuous, where each beta of LPM represents the variable-contribution to the probability of the dependent variable being equal to 1 by a unit change in the explanatory variable. Each marginal effect for LM represents the change in probability of the dependent variable being equal to 1, by a unit change in the explanatory variable. By using marginal effects for LM, we are able to measure both the sign and magnitude of the coefficients for each variable. Even though marginal effects based on means are more commonly recognized, average marginal effects usually show more accurate findings, which is why we argue this to be the best approach.

There are several issues using LPM. First, predictions might fall outside the range of 0 and 1 if no restrictions are placed on the explanatory variables. Also, the functional form assumes that there is a linear marginal effect for each variable, which has a significant risk of not being true for the treated samples. Last, there might be a significant risk of heteroscedasticity by construction, which is usual when working with panel data. This will be mitigated through the use of robust standard errors. Equations (1) and (2) will be used for LPM.

$$\begin{aligned}
 (1) \quad P(Y|1)_A &= \alpha + \widehat{\beta_{INTANG}} * INTANG_i + \widehat{\beta_{TANGL}} * TANGL_i + \widehat{\beta_{dummyDIV}} * dummyDIV_i + \widehat{\beta_{div}} * DIV_i + \widehat{\beta_{SIZEA}} * SIZEA_i \\
 &\quad + \widehat{\beta_{SIZEB}} * SIZEB_i + \widehat{\beta_{EQUITY}} * EQUITY_i + \widehat{\beta_{SIZEC}} * SIZEC_i + \widehat{\beta_{SIZED}} * SIZED_i + \widehat{\beta_{DEBTR}} * DEBTR_i \\
 &\quad + \widehat{\beta_{ROE}} * ROE_i + \widehat{\beta_{ROA}} * ROA_i + \widehat{\beta_{EBITDA}} * EBITDA_i + \widehat{\beta_{NETINC}} * NETINC + \widehat{\beta_{AGE}} * AGE_i + \varepsilon \\
 (2) \quad P(Y|1)_B &= \alpha + \widehat{\beta_{INTANG}} * INTANG_i + \widehat{\beta_{TANGL}} * TANGL_i + \widehat{\beta_{dummyDIV}} * dummyDIV_i + \widehat{\beta_{div}} * DIV_i + \widehat{\beta_{SIZEA}} * SIZEA_i \\
 &\quad + \widehat{\beta_{SIZEB}} * SIZEB_i + \widehat{\beta_{EQUITY}} * EQUITY_i + \widehat{\beta_{SIZEC}} * SIZEC_i + \widehat{\beta_{SIZED}} * SIZED_i + \widehat{\beta_{DEBTR}} * DEBTR_i \\
 &\quad + \widehat{\beta_{ROE}} * ROE_i + \widehat{\beta_{ROA}} * ROA_i + \widehat{\beta_{EBITDA}} * EBITDA_i + \widehat{\beta_{NETINC}} * NETINC + \widehat{\beta_{AGE}} * AGE_i + \varepsilon
 \end{aligned}$$

$P(Y|1)_A$ is interpreted as the conditional probability of assuming the outcome of 1 for Sample A, given the set of explanatory variables. $P(Y|1)_B$ is interpreted as the conditional probability of assuming the outcome 1 for the dependent variable for sample B, given the set of explanatory variables. Selected variables will be individually tested, as well as continuously added based on the level of impact they are assumed to have on the dependent variable. As LPM is a special case of ordinary least square (henceforth OLS) regressions, several assumptions need to be met in order to make the model applicable. The data needs to i) contain continuous observations, ii) independent observations and iii) have homoscedasticity, which means that the error terms have the same variance σ^2 in each observation. Lastly, the observations also need to not be autocorrelated, meaning the errors are uncorrelated between observations. All assumptions have been tested for; see section 5.3.5 for detailed information and results.

As there are several issues with using LPM, LM will also be applied to both samples. LM differs from LPM in the underlying assumptions, where LM assumes the distribution to be logistic, i.e., the outcome either happens or not, and hence the predicted outcomes cannot fall outside the range of 0 and 1. It applies the linear function used in LPM as a baseline, and feed this linear function through a function that yields a non-linear relationship. We have conducted results for both models in order to be able to estimate Goodness-of-fit. Equations (3) and (4) will be used for LM.

$$(3) \quad \Pr(Y|1)_A = \frac{1}{1 + e^{-z}}, \Pr(Y|0)_A = \frac{e^{-z}}{1 + e^{-z}}$$

$$(4) \quad \Pr(Y|1)_B = \frac{1}{1 + e^{-z}}, \Pr(Y|0)_B = \frac{e^{-z}}{1 + e^{-z}}$$

5.3.3 Difference-in-difference regressions

Difference-in-difference regressions (henceforth diff-in-diff) are performed to investigate the impact of completing a special examination on a firm's financial and operational performance. This is applicable as we have two independent samples – the NoAPP companies and the ACC companies – that can be compared to investigate financial relationships. Since each ACC company has an individual acceptance and completion date we separate each diff-in-diff by year. ACC companies completing a special examination within the same year is considered as one group and is compared to alt with NoAPP companies from two years before the treatment (pre-SE) to two years after completion (post-SE). As it is not defined when a company has completed a special examination, we assume post-SE to incorporate both completion as well as possible financial effects of completion.

Furthermore, we have not chosen specific peer groups for each company, even though this could be used to decrease biases. However, our samples are assumed to be similarly distributed (due to previous data management) with regards to size, industry, et cetera. This decreases the risk for bias, when applying the diff-in-diff between ACC and NoAPP companies. Hence, the reasons for customizing peer groups further when conducting proposed tests are not persuasive enough to argue for plausibility to apply this approach with the treated samples. Another reason for not selecting specific peer groups is motivated by the assumption of independent samples when using diff-in-diffs, which would not be the case if ACC companies were compared with company specific peer-groups.

As we only have access to data regarding special examination cases from 2008 and accounting data until 2015, the diff-in-diff will be performed on companies that have completed their special examination between 2008-2013. The total analysis will however run from 2006 (two years before the first completion of a special examination in our dataset) until 2015. Equation (5) will be used for the diff-in-diff.

$$(5) \quad Y_i = \hat{\beta}_{time} * time_i + \hat{\beta}_{treated} * treated_i + \hat{\beta}_{DID} * (time * treated)_i + \varepsilon$$

5.3.4 Sign analysis

To further investigate financial effects, we also pay attention to company turnarounds by performing a simple sign analysis. The purpose is to identify whether special examination improves the financial performance of ACC companies. Signs of variables (negative, positive or zero) are translated into a 1 (positive value), 0 (zero value) or -1 (negative value) (Note: for the debt-ratio variable, the signs are different. A debt-ratio over one is translated to a -1 and a ratio below one to a +1). The mean (through paired two-tailed t-test) and the median (through Wilcoxon signed rank test) of each variable is measured from one to two years before applying for special examination, compared to one to two years after receiving acceptance on application. Only changes from negative, to zero, to positive is investigated, hence changes from positive to more positive (and vice versa) are not shown in this analysis. 58 firms have received acceptance later than 2013 or have stopped existing within two years after completion, which means that they have no accounting data from two years after acceptance; hence these firms will be treated separately.

5.3.5 Supplementary economic tests

5.3.5.1 Skewness and kurtosis test for normal distribution

The Skewness and kurtosis test is used to test for normality in sample distributions. Results show that there is limited evidence on normality in all sample distributions (see Appendix 21-22).

5.3.5.2 Winsorizing for outliers

Winsorizing is used to limit the occurrence of extreme values, tested by creating histograms for independent variables to identify outliers (see Appendix 26-38). The histograms revealed outliers in almost all variables; thus they have been winsorized at 1st and 99th percentiles. Another approach would have been to drop extreme outliers in each sample. However, by winsorizing, all observations are kept in the sample, with less extreme values, which we argue to be a better approach.

5.3.5.3 Variance Indicate Factor for multicollinearity

Multicollinearity, i.e., the occurrence of variables being linear combinations of one another, is tested through a Variance Indication Factor. The VIF should be below 4 to be acceptable (Pan and Jackson, 2008). Results imply that multicollinearity is present to some extent (see Appendix 23).

5.3.5.4 Breusch-Pagan test for heteroscedasticity

Regressions are tested through a Breusch-Pagan test, to see whether error terms are non-constant, and hence heteroscedasticity is present. To avoid issues of heteroscedasticity, robust standard errors are used in each OLS regression. Results of the Breusch-Pagan test imply that heteroscedasticity is present to some extent (see Appendix 24-25).

6 Results

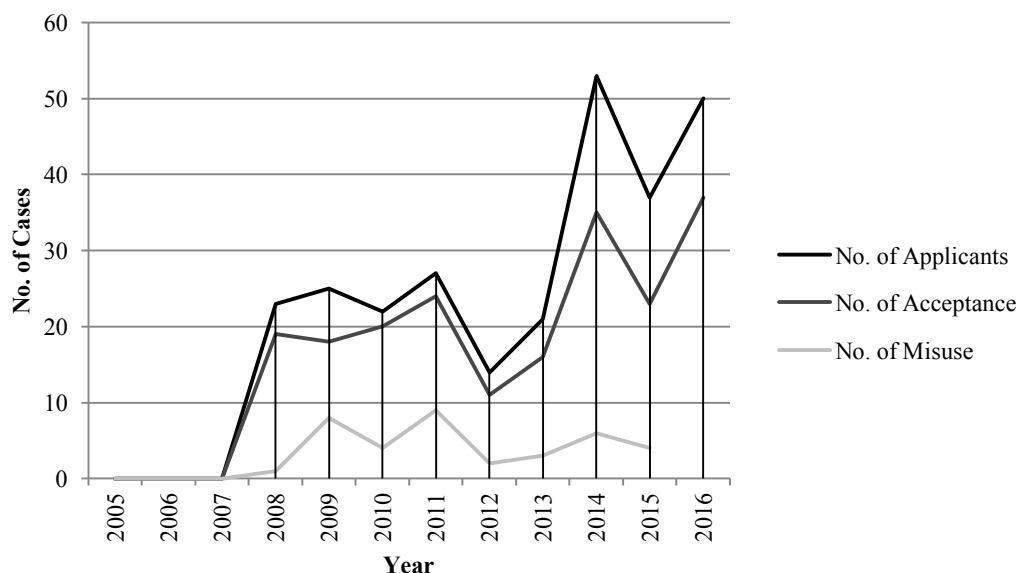
6.1 Descriptive statistics

6.1.1 Overview of total amount of YoY applications, acceptance and misuse

Presented in graph 1 is an overview of the total amount of applications, acceptances, as well as established cases of misuse for each year between 2007-2016. There have been 278 completed applications throughout the years, but only 205 acceptances and hence 73 rejections. So far, 37 cases of misuse have been identified (by Ahlgren, 2015), which is on average 3 cases per year. Adding to that, out of 278 applications, 20 completions have been done in connection to filing for bankruptcy.

In Graph 1 it is shown that the amount of applications increased significantly when the SCRO took over the responsibility of the application process in 2013. 53 applications were made in 2014, hence an increase of 279% since 2012 when the process administration transitioned.

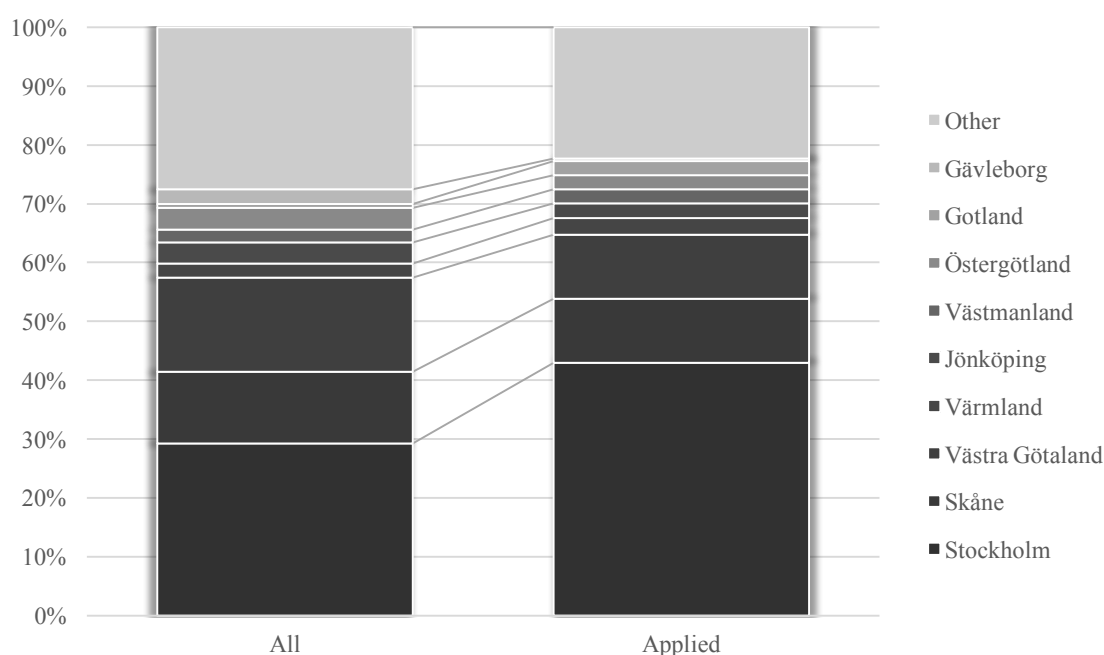
Graph 1 Overview YoY amount of special examination cases



6.1.2 Distribution of Companies Across Sectors and Counties

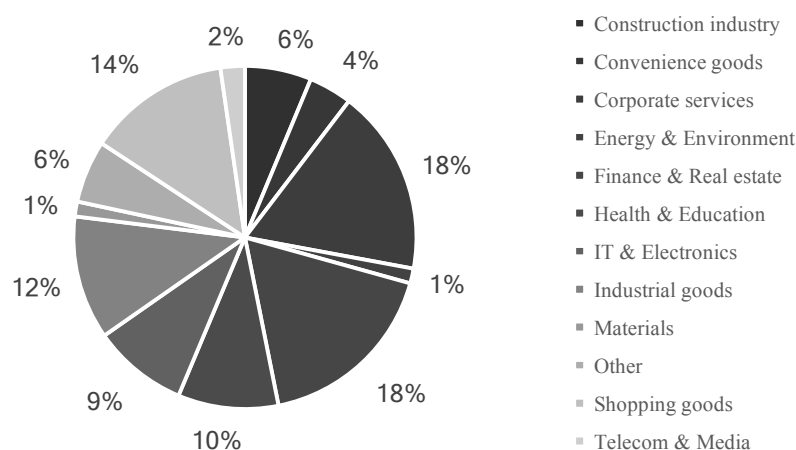
Graph 2 displays an overview of the distribution of applicants across counties among APP companies relative to the distribution of companies across counties in the whole sample A. Sample A is used as a proxy for examining whether certain counties are more common among firms subject to application. Unsurprisingly, Stockholm is the county with the largest amount of firms both in the whole sample A, as well as among APP companies. However, the relative size of Stockholm as well as the relative size of Gotland is greater among APP companies. Gotland is only represented among 0.6% in the whole of sample A but is the 5th largest county among APP companies.

Graph 2 Distribution of counties

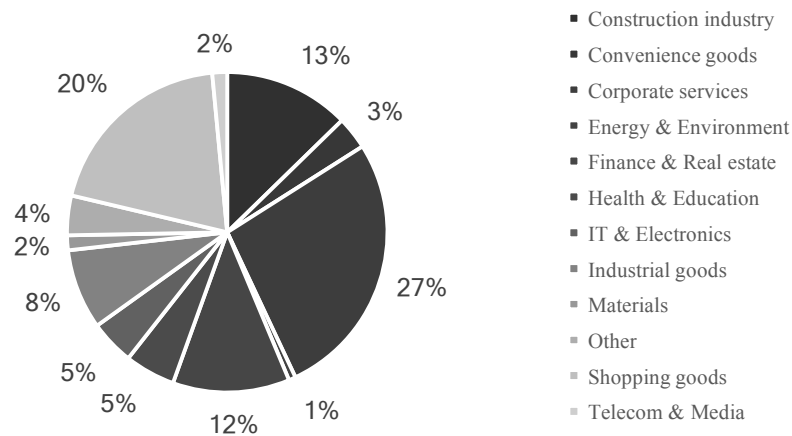


Graph 4 displays the distribution of applicants across sectors for APP companies, compared to the distribution of companies across sectors in sample A in Graph 3. The distributions are rather similar, but some minor differences exist. The relative size of the sectors Corporate Services and Shopping Goods is greater among APP companies.

Graph 3 Sector distribution for Sample A



Graph 4 Sector distribution for APP companies



6.1.3 Differences in sectors and counties between APP and NoAPP companies

Table 3 displays differences in distributions across counties, again between APP and NoAPP companies (nota bene: here we are not comparing APP with the whole sample A). The majority of the APP companies are found in Stockholm, Skåne and Västra Götaland whilst the distribution of NoAPP companies look somewhat different. However, the only significant differences are found in Stockholm, Gotland and Gävleborg where the proportions of companies are higher among APP than NoAPP companies.

Table 3 Overview of counties for APP and NoAPP companies

Student's unpaired two-tail t-test to investigate whether the mean differences between APP and NoAPP is different from zero within each county. The county variables are dummies. ***p<0.01 **p<0.05 *p<0.1				
County	NoAPP	APP	Diff.	S.E.
Stockholm	0.3034382	0.53153115	-0.2280933***	0.0308677
Uppsala	0.0327632	0.0225225	0.0102407	0.0119504
Södermanland	0.0263869	0.0135135	0.0128734	0.0107593
Östergötland	0.0384026	0.0315315	0.0068711	0.0129008
Jönköping	0.0377006	0.0315315	0.0061691	0.0127871
Kronoberg	0.0178176	0.018018	-0.0002005	0.0088815
Kalmar	0.0220616	0.009009	0.0130526	0.0098596
Gotland	0.0058715	0.0225225	-0.016651***	0.0051339
Blekinge	0.0124218	0.018018	-0.0055962	0.0074371
Skåne	0.125747	0.11396396	-0.0138926	0.0022261
Halland	0.0343123	0.0225225	0.0117898	0.0122197
Västra Götaland	0.1673058	0.1396396	0.0276662	0.0250578
Värmland	0.0256849	0.0315315	-0.0058466	0.0106215
Örebro	0.0247856	0.009009	0.0157766	0.0104358
Västmanland	0.0232336	0.036036	-0.0128024	0.0101156
Dalarna	0.0343616	0.0225225	0.0118391	0.0122282
Gävleborg	0.0259982	0.0045045	0.0214937**	0.0106807
Västernorrland	0.0257632	0.036036	-0.0102728	0.0106378
Jämtland	0.0152996	0.0135135	0.001786	0.0082402
Västerbotten	0.027733	0.0405405	-0.0128076	0.011026
Norrbottn	0.0228565	0.009009	0.0138475	0.0100315

Table 4 displays differences in distributions across sectors between APP and NoAPP companies. There are no larger differences between APP and NoAPP companies, which is in line with the more apparent findings presented in previous section. Nonetheless, some differences are significant, e.g. within Corporate Services where the proportion of NoAPP companies is greater than APP companies. Among other significant results, a higher share of APP companies is present in the Energy & Environment, Industrial Goods, Health & Education and Other sectors. The largest significant difference is found in Finance & Real Estate.

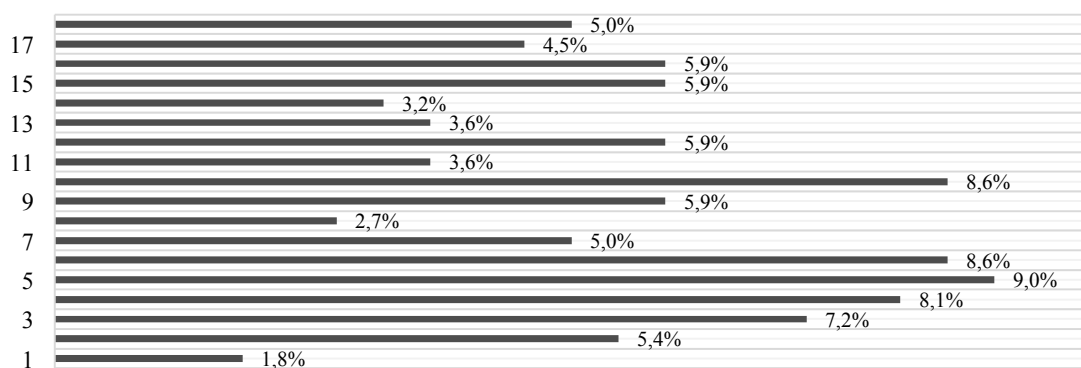
Table 4 Overview of sectors for APP and NoAPP companies

Student's unpaired two-tail t-test to investigate whether the mean differences between APP and NoAPP is different from zero within each sector. The sector variables are dummies (1 if the company is active within the sector, 0 otherwise). ***p<0.01 **p<0.05 *p<0.1				
Sector	NoAPP	APP	Diff.	S.E.
Energy & Environment	0.0076643	0.0225225	-0.0148582***	0.0058586
Materials	0.0169444	0.018018	-0.0010736	0.0086651
Industrial Goods	0.0909038	0.1576577	-0.0667538***	0.0193039
Shopping Goods	0.213132	0.1891892	0.0239428	0.0274934
Conveniences Goods	0.0357686	0.045045	-0.0092765	0.0124693
Health & Education	0.0534556	0.1126126	-0.059157***	0.0151006
Finance & Real Estate	0.1276761	0.2027027	-0.0750266***	0.0224089
IT & Electronics	0.0488953	0.0945946	-0.0456993***	0.014482
Telecom & Media	0.0162308	0.027027	-0.0107963	0.0084854
Corporate Services	0.2877238	0.1756757	0.1120481***	0.0303903
Other	0.0462961	0.0585586	-0.0122625	0.0141084

6.1.4 Distribution of age for APP companies

Graph 5 displays an overview of the distribution of ages across APP companies. Firms founded before 1998 have been set to have start year equal to 1998, due to data limitations. The range of ages thus reaches from 1 to 18 years old, where the majority of APP companies are 1-9 years old. However, due to setting the maximum age to 18, the results should be regarded with restraint as they could be biased and misleading.

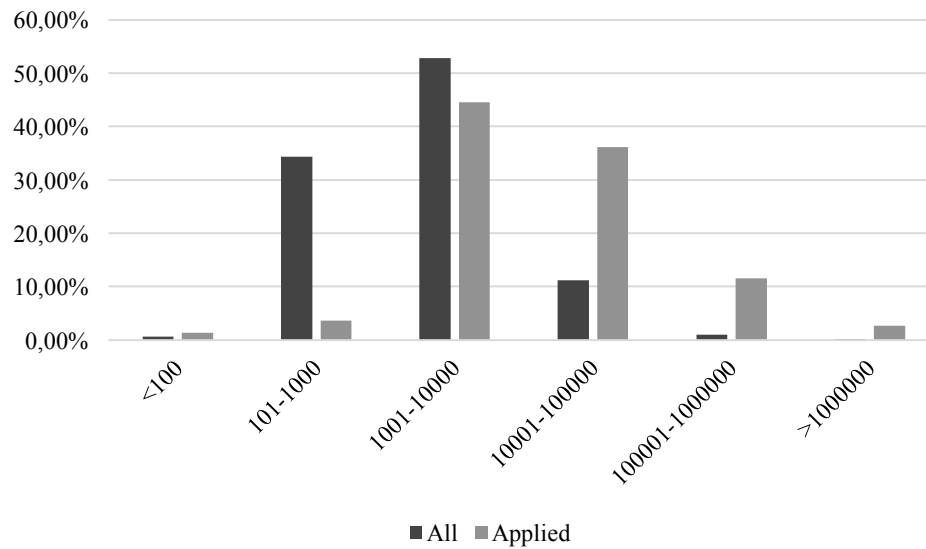
Graph 5 Distribution of ages for APP companies



6.1.5 Sizes of APP and NoAPP companies

Graph 6 compares distributions of average SIZEA for APP companies and sample A. For both categories the largest share of the companies falls into the 1001-10,000 kSEK category. However, for sample A the second largest category is 101-1000 kSEK whilst 10,001-100,000 kSEK is the second largest category for APP companies. This indicates that APP companies might be slightly larger than companies in sample A.

Graph 6 Overview of company size



6.2 Company characteristics

6.2.1. Company differences and similarities

6.2.1.1 Financial differences between APP and NoAPP companies

The results on differences between APP and NoAPP companies are presented in Table 5, with a few preliminary implications. APP companies have on average a higher intangible fixed assets-ratio than NoAPP companies, which is in line with previous theory (e.g. Himmelberg et al., 2004). The difference is only ca 7%, but yet significant. Furthermore, APP companies have a lower ratio of tangible fixed assets. Hence, we reject the null hypothesis that APP companies has equal intangible assets-ratio as NoAPP companies at the 1% significance level. APP companies are also on average larger and younger than NoAPP companies which is shown on a significant level. We reject the null hypothesis that APP firms are of equal size and age as NoAPP companies on the 1% significance level.

Furthermore, there is a significant difference between the APP and NoAPP companies regarding financial returns. APP companies have lower RoE and RoA than NoAPP companies. This is also shown by a lower EBITDA, which, on average, is negative for APP companies. We hence reject the null hypothesis that APP companies have equal financial and operational performance as NoAPP companies at the 1% significance level.

Moreover, our results also show that a higher proportion of APP companies pay dividends than NoAPP companies. This difference is significant on the 1% level. This result deviates from previous research, where dividends in general are positively correlated with good corporate governance. Hence, these results are contradictory of our hypothesis regarding dividend payments but we reject the null hypothesis that APP companies pay equal dividend payments as NoAPP companies at the 1% significance level.

Table 5 Differences between APP and NoAPP companies

Student's unpaired two-tail t-test to investigate whether the mean difference between APP and NoAPP is different from zero. Variable definitions are found in table 1-2. ***p<0.01 **p<0.05 *p<0.1										
Variables	Mean	p25	p25	p75	SD	n	NoAPP	APP	Diff.	S.E.
SIZEA	6.875306	6.212606	7.382746	8.425516	2.444184	1,605,421	6.87511	7.001684	-0.1265742***	0.048951
SIZEC	7.425323	6.461468	7.34601	8.307459	1.302676	1,605,421	7.423322	8.709706	-1.286384***	0.0260697
SIZEB	3814.234	499	1608	4562	5521.007	1,605,421	3807.072	8412.041	-4604.969***	110.5128
SIZED	13864.36	640	1550	4054	430047.2	1,605,421	4242.084	16535.01	-12292.93***	176.078
AGE	7.619444	4	8	11	4.076799	1,605,421	7.620163	7.157789	0.4623736***	0.0816477
DIV	0.0428675	0	0	0	0.2885147	1,605,421	0.0425751	0.2305862	-0.1880112***	0.0057764
DUMMYDIV	0.228403	0	0	0	0.4198408	1,605,421	0.2284431	0.2394874	-0.0110442	0.0084084
DEBTR	2.495299	0.7453799	1.580275	3.342053	2.528803	1,605,421	2.489534	0.6196075	1.8699265***	0.0505613
TANGL	0.7437616	0.5076917	1	1	0.3865491	1,605,421	0.7441469	0.496471	0.2476759***	0.0077392
INTANG	0.0031919	0	0	0	0.0241447	1,605,421	0.0030726	0.0797901	-0.0767176***	0.0004798
ROE	0.1131668	-0.0263158	0.1142857	0.2979698	0.2917424	1,605,421	0.1136216	-0.1787848	0.2924064***	0.0058383
ROA	0.0676432	0.004065	0.058849	0.1300415	0.10083	1,605,421	0.0676878	0.0389912	0.0286966***	0.0020193
EBITDA	36.5149	-53	8	134	426.6223	1,605,421	36.97973	-261.8779	298.8576***	8.540964

6.2.2 Company characteristics relationship

6.2.2.1 The Linear Probability Model

This section will discuss empirical findings from fixed effects OLS regressions, as well as logit regressions. Table 6 discloses our OLS regressions absorbing fixed effects related to the cross-sectional variables sector and county. Table 7 shows average marginal effects of our LM. Both R^2 and Pseudo R^2 are notably low, which implies that there are other, more influential, factors missing in our models. For sample A, all variables are determined on 1% significance level except AGE that is significant on the 10% level. For sample B, only a few variables are significant at any conventional level.

For regressions in table 6, the independent variable of main interest is INTANG, which shows a positive relationship with the dependent variable for sample A. The coefficient of 0.196 for both regressions (1) and (3) shows that a unit change in INTANG increases the probability of the dependent variable for sample A being equal to 1 by 19.6%, significant at the 1% level. We consequently reject the null hypothesis that INTANG has no influence on the probability of a firm's shareholders applying for special examination. This is in line with previous results from tests between samples and suggests that firms subject to special examination have a higher intangible assets-ratio.

The influence of INTANG is supported by the negative coefficient for TANGL, which shows a negative relationship of -0.00127 and -0.00144 for regressions (1) and (3) respectively. This suggests that a unit change in TANGL decreases the probability of the dependent variable being 1 for sample A by 0.127% (1.44%), at the 1% significance level.

Other variables of interest for sample A, according to previous literature, are size, capital structure and dividends. Table 6 shows that SIZEA and SIZED both have a negative relationship of -0.000118 (-0.00112) and -0.000103 (-0.00122) with the dependent variable for sample A in regressions (1) and (3) respectively. This suggest that a unit change in SIZEA (SIZED) decreases the probability of the dependent variable for sample A being equal to 1 by 0.00118% (0.0112%) and 0.00103% (0.0122%), at the 1% significance level. We reject our null hypothesis that size has no influence on the probability of a firm's shareholders applying for special examination.

The coefficients for DIV (dummyDIV) suggest a positive relationship of 0.00405 (0.000604) and 0.00403 (0.000315) for regressions (1) and (3) respectively. This suggests that a unit change in DIV (dummyDIV) increases the probability of the dependent variable for sample A being equal to 1 by 0.405% (0.06%) and 0.403% (0.032%) respectively. Therefore, we reject the null hypotheses that dividends have no influence on whether a firm's shareholders apply for special examination at the 1% significance level.

The coefficients for DEBTR, which serves as a proxy for capital structure, suggests a positive correlation with the dependent variable for sample A of 0.00116 and 0.00118 for regressions (1) and (3) respectively. This indicates that a unit change in DEBTR increases the probability of the dependent variable for sample A being equal to 1 by 0.116% and 0.118% respectively. We reject the null

hypotheses that DEBTR have no influence on whether a firm's shareholders apply for special examination at the 1% significance level. However, this is not in line with our hypothesis.

The financial and operational performance variables show ambiguous relationships. RoE suggest a negative relationship with the dependent variable for sample A of -0.0128 and -0.0127 for regressions (1) and (3) respectively. This indicates that a unit change in RoE decreases the probability of the dependent variable being equal to 1 for sample A by 1.28% and 1.27%, and are differentiated from zero at the 1% significance level. RoA suggest a positive correlation with the dependent variable for sample A of 0.0299 and 0.0295 for regressions (1) and (3) respectively. This indicates that a unit change in RoA increases the probability of the dependent variable being equal to 1 for sample A by 2.99% and 2.95%, at 1% significance level. We reject the null hypothesis that financial performance has no influence on whether a firm's shareholders apply for special examination. However, operational performance measures suggest positive correlation, being different from zero at the 1% significance level. Thus, we reject the null hypotheses that operational performance has no influence on the probability of whether a firm's shareholders apply for special examination.

For regressions (2) and (4), as sample B only consists of firms that have been subject to special examination, we know that firm-level characteristics identified in regression (1) and (3) will be similar to the ones in regressions (2) and (4). Hence, these results are biased, and should be regarded with restraint.

Table 6 Fixed effects panel regressions using OLS

The dependent variable in regression (1) and (3) is a dummy variable equal to 1 if a firm's shareholders applies for special examination, and 0 otherwise. The dependent variable in regressions (2) and (4) is a dummy variable equal to 1 if a firm's shareholders receives acceptance on their application. Variable definitions are found in table 1-2. Regression (1) - (2) absorbs the fixed effects of counties, and regressions (3) - (4) absorbs the fixed effects of sector. Standard errors at firm-level in parentheses. ***p<0.01 **p<0.05 *p<0.1

Variables	Absorb (County)		Absorb (Sector)	
	(1) APP	(2) ACC	(3) APP	(4) ACC
INTANG	0.196*** (0.00128)	0.155*** (0.00113)	0.196*** (0.00128)	0.155*** (0.00113)
TANGL	-0.00127*** (9.24e-05)	-0.000868*** (8.15e-05)	-0.00144*** (9.31e-05)	-0.00100*** (8.21e-05)
DUMMYDIV	0.000604*** (8.12e-05)	0.000379*** (7.17e-05)	0.000519*** (8.14e-05)	0.000315*** (7.18e-05)
DIV	0.00405*** (0.000114)	0.00339*** (0.000101)	0.00403*** (0.000114)	0.00337*** (0.000101)
SIZEA	-0.000118*** (1.80e-05)	-9.37e-05*** (1.59e-05)	-0.000103*** (1.83e-05)	-8.02e-05*** (1.61e-05)
SIZEB	2.41e-07*** (7.94e-09)	1.97e-07*** (7.00e-09)	2.50e-07*** (8.14e-09)	2.08e-07*** (7.18e-09)
EQUITY	8.87e-07*** (2.39e-08)	6.85e-07*** (2.11e-08)	9.19e-07*** (2.40e-08)	7.10e-07*** (2.12e-08)
SIZEC	-2.94e-08*** (8.97e-09)	2.07e-10 (7.92e-09)	-3.33e-08*** (9.01e-09)	-2.87e-09 (7.95e-09)
SIZED	-0.00112*** (3.99e-05)	-0.000931*** (3.52e-05)	-0.00122*** (4.11e-05)	-0.00102*** (3.63e-05)
DEBTR	0.00116*** (1.43e-05)	0.000827*** (1.26e-05)	0.00118*** (1.43e-05)	0.000845*** (1.26e-05)
ROE	-0.0128*** (0.000188)	-0.00990*** (0.000166)	-0.0127*** (0.000189)	-0.00987*** (0.000166)
ROA	0.0299*** (0.000568)	0.0236*** (0.000501)	0.0295*** (0.000569)	0.0233*** (0.000502)
EBITDA	-2.22e-06*** (8.52e-08)	-2.14e-06*** (7.52e-08)	-2.19e-06*** (8.57e-08)	-2.12e-06*** (7.56e-08)
NETINC	2.22e-06*** (1.10e-07)	1.96e-06*** (9.69e-08)	2.17e-06*** (1.10e-07)	1.91e-06*** (9.69e-08)
AGE	-1.40e-05* (7.61e-06)	1.61e-06 (6.71e-06)	-1.34e-05* (7.62e-06)	1.89e-06 (6.72e-06)
Constant	0.00512*** (0.000287)	0.00426*** (0.000254)	0.00579*** (0.000293)	0.00482*** (0.000258)
Observations	1,605,421	1,605,421	1,605,421	1,605,421
R-squared	0.028	0.022	0.028	0.023

6.2.2.2 The Logit Model

Table 7 displays the average marginal effects for each variable. The variable of main interest is again INTANG for APP companies. It has a positive correlation with the dependent variable in sample A, of 0.016127. As marginal effects instead of coefficients are measured, both sign and magnitude can be interpreted. This means that a unit change in INTANG increases the probability of the dependent variable of sample A by 1.6127% being equal to 1, at the 1% significance level. Hence we reject the hypothesis that INTANG has no influence on whether a firm's shareholders apply for special examination.

TANGL has a marginal effect of -0.0010746 in regression (1). This suggests that a unit change in TANGL decreases the probability of the dependent variable being equal to 1 for sample A, at the 1% significance level. We reject the null hypotheses that TANGL has no influence on whether a firm's shareholders apply for a special examination.

The marginal effects of financial performance for regression (1) are in line with results of LPM; hence we can again reject the null hypotheses that financial performance has no influence on whether a firm's shareholders apply for special examination on the 1% significance level.

The marginal effects of size diverge from the results of LPM for regression (1). SIZEA has a positive relationship with the dependent variable of sample A, while SIZED has a negative relationship with the dependent variable, both significant on the 1% level. We can reject the null hypothesis that size has no influence on whether a firm's shareholders apply for special examination. However, we are unable to identify the correlation direction.

Marginal effects for dividends are ambiguous. The size of the dividends is positively correlated with the dependent variable being equal to 1. However, the negative coefficient of dummyDIV shows that paying out dividends has a negative correlation with special examination. We are able to reject the null hypothesis that dividends have no influence on whether a firm's shareholders apply for special examination on the 1% significance level. Nevertheless, we cannot find support for our hypothesis as the results are equivocal.

Lastly, DEBTR as a proxy for capital structure has a positive relationship with the dependent variable in sample A, which is in line with results of LPM. Positive marginal effect of DEBTR for sample A is significant on the 1% significance level. Thus, we can reject the null hypothesis that capital structure has no influence on whether a firm's shareholders apply for special examination. Once again, these results are against our hypothesis.

For regressions in sample B, the results are biased and should be regarded with restraint for the same reasons as for the LPM regressions.

Table 7 Average marginal effects of non-linear logit regressions for panel data

The dependent variable in regression (1) is a dummy variable equal to one if a firm's shareholders apply for special examination, and 0 otherwise. The dependent variable in regression (2) is a dummy variable equal to one if a firm's shareholders receive acceptance on their application. Coefficients show average marginal effect for each variable. Variable definitions are found in table 1-2. Standard errors at firm-level in parentheses. ***p<0.01 **p<0.05 *p<0.1

Variables	(1) APP	(2) ACC
INTANG	0.016127*** (0.0007015)	0.0630343 (0.0566632)
TANGL	-0.0010746*** (8.24e-05)	0.0431924 (0.0219956)
DUMMYDIV	-0.001541*** (0.0001361)	-0.0319534 (0.0242495)
DIV	0.0044261*** (0.0002295)	0.0164715 (0.0120256)
SIZEA	-4.49e-05*** (1.36e-05)	-0.0021398 (0.0035664)
SIZEB	0.0000001*** (5.26e-09)	1.30e-06 (0.00000142)
EQUITY	1.58e-07*** (1.14e-08)	2.51e-06 (0.00000256)
SIZEC	(2.18e-08***) (4.59e-09)	1.07e-06 (0.000001)
SIZED	0.0002138*** (4.03e-05)	0.0011384 (0.0099763)
DEBTR	0.0002192*** (9.21-e06)	-0.0007199 (0.0005698)
ROE	-0.0018968*** (8.98e-05)	-0.0096037 (0.0075143)
ROA	0.0039726*** (0.0004607)	0.0328657 (0.046734)
EBITDA	-2.23e-07*** (3.3e-09)	-6.85e-06 (4.2e-06)
NETINC	3.48e-07*** (4.86e-08)	2.54e-05 (1.55)e-05
AGE	1.91e-05*** (7.19e-06)	0.0046828 (0.0017609)

6.3 Effects on financial performance

6.3.1 Difference-in-difference regressions

When investigating the effects on the ACC companies' financial and operating performance and other financial measures, pre-SE to post-SE, we perform diff-in-diff regressions. The results are shown in Table 8. Even though the majority of the regressions does not provide significant results on any conventional level, they present some suggestions. The results indicate that there are some differences in effects depending on what year the special examination was completed. This is probably due to the firm-level differences between the years, rather than external year-specific factors.

For the regressions in Table 8, the diff-in-diff variable (DID) shows the effects of the special examination (the treatment) on the dependent variables during a five-year period. If the coefficient is positive, the treatment has improved firm performance and vice versa. The regressions show that the majority of coefficients for the dependent variables are negative.

However, for many of the dependent variables, the results of the special examination vary from year to year. There is no clear pattern for when the coefficients are negative and when they are positive. For example, for companies completing the special examination in 2008 the treatment effect on RoE was negative, whilst companies completing it one year later saw a positive effect. The inconsistencies in the results further strengthen that no clear assumptions about implications can be drawn. Hence, we cannot reject the null hypothesis that the special examination has no impact on financial and operational results.

Nonetheless, in the regressions performed on completions in 2012 we find a few significant results (and the largest number of observations; 563,517). The coefficients for RoE and RoA are both significant at the 5% level and show negative values. This is interpreted as the treatment decreased the returns, which is opposite to previous literature and our hypotheses. We could reject the null hypothesis that the special examination has no effect on the financial returns for 2012 at the 5% level, but since this is an exception rather than the rule, we do not.

Table 8 Difference-in-difference regressions between APP and NoAPP companies

The dependent variable in regression (1), (2) and (7) are ratio variables. The dependent variable in regression (3) is a dummy variable equal to one if a firm pay dividends. The dependent variable in regression (4), (5), (6) continuous variables. The dependent variable in regression (8) is the natural logarithm of sales. Coefficients show the effect of the treatment (special examination) for each variable. Variable definitions are found in table 1-2. Robust standard errors at firm-level in parentheses. ***p<0.01 **p<0.05 *p<0.1

Variables	(1) ROE	(2) ROA	(3) DUMMYDIV	(4) EBITDA	(5) NETINC	(6) EQUITY	(7) DEBTR	(8) SIZEA
DID 2008	-0.0866 (0.260)	-0.0515 (0.0514)	0.0807 (0.105)	-865.9 (825.8)	86.54 (243.8)	1,674 (-2,27)	-0.308 (3.714)	-1.361 (0.927)
Observations	545,715	545,715	545,715	545,715	545,715	545,715	545,715	545,715
R-squared	0.002	0.002	0.001	0.001	0.000	0.002	0.000	0.000
DID 2009	0.287 (0.322)	0.0530 (0.0752)	-0.121 (0.0774)	-98.11 (632.4)	60.68 (211.9)	888.6 (-1,549)	-0.511 (0.469)	-0.251 (0.886)
Observations	548,201	548,201	548,201	548,201	548,201	548,201	548,201	548,201
R-squared	0.000	0.001	0.002	0.002	0.000	0.001	0.000	0.000
DID 2010	-0.737* (0.389)	-0.0414 (0.0763)	0.156 (0.0949)	-349.8 (611.4)	-142.0 (204.9)	583.6 (-1,437)	1.423 (2.768)	0.797 (0.997)
Observations	553,068	553,068	553,068	553,068	553,068	553,068	553,068	553,068
R-squared	0.001	0.000	0.004	0.001	0.000	0.000	0.000	0.000
DID 2011	-0.172 (0.318)	-0.0156 (0.0575)	-0.00627 (0.0865)	214.1 (619.2)	-112.4 (214.9)	-2,126 (-2,118)	-2.618 (2.493)	-0.411 (0.784)
Observations	559,425	559,425	559,425	559,425	559,425	559,425	559,425	559,425
R-squared	0.000	0.000	0.006	0.002	0.000	0.001	0.000	0.000
DID 2012	-0.912** (0.431)	-0.212** (0.0908)	0.141 (0.0874)	-905.4* (502.1)	-175.1 (225.7)	-1,247 (-1,067)	-0.865 (0.651)	-2.083* (1.112)
Observations	563,517	563,517	563,517	563,517	563,517	563,517	563,517	563,517
R-squared	0.001	0.000	0.002	0.000	0.000	0.000	0.000	0.000
DID 2013	0.244 (0.454)	0.0335 (0.0658)	-0.0574 (0.0835)	435.4 (396.3)	421.5** (211.9)	2,477 (-1,83)	-0.869 (5.444)	-1.113 (0.912)
Observations	451,606	451,606	451,606	451,606	451,606	451,606	451,606	451,606
R-squared	0.001	0.000	0.000	0.000	0.001	0.001	0.002	0.000

6.3.2 Sign analysis

Complementary to the diff-in-diffs we have also performed a simple sign analysis. The results are found in Table 9-11.

6.3.2.1 Effects from two years before to two years after the treatment

Results from tests regarding the period two years before until two years after are found in Table 9. None of the results are significant on any conventional significance level according to the t-test. However, the means of all variables, except DEBTR, have decreased during the time period. This indicates that there is a need for further examination with more sophisticated methods, since this is a result against our hypothesis. When performing the signed rank test, we find one significant result which is that the size of the company does not change after completing a special examination. All of the variables, but the DEBTR, follow the same pattern and the median does not change between the years. When looking at the DEBTR, it is shown that the DEBTR median has changed from being over 1 (resulting in a -1 in the table) to being under 1 (resulting in a +1 in the table). This indicates that companies decrease their debt after completing a special examination, but since it lacks statistical significance, no further assumptions or implications should be taken from this result.

Table 9 Sign effects from two years before to two years after special examination

Two tail paired t-test to see if the difference in means in year $t=-2$ and $t=+2$ for the different variables are not equal to zero. Wilcoxon signed rank test to see if the difference in medians in year $t=-2$ and $t=+2$ for the different variables are not equal to zero. *** $p<0.01$ ** $p<0.05$ * $p<0.1$

n=134	Two-tail paired t-test					Wilcoxon signed rank test			
	Mean $t=-2$	Mean $t=+2$	Diff.	S.E.	p	Median $t=-2$	Median $t=+2$	Diff.	p
DIV	0.2835821	0.238806	0.044776	0.07637	0.5587	0	0	0	0.5127
EBITDA	-0.0746269	-0.2089552	0.134328	0.171263	0.4342	-1	-1	0	0.3565
ROE	0.1641791	0.1044776	0.059702	0.172422	0.7297	1	1	0	0.6698
ROA	0.3432836	0.1940299	0.149254	0.167174	0.3736	1	1	0	0.2513
NETINC	0.2686567	0.1641791	0.104478	0.167698	0.5344	1	1	0	0.5092
EQUITY	0.9701493	0.880597	0.089552	0.065524	0.174	1	1	0	0.1797
DEBTR	-0.0447761	0.1044776	-0.14925	0.173515	0.3912	-1	1	-2	0.2752
SIZE	0.7910448	0.6716418	0.119403	0.076459	0.1208	1	1	0*	0.0209

6.3.2.2 Effects from two years before to one year after the treatment

When investigating the effects from two years before to one year after the treatment companies that contain values for only one year after the special examination are included in the sample. The results are found in Table 10 and the increase of sample size could be one of many reasons for receiving some significant results. The variables with significant differences are Equity and EBITDA, which are performing worse the year after the special examination than two years before.

Table 10 Sign effects from two years before to one year after special examination

Two tail paired t-test to see if the difference in means in year $t=-2$ and $t=+1$ for the different variables are not equal to zero. Wilcoxon signed rank test to see if the difference in medians in year $t=-2$ and $t=+1$ for the different variables are not equal to zero.
 *** $p<0.01$ ** $p<0.05$ * $p<0.1$

n=192	Two-tail paired t-test					Wilcoxon signed rank test			
	Mean $t=-2$	Mean $t=+1$	Diff.	S.E.	p	Median $t=-2$	Median $t=+1$	Diff.	p
DIV	0.2395833	0.2083333	0.03125	0.060447	0.6058	0	0	0	0.5637
EBITDA	-0.1041667	-0.3854167	0.28125**	0.138799	0.0441	-1	-1	0**	0.0287
ROE	0.1041667	0	0.1041667	0.143941	0.4702	1	0	1	0.4847
ROA	0.2708333	0.09375	0.1770833	0.141698	0.2129	1	1	0	0.1787
NETINC	0.21875	0.1145833	0.1041667	0.141323	0.462	1	1	0	0.4657
EQUITY	0.9583333	0.8125	0.1458333**	0.066605	0.0298	1	1	0**	0.0196
DEBTR	-0.0833333	-0.0625	-0.0208333	0.144701	0.8857	-1	-1	0	0.8185
SIZE	0.8125	0.7395833	0.0729167	0.060258	0.2278	1	1	0*	0.0522

6.3.2.3 Effects from one year before to one year after the treatment

We investigate the difference from one year before the application to one year after as it is reasonable to believe that the theme of the examination happened near in time to the application date. The results are found in Table 11 with no significant results from neither the t-test nor the Wilcoxon signed rank test. Nonetheless, one can see that DIV, EBITDA, RoA, Equity and Size all have smaller means the year after the assumed completion. This might be because either the results from the examination has not born fruit yet or because since it is a costly procedure it could have temporarily affected the financials the year after completion. RoE, DEBTR and NETINC have grown during the three years.

Table 11 Sign effects from one year before to one year after special examination

Two tail paired t-test to see if the difference in means in year $t=-1$ and $t=+1$ for the different variables are not equal to zero. Wilcoxon signed rank test to see if the difference in medians in year $t=-1$ and $t=+1$ for the different variables are not equal to zero.
 *** $p<0.01$ ** $p<0.05$ * $p<0.1$

n=192	Two-tail paired t-test					Wilcoxon signed rank test			
	Mean $t=-1$	Mean $t=+1$	Diff.	S.E.	p	Median $t=-1$	Median $t=+1$	Diff.	p
DIV	0.2291667	0.2083333	0.0208333	0.0443747	0.6398	0	0	0	0.6374
EBITDA	-0.3541667	-0.3854167	0.03125	0.0987345	0.7523	-1	-1	0	0.812
ROE	-0.0625	0	-0.0625	0.1228432	0.6121	-1	0	-1	0.5499
ROA	0.125	0.09375	0.03125	0.1188884	0.7932	1	1	0	0.8329
NETINC	0.0520833	0.1145833	-0.0625	0.1034625	0.5472	1	1	0	0.4641
EQUITY	0.875	0.8125	0.0625	0.0550369	0.259	1	1	0	0.2568
DEBTR	-0.125	-0.0625	-0.0625	0.0808568	0.4415	-1	-1	0	0.4386
SIZE	0.8020833	0.7395833	0.0625	0.0386519	0.1092	1	1	0	0.1088

7 Conclusion

This paper analyses firms subject to the Swedish minority shareholder protection measure special examination. We study firm-level characteristics of companies subject to special examination, as well as firm-level financial and operational outcomes of completing special examination. Since our study, to the best of our knowledge, is the first of its kind examining this area with a quantitative approach, we aim to provide a broad and comprehensive view of special examination and its effectiveness.

Our results suggest an ambiguousness regarding size for firms subject to special examination. The majority of our regressions show a negative correlation between size and the probability of becoming subject to special examination, whilst our tests show that APP companies are larger than NoAPP companies. We can hence reject the null hypotheses, that size is equal for APP and NoAPP companies, as well as size has no influence on the probability of a firm becoming subject to special examination. However, we cannot prove the direction of the relationship between size and special examination hence we cannot accept nor reject our hypotheses. This ambiguousness is in line with previous literature (Klapper & Love, 2004).

Age is according to our results suggested to be negatively correlated with the probability of a firm becoming subject to special examination, and APP companies are on average younger than NoAPP companies. We reject the null hypotheses that age has no influence on the probability of a firm becoming subject to special examination, and the null hypotheses that APP and NoAPP companies are on average of equal age. This is in line with both previous literature, as well as our hypotheses.

Financial performance is suggested to be negatively correlated with the probability of a firm becoming subject to special examination, and APP companies have on average poorer RoE than NoAPP companies, according to our results. This is in line with both our hypotheses, as well as previous literature, which states that financial performance is positively correlated with good corporate governance. Operational performance is however more ambiguous, where RoA has positive correlation with firms subject to special examination in our performed regressions, but is on average lower among APP companies than NoAPP companies, shown by our tests. We can reject the null hypothesis that RoA has no influence on the probability of a firm becoming subject to special examination, and that APP and NoAPP companies has on average equal RoA. However, we are unable to identify the correlation direction of RoA for firms subject to special examination.

Our results suggest that dividend payments are positively correlated with special examination. A higher fraction of APP companies pay dividends to their shareholders, than among the NoAPP companies. APP companies also pay higher dividend payments on average. This is not in line with previous literature regarding dividend payments as a source of information and sign of profitable operations. However, more recent research suggests that dividend payments can be used for reputation building in order to convey the quality of the firm, hence companies pay out high dividends to

distinguish themselves from peers (Gomes, 2000). This is to secure future access to external financing, even though the dividend payments may not reflect the actual underlying performance.

The key firm-level characteristic suggested by our results is the intangible assets-ratio. It carries the highest explanatory value among all independent variables, and is suggested to have the most influential effect on the probability of a firm becoming subject to special examination. We reject the null hypothesis that the intangible assets-ratio has no influence on special examination, as well as reject the null hypothesis that the intangible assets-ratio is equal for APP and NoAPP companies. Our results are in line with our hypotheses, and are also supported by previous research e.g. Martin & Alves (2010) and Himmelberg et al. (2004), which both emphasizes the positive relationship between information asymmetry and the relative amount of intangible assets within a company.

Our tests show that APP companies carries a lower debt-ratio than NoAPP companies, which is in line with our hypothesis. We can thus reject the null hypothesis that the debt-ratio is equal between APP and NoAPP companies. This is in line with previous literature, which argues that debt has a disciplinary effect on company management, and that debt should increase the level of good corporate governance. Our results are however ambiguous, since the probability of a firm becoming subject to special examination is positively correlated with the debt-ratio. We can reject the null hypothesis that the debt-ratio has no influence on the probability of special examination. This is however not in line with our hypothesis, but could be explained by the connection between age and the disciplinary effects of debt, as shown by Sarkar & Sarkar (2008). They argue that the disciplinary effects of debt are only applicable on older firms, and should hence not affect younger firms to the same extent.

Regarding the financial and operational effects of a special examination, we are unable to provide significant results for neither the difference-in-difference regressions nor the sign analysis for financial turnarounds. We cannot reject the null hypothesis that firms have the same financial and operational performance before and after completing special examination. We are also not able to confirm our hypothesis that special examination improves a firm's financial and operational performance. This is believed to be due to the fact that special examination is only a source of information for minority shareholders, rather than a call for management improvement.

To conclude, even though our results indicate that there are some key characteristics increasing the probability of a company's shareholders applying for special examination, the explanatory value of our models are low. This indicates that there might be several other factors that affect the probability to a greater extent. Even so, the connection between bad corporate governance and the urge of minority shareholders to apply for a special examination is clear. However, whether it is for better or worse remains unwritten.

8 Suggestions for future research

While our study succeeds in providing some indicators on what type of companies that become subject for a special examination and what the financial outcomes of completion are, the results need further and more sophisticated empirical support. Whilst we have relied on financial factors and variables, there is room for more a qualitative investigation of the subject, where exact reasons for the shareholders applying are investigated through e.g. interviews. Since our models have low explanatory values, it is indicated that the reasons for applying are not found in the financial statements. Also, since the study is focused on non-listed companies and conducted on accounting data (a limitation of our study) we have not had access to e.g. information about management compensation and ownership structure, two areas we hypothesize could have high impact on application reasons.

It would also be interesting to further investigate the occurrence of misuse. It is hard to determine whether an application is being submitted with good intentions, only with access to accounting data. A case study examining this subject in combination with a geographical area where special examination is very commonly occurring (e.g. Gotland) would be an interesting way to go.

Overall, since our main aim with this study was to provide an overview of what type of companies are using this legal minority shareholders' protection-measure, there is a lot of room for improvements. Taking macro-economic trends and events (e.g. financial crises) into consideration would bring even more depth to the analysis. However, since we only had access to data from 2008 onward, this was not a possible option for us and hence we leave that, and the other mentioned areas of interest, to future research.

9 References

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List of special examination cases

Swedish Companies Registration Office

AD 1919/2013	AD 1986/2014	AD 2343/2015
AD 1918/2013	AD 2035/2014	AD 65/2016
AD 1909/2013	AD 2059/2014	AD 105/2016
AD 1897/2013	AD 2072/2014	AD 363/2016
AD 1896/2013	AD 2092/2014	AD 405/2016
AD 1895/2013	AD 2100/2014	AD 449/2016
AD 1929/2013	AD 2105/2014	AD 444/2016
AD 2064/2013	AD 2121/2014	AD 486/2016
AD 2112/2013	AD 2264/2014	AD 484/2016
AD 2128/2013	AD 2280/2014	AD 540/2016
AD 2155/2013	AD 2317/2014	AD 536/2016
AD 2182/2013	AD 15/2015	AD 646/2016
AD 2235/2013	AD 27/2015	AD 668/2016
AD 130/2014	AD 34/2015	AD 687/2016
AD 179/2014	AD 94/2015	AD 734/2016
AD 479/2014	AD 219/2015	AD 885/2016
AD 508/2014	AD 257/2015	AD 1038/2016
AD 581/2014	AD 269/2015	AD 1116/2016
AD 681/2014	AD 328/2015	AD 1115/2016
AD 680/2014	AD 358/2015	AD 1145/2016
AD 757/2014	AD 397/2015	AD 1144/2016
AD 780/2014	AD 552/2015	AD 1220/2016
AD 791/2014	AD 624/2015	AD 1313/2016
AD 851/2014	AD 764/2015	AD 1365/2016
AD 862/2014	AD 769/2015	AD 1374/2016
AD 871/2014	AD 903/2015	AD 1437/2016
AD 916/2014	AD 1226/2015	AD 1470/2016
AD 952/2014	AD 1237/2015	AD 1584/2016
AD 965/2014	AD 1258/2015	AD 1583/2016
AD 975/2014	AD 1317/2015	AD 1582/2016
AD 1028/2014	AD 1334/2015	AD 1586/2016
AD 1020/2014	AD 1496/2015	AD 1608/2016
AD 1071/2014	AD 1494/2015	AD 1655/2016
AD 1108/2014	AD 1512/2015	AD 1784/2016
AD 1125/2014	AD 1511/2015	AD 1811/2016
AD 1124/2014	AD 1598/2015	AD 1824/2016
AD 1214/2014	AD 1598/2015	AD 1863/2016
AD 1221/2014	AD 1832/2015	AD 1866/2016
AD 1220/2014	AD 1877/2015	AD 1909/2016
AD 1239/2014	AD 1875/2015	AD 1929/2016
AD 1275/2014	AD 2001/2015	AD 2070/2016
AD 1298/2014	AD 2012/2015	AD 2086/2016
AD 1312/2014	AD 2020/2015	AD 2038/2016
AD 1399/2014	AD 2045/2015	AD 2094/2016
AD 1466/2014	AD 2175/2015	AD 2117/2016
AD 1636/2014	AD 2193/2015	AD 2226/2016
AD 1720/2014	AD 2211/2015	AD 2287/2016
AD 1738/2014	AD 2238/2015	AD 2478/2016
AD 1851/2014	AD 2291/2015	AD 2577/2016
AD 1945/2014	AD 2317/2015	AD 269/2017

County Administrative Boards

2052-2007-116893	205-2009-62243	205-2558-11
2052-2007-117794	205-12147-09	205-20248-2011
2052-2007-119153	205-2009-68236	205213-20692-2011
2052-2007-119666	205-2009-69562	205-21923-2011
2052-2007-119516	205-2009-69572	205211-26426-2011
2052-2008-5601	205-2009-78576	205211-26718-2011
205-1775-08	205-13309-09	205211-28340-2011
2052-2008-13365	205-2009-87562	205-3792-11
205-1927-08	205-2009-87636	205211-32873-2011
2052-2008-25082	205-260-10	205-61-12
2052-2008-46308	205-2010-1239	205211-2078-2012
219-3681-08	205-2010-2826	205-805-2012
2052-2008-49098	205-1065-10	205-2191-2012
2052-2008-55780	205-2010-3253	205-2122-12
2052-2008-60454	205-4520-10	205-2909-2012
2052-2008-73628	205-2010-5745	205-16295-2012
2052-2008-75798	205-6489-10	205-4250-12
205-6119-08	205-2010-7469	205-5992-2012
205-14413-08	205-3569-10	205-6659-12
2052-2008-82203	205-9331-10	205-3879-12
205-74981-08	205-12676-2010	205-8601-2012
205-15254-2008	205-2010-11100	205-30428-2012
205-78631-08	205-2010-11176	205-23664-12
2052-2008-90036	205-2010-14740	20521-37300-2012
2052-2008-90025	205-19694-2010	20521-41789-2012
219-7289-08	205-11031-10	205-603-2013
2052-2008-103096	2052-2320-2011	205-400-13
2052-2008-103091	205-506-11	205-1631-13
205-18505-08	205-2828-2011	205-2688-2013
219-220-09	205-4316-2011	20523-5397-2013
205-712-09	205-4231-2011	205-5637-13
205-2139-09	20521-5971-2011	205-6651-13
205-2009-22562	205-8068-2011	205-11855-2013
205-7492-09	205-6365-11	205-2614-13
205-2009-29537	205211-11410-2011	205-15492-2013
205-2009-35401	205211-14952-2011	20521-20895-2013
205-2009-39799	205211-15991-2011	205-3128-13
205-2009-50086	205-17746-2011	205-24878-2013
205-2009-50055	205211-18299-2011	205-30027-2013
205-2009-53436	205211-19067-2011	205-30622-2013
205-7462-09	205211-19274-2011	
205-63194-09	205-19907-2011	

10 Appendices

Appendix 1 Data selection process for the company characteristics part of the study, for Serrano and Bolagsdata

Serrano

1. Dropped following variables if containing missing values: RoA, RoE, debt ratio, total amount of intangible assets, total amount of tangible fixed assets, total amount of fixed assets, total amount of assets, total equity, SIC-codes, and county codes
2. Replaced missing value with zero for following variables: sales, dividend payment, net income
3. Adjusted each variable in Serrano based on the 10th and 90th of the average value of each specific variable for only firms with shareholders who have applied for special examination.
4. Winsorized each variable on the 1st and 99th, as accounting data is known to contain outliers.

Bolagsdata

1. Replaced all missing values with numbers manually collected for each firms balance sheet or income statement
 2. Dropped observations where values for following variables were unavailable: RoA, RoE, debt ratio, total amount of intangible assets, total amount of tangible fixed assets, total amount of fixed assets, total amount of assets, and total equity
 3. Replace missing values with zero for following variables, given inability to identify such values
-

Appendix 2 Data selection process for the financial performance part of the study, for Serrano and Bolagsdata

Serrano

1. Dropped following variables if containing missing values: RoA, RoE, debt ratio, total amount of intangible assets, total amount of tangible fixed assets, total amount of fixed assets, total amount of assets, total equity, SIC-codes, and county codes
2. Replaced missing value with zero for following variables: sales, dividend payment, net income
3. Adjusted each variable in Serrano based on the 10th and 90th of the average value of each specific variable for only firms with shareholders who have applied for special examination.
4. Winsorized each variable on the 1st and 99th, as accounting data is known to contain outliers.

Bolagsdata

1. Replaced all missing values with numbers manually collected for each firms balance sheet or income statement
 2. Dropped observations where values for following variables were unavailable: RoA, RoE, debt ratio, total amount of intangible assets, total amount of tangible fixed assets, total amount of fixed assets, total amount of assets, and total equity
 3. Replace missing values with zero for following variables, given inability to identify such values
 4. Dropped cases where the decision process at SCRO are not final
-

Appendix 3 Adding OLS regression with absorbed fixed effects for county sample A

OLS regression with absorbed fixed effects for county. The dependent variable APP is a dummy variable equal to 1 if a firm is subject to special examination, and 0 otherwise. Variable definitions are found in table 1-2. Standard errors are found at firm-level in parentheses. ***p<0.01 **p<0.05 *p<0.1

Variable	(1) APP	(2) APP	(3) APP	(4) APP	(5) APP	(6) APP	(7) APP	(8) APP	(9) APP	(10) APP	(11) APP	(12) APP	(13) APP	(14) APP	(15) APP
INTANG	0.204*** (0.00128)	0.203*** (0.00128)	0.203*** (0.00128)	0.203*** (0.00128)	0.203*** (0.00128)	0.201*** (0.00128)	0.203*** (0.00128)	0.203*** (0.00128)	0.203*** (0.00128)	0.197*** (0.00128)	0.196*** (0.00128)	0.197*** (0.00128)	0.196*** (0.00128)	0.196*** (0.00128)	0.196*** (0.00128)
TANGL		- 0.00198*** (8.03e-05)	-0.00197*** (8.04e-05)	-0.00214*** (8.05e-05)	-0.00221*** (8.82e-05)	-0.00157*** (8.94e-05)	- 0.000715*** (9.06e-05)	- 0.000806*** (9.08e-05)	- 0.000981*** (9.19e-05)	-0.00155*** (9.20e-05)	-0.00159*** (9.19e-05)	-0.00119*** (9.22e-05)	-0.00126*** (9.22e-05)	-0.00128*** (9.22e-05)	-0.00127*** (9.24e-05)
dummyDIV			0.000205*** (7.36e-05)	- 0.000531*** (7.66e-05)	- 0.000550*** (7.71e-05)	- 0.000675*** (7.71e-05)	- 0.000861*** (7.71e-05)	- 0.000756*** (7.74e-05)	- 0.000626*** (7.81e-05)	0.000637*** (7.95e-05)	0.00116*** (8.03e-05)	0.000615*** (8.09e-05)	0.000698*** (8.10e-05)	0.000598*** (8.11e-05)	0.000604*** (8.12e-05)
DIV				0.00389*** (0.000111)	0.00387*** (0.000112)	0.00387*** (0.000112)	0.00397*** (0.000112)	0.00398*** (0.000112)	0.00397*** (0.000112)	0.00410*** (0.000111)	0.00496*** (0.000113)	0.00422*** (0.000114)	0.00427*** (0.000114)	0.00405*** (0.000114)	0.00405*** (0.000114)
SIZEA					2.91e-05** (1.41e-05)	- 0.000416*** (1.76e-05)	- 0.000288*** (1.77e-05)	- 0.000276*** (1.77e-05)	- 0.000249*** (1.79e-05)	0.000173*** (1.79e-05)	-8.65e- 05*** (1.80e-05)	0.000147*** (1.80e-05)	0.000147*** (1.80e-05)	0.000119*** (1.80e-05)	0.000118*** (1.80e-05)
SIZEB						3.00e-07*** (7.12e-09)	2.03e-07*** (7.32e-09)	1.80e-07*** (7.46e-09)	2.11e-07*** (7.89e-09)	2.29e-07*** (7.88e-09)	2.20e-07*** (7.87e-09)	2.47e-07*** (7.89e-09)	2.58e-07*** (7.90e-09)	2.41e-07*** (7.94e-09)	2.41e-07*** (7.94e-09)
EQUITY							5.74e-07*** (1.02e-08)	2.62e-07*** (2.16e-08)	2.65e-07*** (2.16e-08)	1.05e-06*** (2.37e-08)	9.81e-07*** (2.37e-08)	9.45e-07*** (2.37e-08)	9.53e-07*** (2.37e-08)	8.88e-07*** (2.39e-08)	8.87e-07*** (2.39e-08)
SIZEC								1.28e-07*** (7.83e-09)	1.71e-07*** (8.55e-09)	-4.66e- 08*** (8.96e-09)	-4.22e- 08*** (8.95e-09)	-2.65e- 08*** (8.95e-09)	-3.83e- 08*** (8.96e-09)	-2.95e- 08*** (8.97e-09)	-2.94e- 08*** (8.97e-09)
SIZED									- 0.000477*** (3.86e-05)	-0.00113*** (3.94e-05)	- 0.000975*** (3.95e-05)	-0.00101*** (3.95e-05)	-0.00100*** (3.95e-05)	-0.00112*** (3.99e-05)	-0.00112*** (3.99e-05)
DEBTR										0.00113*** (1.41e-05)	0.00105*** (1.42e-05)	0.00113*** (1.42e-05)	0.00114*** (1.42e-05)	0.00116*** (1.43e-05)	0.00116*** (1.43e-05)
ROE											-0.00520*** (0.000113)	-0.0128*** (0.000187)	-0.0124*** (0.000187)	-0.0128*** (0.000188)	-0.0128*** (0.000188)
ROA												0.0283*** (0.000557)	0.0306*** (0.000567)	0.0298*** (0.000568)	0.0299*** (0.000568)
EBITDA													-1.75e- 06*** (8.21e-08)	-2.22e- 06*** (8.52e-08)	-2.22e- 06*** (8.52e-08)
NETINC														2.23e-06*** (1.10e-07)	2.22e-06*** (1.10e-07)
AGE															-1.40e-05* (7.61e-06)
Constant	0.000904*** (3.11e-05)	0.00238*** (6.74e-05)	0.00233*** (7.03e-05)	0.00245*** (7.04e-05)	0.00231*** (9.72e-05)	0.00379*** (0.000103)	0.00188*** (0.000109)	0.00181*** (0.000109)	0.00496*** (0.000278)	0.00640*** (0.000278)	0.00541*** (0.000278)	0.00459*** (0.000279)	0.00442*** (0.000279)	0.00501*** (0.000280)	0.00512*** (0.000287)
Obs.	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421
R-squared	0.016	0.016	0.016	0.017	0.017	0.018	0.020	0.020	0.020	0.024	0.026	0.027	0.028	0.028	0.028

Appendix 4 Adding OLS regression absorbed fixed effects for county sample B

OLS regression with absorbed fixed effects for county. The dependent variable ACC is a dummy variable equal to 1 if a firm has completed special examination, and 0 otherwise. Variable definitions are found in table 1-2. Standard errors are found at firm-level in parentheses. ***p<0.01 **p<0.05 *p<0.1

Variable	(1) ACC	(2) ACC	(3) ACC	(4) ACC	(5) ACC	(6) ACC	(7) ACC	(8) ACC	(9) ACC	(10) ACC	(11) ACC	(12) ACC	(13) ACC	(14) ACC	(15) ACC
INTANG	0.161*** (0.00113)	0.160*** (0.00113)	0.160*** (0.00113)	0.160*** (0.00113)	0.160*** (0.00113)	0.159*** (0.00113)	0.203*** (0.00128)	0.160*** (0.00113)	0.160*** (0.00113)	0.156*** (0.00113)	0.156*** (0.00113)	0.156*** (0.00113)	0.155*** (0.00113)	0.155*** (0.00113)	0.155*** (0.00113)
TANGL		- 0.00150*** (7.07e-05)	-0.00149*** (7.08e-05)	-0.00162*** (7.09e-05)	-0.00169*** (7.77e-05)	-0.00117*** (7.88e-05)	- 0.000715*** (9.06e-05)	- 0.000488*** (8.00e-05)	- 0.000660*** (8.10e-05)	-0.00106*** (8.11e-05)	-0.00109*** (8.11e-05)	- 0.000787*** (8.13e-05)	- 0.000858*** (8.14e-05)	- 0.000867*** (8.13e-05)	- 0.000868*** (8.15e-05)
dummyDIV			0.000193*** (6.49e-05)	0.000425*** (6.75e-05)	0.000442*** (6.80e-05)	0.000544*** (6.80e-05)	0.000861*** (7.71e-05)	0.000624*** (6.82e-05)	0.000497*** (6.88e-05)	0.000402*** (7.01e-05)	0.000808*** (7.08e-05)	0.000386*** (7.14e-05)	0.000468*** (7.15e-05)	0.000380*** (7.16e-05)	0.000379*** (7.17e-05)
DIV				0.00327*** (9.81e-05)	0.00325*** (9.86e-05)	0.00325*** (9.85e-05)	0.00397*** (0.000112)	0.00335*** (9.84e-05)	0.00334*** (9.84e-05)	0.00343*** (9.83e-05)	0.00411*** (9.96e-05)	0.00352*** (0.000100)	0.00358*** (0.000100)	0.00339*** (0.000101)	0.00339*** (0.000101)
SIZEA					2.51e-05** (1.24e-05)	- (1.55e-05)	- (1.77e-05)	- (1.56e-05)	- (1.58e-05)	- (1.58e-05)	-7.15e-05*** (1.58e-05)	- (1.59e-05)	- (1.59e-05)	-9.36e-05*** (1.59e-05)	-9.37e-05*** (1.59e-05)
SIZEB						2.47e-07*** (6.28e-09)	2.03e-07*** (7.32e-09)	1.43e-07*** (6.58e-09)	1.74e-07*** (6.95e-09)	1.87e-07*** (6.95e-09)	1.80e-07*** (6.94e-09)	2.01e-07*** (6.96e-09)	2.11e-07*** (6.97e-09)	1.97e-07*** (7.00e-09)	1.97e-07*** (7.00e-09)
EQUITY							5.74e-07*** (1.02e-08)	2.55e-07*** (1.90e-08)	2.57e-07*** (1.90e-08)	8.17e-07*** (2.09e-08)	7.62e-07*** (2.09e-08)	7.34e-07*** (2.09e-08)	7.42e-07*** (2.09e-08)	6.85e-07*** (2.11e-08)	6.85e-07*** (2.11e-08)
SIZEC								1.02e-07*** (6.90e-09)	1.43e-07*** (7.54e-09)	-1.16e-08 (7.90e-09)	-8.11e-09 (7.90e-09)	4.10e-09 (7.89e-09)	-7.54e-09 (7.91e-09)	2.13e-10 (7.92e-09)	2.07e-10 (7.92e-09)
SIZED									0.000467*** (3.41e-05)	0.000932*** (3.48e-05)	0.000811*** (3.49e-05)	0.000840*** (3.49e-05)	0.000831*** (3.49e-05)	0.000931*** (3.52e-05)	0.000931*** (3.52e-05)
DEBTR										0.000802*** (1.24e-05)	0.000745*** (1.25e-05)	0.000804*** (1.25e-05)	0.000810*** (1.25e-05)	0.000827*** (1.26e-05)	0.000827*** (1.26e-05)
ROE											-0.00406*** (9.93e-05)	-0.00995*** (0.000165)	-0.00957*** (0.000165)	-0.00990*** (0.000166)	-0.00990*** (0.000166)
ROA												0.0220*** (0.000491)	0.0243*** (0.000500)	0.0236*** (0.000501)	0.0236*** (0.000501)
EBITDA													-1.73e-06*** (7.24e-08)	-2.14e-06*** (7.52e-08)	-2.14e-06*** (7.52e-08)
NETINC														1.96e-06*** (9.69e-08)	1.96e-06*** (9.69e-08)
AGE															1.61e-06 (6.71e-06)
Constant	0.000689*** (2.74e-05)	0.00180*** (5.94e-05)	0.00175*** (6.19e-05)	0.00186*** (6.20e-05)	0.00174*** (8.56e-05)	0.00295*** (9.10e-05)	0.00188*** (0.000109)	0.00123*** (9.58e-05)	0.00432*** (0.000245)	0.00534*** (0.000245)	0.00457*** (0.000246)	0.00393*** (0.000246)	0.00376*** (0.000246)	0.00427*** (0.000247)	0.00426*** (0.000254)
Obs.	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421
R-squared	0.013	0.013	0.013	0.014	0.014	0.015	0.020	0.017	0.017	0.020	0.021	0.022	0.022	0.022	0.022

Appendix 5 Adding OLS regression absorbed fixed effects for sector sample A

OLS regression with absorbed fixed effects for sector. The dependent variable APP is a dummy variable equal to 1 if a firm is subject to special examination, and 0 otherwise. Variable definitions are found in table 1-2. Standard errors are found at firm-level in parentheses. ***p<0.01 **p<0.05 *p<0.1

Variable	(1) APP	(2) APP	(3) APP	(4) APP	(5) APP	(6) APP	(7) APP	(8) APP	(9) APP	(10) APP	(11) APP	(12) APP	(13) APP	(14) APP	(15) APP
INTANG	0.205*** (0.00128)	0.203*** (0.00128)	0.203*** (0.00128)	0.203*** (0.00128)	0.203*** (0.00128)	0.202*** (0.00128)	0.203*** (0.00128)	0.203*** (0.00128)	0.203*** (0.00128)	0.198*** (0.00128)	0.197*** (0.00128)	0.197*** (0.00128)	0.196*** (0.00128)	0.196*** (0.00128)	0.196*** (0.00128)
TANGL		- 0.00210*** (8.08e-05)	- 0.00210*** (8.09e-05)	-0.00226*** (8.10e-05)	-0.00238*** (8.84e-05)	-0.00174*** (8.97e-05)	- 0.000830*** (9.11e-05)	- 0.000903*** (9.12e-05)	-0.00113*** (9.26e-05)	-0.00168*** (9.27e-05)	- 0.00172*** (9.26e-05)	-0.00135*** (9.29e-05)	-0.00144*** (9.29e-05)	-0.00145*** (9.29e-05)	-0.00144*** (9.31e-05)
dummyDIV			0.000130* (7.38e-05)	0.000600*** (7.67e-05)	0.000631*** (7.73e-05)	0.000775*** (7.73e-05)	0.000968*** (7.73e-05)	0.000869*** (7.76e-05)	0.000711*** (7.84e-05)	0.000536*** (7.97e-05)	0.00105*** (8.04e-05)	0.000522*** (8.10e-05)	0.000609*** (8.11e-05)	0.000513*** (8.13e-05)	0.000519*** (8.14e-05)
DIV				0.00388*** (0.000111)	0.00385*** (0.000112)	0.00384*** (0.000112)	0.00393*** (0.000112)	0.00394*** (0.000112)	0.00394*** (0.000112)	0.00405*** (0.000111)	0.00493*** (0.000113)	0.00419*** (0.000114)	0.00424*** (0.000114)	0.00403*** (0.000114)	0.00403*** (0.000114)
SIZEA					4.89e-05*** (1.45e-05)	- (1.78e-05)	- (1.79e-05)	- (1.79e-05)	- (1.81e-05)	- (1.81e-05)	-7.51e-05*** (1.82e-05)	- (1.82e-05)	- (1.82e-05)	- (1.82e-05)	- (1.83e-05)
SIZEB						2.97e-07*** (7.21e-09)	2.01e-07*** (7.42e-09)	1.75e-07*** (7.58e-09)	2.14e-07*** (8.08e-09)	2.35e-07*** (8.07e-09)	2.29e-07*** (8.07e-09)	2.56e-07*** (8.08e-09)	2.66e-07*** (8.09e-09)	2.50e-07*** (8.14e-09)	2.50e-07*** (8.14e-09)
EQUITY							5.73e-07*** (1.04e-08)	2.68e-07*** (2.16e-08)	2.76e-07*** (2.16e-08)	1.08e-06*** (2.37e-08)	1.01e-06*** (2.38e-08)	9.76e-07*** (2.38e-08)	9.84e-07*** (2.38e-08)	9.20e-07*** (2.40e-08)	9.19e-07*** (2.40e-08)
SIZEC								1.29e-07*** (7.99e-09)	1.73e-07*** (8.59e-09)	-4.94e-08*** (9.00e-09)	-4.63e-08*** (8.99e-09)	-3.07e-08*** (8.99e-09)	-4.23e-08*** (9.00e-09)	-3.34e-08*** (9.01e-09)	-3.33e-08*** (9.01e-09)
SIZED									0.000558*** (3.99e-05)	-0.00121*** (4.06e-05)	0.00106*** (4.07e-05)	-0.00110*** (4.07e-05)	-0.00110*** (4.07e-05)	-0.00121*** (4.11e-05)	-0.00122*** (4.11e-05)
DEBTR										0.00115*** (1.41e-05)	0.00108*** (1.42e-05)	0.00115*** (1.43e-05)	0.00116*** (1.43e-05)	0.00118*** (1.43e-05)	0.00118*** (1.43e-05)
ROE											- 0.00526*** (0.000113)	-0.0127*** (0.000187)	-0.0124*** (0.000188)	-0.0127*** (0.000188)	-0.0127*** (0.000189)
ROA												0.0279*** (0.000557)	0.0302*** (0.000567)	0.0294*** (0.000568)	0.0295*** (0.000569)
EBITDA													-1.73e-06*** (8.26e-08)	-2.19e-06*** (8.57e-08)	-2.19e-06*** (8.57e-08)
NETINC														2.17e-06*** (1.10e-07)	2.17e-06*** (1.10e-07)
AGE															-1.34e-05* (7.62e-06)
Constant	0.000902*** (3.11e-05)	0.00247*** (6.78e-05)	0.00244*** (7.06e-05)	0.00256*** (7.07e-05)	0.00232*** (9.95e-05)	0.00370*** (0.000105)	0.00197*** (0.000110)	0.00193*** (0.000110)	0.00558*** (0.000284)	0.00693*** (0.000283)	0.00595*** (0.000284)	0.00520*** (0.000284)	0.00510*** (0.000284)	0.00568*** (0.000286)	0.00579*** (0.000293)
Obs.	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421
R-squared	0.016	0.017	0.017	0.017	0.017	0.018	0.020	0.020	0.020	0.025	0.026	0.027	0.028	0.028	0.028

Appendix 6 Adding OLS regression absorbed fixed effects for sector sample B

OLS regression with absorbed fixed effects for sector. The dependent variable ACC is a dummy variable equal to 1 if a firm has completed special examination, and 0 otherwise. Variable definitions are found in table 1-2. Standard errors are found at firm-level in parentheses. ***p<0.01 **p<0.05 *p<0.1

Variable	(1) ACC	(2) ACC	(3) ACC	(4) ACC	(5) ACC	(6) ACC	(7) ACC	(8) ACC	(9) ACC	(10) ACC	(11) ACC	(12) ACC	(13) ACC	(14) ACC	(15) ACC
INTANG	0.162*** (0.00113)	0.161*** (0.00113)	0.161*** (0.00113)	0.161*** (0.00113)	0.160*** (0.00113)	0.159*** (0.00113)	0.203*** (0.00128)	0.160*** (0.00113)	0.160*** (0.00113)	0.157*** (0.00113)	0.156*** (0.00113)	0.156*** (0.00113)	0.155*** (0.00113)	0.155*** (0.00113)	0.155*** (0.00113)
TANGL		- 0.00158*** (7.12e-05)	- 0.00157*** (7.13e-05)	-0.00170*** (7.13e-05)	-0.00182*** (7.79e-05)	-0.00129*** (7.90e-05)	- 0.000830*** (9.11e-05)	- 0.000551*** (8.04e-05)	- 0.000767*** (8.16e-05)	-0.00116*** (8.17e-05)	-0.00119*** (8.17e-05)	- 0.000905*** (8.19e-05)	- 0.000992*** (8.20e-05)	-0.00100*** (8.20e-05)	-0.00100*** (8.21e-05)
dummyDIV			0.000136** (6.51e-05)	0.000479*** (6.76e-05)	0.000510*** (6.81e-05)	0.000630*** (6.81e-05)	0.000968*** (7.73e-05)	0.000719*** (6.84e-05)	0.000568*** (6.91e-05)	0.000323*** (7.03e-05)	0.000727*** (7.09e-05)	0.000314*** (7.15e-05)	0.000401*** (7.16e-05)	0.000316*** (7.17e-05)	0.000315*** (7.18e-05)
DIV				0.00327*** (9.81e-05)	0.00324*** (9.86e-05)	0.00323*** (9.85e-05)	0.00393*** (0.000112)	0.00331*** (9.84e-05)	0.00331*** (9.84e-05)	0.00340*** (9.83e-05)	0.00408*** (9.96e-05)	0.00351*** (0.000100)	0.00356*** (0.000100)	0.00337*** (0.000101)	0.00337*** (0.000101)
SIZEA					4.77e-05*** (1.27e-05)		0.000311*** (1.57e-05)	0.000283*** (1.79e-05)	0.000221*** (1.58e-05)	0.000184*** (1.60e-05)	0.000131*** (1.60e-05)	-6.15e-05*** (1.60e-05)	0.000107*** (1.61e-05)	0.000104*** (1.61e-05)	-8.02e-05*** (1.61e-05)
SIZEB							2.48e-07*** (6.36e-09)	2.01e-07*** (7.42e-09)	1.44e-07*** (6.68e-09)	1.81e-07*** (7.12e-09)	1.96e-07*** (7.12e-09)	1.91e-07*** (7.11e-09)	2.12e-07*** (7.13e-09)	2.23e-07*** (7.14e-09)	2.08e-07*** (7.18e-09)
EQUITY							5.73e-07*** (1.04e-08)	2.57e-07*** (1.91e-08)	2.64e-07*** (1.91e-08)	8.39e-07*** (2.09e-08)	7.85e-07*** (2.10e-08)	7.58e-07*** (2.10e-08)	7.66e-07*** (2.10e-08)	7.10e-07*** (2.12e-08)	7.10e-07*** (2.12e-08)
SIZEC								1.03e-07*** (7.04e-09)	1.45e-07*** (7.57e-09)	-1.37e-08* (7.93e-09)	-1.12e-08 (7.93e-09)	8.86e-10 (7.93e-09)	-1.07e-08 (7.94e-09)	-2.86e-09 (7.95e-09)	-2.87e-09 (7.95e-09)
SIZED									0.000535*** (3.52e-05)	-0.00100*** (3.58e-05)	0.000882*** (3.59e-05)	0.000916*** (3.59e-05)	0.000918*** (3.59e-05)	-0.00102*** (3.62e-05)	-0.00102*** (3.63e-05)
DEBTR										0.000825*** (1.25e-05)	0.000768*** (1.25e-05)	0.000825*** (1.26e-05)	0.000829*** (1.26e-05)	0.000845*** (1.26e-05)	0.000845*** (1.26e-05)
ROE											-0.00411*** (9.95e-05)	-0.00992*** (0.000165)	-0.00955*** (0.000165)	-0.00987*** (0.000166)	-0.00987*** (0.000166)
ROA												0.0217*** (0.000492)	0.0240*** (0.000500)	0.0233*** (0.000501)	0.0233*** (0.000502)
EBITDA													-1.72e-06*** (7.28e-08)	-2.12e-06*** (7.56e-08)	-2.12e-06*** (7.56e-08)
NETINC														1.91e-06*** (9.69e-08)	1.91e-06*** (9.69e-08)
AGE															1.89e-06 (6.72e-06)
Constant	0.000687*** (2.74e-05)	0.00186*** (5.97e-05)	0.00183*** (6.22e-05)	0.00193*** (6.23e-05)	0.00170*** (8.77e-05)	0.00285*** (9.25e-05)	0.00197*** (0.000110)	0.00130*** (9.66e-05)	0.00481*** (0.000250)	0.00578*** (0.000250)	0.00501*** (0.000251)	0.00443*** (0.000251)	0.00433*** (0.000251)	0.00484*** (0.000252)	0.00482*** (0.000258)
Obs.	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421
R-squared	0.013	0.013	0.013	0.014	0.014	0.015	0.020	0.017	0.017	0.020	0.021	0.022	0.022	0.023	0.023

Appendix 7 OLS regression with absorbed fixed effects for county sample A

OLS regression with absorbed fixed effects for county. The dependent variable APP is a dummy variable equal to 1 if a firm is subject to special examination, and 0 otherwise. Variable definitions are found in table 1-2. Standard errors are found at firm-level in parentheses. ***p<0.01 **p<0.05 *p<0.1

Variable	(1) APP	(2) APP	(3) APP	(4) APP	(5) APP	(6) APP	(7) APP	(8) APP	(9) APP	(10) APP	(11) APP	(12) APP	(13) APP	(14) APP	(15) APP
INTANG	0.204*** (0.00128)														
TANGL		-0.00242*** (8.06e-05)													
dummyDIV			0.000155** (7.41e-05)												
DIV				0.00358*** (0.000108)											
SIZEA					5.42e-05*** (1.28e-05)										
SIZEB						2.43e-07*** (5.64e-09)									
EQUITY							1.34e-09*** (1.65e-10)								
SIZEC								2.45e-07*** (3.53e-09)							
SIZED									0.00122*** (2.39e-05)						
DEBTR										0.000915*** (1.23e-05)					
ROE											-0.00528*** (0.000107)				
ROA												-0.00423*** (0.000308)			
EBITDA													-2.57e-06*** (7.29e-08)		
NETINC														1.91e-06*** (8.85e-08)	
AGE															-4.55e-05*** (7.63e-06)
Constant	0.000904*** (3.11e-05)	0.00335*** (6.75e-05)	0.00152*** (3.54e-05)	0.00140*** (3.14e-05)	0.00118*** (9.31e-05)	0.000627*** (3.78e-05)	0.00155*** (3.11e-05)	0.000511*** (3.45e-05)	-0.00750*** (0.000180)	-0.000727*** (4.36e-05)	0.00215*** (3.33e-05)	0.00184*** (3.74e-05)	0.00165*** (3.12e-05)	0.00131*** (3.31e-05)	0.00190*** (6.59e-05)
Obs.	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421
R-squared	0.016	0.001	0.000	0.001	0.000	0.002	0.000	0.003	0.002	0.004	0.002	0.001	0.001	0.001	0.000

Appendix 8 OLS regression with absorbed fixed effects for county sample B

OLS regression with absorbed fixed effects for county. The dependent variable ACC is a dummy variable equal to 1 if a firm has completed special examination, and 0 otherwise. Variable definitions are found in table 1-2. Standard errors are found at firm-level in parentheses. ***p<0.01 **p<0.05 *p<0.1

Variable	(1) ACC	(2) ACC	(3) ACC	(4) ACC	(5) ACC	(6) ACC	(7) ACC	(8) ACC	(9) ACC	(10) ACC	(11) ACC	(12) ACC	(13) ACC	(14) ACC	(15) ACC
INTANG	0.161*** (0.00113)														
TANGL		- 0.00184*** (7.09e-05)													
dummyDIV			0.000150** (6.52e-05)												
DIV				0.00303*** (9.48e-05)											
SIZEA					5.17e-05*** (1.12e-05)										
SIZEB						2.00e-07*** (4.96e-09)									
EQUITY							1.33e-09*** (1.45e-10)								
SIZEC								2.08e-07*** (3.11e-09)							
SIZED									0.000999*** (2.11e-05)						
DEBTR										0.000646*** (1.08e-05)					
ROE											- 0.00404*** (9.38e-05)				
ROA												- 0.00300*** (0.000271)			
EBITDA													-2.28e- 06*** (6.41e-08)		
NETINC														1.73e-06*** (7.78e-08)	
AGE															-2.56e- 05*** (6.71e-06)
Constant	0.000689*** (2.74e-05)	0.00257*** (5.94e-05)	0.00117*** (3.12e-05)	0.00107*** (2.76e-05)	0.000848*** (8.19e-05)	0.000441*** (3.33e-05)	0.00120*** (2.74e-05)	0.000317*** (3.04e-05)	-0.00622*** (0.000159)	- 0.000408*** (3.84e-05)	0.00166*** (2.93e-05)	0.00141*** (3.29e-05)	0.00129*** (2.74e-05)	0.000983*** (2.91e-05)	0.00140*** (5.80e-05)
Obs.	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421
R-squared	0.013	0.001	0.000	0.001	0.000	0.001	0.000	0.003	0.002	0.003	0.002	0.000	0.001	0.001	0.000

Appendix 9 OLS regression with absorbed fixed effects for sector sample A

OLS regression with absorbed fixed effects for sector. The dependent variable APP is a dummy variable equal to 1 if a firm is subject to special examination, and 0 otherwise. Variable definitions are found in table 1-2. Standard errors are found at firm-level in parentheses. ***p<0.01 **p<0.05 *p<0.1

Variable	(1) APP	(2) APP	(3) APP	(4) APP	(5) APP	(6) APP	(7) APP	(8) APP	(9) APP	(10) APP	(11) APP	(12) APP	(13) APP	(14) APP	(15) APP
INTANG	0.205*** (0.00128)														
TANGL		- 0.00256*** (8.11e-05)													
dummyDIV			9.81e-05 (7.43e-05)												
DIV				0.00355*** (0.000108)											
SIZEA					5.15e-05*** (1.32e-05)										
SIZEB						2.47e-07*** (5.80e-09)									
EQUITY							1.33e-09*** (1.65e-10)								
SIZEC								2.53e-07*** (3.64e-09)							
SIZED									0.00120*** (2.48e-05)						
DEBTR										0.000923*** (1.24e-05)					
ROE											- 0.00534*** (0.000107)				
ROA												- 0.00442*** (0.000309)			
EBITDA													-2.65e-06*** (7.32e-08)		
NETINC														1.78e-06*** (8.87e-08)	
AGE															-4.56e-05*** (7.65e-06)
Constant	0.000902*** (3.11e-05)	0.00346*** (6.79e-05)	0.00153*** (3.54e-05)	0.00140*** (3.14e-05)	0.00120*** (9.57e-05)	0.000613*** (3.82e-05)	0.00155*** (3.11e-05)	0.000478*** (3.47e-05)	- 0.00737*** (0.000187)	- 0.000747*** (4.39e-05)	0.00216*** (3.33e-05)	0.00185*** (3.75e-05)	0.00165*** (3.12e-05)	0.00133*** (3.31e-05)	0.00190*** (6.61e-05)
Obs.	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421
R-squared	0.016	0.001	0.000	0.001	0.000	0.002	0.001	0.003	0.002	0.004	0.002	0.001	0.001	0.001	0.001

Appendix 10 OLS regression with absorbed fixed effects for sector sample B

OLS regression with absorbed fixed effects for sector. The dependent variable ACC is a dummy variable equal to 1 if a firm has completed special examination, and 0 otherwise. Variable definitions are found in table 1-2. Standard errors are found at firm-level in parentheses. ***p<0.01 **p<0.05 *p<0.1

Variables	(1) ACC	(2) ACC	(3) ACC	(4) ACC	(5) ACC	(6) ACC	(7) ACC	(8) ACC	(9) ACC	(10) ACC	(11) ACC	(12) ACC	(13) ACC	(15) ACC	(16) ACC
INTANG	0.162*** (0.00113)														
TANGL		-0.00194*** (7.14e-05)													
dummyDIV			0.000107 (6.54e-05)												
DIV				0.00301*** (9.49e-05)											
SIZEA					5.64e-05*** (1.16e-05)										
SIZEB						2.07e-07*** (5.11e-09)									
EQUITY							1.33e-09*** (1.65e-10)								
SIZEC								2.15e-07*** (3.20e-09)							
SIZED									0.000992*** (2.18e-05)						
DEBTR										0.000653*** (1.09e-05)					
ROE											-0.00408*** (9.40e-05)				
ROA												-0.00315*** (0.000272)			
EBITDA													-2.34e-06*** (6.44e-08)		
NETINC														1.64e-06*** (7.80e-08)	
AGE															-2.58e-05*** (6.73e-06)
Constant	0.000687*** (2.74e-05)	0.00264*** (5.97e-05)	0.00118*** (3.12e-05)	0.00107*** (2.76e-05)	0.000816*** (8.42e-05)	0.000412*** (3.36e-05)	0.00155*** (3.11e-05)	0.000286*** (3.05e-05)	-0.00616*** (0.000164)	-	0.00167*** (2.93e-05)	0.00142*** (3.30e-05)	0.00129*** (2.74e-05)	0.000995*** (2.91e-05)	0.00140*** (5.81e-05)
Obs.	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421	1,605,421
R-squared	0.013	0.001	0.000	0.001	0.000	0.001	0.001	0.003	0.002	0.003	0.002	0.001	0.001	0.001	0.000

Appendix 11 Logistic Model for APP

Classified	D	~ D	Total
+	366	2	368
-	2131	1602922	1605053
Total	2497	1602924	1605421

Classified + if predicted $\Pr(D) \geq .5$

True D defined as APP != 0

Sensitivity	$\Pr(+ D)$	14,66%
Specificity	$\Pr(- \sim D)$	100,00%
Positive predictive value	$\Pr(D +)$	99,46%
Negative predictive value	$\Pr(\sim D -)$	99,87%
False + rate for true -D	$\Pr(+ D)$	0,00%
False -rate for true D	$\Pr(- \sim D)$	85,34%
False + rate for classified +	$\Pr(D +)$	0,54%
False - rate for classified -	$\Pr(\sim D -)$	0,13%
Correctly classified		99,87%

Goddness-of-fit test

number of observations	1605421
number of covariate patterns	1605253
Pearson chi2 (1605253)	35460034,98
Prob > chi2	0,0000

Appendix 12 Logistic Model for ACC

Classified	D	~ D	Total
+	1932	565	2497
-	0	0	0
Total	1932	565	2497

Classified + if predicted $\Pr(D) \geq .5$

True D defined as APP != 0

Sensitivity	$\Pr(+ D)$	100,00%
Specificity	$\Pr(- \sim D)$	0,00%
Positive predictive value	$\Pr(D +)$	77,37%
Negative predictive value	$\Pr(\sim D -)$	-
False + rate for true -D	$\Pr(+ D)$	100,00%
False -rate for true D	$\Pr(- \sim D)$	0,00%
False + rate for classified +	$\Pr(D +)$	22,63%
False - rate for classified -	$\Pr(\sim D -)$	-
Correctly classified		77,37%

Goddness-of-fit test

number of observations	2497
number of covariate patterns	2497
Pearson chi2 (1605253)	2489,34
Prob > chi2	0,4492

Appendix 13 Difference-in-difference regression for year 2008

Difference-in-difference regression for year 2008. Dependent variable for regression (1) is return on equity, dependent variable for regression (2) is Return on Assets, dependent variable for regression (4) is EBITDA, dependent variable for regression (5) net income, dependent variable for regression (6) is total (nominal) equity, dependent variable for regression (7) is debt-ratio, dependent variable for regression (8) is ln(sales). Variable definitions are found in table 1-2. Standard robust errors are found at firm-level in parentheses. ***p<0.01 **p<0.05 *p<0.1

Variables	(1) ROE	(2) ROA	(3) dummyDIV	(4) EBITDA	(5) NETINC	(6) EQUITY	(7) DEBTR	(8) SIZEA
time	-0.0277*** (0.000810)	-0.00905*** (0.000283)	-0.0328*** (0.00123)	-27.71*** (1.157)	-10.89*** (1.005)	208.3*** (8.776)	-0.0125* (0.00679)	-0.0918*** (0.00684)
treated	-0.131 (0.181)	0.0560 (0.0341)	0.0293 (0.0754)	430.3 (685.8)	265.9 (168.8)	7,803*** -1,681	3.125 (2.807)	1.348** (0.565)
did	-0.0866 (0.260)	-0.0515 (0.0514)	0.0807 (0.105)	-865.9 (825.8)	86.54 (243.8)	1,674 -2,27	-0.308 (3.714)	-1.361 (0.927)
Constant	0.134*** (0.000624)	0.0743*** (0.000219)	0.287*** (0.000971)	59.69*** (0.868)	144.8*** (0.764)	1,322*** (6.456)	2.515*** (0.00526)	6.922*** (0.00521)
Obs.	545,715	545,715	545,715	545,715	545,715	545,715	545,715	545,715
R-squared	0.002	0.002	0.001	0.001	0.000	0.002	0.000	0.000

Appendix 14 Difference-in-difference regression for year 2009

Difference-in-difference regression for year 2009. Dependent variable for regression (1) is return on equity, dependent variable for regression (2) is Return on Assets, dependent variable for regression (4) is EBITDA, dependent variable for regression (5) net income, dependent variable for regression (6) is total (nominal) equity, dependent variable for regression (7) is debt-ratio, dependent variable for regression (8) is ln(sales). Variable definitions are found in table 1-2. Standard robust errors are found at firm-level in parentheses. ***p<0.01 **p<0.05 *p<0.1

Variables	(1) ROE	(2) ROA	(3) dummyDIV	(4) EBITDA	(5) NETINC	(6) EQUITY	(7) DEBTR	(8) SIZEA
time	0.00109 (0.000819)	-0.00474*** (0.000285)	-0.0347*** (0.00121)	-14.30*** (1.188)	13.00*** (1.022)	176.8*** (9.236)	-0.00211 (0.00681)	-0.0751*** (0.00696)
treated	-0.647** (0.254)	-0.171*** (0.0579)	-0.0637 (0.0694)	-1,702*** (464.0)	-325.8** (150.9)	3,425*** -1,094	-0.877** (0.447)	-0.387 (0.657)
did	0.287 (0.322)	0.0530 (0.0752)	-0.121 (0.0774)	-98.11 (632.4)	60.68 (211.9)	888.6 -1,549	-0.511 (0.469)	-0.251 (0.886)
Constant	0.112*** (0.000643)	0.0705*** (0.000223)	0.270*** (0.000956)	48.53*** (0.903)	128.2*** (0.782)	1,415*** (6.934)	2.513*** (0.00530)	6.883*** (0.00537)
Obs.	548,201	548,201	548,201	548,201	548,201	548,201	548,201	548,201
R-squared	0.000	0.001	0.002	0.002	0.000	0.001	0.000	0.000

Appendix 15 Difference-in-difference regression for year 2010

Difference-in-difference regression for year 2010. Dependent variable for regression (1) is Return on Equity, dependent variable for regression (2) is Return on Assets, dependent variable for regression (4) is EBITDA, dependent variable for regression (5) net income, dependent variable for regression (6) is total (nominal) equity, dependent variable for regression (7) is debt-ratio, dependent variable for regression (8) is ln(sales). Variable definitions are found in table 1-2. Standard robust errors are found at firm-level in parentheses. ***p<0.01 **p<0.05 *p<0.1

Variables	(1) ROE	(2) ROA	(3) dummyDIV	(4) EBITDA	(5) NETINC	(6) EQUITY	(7) DEBTR	(8) SIZEA
time	0.0155*** (0.000815)	0.00162*** (0.000284)	-0.0559*** (0.00117)	6.883*** (1.213)	12.41*** (1.030)	137.5*** (9.547)	0.0274*** (0.00678)	-0.0684*** (0.00703)
treated	-0.228 (0.204)	-0.0966* (0.0564)	-0.105 (0.0642)	-1,123** (467.9)	-6.989 (154.9)	2,915*** (-1,076)	0.718 (0.681)	-0.708 (0.768)
did	-0.737* (0.389)	-0.0414 (0.0763)	0.156 (0.0949)	-349.8 (611.4)	-142.0 (204.9)	583.6 (-1,437)	1.423 (2.768)	0.797 (0.997)
Constant	0.0985*** (0.000642)	0.0647*** (0.000223)	0.262*** (0.000944)	28.84*** (0.936)	125.6*** (0.796)	1,502*** (7.227)	2.495*** (0.00527)	6.847*** (0.00543)
Obs.	553,068	553,068	553,068	553,068	553,068	553,068	553,068	553,068
R-squared	0.001	0.000	0.004	0.001	0.000	0.000	0.000	0.000

Appendix 16 Difference-in-difference regression for year 2011

Difference-in-difference regression for year 2011. Dependent variable for regression (1) is Return on Equity, dependent variable for regression (2) is Return on Assets, dependent variable for regression (4) is EBITDA, dependent variable for regression (5) net income, dependent variable for regression (6) is total (nominal) equity, dependent variable for regression (7) is debt-ratio, dependent variable for regression (8) is ln(sales). Variable definitions are found in table 1-2. Standard robust errors are found at firm-level in parentheses. ***p<0.01 **p<0.05 *p<0.1

Variable	(1) ROE	(2) ROA	(3) dummyDIV	(4) EBITDA	(5) NETINC	(6) EQUITY	(7) DEBTR	(8) SIZEA
time	0.000345 (0.000797)	0.00132*** (0.000280)	-0.0659*** (0.00114)	2.877** (1.223)	-4.796*** (1.043)	137.1*** (9.786)	0.0131* (0.00674)	-0.0703*** (0.00705)
treated	-0.349 (0.241)	-0.0439 (0.0335)	0.00367 (0.0665)	-1,465*** (451.1)	74.24 (164.7)	7,852*** (-1,638)	2.398 (2.439)	0.263 (0.544)
did	-0.172 (0.318)	-0.0156 (0.0575)	-0.00627 (0.0865)	214.1 (619.2)	-112.4 (214.9)	-2,126 (-2,118)	-2.618 (2.493)	-0.411 (0.784)
Constant	0.111*** (0.000622)	0.0645*** (0.000219)	0.252*** (0.000924)	29.45*** (0.946)	143.6*** (0.807)	1,567*** (7.363)	2.500*** (0.00523)	6.816*** (0.00543)
Obs.	559,425	559,425	559,425	559,425	559,425	559,425	559,425	559,425
R-squared	0.000	0.000	0.006	0.002	0.000	0.001	0.000	0.000

Appendix 17 Difference-in-difference regression for year 2012

Difference-in-difference regression for year 2012. Dependent variable for regression (1) is Return on Equity, dependent variable for regression (2) is Return on Assets, dependent variable for regression (4) is EBITDA, dependent variable for regression (5) net income, dependent variable for regression (6) is total (nominal) equity, dependent variable for regression (7) is debt-ratio, dependent variable for regression (8) is ln(sales). Variable definitions are found in table 1-2. Standard robust errors are found at firm-level in parentheses.

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

Variable	(1) ROE	(2) ROA	(3) dummyDIV	(4) EBITDA	(5) NETINC	(6) EQUITY	(7) DEBTR	(8) SIZEA
time	-0.00285*** (0.000787)	-0.00174*** (0.000277)	-0.0394*** (0.00110)	-11.96*** (1.222)	5.513*** (1.051)	149.5*** (10.02)	-0.0302*** (0.00673)	-0.0814*** (0.00707)
treated	-0.124 (0.156)	0.0194 (0.0412)	-0.167*** (0.0512)	141.7 (316.2)	-24.23 (164.3)	2,336*** (885.7)	-0.614 (0.507)	0.291 (0.799)
did	-0.912** (0.431)	-0.212** (0.0908)	0.141 (0.0874)	-905.4* (502.1)	-175.1 (225.7)	-1,247 (1,067)	-0.865 (0.651)	-2.083* (1.112)
Constant	0.118*** (0.000613)	0.0674*** (0.000215)	0.220*** (0.000875)	40.86*** (0.942)	143.3*** (0.805)	1,613*** (7.529)	2.524*** (0.00523)	6.795*** (0.00544)
Obs.	563,517	563,517	563,517	563,517	563,517	563,517	563,517	563,517
R-squared	0.001	0.000	0.002	0.000	0.000	0.000	0.000	0.000

Appendix 18 Difference-in-difference regression for year 2013

Difference-in-difference regression for year 2013. Dependent variable for regression (1) is Return on Equity, dependent variable for regression (2) is Return on Assets, dependent variable for regression (4) is EBITDA, dependent variable for regression (5) net income, dependent variable for regression (6) is total (nominal) equity, dependent variable for regression (7) is debt-ratio, dependent variable for regression (8) is ln(sales). Variable definitions are found in table 1-2. Standard robust errors are found at firm-level in parentheses.

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

Variable	(1) ROE	(2) ROA	(3) dummyDIV	(4) EBITDA	(5) NETINC	(6) EQUITY	(7) DEBTR	(8) SIZEA
time	0.00825*** (0.000859)	0.000342 (0.000302)	-0.00727*** (0.00116)	-3.963*** (1.345)	27.34*** (1.160)	130.9*** (11.30)	-0.0471*** (0.00736)	-0.0688*** (0.00779)
treated	-0.764** (0.348)	-0.0446 (0.0444)	0.0214 (0.0661)	-287.3 (274.1)	69.18 (146.8)	4,016*** (1,228)	8.486** (3.996)	-0.122 (0.628)
did	0.244 (0.454)	0.0335 (0.0658)	-0.0574 (0.0835)	435.4 (396.3)	421.5** (211.9)	2,477 (1,83)	-0.869 (5.444)	-1.113 (0.912)
Constant	0.111*** (0.000615)	0.0662*** (0.000214)	0.189*** (0.000827)	34.55*** (0.949)	132.1*** (0.796)	1,666*** (7.766)	2.527*** (0.00523)	6.768*** (0.00548)
Obs.	451,606	451,606	451,606	451,606	451,606	451,606	451,606	451,606
R-squared	0.001	0.000	0.000	0.000	0.001	0.001	0.002	0.000

Appendix 19 Sign effects from one year before to two years after the treatment

Two tail paired t-test to see if the difference in means in year t=-1 and t=+2 for the different variables are not equal to zero. Wilcoxon signed rank test to see if the difference in medians in year t=-2 and t=+1 for the different variables are not equal to zero. ***p<0.01 **p<0.05 *p<0.1

n=134	Two-tail paired t-test					Wilcoxon signed rank test			
	Mean t=-1	Mean t=+2	Diff	S.E.	p	Median t=-1	Median t=+2	Diff	p
DIV	0.2291667	0.238806	-0.0298507	0.047412	0.5311	0	0	0	0.5271
EBITDA	-0.3541667	-0.2089552	-0.1343284	0.130918	0.3086	-1	-1	0	0.347
ROE	-0.0625	0.1044776	-0.0597015	0.134303	0.6581	-1	1	-2	0.6547
ROA	0.125	0.1940299	-0.0298507	0.131047	0.8205	1	1	0	0.8185
NETINC	0.0520833	0.1641791	-0.1343284	0.136001	0.3269	1	1	0	0.3053
EQUITY	0.875	0.880597	0.0298507	0.067152	0.6581	1	1	0	0.6547
DEBTR	-0.125	0.1044776	-0.2686567**	0.126859	0.038	-1	1	-2**	0.0389
SIZE	0.8020833	0.6716418	0.1044776**	0.043242	0.0185	1	1	0**	0.0196

Appendix 20 Sign effects from the year of completion to two years after the treatment

Two tail paired t-test to see if the difference in means in year t=0 and t=+2 for the different variables are not equal to zero. Wilcoxon signed rank test to see if the difference in medians in year t=-2 and t=+1 for the different variables are not equal to zero. ***p<0.01 **p<0.05 *p<0.1

n=134	Two-tail paired t-test					Wilcoxon signed rank test			
	Mean t=0	Mean t=+2	Diff	S.E.	p	Median t=0	Median t=+2	Diff	p
DIV	0.2089552	0.238806	-0.02985	0.072517	0.6813	0	0	0	0.5271
EBITDA	-0.3283582	-0.2089552	-0.1194	0.165999	0.4732	-1	-1	0	0.3862
ROE	-0.1044776	0.1044776	-0.20896	0.173125	0.2296	-1	1	-2	0.1615
ROA	0.0895522	0.1940299	-0.10448	0.17142	0.5433	1	1	0	0.5286
NETINC	0.0447761	0.1641791	-0.1194	0.171499	0.4875	1	1	0	0.4423
EQUITY	0.9104478	0.880597	0.029851	0.077424	0.7005	1	1	0	0.5637
DEBTR	-0.1044776	0.1044776	-0.20896	0.173125	0.2296	-1	1	-2	0.1083
SIZE	0.7313433	0.6716418	0.059702	0.079489	0.4539	1	1	0	0.1025

Appendix 21 Test for normality (SKtest) sample A

Sample A Variables	Obs.	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2
APP	1 605 421	0	0	.	.
INTANG	1 605 421	0	0	.	.
TANGL	1 605 421	0	0	.	.
dummyDIV	1 605 421	0	0	.	.
DIVIDENDS	1 605 421	0	0	.	.
SIZEA	1 605 421	0	0	.	.
SIZEB	1 605 421	0	0	.	.
EQUITY	1 605 421	0	0	.	.
SIZED	1 605 421	0	0	.	.
SIZEC	1 605 421	0	0	.	.
DEBTR	1 605 421	0	0	.	.
ROE	1 605 421	0	0	.	.
ROA	1 605 421	0	0	.	.
EBITDA	1 605 421	0	0	.	.
NETINC	1 605 421	0	0	.	.
AGE	1 605 421	0	0	.	.

Appendix 22 Test for normality (SKtest) sample B

Sample B Variables	Obs.	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2
ACC	2 497	0	0,0007	.	0
INTANG	2 497	0	0	.	.
TANGL	2 497	0,8417	.	.	.
dummyDIV	2 497	0	0	.	0
DIVIDENDS	2 497	0	0	.	.
SIZEA	2 497	0	0,0002	.	0
SIZEB	2 497	0	0	.	0
EQUITY	2 497	0	0	.	0
SIZED	2 497	0	0	.	0
SIZEC	2 497	0	0	59,1	0
DEBTR	2 497	0	0	.	.
ROE	2 497	0	0	.	.
ROA	2 497	0	0	.	0
EBITDA	2 497	0	0	.	0
NETINC	2 497	0	0,0524	.	0
AGE	2 497	0	0	.	0

Appendix 23 Test for multicollinarity

	(1) APP		(2) ACC	
Variable	VIF	1/VIF	VIF	1/VIF
SIZEC	6.64	0.15060241	6.69	0.149476831
EQUITY	6.14	0.16286645	5.95	0.168067227
ROA	3.49	0.286532951	3.74	0.267379679
ROE	3.21	0.31152648	2.73	0.366300366
SIZED	2.86	0.34965035	2.49	0.401606426
SIZEA	2.06	0.485436893	2.44	0.409836066
SIZEB	2.04	0.490196078	2.39	0.418410042
INTANG	2.02	0.495049505	2.23	0.448430493
NETINC	1.59	0.628930818	2.3	0.434782609
EBITDA	1.41	0.709219858	2.58	0.387596899
DEBTR	1.38	0.724637681	1	1
TANGL	1.34	0.746268657	1.5	0.666666667
dummyDIV	1.24	0.806451613	1.46	0.684931507
DIV	1.16	0.862068966	1.28	0.78125
AGE	1.02	0.980392157	1.05	0.952380952
Mean VIF	2.47		2.57	

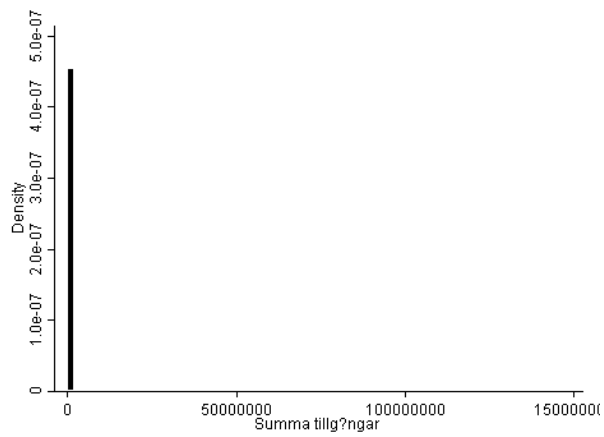
Appendix 24 Test for heteroskedasticity sample A

Breusch-Pagan / Cook Weisberg test heteroskedasticity	
Ho: Constant Variance	
Variables: fitted values of APP	
chi2(1)	= 8.32e+06
Prob > chi2	= 0.0000

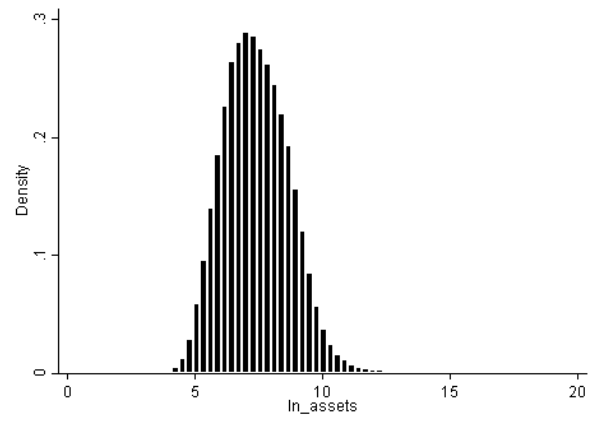
Appendix 25 Test heteroskedasticity sample B

Breusch-Pagan / Cook Weisberg test heteroskedasticity	
Ho: Constant Variance	
Variables: fitted values of ACC	
chi2(1)	= 47.41
Prob > chi2	= 0.0000

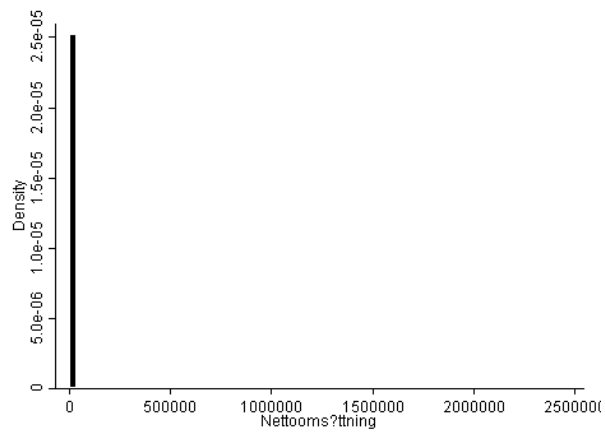
Appendix 28 Histogram SIZEC



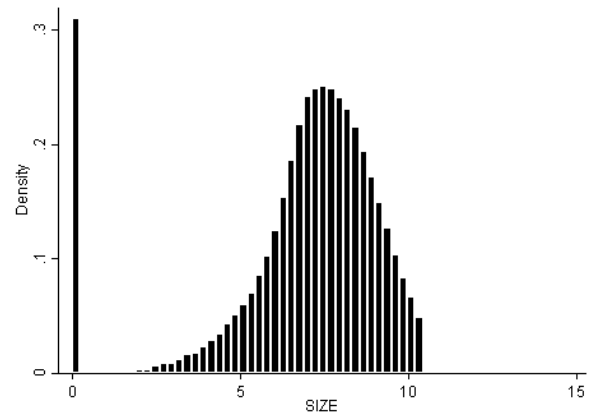
Appendix 26 Histogram SIZED



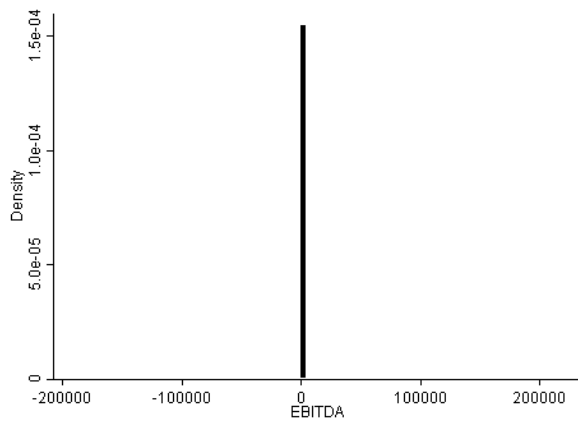
Appendix 27 Histogram SIZEB



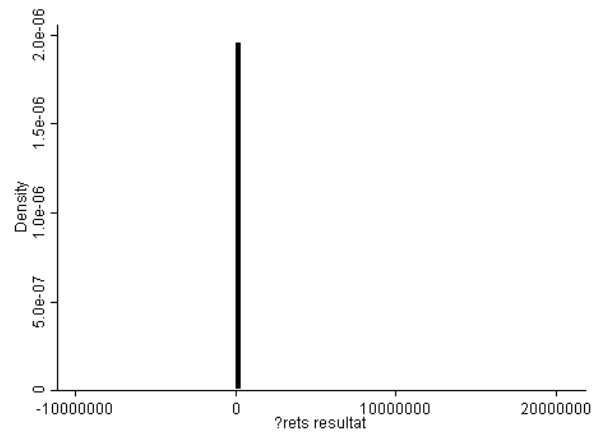
Appendix 29 Histogram SIZEA



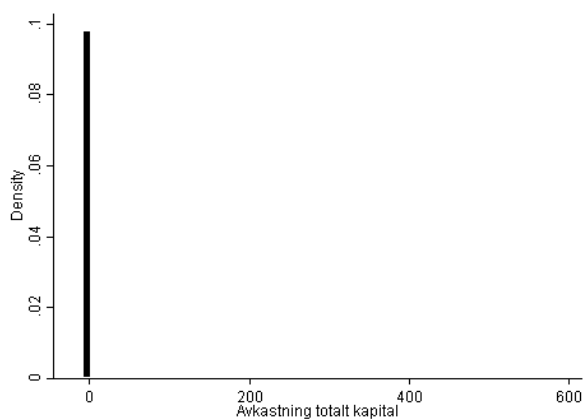
Appendix 30 Histogram EBITDA



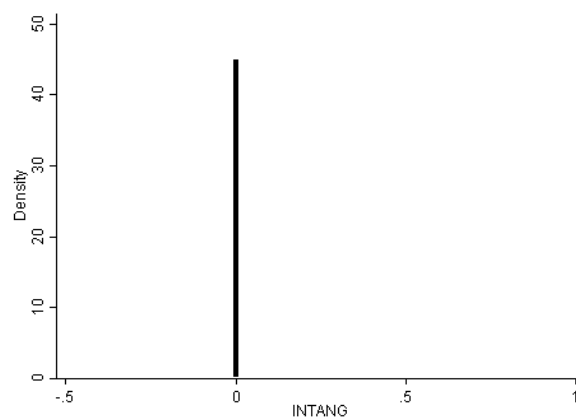
Appendix 31 Histogram NETINC



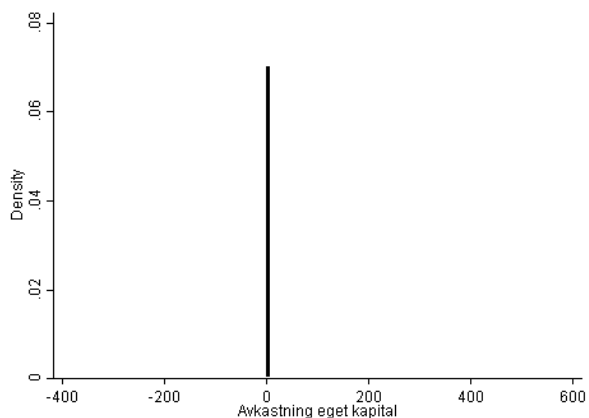
Appendix 32 Histogram ROA



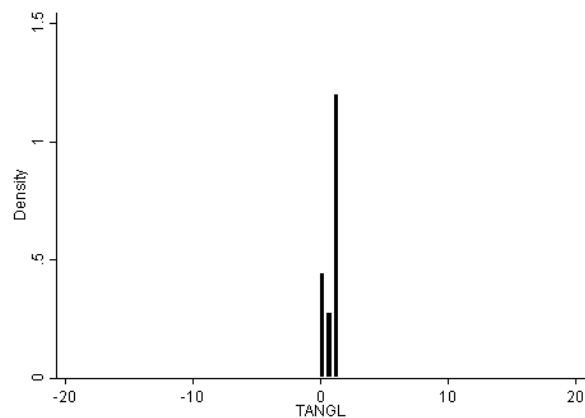
Appendix 35 Histogram INTANG



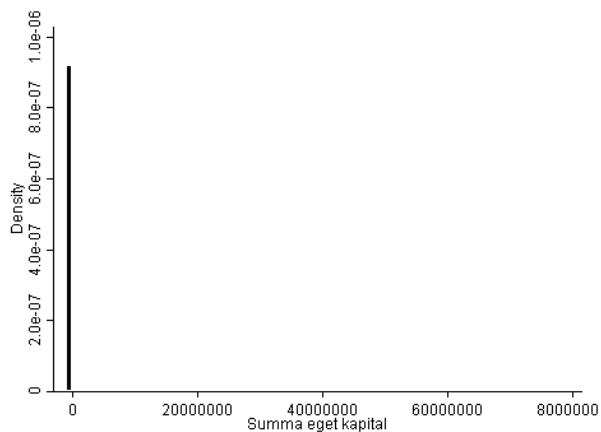
Appendix 33 Histogram ROE



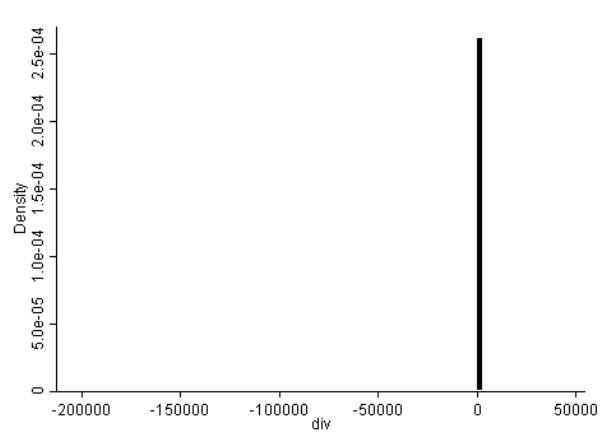
Appendix 36 Histogram TANGL



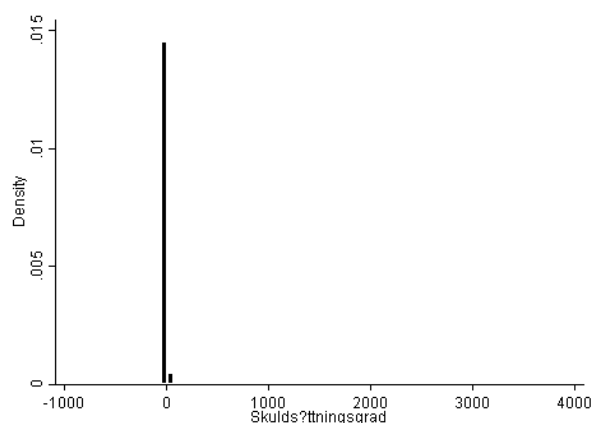
Appendix 34 Histogram EQUITY



Appendix 37 Histogram DIV



Appendix 38 Histogram DEBTR



Appendix 39 Manually added data for APP companies

Orgnr	Years with manually added data	Orgnr	Years with manually added data
5560791419	2007-2008, 2011	5566681721	2015
5561182337	2014-2015	5566683529	2006-2009, 2012-2015
5561335901	2014	5566733902	2011
5562469477	2015	5566807607	2007-2009, 2015
5563284339	2009	5566859483	2005-2008
5563438521	1999-2005	5566915103	2010-2015
5563491355	2004	5566930771	2008
5563811735	2006	5566934716	2005-2006, 2014-2015
5564259215	2007	5566939186	2007
5564362639	2001-2005	5566947312	2005-2006
5564515590	2005-2006, 2008-2010	5566978218	2007-2010
5564590445	2004-2005, 2015	5567063713	2012-2013
5564989449	2008-2010	5567075683	2010
5565005567	2012	5567237747	2013
5565119863	2013	5567412621	2013-2015
5565121570	1999-2000	5567429781	2014
5565228656	2010	5567529960	2014-2015
5565428918	2005	5567715833	2009-2010
5565479036	2008, 2010	5567848204	2009-2010, 2014
5565479648	2007-2008, 2011-2012	5567907281	2013-2014
5565730057	2005-2007, 2013	5568033939	2011-2013
5565990776	2002-2003, 2011-2013	5568038391	2012-2014
5566161377	2011	5568173099	2014
5566308788	2003, 2009	5568250129	2014
5566313770	2012-2013	5568421373	2011
5566335518	2012-2014	5568569882	2011
5566510250	2003-2004	5568769532	2014-2015
5566585732	2004	5569059727	2012-2015
5566641691	2009-2010		