

Determinants of Audit Firm Change in the United States

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Abstract:

This master thesis investigates the determinants of audit firm change in the United States before and after implementation of the SOX. Prior literature shows mixed findings based on different methodologies. This thesis will provide a comprehensive research, based on 1803 auditor changes in the US between 2000-2015. The results show that the only factors that influence auditor changes are firm size, return on assets and whether or not the current auditor is a Big 4 auditor. Moreover, the likelihood of auditor change decreased after the SOX implementation, which is a signal of the effectiveness of this regulation.

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I. Introduction

This thesis will investigate what factors determine a change of the auditor, because this can have consequences for corporate governance mechanisms. Audit quality and corporate governance have been on the political agenda for several years. Scandals such as those present at for instance Worldcom or Enron in the end of 2001 fueled the discussion on the independence of the auditor and audit quality. One response of regulators and governments was the mandatory rotation of auditors and partners. By means of this legislation, they intend to create more objectivity and independence, which could enhance the quality of the audit. Whether this is the case in the real world remains a question that had led to several discussions, both politically and academically.

As the US capital market is by far the largest of the world (Market capitalization of listed domestic companies (current US\$), 2015), audit quality is important in decreasing information asymmetry. Lacking audit quality and the consequent flawing corporate governance in these markets has consequences, which can be seen from the crisis. There are several factors that compromise audit quality. For example, independence is a key element in audit quality. The key function of the external auditor is to check whether the financial statements give a fair representation of the firm. In order to do so, the auditor must be independent. Lack of independence can completely distort this function, as can be seen from the Enron scandal and the consequent bankruptcy of one of the largest audit firms, Arthur Andersen.

In order to increase independence, government agencies found that auditors should rotate more. Consequently, mandatory audit firm rotation was proposed in the US. However, this legislation did not make it through congress. There are several arguments in favor and against the mandatory audit rotation, however most research signals that the costs of mandatory rotation outweigh the benefits (Cameran, Merlotti, & Di Vincenzo, 2005). While the effectiveness of mandatory rotation can be questioned, rotation between audit firms has been present for several decades, so one of the questions that pops up when following the discussion of the effectiveness of this measure is, why does this happen? And if firms already

rotate between audit firms, why make it mandatory? The rotation of the audit firm has been researched widely (Arrunada & Paz-Ares, 1997). The reasons behind this choice of change are not always clear yet. However, it has been agreed that there is always a rationale behind the change. This can happen because one of the parties in the process is not satisfied with the process. Clients want to comply to regulation at a low cost, whereas the auditor wants to earn revenue with acceptable levels of risk (Calderon & Ofobike, 2007). There are multiple reasons that can cause a change, which might not be in line with corporate governance. Research on this topic has produced mixed results, therefore the research question of this thesis will be:

What are the determinants of audit firm rotation for firms in the United States?

Research on auditor change is scarce at this point. Most researches use surveys to analyze what influences the changes of auditor, such as Beattie & Fearnley (1995). There are some quantitative analyses on determinants of audit firm rotation, however these have a small sample size (Woo & Koh, 2001) or are done in different institutional settings (Woo & Koh, 2001). Palmrose (1984) conducted similar research in the US, however this dates back over 30 years. Also, a lot of research tends to focus on mandatory auditor rotation (Catanach & Walker, 1999). Previous research on this topic has led to mixed results. Different methodologies have been used, however there is no empirical research on a large dataset yet (>300 switches). Therefore, the scientific contribution of this thesis is a comprehensive research on determinants of audit firm rotation on a large dataset in the United States. The results are relevant for policymakers as there are situations that cause a change of auditor when a firm tries to undermine legislation.

In order to answer the research question, data is gathered from all firms listed in the Russell 3000 index is used. This is an index of the 3,000 largest firms in the US, which has a market coverage of 98% (Russell, 2015). Moreover, the data is gathered for the years 2000-2015 to ensure a sufficiently large dataset. This includes data before and after implementation of the SOX regulation. As the US did not introduce mandatory audit firm rotation but introduced the SOX as an alternative, it will be analyzed whether this regulation had an effect on auditor

rotation. Consequently, 1803 auditor switches were analyzed over the entire time period. The empirical analysis will be done by means of a logistic regression, with multilevel panel data.

This thesis will be structured as follows. Chapter 2 will provide an overview of literature on audit firm rotation, as well as comparing and contrasting the literature. Afterwards, hypotheses are formed based on the literature. Chapter 3 will provide descriptive statistics of the dataset used and present the empirical model used to test the hypotheses. Chapter 4 will provide the results of the empirical research, which are discussed in Chapter 5.

2. Literature review and hypotheses development

2.1 Theoretical background

Literature shows that most large companies are not owned by managers anymore, as can be seen from large capital markets. That is, there is a separation between ownership and control. Apart from obvious benefits such as risk dispersion, there are problems that arise with this separation. In (Smith, 1976), Adam Smith described the consequences of this as follows: "Being the managers of other people's money, it cannot be expected that they should watch over it with the same anxious vigilance". Consequently, owners of the firm require an independent assurance to provide that the managers of their firm are doing their utmost best to create value for the owners. Inherent with this separation, there is information asymmetry. The information advantage managers have over the owners of the firm create a potential for opportunistic behavior, which is called agency theory. To tackle this asymmetry, sophisticated systems are in place to align the interests of management of that with the owners (Jensen & Meckling, 1976). Moreover, in order to control the behavior of managers, corporate governance mechanisms are installed, which are mechanisms that influence the behavior of managers. Also, these mechanisms should align the interests of the owners and the managers (Larcker, Richardson, & Tuna, 2007).

In order to decrease the information asymmetry, there is a corporate governance mechanism in the form of the external auditor (Imhoff, 2003). In essence, the external auditor provides assurance over the financial statements made by the firm's management. Consequently, both the owners of the firm and potential investors can trust that the statements are a faithful representation of the real firm (Scott, 2015). In order for the external auditor to be successful in doing so, the auditor should be objective and free of influences of the firm's management. Imhoff (2003) shows that this is not always the case yet, which can also be seen from scandals such as that of Enron. These scandals tell us that more research is needed on this topic, in order to ensure that flawed corporate governance mechanisms can be repaired. When the external audit fails to perform as an effective corporate governance mechanism, there could be multiple reasons for this to be the case.

2.2 Literature on voluntary audit rotation

As a firm can choose the auditor it prefers, and managers are assumed to make rational choices, there is a rationale behind the choice of a certain auditor. Therefore, motivations of these choices can be based on interests that do not per se have to be in line with the best interest of the shareholders. On the other hand, management can feel they are paying too large a fee for the audit and switch their auditor. This thesis will now review incentives management can have for switching auditors. However, most of these concern disagreements about the audit.

Determinants of audit firm rotation have been researched based on different methodologies and with different perspectives. This was firstly done by Williams (1988). In his paper, he developed theoretically three 'triggers' that should explain auditor change. The first trigger is a change in the contracting environment of the client. The relationship between the auditing firm and the client is considered to be a compilation of contracts. A change in the contracting environment would therefore alter the relationship between the auditor and the client, triggering a change of the auditor. Secondly, auditor effectiveness is seen as a trigger for change. Ineffectiveness of the auditor can be related to a lack of industry-specific knowledge. Moreover, as an auditor gains client-specific knowledge over time, longer tenures should have a negative influence on auditor change. Thirdly, client reputation can be a trigger. When a manager's reputation may be damaged by for instance the disclosure of misleading acts he or she may seek a replacing auditor. Moreover, financially distressed firms may have extra incentives to switch auditors. Although some variables were insignificant, the directions of the theoretical predictions matched and therefore this framework is used frequently.

Palmrose (1984) created a model to predict the choice of auditors in a certain sector. She differentiated between agency-cost variables and the use of quality-differentiated auditors. The expectations were that if companies use accounting variables in their variable remuneration plan, although costly, will demand higher quality audits in order to effectively align interests between the manager and the shareholders. Consequently, firms would use auditors who are specialized in a certain industry or would tend to switch to specialized auditors. Interestingly, most models were significant but many variables were insignificant.

One of the few significant and explanatory variables were size when a Big 8 (at that time, most of these merged into the Big 4) was selected. She concluded that large firms would opt for audit firms simply because those have the necessary resources to perform the audit. Moreover, because measuring agency variables is a complicated procedure, it can be hard to capture all dimensions of these variables.

As audits are activities that cost money but do not add direct value to firms, audit fees are an important factor that motivates the decision to choose an auditor. Naturally, one would expect that lower audit fees would mean that firms switch to that auditor. This determinant of auditor rotation has been researched widely, both quantitatively and qualitatively. Bedingfield & Loeb (p. 69, 1974) find, based on surveys, that audit fees “appeared to be an important factor influencing switches”. Usually, audit fee is one of the explanatory factors for auditor change. However, quantitative research yields opposing results. Woo & Koh (2001) conduct a logit analysis and compare firms that did change versus firms that did not change. Although the prediction was a positive relationship, namely a higher audit fee would increase the likelihood of switching audit firms, the variable did have a positive but insignificant effect. Sankaraguruswamy & Whisenant (2004) conducted research on over 2000 US firms between 1993 and 1996. Voluntary disclosure provided by firms on the change of auditor ex post was analyzed. Significant differences were found between successors and predecessor auditors; cited information by clients was more likely to be service-related when dismissing a large predecessor auditor. In contrast, information that is cited was more likely to be fee-related when opting for a small successor auditor. This is line with smaller auditors competing for price and larger auditors offering a broader array of services. Moreover, they show that higher fees are more influential when another auditor is chosen rather than increasing the probability of switching auditors. Consequently, audit fees are more useful in explaining why organizations opt for a certain audit firm rather than determining that an organization is about to switch.

Another potential source of conflict between the auditor and the firm is the ability to manage earnings. A corporate governance mechanism that is often used to align the interests of the manager with those of the shareholders are employee stock ownership plans. In short, these

include variable compensation for the managers which depends on the financial performance of the firm, which can be measured in stock prices. Therefore, stock options give an incentive to the manager to make the stock price rise. Research on this topic shows that managers manage earnings to their advantage, in order to profit from rising stock prices. This can be done for instance by recognizing profits early or late just before the measurement date to attain high profits on paper. Consequently, this does not reflect the actual financial situation of the firm, decreasing audit quality. Audit firms have to disagree with these practices, leading to conflicting situations.

DeFond & Subramanyam (1998) find that when income decreasing accounting policies are preferred by the incumbent auditor and litigation risk is higher, the chances of switching an auditor are significantly higher. Although financial performance was controlled for, financial distress may partially explain these findings. This means that the external auditor can be a constraint for management that wants to manage earnings. Moreover, contrary opinions of the auditor and management of the client signal that a change in auditor may be expected sooner than later.

Dhaliwal, Schatzberg, & Trombley (1993) hypothesized an inverse relation between the client's financial performance and disagreement between the auditor and the client leading to a change of auditor. They found a negative correlation between economic performance of the client firm and disagreements preceding auditor change. As most of the sources of disagreement are about revenue recognition and both earnings and stock prices inflated after the auditor change, it is concluded that firms change an auditor if management wants to engage in earnings management and the auditor does not agree. Although suggestive and weak, they also show that firms switch to smaller audit firms in those cases.

Next to managing earnings, managers can use communication strategies of announcing a different auditor in order to achieve their remuneration goals. They provide explanations in order to prevent negative stock price reactions as they do not convey surprises to shareholders and thus reduce information asymmetry. Hackenbrack & Hogan (2002) show that investors update expectations of earnings based on information provided in the

voluntary Form 8-K forms. The average price response, which is a proxy for investor reaction, is lower when companies switch auditors because of disagreements (for instance about audit fees). The price response was higher for companies that switched because of service-related reasons. Although investors respond to the choice of an auditor, it does not necessarily mean that auditor changes are relevant for pricing securities (Johnson & Lys, 1990).

Apart from the aforementioned reasons to switch auditors, firms may choose to switch when it is taken over or when it acquires another firm. Although the benefits of economies of scale during the audit, the firm may face difficulties when firm-specific audit specializations are passed on to the larger firm. Despite this, they found that in a significant 44 of the 60 cases, the company the decision of a specific auditor. One fruitful way of studying auditor switches is an event study. This is done by for instance Anderson, Stokes, & Zimmer (1993). In their study, 60 acquisitions in Australia were analyzed between 1978 and 1985. Generally, it is hypothesized that the firm that switched to the auditor of the acquiring firm. One explanation they offer is that the auditor of the acquiring firm is usually larger. Moreover, they insinuate that when the business activities of both firms are different, the acquired firm's auditor is likely to be retained.

Firth (1999) responds to this paper by using a different dataset (Great Britain vs. Australia) and using more control variables that have been shown to significantly influence the decision to switch auditor. One of the differences he finds is that the type of takeover (horizontal, vertical, conglomerate) has an influence. Moreover, characteristics that explain switching to the acquiring firm's auditor are those that have been shown to influence the switch in general, such as expertise (size) of the auditor. Despite the confirmed hypotheses, several limitations are identified. One of these is that the sample used by Anderson et al. (1993) only contains listed firms, which may limit generalizability to non-listed firms. For example, Luypaert & Van Caneghem (2012) also find that firms are more likely to change auditor after a recent merger or acquisition. Notably, the share of non-listed firms was relatively large in their sample, but the effect was stronger for listed firms than non-listed firms.

A different and unique event is the failure of Arthur Andersen after the meltdown of Enron. Obviously, clients of this auditor had to switch to another auditor. A study done by Blouin, Grein, & Rountree (2007) showed that these firms did not make a random switch. In fact, companies with greater concerns for agency problems were more likely to cut off ties with former auditors and switch to a new auditing firm. On the other hand, companies concerned with costs of moving to another auditing firm followed their former auditor to the new firm. Although this clearly shows that firms with different incentives have a different choice pattern, the analysis of financial statements and audit fees fails to show significant improvements. These have implications for mandatory audit firm rotations as the situation these firms found themselves in will likely enter the same setting of options when being forced to switch to another auditor.

As mentioned before, financially distressed firms may have extra incentives to switch auditors. This could be explained by the inability to manage earnings, as described in the research done by DeFond & Subramanyam (1998). As firms may want to increase earnings when in financial distress, conflicts may arise causing an increased probability of auditor switching. Another explanation is provided by Hudaib & Cooke (2005). Analyzing 297 UK listed companies, they find that the probability of switching an auditor is higher when firms are in financial distress. Moreover, they find that when there is no change of chief executive, the chances of receiving an unqualified¹ opinion is higher. This implies that independence of the auditor can be harmful to the functioning of this corporate governance mechanism.

Disagreement about the audit can be seen as a source of conflict and therefore a reason to switch auditor. Therefore, a firm that receives a qualified opinion of the auditor may be more willing to switch auditors. However, firms do not switch to auditors that have low percentage-qualified opinions Chow & Rice (1982). Although it seems that these switches signal hampering corporate governance, Chow & Rice (1982) state that the choice is mostly based

¹ The opinion of an auditor is unqualified when the financial statements are a fair and accurate representation of the firm. A qualified opinion includes some exceptions about (parts of) the audit. An adverse opinion is a major concern. This relates to the "going-concern" exception, which states that the auditor has serious doubts about the viability of the business.

on expected reactions from shareholders. Consequently, these type of switches can be aligned with the interests of shareholders. Interestingly, this switching behavior seems to serve little to no purpose, as it is unlikely that the switch leads to an unqualified report (Gul, Lee, & Lynn, 1992). Moreover, large companies are less likely to receive qualified reports than smaller reports and are less likely to switch receiving such a report. Therefore, one might conclude that the relation between the auditor and the large firm is more rigid than with smaller firms.

Another influential factor that might explain why firms switch auditors is that the firm wants to switch to the industry specialist auditor. An auditor might not have enough knowledge required for the firm. For example, a firm may demand more knowledge of a specific industry. When a firm deals with complicated financial products, an audit firm that is specialized in auditing financial institutions may be able to perform the audit at a relatively lowered cost than an auditor that does not possess this knowledge. On the other hand, audit firms specialize in regulated markets in order to differentiate themselves from the competition. This can be explained by the fact that audit firms can benefit from economies of scale more easily in that way (Dunn & Mayhew, 2004). This is a favorable shift, as specialization leads to increased financial statement quality (Balsam, Krishnan, & Yang, 2003). Interestingly, smaller firms pay a premium for industry specialization, whereas larger firms (relative to the auditor's clients) do not experience these costs. This may be attributed to the bargaining power of large firms (Casterella, Francis, Lewis, & Walker, 2004). In line with this separation of influential factors is research done by Calderon & Ofobike (2007). However, they make a distinction between client-initiated and auditor-initiated changes of auditor. In their univariate tests, they show that a number of factors are significantly influencing the separation of the client and the auditor. Most importantly, they conclude that several factors such as risk management decisions and internal control deficiencies are more fruitful in explaining auditor-initiated separations than client-initiated separations.

2.3 Current Regulation

Governments and other regulators have acknowledged that something has to be done about this failing corporate governance mechanism, namely auditor independence. One of the governmental responses in the United States was the implementation of the Sarbanes-Oxley act in 2002. Sections most relevant to this thesis are 302 and 404. Section 302 states that senior management has to certify the accuracy and soundness of the financial statement. Moreover, they sign to be accountable, responsible and, most importantly, legally liable. The goal of this legislation is to give incentives to management not only to improve personal gain, but also take responsibility for bad consequences of financial reporting. In addition, section 404 requires both management and the external auditor to oversee internal controls and report on these controls (Sarbanes-Oxley Act (SOX) of 2002). Although imposed with the best intentions, there are several concerns with the SOX act. First, the SOX is built on the assumption that auditing was 'broken'. However, it is unclear whether this is really the case (DeFond & Francis, 2005). Secondly, investors view the SOX as costly and 'bad for business', especially section 404. As they are the parties intended to be protected, it seems that this act has overshot its goal (Zhang, 2007).

Proposed regulation that did not make its way through congress is mandatory audit firm rotation. There is both a political and academic debate on the topic of audit firm rotation. Proponents of mandatory audit firm rotation argue that longer audit tenure reduces objectivity and independence of the auditor. Moreover, they state that more competition amongst audit firms would lead to higher audit quality and rotation can prevent conflict of interest which can easily arrive with longer tenure. Also, they refer to progress made in countries that already adopted mandatory audit firm rotation, such as Italy (Healey & Kim, 2003). However, despite the concerns, opponents of auditor rotation argue that longer audit tenure actually leads to higher audit quality. Moreover, concerns are raised about the high initial starting costs of audits, so mandatory rotation would be a suboptimal solution (Myers, Myers, & Omer, 2003).

2.4 Development of hypotheses

As there are many variables that influence the rotation of auditors, figure 1² will give an overview of the variables used in this research and their predicted signs in the brackets.

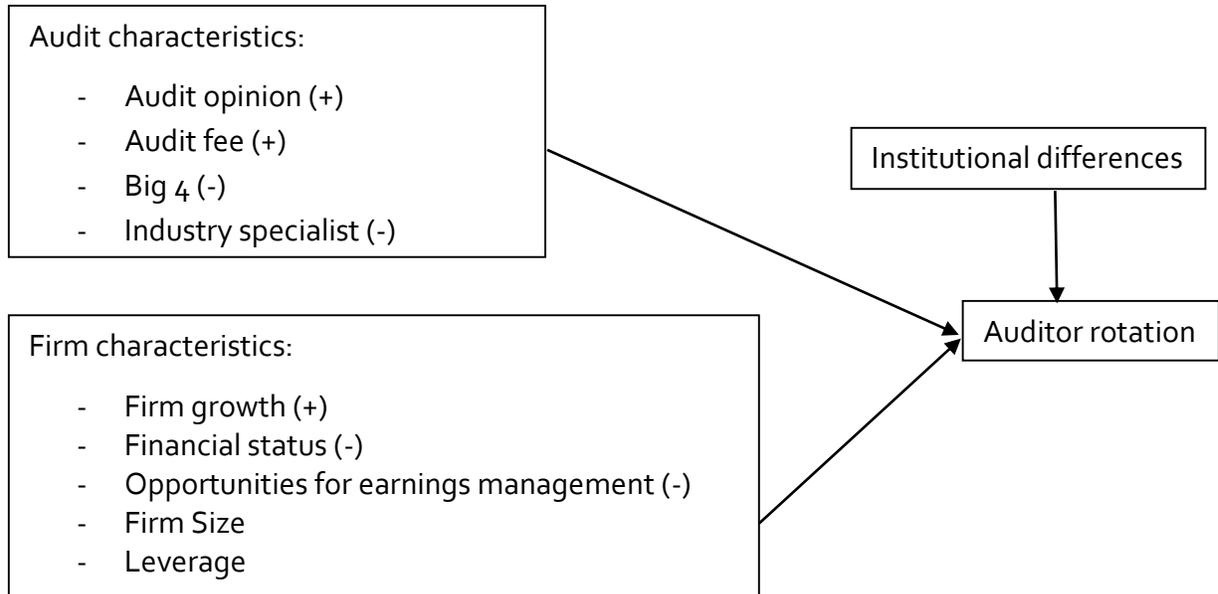


Figure 1 Determinants of auditor rotation

Figure 1 makes a clear distinction between characteristics of the auditor and the firm that is to be audited. In line with this separation of influential factors is research done by (Calderon & Ofobike, 2007). However, they make a distinction between client-initiated and auditor-initiated changes of auditor. In their univariate tests, they show that a number of factors are significantly influencing the separation of the client and the auditor. Most importantly, they conclude that several factors such as risk management decisions and internal control deficiencies are more fruitful in explaining auditor-initiated separations than client-initiated separations. Although this is not the scope of this thesis, the distinction between client and auditor characteristics is a useful way for organizing the determinants of auditor change.

² Adapted from Woo and Koh, p.34, (2001).

2.4.1 Determinants

There are several characteristics of the audit firm that are expected to have an effect on the probability that a firm switches auditor. Firstly, audit opinion is expected to have a positive influence on auditor rotation. If the auditor gives a qualified opinion, there is reason for the auditor to believe that there are misstatements and/or omissions in the financial statements. Clearly, this is a source of potential conflict between the auditor and auditee. It is therefore expected that the year after the firm receives a qualified audit opinion, it switches auditor.

H_{1A}: The likelihood of audit firm rotation increases after a firm receives a qualified opinion from the auditor.

A second audit firm characteristic is audit fee. When audit fees increase compared to the year before, for whatever reason, it is expected that firms will switch auditors sooner compared to previous years. It might be interesting to see whether this effect is stronger after the SOX implementation, as audit fees are supposed to be higher according to literature (Zhang, 2007).

H_{2A}: The likelihood of audit firm rotation increases after the audit fees increase compared to the previous year.

Thirdly, when a firm is audited by a Big 4 firm, it is expected to be less likely to switch, as there are more reasons to switch towards a Big 4 firm than away from such a firm. Big 4 firms often have more resources than smaller audit firms. Moreover, Big 4 firms tend to be seen as higher quality than smaller firms. Also, as they have a reputation, they will have extra incentives to avoid damage to this reputation (Williams, 1988). Therefore, they are expected to be more willing to accommodate clients in case of a conflicting opinion on audit matters.

H_{3A}: The likelihood of audit firm rotation decreases when the firm is audited by a Big 4 firm.

Another factor that may influence the probability of auditor change is whether or not the firm is being audited by an industry specialist. Literature shows that industry specialists charge a premium between 10 and 30%, but quality is also increased (Francis, Kenneth, & Wang, 2005). Therefore, a firm may want to switch towards a specialist. A negative relation is hypothesized.

H_{4A}: The likelihood of audit firm rotation decreases when the firm is audited by an industry specialist.

Firm growth can increase the probability of auditor switching, because expanding the business may require an auditor with specific industry knowledge or more resources (Woo & Koh, 2001). Therefore, a positive relation is hypothesized.

H_{5A}: The likelihood of audit firm rotation increases when the firm is growing.

By contrast, a firm that is in financial distress may switch the auditor as equity holders require an objective view when firms are losing money and thus want to ensure incentives are aligned with the firm's management (Williams, 1988). Consequently, a negative relation is hypothesized.

H_{6A}: The likelihood of audit firm rotation increases when the financial situation of the firm deteriorates.

Managers can also manage earnings in their advantage, especially for bonus purposes. Although earnings management does not always negatively influence shareholder value, it can be perceived as deceiving by the shareholders DeFond & Subramanyam (1998). Therefore, the shareholders may demand more independence and consequently switching auditors.

H_{7A}: The likelihood of audit firm rotation decreases when there less opportunities for earnings management.

2.4.2 Post-SOX implementation

Apart from the variables that influence the likelihood of auditor change, a distinction will be made between the pre- and post-SOX period. As stated before, the SOX act was meant to improve the corporate governance mechanisms. It is expected that there is no need to change auditor as more disclosure is required as this is a sign of effectiveness of the SOX regulation. Therefore, the likelihood of switching auditors should be lower after the implementation of the SOX.

H_{8A}: The likelihood of audit firm rotation is lower after implementation of the SOX legislation than before implementation of the SOX regulation.

To see whether the results are robust, two separate models are used. First, a regression that controls for the year 2001 is used. As can be seen from table 3, this is the year that Big-5 firm Arthur Andersen went bankrupt and consequently a lot of firms had to switch their auditor. Secondly, the dataset used includes the global financial crisis years of 2007 until 2009. Therefore, regressions are performed to control for these years separately.

3. Research Methods

3.1 Sample

The data used in order to test the hypotheses, panel data on the US capital market is used. In order to provide an analysis of the US market, all non-financial companies in the Russell 3000 index were used from 2000 to 2015. This index covers 98% of the US capital market. Smaller, non-listed companies were not used as switchers of auditors have a smaller impact on the total capital market. All variables were gathered by means of the Compustat and Audit analytics databases, accessed via the Wharton Research Data Services. Table 1 shows the number of firms per SIC group and the average total assets and average amount of leverage per SIC group. Table 2 shows the number of firms per SIC group and fiscal year.

SIC Group	Corresponding SIC code	Stats	Total assets	Leverage
Mining	1000-1400	N	1282	1282
		mean	6181.72	.2828795
Construction	1500-1700	N	472	471
		mean	2.976.267	.2586991
Manufacturing	2000-3900	N	12123	12085
		mean	5.383.181	.1968825
Transportation	4000-4900	N	2979	1998
		mean	11447.82	.3480016
Wholesale Trade	5000-5100	N	886	884
		mean	3.143.664	.1956723
Retail Trade	5200-5900	N	2031	2017
		mean	5.127.391	.2019631
Services	7000-8900	N	6968	4458
		mean	30840.23	.2874429
Public Administration	9100-9900	N	4513	4477
		mean	3.355.635	.2115434
Missing		N	95	92
		mean	120193	.2135001
Total		N	31349	27764
		mean	11590.46	.230068

Table 1 Descriptive statistics per SIC group^{3,4}

³ Obtained from <http://siccode.com/>.

⁴ The group 'Financial Services' (6000-6700) were left out of the analysis. There were not enough observations for the group 'Agriculture, Fishing and Forestry' (0100-0900).

Fiscal year	SIC Group									Total
	Missing	Mining	Construction	Manufacturing	Transportation	Wholesale Trade	Retail Trade	Services	Public Administration	
2000	8	58	28	630	153	47	107	275	209	1,515
2001	10	61	28	636	162	49	107	285	216	1,554
2002	10	63	27	657	169	52	112	298	226	1,614
2003	9	65	28	681	171	51	115	318	234	1,672
2004	9	65	28	696	178	53	119	422	243	1,813
2005	8	72	28	720	178	54	122	434	260	1,876
2006	7	75	30	731	184	58	122	440	269	1,916
2007	6	77	29	743	186	58	125	447	273	1,944
2008	8	80	29	768	193	54	127	464	281	2,004
2009	7	86	27	790	195	58	131	475	296	2,065
2010	6	89	28	818	200	60	137	487	318	2,143
2011	5	94	31	858	203	60	144	518	345	2,258
2012	3	97	32	869	204	59	144	526	346	2,28
2013	2	100	32	870	205	59	144	527	346	2,285
2014	2	100	33	867	202	59	144	535	342	2,284
2015	2	100	34	800	198	55	133	530	312	2,164
Total	102	1,282	472	12,134	2,981	886	2,033	6,981	4,516	31,387

Table 2 Number of firms per SIC group and fiscal year

3.2 Operationalization

3.2.1 Dependent variable

The dependent variable used in this research is auditor change. This is a dummy variable coded 0 or 1. The value 1 represents a change of auditor in the next fiscal year, as the auditor of a fiscal year is usually announced in the year before. As this thesis examines the determinants of the change, the dummy is a 1 for the year prior to the change. Table 3 provides an overview of the fiscal years and the change of auditors. Table 4 shows the number of switches per industry group.

Fiscal year	Auditor Change		Total
	0	1	
2000	1,524	86	1,61
2001	1,324	327	1,651
2002	1,646	68	1,714
2003	1,673	104	1,777
2004	1,534	294	1,828
2005	1,778	112	1,89
2006	1,908	115	2,023
2007	1,931	149	2,08
2008	1,993	153	2,146
2009	2,048	136	2,184
2010	2,091	144	2,235
2011	2,178	109	2,287
2012	2,19	108	2,298
2013	2,196	103	2,299
2014	2,157	138	2,295
2015	2,228	0	2,228
Total	30,399	2,146	32,545

Table 3 Auditor changes per fiscal year

Auditor Change			
SIC Group	0	1	Total
Missing	87	15	102
Mining	1,199	83	1,282
Construction	446	26	472
Manufacturing	11,493	641	12,134
Transportation	2,806	175	2,981
Wholesale Trade	840	46	886
Retail Trade	1,939	94	2,033
Services	6,433	548	6,981
Public Administration	4,295	221	4,516

Table 4 Auditor changes per SIC group

3.2.2 Independent variables

Auditor Characteristics

The variable audit opinion [AUO] was also obtained from Compustat. Missing data were matched with the data of the Thomson Reuters database, unless that database also had missing data. The original hypothesis included qualified opinion, however, over the 15 years and this large datasets, only 7 qualified opinions were published which is too little to use in the regression. Therefore, this dummy was recoded to a 0 for an unqualified opinion and a 1 for an unqualified opinion which required extra explanation. As this requires extra effort from the firm's management, it can also be a sign of friction between the auditor and the firm and therefore be a predictor of auditor change.

Audit fees [LDAUF] were gathered from the Audit Analytics database. The change of the audit fee compared to the previous year was generated in Excel to see whether increasing audit fees lead to changes of auditors. The dummy variable for Big 4 auditors [DUMAU] takes on the value 1 if the firm in question was audited by a Big 4 firm, 0 for a non-Big4 firm. This includes the years 2000 and 2001, when Arthur Andersen still existed. When Andersen was that firm's auditor, it also was assigned the value of 1 as it used to be the Big 5 audit firms. These variables are in line with Woo & Koh (2001).

There are several ways to measure what auditor firm is the specialist of a certain industry [AUBYS]. This thesis will follow the methodology proposed by Palmrose (1984), which takes

the market share leader of the industry the auditee is active in. This methodology is used often when identifying industry specialists in the market for audits (Scott & Gist, 2013). Consequently, for every year and industry group, the market leader in terms of audit fees was generated by means of Excel. Following these calculations, a dummy was included in the model which was 1 when the firm was audited by the industry specialist in that year and 0 otherwise.

Firm characteristics

Firm growth [LDNIA] was calculated by the change in net sales compared to the previous year. The proxy for financial status [LROA] is return on assets, which is calculated by dividing net income by total assets, which are the most common proxies for firm growth and financial status (Woo & Koh, 2001). The variable opportunities for earnings management [LDAC] was the most complex to measure. In the literature, several ways are proposed to detect the so called discretionary accruals, which is the part of accruals that can be used by management to alter earnings to their likings. In this thesis, the Modified Jones Model is used, as it is the most powerful in detecting earnings management (Dechow, Sloan, & Sweeney, 1995). Discretionary accruals are estimated with a few steps. First, the total accruals are measured for all firms by the following formula:

$$TA_t = \frac{IBC_t - OANCF_t}{A_{t-1}}$$

Where TA_t are total accruals at time t , IBC_t is the cash flow before extraordinary items, $OANCF_t$ is the net cash flow from operating activities and A_{t-1} are total assets in the previous year. In order to calculate the discretionary accruals, non-discretionary accruals are measured by the following formula:

$$NDA_t = \alpha_1 \left(\frac{1}{A_{t-1}} \right) + \alpha_2 (\Delta REV_t - \Delta REC_t) + \alpha_3 (PPE_t)$$

Where NDA_t are the non-discretionary accruals, $\left(\frac{1}{A_{t-1}} \right)$ is the inverse of total assets of the previous year, ΔREV_t is the change in revenues compared to the previous year scaled by total assets of the previous year, ΔREC_t is the change in receivables compared to the previous year

scaled by total assets of the previous year and PPE_t is the gross property, plant and equipment scaled by the total assets of the previous year. Finally, to measure the discretionary accruals, the non-discretionary accruals are subtracted from the total accruals. Regressions were performed cross-sectional per industry group.

The institutional variable is a control variable for the implementation of the Sarbanes Oxley act in 2002. This variable is a dummy that is equal to 1 after implementation, 0 for the years before.

3.2.3 Control variables

In order to control for firm-specific differences, two control variables are added to the analyses. The proxy for firm size [LAT] is the natural log of total assets. Secondly, to account for differences in leverage, [LLEV] was measured by taking the natural log of the ratio of total debt to assets.

3.3 Econometric model

This model measures the determinants of auditor changes. The dependent variable is a dummy variable which is 1 for a change in the next year and 0 for no change, as will be explained in the next section. As the dependent variable is dichotomous, a logistic model is the best method. OLS regressions are problematic according to DeMaris (1995) as the use of a linear function is problematic because it leads to predicted probabilities outside the range of 0 to 1. This is the case since the independent variables of an OLS-equation are not restricted to fall between 0 and 1. However, in the case of a dichotomous or categorical variable, the dependent variable is restricted to fall between 0 and 1 (since probabilities run from 0-1 by definition), so there is a mismatch. Consequently, the logistic model is a more accurate estimator. Instead of a linear relationship between 0 and 1, there is a non-linear S-shaped relationship between the dependent variable (which in this case is a probability) and the independent variables which can be used to keep the choice probability within the interval [0,1] (Hill, Griffiths, & Lim, 2008). Also, as data for more firms is used over 15 years, panel data is used. This leads to the econometric model below. A summary of the variables and their measurement is presented in table

P(Auditor Change)

$$= \beta_0 + \beta_1 AUO + \beta_2 LDAUF + \beta_3 DUMAU + \beta_4 AUBYSP + \beta_5 LDNIA + \beta_6 LROA + \beta_7 LDAC + \beta_8 LAT + \beta_9 LLEV + \varepsilon$$

Variable	Description	Measurement
auch	Auditor change	Dummy, 1 for years preceding the auditor change
auo	Auditor opinion	Dummy, 1 for years in which the firm was required to provide extra explanation
ldauf	Change Audit fee	Change in audit fees compared to the previous year
dumau	Big 4 dummy	Dummy, 1 for years in which the firm was audited by a Big 4 firm ⁵
aubysp	Auditor is specialist	Dummy, 1 for years in which the firm was audited by an industry specialist
ldnia	Change net income	Log change in net income compared to the previous year
lroa	Return on assets	Log return on assets
ldac	Discretionary Accruals	Log of discretionary accruals computed by the Modified Jones Model
lat	Size	Log of total assets
llev	Leverage	Log of ratio debt/assets
postsox	Post-Sox	Dummy, 1 for years after SOX implementation (>2002)
dumand	Dummy Andersen	Dummy, 1 for years for the year in which Andersen went bankrupt; 2001
precrisis	Pre-crisis	Dummy, 1 for years before the financial crisis (<2007)
crisis	Crisis	Dummy, 1 for years during the financial crisis (2007-2010)
postcrisis	Post-crisis	Dummy, 1 for years after the financial crisis (>2010)

Table 5 Summary of the variables

⁵ Prior to the bankruptcy of Arthur Andersen in 2001, firms audited by Andersen were also assigned a 1 as Andersen was one of the Big 5 at the time.

4. Empirical results

4.1 Descriptive statistics

One of the assumptions of the logit model is that all variables are normally distributed, except for dummy variables. In order to ensure that variables are normally distributed, histograms combined with the normal distribution were computed in Stata. Consequently, the variable was squared or the log was taken of that variable to see whether or not the variables became more normally distributed after the transformation. Table 6 provides descriptive statistics of the variables used in the model.

Variable	Obs	Mean	Std. Dev.	Min	Max
auch	32545	.0659395	.2481801	0	1
auo	30741	1.869.067	1.361.426	0	4
ldauf	13171	-1.820.253	1.538.916	-9.557.399	6.996.321
dumau	32545	.8218159	.3826735	0	1
aubysp	31285	.2299824	.420828	0	1
ldnia	16543	-1.030.088	1.613.843	-1.025.948	8.385.489
lroa	24801	-3.214.384	110.463	-1.270.379	1.939.404
ldac	11832	-3.522.174	1.226.912	-108.478	-.4439112
lat	31891	7.195.248	197.856	-6.907.755	1.476.063
llev	23237	-1.928.924	1.579.987	-1.345.777	3.152.184

Table 6 Descriptive statistics of variables

As can be seen from table 7, there is low correlation among the variables, with the highest value being $-.2631$ for the correlation between total assets and return on assets. However, as this value is not close enough to either 1 or -1. Some variables have significant correlation (as can be seen by an asterisk behind the coefficient), however these are logical to interpret. The variable dumau correlates significantly with especially aubysp, lroa and lat. As dumau is the dummy for whether or not the firm is audited by a Big 4 audit firm, it is logical that it correlates positively with aubysp, which is the 'Audited by a Specialist' dummy because the industry specialists are usually Big 4 audit firms. Also, it significantly and positively correlates with the 'lat' dummy, which is the log of total assets. This again can be expected, as large firms are often audited by Big 4 firms as those firms have the resources to perform an audit on a large and globally operating firm.

The significant negative correlations between return on assets and total assets are logical as well, as returns on assets experience diminishing marginal benefits. The negative correlation between 'ldac', the earnings management variable, and total assets is also expected, as large firms are mostly audited by Big 4 firms, which are higher in audit quality and therefore management has less 'room' to manage earnings. Although there are clear correlations in the data, multicollinearity is not a problem as the relationships are logical.

	auch	auo	ldauf	dumau	aubysp	ldnia	lroa
auch	1						
auo	-0.0036	1					
ldauf	0.0122	0.0782*	1				
dumau	-0.1646*	-0.0003	0.0024	1			
aubysp	-0.0601*	-0.0072	0.0042	0.2313*	1		
ldnia	0.0130	0.0028	0.0015	0.0196	-0.0227*	1	
lroa	-0.0497*	-0.0074	-0.0080	0.1560*	0.0964*	0.0606*	1
ldac	0.0153	0.0002	-0.0061	-0.1040*	-0.0579*	0.1468*	0.1638*
lat	-0.0747*	0.0001	-0.0102	0.2354*	0.1267*	-0.1329*	-0.2631*
llev	0.0038	0.0105	0.0030	0.0425*	0.0023	0.0121	-0.1467*
	ldac	lat	llev				
ldac	1						
lat	-0.2514*	1					
llev	-0.1008*	0.1856*	1				

Table 7 Correlation matrix of the variables. A star indicates significance at the 1% level.

The table below shows the different SIC groups, generated on 2 digits, the number of observations included and the average total assets of that SIC group. As can be expected, there are large differences between the different SIC groups.

Discretionary accruals were computed by means of the Modified Jones Model. The average values of discretionary accruals per year can be seen from table 7.

Fiscal year	N	Mean	Standard deviation
2000	570	-3.243	1.255.701
2001	603	-3.319.884	1.146.927
2002	628	-3.474.655	1.153.065
2003	634	-3.759.995	1.301.967
2004	658	-3.563.753	1.177.703
2005	662	-3.586.579	1.217.997
2006	680	-3.496.597	1.210.424
2007	718	-35.377	1.217.124
2008	825	-3.266.759	1.185.515
2009	787	-3.463.744	1.203.132
2010	771	-3.544.502	1.240.767
2011	799	-3.594.679	130.749
2012	889	-3.622.126	1.281.707
2013	887	-3.564.626	1.141.089
2014	881	-3.700.417	1.279.047
2015	840	-351.555	117.421
Total	11832	-3.522.174	1.226.912

Table 8 Discretionary accruals per fiscal year

4.2 Hypotheses testing

In order to test the hypotheses, a panel data logit analysis is used. The outputs are made by means of the STATA software package. To see whether fixed-effects models or random-effects models were to be used, Hausman tests were performed on all three models. As these tests were insignificant, random-effects models are the best estimators and were therefore used in the analysis Hill, Griffiths, & Lim (2008). Moreover, robust standard errors and controls for clustered errors were used.

	Predicted	Auditor Change	
Auditor Opinion	+	0.104	(0.94)
Ln Change Audit Fees	+	0.000662	(0.01)
Auditor is Big 4	-	-1.052 [*]	(-2.19)
Audited by specialist	-	-0.248	(-0.59)
Ln Change Net Income	+	-0.0663	(-0.72)
Ln Return on Assets	+	0.530 [*]	(1.97)
Ln DAC	-	0.0476	(0.42)
Ln Assets	-	-0.331 ^{**}	(-2.84)
Ln Leverage	+	0.0115	(0.11)
Constant		-0.0601	(-0.05)
Insig2u			
Constant		0.881	(1.43)
Year dummies		Yes	
SIC dummies		Yes	
N(Groups)		1803(845)	
Wald- χ^2		37.05	
p		0.176	

t statistics in parentheses

^{*} $p < 0.10$, ^{*} $p < 0.05$, ^{**} $p < 0.01$, ^{***} $p < 0.001$

Table 9 Results model determinants. See table 5 for explanation of the variables.

The first model is the normal model without controls for specific events, of which the results are presented in table 9. An overview of the variables is provided in table 5. What stands out is that there are several insignificant variables. However, as the literature also displays mixed results, these results were not unexpected.

To test hypothesis 1, which predicts a positive sign, the results show that the variable audit opinion did have the predicted sign, it was insignificant. Therefore, the null hypothesis is not rejected. The reason for this might be that an alternative measure for audit opinion had to be used due to the low amount of observations.

To test hypothesis 2, which predicts a positive sign for the change in audit fees, the results show that this variable is also not significant. Moreover, as can be seen from the low *t*-value, the effect on auditor changes is relatively small. Consequently, the null hypothesis is not rejected. A potential explanation is that audit fees are only a small part of operating expenses of the firms, which especially holds for larger firms (Beattie & Fearnley, 1995).

In order to test hypothesis 3, which predicts a negative relation between auditor change and a Big 4 auditor, the results show that the dummy variable for Big 4 auditor is significant, although on the 10% confidence interval, and has the predicted negative sign. Therefore, the null hypothesis is rejected. This result is in line with the results by (Woo & Koh, 2001).

Hypothesis 4 predicts a negative relation between the industry specialist and auditor change. The auditor specialist dummy is not significant although it does have the predicted sign. The null hypothesis is therefore not rejected. This is inconsistent with the research of (Williams, 1988). However, Williams (1988) used data between 1977 and 1982 and the business environment of both firms and auditors has changed over the years.

Hypothesis 5 predicted a positive relation between firm growth and auditor change. Change in net income was not significant and the sign was the opposite of that predicted and the null hypothesis is not rejected. A possible explanation for change in net income is that firms experience uncertainty when growing as new markets/segments are used or production is increased. Therefore, they might want to rely on the firm-specific knowledge the current auditor possesses. However, Woo & Koh (2001) did get an insignificant variable but a positive coefficient. This might be caused by institutional differences, as Woo & Koh (2001) use data of the Singaporean stock exchange.

Hypothesis 6 predicts a positive relation between auditor change and the financial status of the firm. Consistent with expectations, return on assets has a positive influence on auditor change. Therefore, the null hypothesis is rejected. This is the opposite of the results of Woo & Koh (2001), however the different institutional setting and small sample size may be an explanation.

Hypothesis 7 predicts a negative relation between auditor change and opportunities for earnings management. The variable discretionary accruals is the opposite of predicted and the variable is insignificant. For discretionary accruals it can be the case that the model used is unable to capture all aspects of earnings management. Although the Modified Jones Model is the best model to measure earnings management, it is still a hard phenomenon to capture completely (Dechow et al., 1995). Moreover, as can be seen from table 6, the number of

observations of discretionary accruals is relatively low. This can also be a reason for the low predictive power of the variable.

In order to test hypothesis 8, it is checked whether or not the implementation of the Sarbanes Oxley Act has a significant influence on auditor changes. Year dummies are not included as these are controlled for by the SOX dummy. The results are presented in table 10.

	Predicted	Post Sox	
Auditor Opinion	+	0.104	(1.02)
Ln Change Audit Fees	+	0.00414	(0.05)
Auditor is Big 4	-	-0.745 ⁺	(-1.79)
Audited by specialist	-	-0.312	(-0.77)
Ln Change Net Income	+	-0.0628	(-0.72)
Ln Return on Assets	+	0.428 ⁺	(1.76)
Ln DAC	-	-0.00713	(-0.07)
Ln Assets	-	-0.397 ^{***}	(-3.60)
Ln Leverage	+	0.0262	(0.24)
Post SOX	-	-1.310 ^{***}	(-3.47)
Constant		0.690	(0.66)
Insig2u			
Constant		0.621	(1.02)
SIC dummies		Yes	
N(Groups)		1803(845)	
Wald- χ^2		37.05 ^{***}	
p		0.00149	

t statistics in parentheses

⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 10 Results of the model with control for SOX implementation. See table 5 for explanation of the variables.

As can be seen from table 10, the signs of the variables do not change compared to the previous model. An overview of the variables is provided in table 5. Moreover, the variables that were significant in the first model are still significant. Also, as expected, the SOX dummy is significant. This implies that there is significantly less likelihood of auditor changes after SOX implementation, which may signal the effectiveness of the SOX regulation. In line with this is that shareholders feel that the more stringent legislation concerning corporate governance suffices in reducing information asymmetry and therefore do not need auditor rotation for to reduce information asymmetry. Consequently, the null hypothesis is rejected.

4.3 Robustness checks

4.3.1 Arthur Andersen

In order to check for robustness, a dummy is added that controls for the year 2001. This year is extraordinary as back then one of the largest audit firms, Arthur Andersen, went bankrupt and their entire clientele was forced to change to another audit firm.

	Predicted	Control Andersen	
Auditor Opinion	+	0.0966	(0.97)
Ln Change Audit Fees	+	0.0123	(0.14)
Auditor is Big 4	-	-0.663 ⁺	(-1.67)
Audited by specialist	-	-0.279	(-0.69)
Ln Change Net Income	+	-0.0624	(-0.71)
Ln Return on Assets	+	0.434 ⁺	(1.76)
Ln DAC	-	0.00992	(0.10)
Ln Assets	-	-0.421 ^{***}	(-3.87)
Ln Leverage	+	0.0282	(0.27)
Dummy Andersen	+	2.169 ^{***}	(4.35)
Constant		-0.247	(-0.23)
Insig2u			
Constant		0.500	(0.80)
SIC dummies		Yes	
N(Groups)		1803(8)	
Wald- χ^2		44.22 ^{***}	
p		0.000183	

t statistics in parentheses

⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 11 Results model with control for Andersen. See table 5 for explanation of the variables.

The results of table 11 are somewhat different than the model that controls for post-SOX implementation years. All signs are in line with expectations, except for discretionary accruals. The reason this might be the case is explained in the previous section. The Big-4 dummy, return on assets, total assets and the Andersen dummy are all significant. The Andersen dummy is not that interesting to look at, as it takes a value of 1 for the year in which clients had to change auditors, namely 2001. By taking a look at table 2 one can see that most auditor switchers were done in the fiscal year 2001.

4.3.2 Financial crisis

The second robustness check is the financial crisis. As these years were at least turbulent, there might be differences between the pre-crisis, crisis and post-crisis periods.

	Predicted	Pre-crisis	Crisis	Post-crisis
Auditor Opinion	+	0.0835 (0.83)	0.0668 (0.68)	0.0701 (0.72)
Ln Change Audit Fees	+	0.0110 (0.13)	0.0156 (0.18)	0.0118 (0.14)
Auditor is Big 4	-	-0.632 (-1.52)	-0.403 (-1.02)	-0.434 (-1.11)
Audited by specialist	-	-0.424 (-1.06)	-0.397 (-1.00)	-0.412 (-1.04)
Ln Change Net Income	+	-0.0804 (-0.87)	-0.0906 (-0.99)	-0.0793 (-0.88)
Ln Return on Assets	+	0.406 (1.61)	0.367 (1.49)	0.384 (1.61)
Ln DAC	-	0.0433 (0.44)	0.0527 (0.52)	0.0223 (0.24)
Ln Assets	-	-0.369 ^{***} (-3.48)	-0.462 ^{***} (-4.37)	-0.442 ^{***} (-4.13)
Ln Leverage	+	0.0481 (0.46)	0.0472 (0.47)	0.0715 (0.69)
Pre Crisis	+	1.200 ^{***} (3.68)		
Crisis	-		-1.357 ^{**} (-2.74)	
Post Crisis	-			-0.642 ⁺ (-1.89)
Constant		-0.977 (-0.90)	0.267 (0.26)	0.255 (0.25)
Insig2u Constant		0.530 (0.77)	0.480 (0.74)	0.352 (0.47)
SIC dummies		Yes	Yes	Yes
Observations		1803	1803	1803
chiz		38.83	35.20	36.24
p		0.00115	0.00373	0.00268

t statistics in parentheses

⁺ $p < 0.10$, ^{*} $p < 0.05$, ^{**} $p < 0.01$, ^{***} $p < 0.001$

Table 12 Results with controls for financial crisis. See table 5 for explanation of the variables.

Table 12 shows interesting results, namely that only the size variable is significant when controlling for the time periods. The other variables are not significant; although a lower amount of changes are analyzed due to the controls for fewer years. The dummy variables for the time periods are also significant but with different directions. The pre-crisis variable has a positive sign, which means that auditor switches were more likely in the period before the crisis. The signs of the crisis and post-crisis variables are both negative, indicating that auditor switches were less likely during and after the financial crisis. A possible explanation may be that the turmoil present in the economic environment was already a lot of uncertainty. Therefore, management of firms opted for the relative stability of the same auditor during and after the crisis.

5. Conclusion and discussion

This thesis has investigated the determinants of audit firm rotation for US firms. Based on literature, several influential factors were hypothesized. By using a large sample of US firms from the years 2000-2015, logit regressions were performed to investigate what factors were influential in the decision to switch to another auditor. The results show that there are only three factors that significantly influence this decision, namely whether or not the current auditor is a Big-4 audit firm, return on assets and company size. Moreover, the results show that the likelihood of auditor changes decreased after implementation of the SOX regulation.

Interestingly though, firm size is significant in this study but not in that of Woo & Koh (2001). Also, there are several factors that influence a change of auditor that were significant in their study but not in this thesis. These arguments also go for other studies such as that done by Beattie & Fearnley (1995). A possible explanation for this is a different institutional setting and the different research types. Most previous research relies on questionnaire responses from managers or smaller datasets, whereas this thesis has used a relatively large dataset.

There are several limitations to this thesis. First of all, it is hard to capture comprehensively the factors that affect auditor changes, both methodologically and empirically as not all data is available. Not only in the direct environment of the firm, but also the general economic factors that influence a firm's performance. Secondly, this thesis has focused on only one institutional setting, namely the U.S. Also, there is no mandatory auditor rotation in the U.S., which might influence the choice to switch auditors. Finally, the years that were included in this thesis, 2000-2015, include turbulent years, such as the financial crisis of 2007 and the bankruptcy of one of the largest audit firms, Arthur Andersen. These may influence auditor change as well.

In conclusion, the results of this thesis indicate that there are some factors that significantly influence an auditor change. These results are relevant for policy makers as the reasons for a change may not have to be in line with proposed regulation. Especially large firms are not keen on voluntarily switching auditors, which is a finding that could be used by policy makers when designing new regulation that concerns corporate governance. A suggestion for further

research would be to compare the United States to the European Union, as the E.U. has a different institutional setting. Mandatory rotation may lead to different empirical results. Finally, it would be interesting to compare and contrast the different results obtained by quantitative and qualitative researches. The disclosed reasons of switching auditors may not always be the same as empirical results may suggest, as can be seen from the mixed results currently present in literature.

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