The Influence of the Financial Crisis on Auditor Changes and Earnings Management

R.J.P.R. Hubens
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Department Accountancy
Faculty of Economics and Business Studies
Tilburg University

Abstract
Using a large sample of publicly traded U.S. firms, I investigate whether, and how, the Financial Crisis affects the number and type of auditor changes (Big 4 vs. non Big 4) and the level of earnings management. Besides these, I investigate whether the effect of an auditor change on earnings management differs between the Financial Crisis and non crisis years. This study yields four major findings. First, I find that were less auditor changes during the Financial Crisis, compared to non crisis years. This result suggests that firms are less incentivized to change auditor during the crisis years. Secondly, with respect to the types of auditor changes, there were less changes from Big 4 to non Big 4 auditors and more changes from non Big 4 to Big 4 auditors during the Financial Crisis. This finding suggests that the Financial Crisis did not incentivize firms to change to a less expensive and/or lower quality auditor. Also, I find that firms engaged more in earnings management during the Financial Crisis, compared to non crisis years. Finally, I find that an auditor change during the Financial Crisis reduces the level of earnings management, while an auditor change in non crisis years did not affect the level of earnings management. This might imply that, during the Financial Crisis, newly appointed auditors detect and correct more earnings management than incumbent auditors.
Preface
I present to you my master thesis concerning the influence of the Financial Crisis on auditor changes and earnings management. Finishing this master thesis results in graduating in the master of Accounting program from Tilburg University.

During the process of writing this thesis, I have found support from many people. First, I want to thank Professor Vaassen as supervisor from Tilburg University, for providing feedback, comments and suggestions during the writing process. Second, I would like to thank dr. Verriest for his support on earnings management issues. Finally, I would like to thank my family, friends and girlfriend who always supported me during my student years.

As a final remark, I hope you will enjoy reading my master thesis. In case you have any questions afterwards, do not hesitate to address them to me.

Ralf Hubens
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1. Introduction

The global financial crisis of 2008 and 2009 (hereafter: the Financial Crisis) is considered to be the greatest crisis since the 1930s. The Financial Crisis was not a single event but a series of crises that affected the financial system and ultimately the economy. Distresses in one area of the financial market led to failures in other areas by way of interconnections (The Financial Crisis Inquire Report, 2011). The bursting of the U.S. housing bubble caused the decrease in U.S. real estate valuations, damaging the financial environment globally, which was the birth of the Financial Crisis. Many different opinions exist on what caused the Financial Crisis and a reasonable thought is that the Financial Crisis was born due to a combination of various aspects: the greed of bankers, the complexity of financial products and the bonus culture are often referred as being partially guilty for the crisis. However supervisors and regulators can also be considered as being guilty. These parties are established to monitor the financial system but they have failed to do so. Questions arose whether they have sufficient knowledge to understand the system. Auditors do also have a supervisory role and it seems to be evident that they failed to observe there were serious troubles in the financial system. According to Sikka (2009), distressed banks received unqualified opinions while some of these banks went bankrupt within a few months. Uncertainties regarding bank solvency, declines in credit availability and damaged investor confidence caused stock markets suffering large losses. Overall wealth decreased significantly; many firms suffered financial losses\(^1\). Especially in these poor circumstances, companies want to present their financial statement as favorable as possible. It seems plausible that firms seek to reduce their costs\(^2\) (Campello, Graham & Harvey, 2010) and audit fees are one of the costs that can be reduced quite easily by hiring a less expensive auditor. Francis and Stokes (1984) find that Big 8 audit prices in the Australian market are significantly higher than non Big 8 prices, both for small and large companies. But changing auditor in crisis time may also allow firms to manage their earnings to a larger extent, for example by changing to a low

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\(^1\) The American Bankruptcy Institute (ABI) provides information on insolvency matters. The ABI records how many firms filed for bankruptcy protection. In 2006 there were less than 20,000 business bankruptcy filings, increasing to over 60,000 in 2009. These numbers are a signal that firms encountered solvency problems in 2009, which indicates that more firms suffer financial losses during the Financial Crisis, compared to non crisis years.

\(^2\) Campello et al. (2010) investigated whether corporate spending plans differ between credit constraints firms and unconstrained firms. Credit constrained firms planned deeper cuts in technology spending, marketing expenditures, employment capital investments and dividend payments. Unconstrained firms planned on average significantly smaller cuts. This indicates that credit constrained firms seek to reduce their costs.
quality auditor. Prior research (e.g. Raman & Wilson, 1994 and Teoh & Wong, 1993) suggest that Big 4 auditors are considered to provide higher quality standards and more assurance on the financial statements relative to other audit firms (non Big 4). In this study, I also make use of the Big 4/non Big 4-dichotomy, which distinguishes two types of auditors: Big 4 and non Big 4. Based on this dichotomy there are four types of auditor changes: from Big 4 to Big 4, Big 4 to non Big 4, non Big 4 to Big 4 and non Big 4 to non Big 4.

In this study, I want to examine the effect of the Financial Crisis on auditor changes and earnings management. Therefore the research question of this study is: What is the effect of the Financial Crisis on auditor changes and earnings management?

To answer the research question the following four sub questions are asked:

1. Do firms more often change auditor during the Financial Crisis?
2. What is the effect of the Financial Crisis on the type of auditor changes?
3. Does the Financial Crisis lead to more earnings management?
4. What is the effect of the Financial Crisis on the level of earnings management after an auditor change?

Data about the number and type of auditor changes is obtained from AuditAnalytics. The database Compustat is used to obtain data for earnings management purposes. The modified Jones model (Dechow, Sloan & Sweeney, 1995) is used to determine whether there is a different level of earnings management in the Financial Crisis, relative to non crisis years. A Factorial ANOVA test is executed to examine the impact of the Financial Crisis on the relationship between an auditor change and earnings management.

Using a large sample of publicly traded U.S. firms, I find that there are less auditor changes during the Financial Crisis, compared to non crisis years. This result suggests that firms are less incentivized to change auditor during the Financial Crisis. Secondly, with respect to the type of auditor changes, there were less auditor changes from Big 4 to non Big 4 audit firms and more changes from non Big 4 to Big 4 audit firms during the Financial Crisis. This finding suggests
that the Financial Crisis does not incentivize firms to change to a less expensive or lower quality auditor. Furthermore, I find that firms reported more earnings management during the Financial Crisis compared to non crisis years. Finally, I find that an auditor change during the Financial Crisis period reduces the level of earnings management while an auditor change in non crisis years has does not affect the level of earnings management.

The remainder of this report is organized as follows. Paragraph 1.1 describes the scientific and societal relevance of this study. Chapter 2 discusses the theory and the hypotheses development. Chapter 3 addresses the research design which contains the data collection process and the earnings management and empirical model. Chapter 4 discusses the results. Finally, chapter 5 provides the conclusion and limitations of this study as well as opportunities for future research.

1.1 Scientific and societal relevance
The scientific relevance of this study is that it gives further insights in the consequences of the Financial Crisis on the audit market and thereby adds value to some other studies. This study indicates that the Financial Crisis does not incentivize firms more strongly to change auditor. Beside this, this study shows that, on average, firms are not interested in a less expensive or lower quality auditor during the Financial Crisis. Furthermore, this study illustrates that firms engage in earnings management more intensively during the Financial Crisis, compared to non crisis years. Hereby, this study is relevant for shareholders and investors, because they can use outcomes from this study while interpreting the financial statements of a certain company in crisis years. They need to be more critical towards companies’ financial statements, during the Financial Crisis, because firms engage more in earnings management in that period. This causes that the financial statements are less reliable compared to non crisis years. However, this study also shows that, during the Financial Crisis, firms do not change to a less expensive or lower quality auditors, which means that they do not want to provide themselves with more earnings management opportunities. Probably, firms want to avoid that shareholders and investors become suspicious.
2. Theory and hypotheses development

As described in the introduction, this study investigates the influence of the Financial Crisis on auditor changes and earnings management. This chapter discusses prior research and describes the development of the hypotheses. More specifically, this chapter is divided in four main parts. Paragraph 2.1 will discuss three main events which cause managers to change auditor. Paragraph 2.2 discusses studies that describes events that may influence the number of auditor changes during the Financial Crisis. Subsequently paragraph 2.3 focuses on studies that may relate to the type of auditor changes that firms make during the Financial Crisis. Paragraph 2.4.1 discusses studies that could have an influence on the level of earnings management by the client during the Financial Crisis. In paragraph 2.4.2, I discuss the possible influence of the Financial Crisis on the role of the auditor in preventing earnings management.

2.1 Auditor changes

According to Williams (1988) three main events trigger managers to change auditors: (1) auditor ineffectiveness (2) damaged client reputation and (3) changes in the client contracting environment:

(1) In general, managers are willing to change ineffective auditors. Auditor effectiveness is linked to several aspects such as industry specialization and the duration of the relationship between the firm and the auditor. The duration of the relationship might cause managers to retain the auditor because the specific knowledge of the auditor is high in comparison to short term relationships. Although long auditor tenure could also impair independence. Besides these aspects, firms may retain an auditor out of loyalty or due to satisfaction with past services. Another motive for retaining an auditor concerns client/auditor agreements about accounting policies that have occurred over the years, while the new auditor probably would not agree with these methods.

(2) Managers could have incentives to seek a new auditor if their reputation is affected. This could be due to fraud, an unfavorable audit opinion or poor performance.

(3) An example of a change in the clients’ contracting environment is a management change (e.g. due to a merger). The new manager could change auditor because fresh ideas and other insights are needed or if the manager had favorable dealings with another auditor.
2.2 Number of auditor changes
During the Financial Crisis more firms are dealing with poor performance and operating losses. These circumstances could lead to stronger incentives for firms to change auditors. But there is little research available about the effect of the Financial Crisis on the number of auditor changes. Williams (1988) finds that managers have greater incentives to change auditors if their performance is poor. Stricharchuk (1983) suggests that firms seek new auditors to keep bad news out of the financial statements, which sounds to be more common during the Financial Crisis. Francis (1984) finds evidence for firms that encountered a loss situation in previous years, have a higher probability to change auditor than profitable firms. These findings could indicate that firms are thus more incentivized to change auditor during the Financial Crisis. But as said before, there is little research available on this topic. Although when performance is poor, firms can have additional incentives to change auditor. These incentives are strengthened because there are differences between auditors, which is discussed in paragraph 2.2.1.

2.2.1 Differences between auditors
Especially in the Financial Crisis, companies want to present their financial statements as favorable as possible. Firms may have a tendency to change to an auditor which enables firms to engage in more intense earnings management than the incumbent auditor, which can result in a more favorable presentation of the financial statements. In addition audit costs are one of the costs that can be reduced quite easily by changing to a less expensive auditor, which results in a higher profit for the firm. The differences between auditors with respect to audit quality and audit fees are discussed below.

Audit Quality
It sounds reasonable that firms want to present their financial statements as favorable as possible during the Financial Crisis. Engaging in earnings management can lead to a more favorable image of the firms’ performance. DeAngelo (1981) suggests that the value of an audit depends, from the users’ expectations, on the degree to which the auditor will detect and correct (material) misstatements in the financial statements. The ability to detect a misstatement depends on the auditor’s competence and expertise. The inclination to correct the misstatement is a function of
the auditor’s independence to the client \(^3\). Therefore, the extent by which managed earnings remain in the financial statements after an audit, is dependent on the auditor’s competence and independence. If all auditors are fully competent and perfectly independent \(^4\) (DeAngelo, 1981) there would be no earnings management, even though the client engaged in very intense earnings management. In other words, all the managed earnings will be detected and corrected if all auditor are fully competent and perfectly independent.

However, prior research shows that auditor’s competence and independence differ between auditors. For example, Raman and Wilson (1994) and Teoh and Wong (1993) suggest that Big 4 audit firms are considered to provide higher quality standards and more assurance on the financial statements relative to other audit firms (non Big 4), because they have more specific and industry specialized knowledge. Big 4 auditors are perceived to provide higher quality audits and more credible statements (Khurana & Raman, 2004). Firms may wish to change to a big audit firm if they believe that this would add credibility to the company’s financial statements (Gregory & Collier, 1996). Furthermore, DeAngelo (1981) suggest that the larger the auditor is (as measured by the number of current clients) and the smaller the client as a fraction of the auditor’s total quasi rents, the higher the degree of independence. This on its turn increases the quality of the audit. Francis (1999) finds that Big 4 audit firms, in the U.S. audit market, provide higher quality standards to protect their image and prevent themselves from costly lawsuits. Palmrose (1988) presents evidence that Big 5 auditors reduce litigation exposure by increasing their independence. Reichelt and Wang (2010) find evidence that industry specialization generates the highest audit quality, in terms of having the lowest abnormal accruals. Balsam, Krishnan and Yang (2003) find that clients of industry specialized auditors (Big 4) have lower levels of discretionary accruals and higher earnings response coefficients (ERC’s) \(^5\), compared to firms who are audited by non industry specialized auditors (non Big 4). These findings suggest that, in general, Big 4 auditors detect and correct more misstatements in the financial statements

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\(^3\) Both competence and independence are concepts included in the AICPA Code of Professional Conduct.

\(^4\) Perfectly independent means that the probability that the auditor reports a discovered breach is one.

\(^5\) ERC is the estimated relationship between equity returns and the unexpected earnings announcements of firms. Higher ERC’s indicates that market participants react more heavily on announcements which contains unexpected earnings. The research of Balsam et al. (2003) indicates that unexpected earnings announcements of clients of industry specialized auditors are perceived as more reliable than the announcements of clients of non-industry specialized auditors, suggesting that industry specialized auditors provide higher audit quality.
than non Big 4 auditors do. Other research (Francis, Maydew & Sparks, 1999, Becker, DeFond, Jia minibalvo & Subramanyam, 1998 and Francis & Krishnan, 1999) strengthen this suggestion: they find that large audit firms appear to constrain manager’s ability to exercise accounting discretion. Krishnan (2003) finds that clients of unspecialized (non Big 4) auditors engage in more accrual based earnings management than clients of specialized (Big 4) auditors. Chung, Firth and Kim (2003) find that large audit firms are more likely to force listed clients to accept conservative practices, because the loss of a client through disagreement on accounting policies is less costly for a large audit firm than a small audit firm. Chia, Lapsley and Lee (2007) suggest that, during the Asian financial crisis, only Big 6 auditors were able to significantly constrain earnings management by managers of service companies.

So, prior research shows that dependent on the auditor, firms can engage in more or less earnings management. It sounds reasonable that the Financial Crisis incentivizes firms to manage their earnings more intensively. Due to the fact that earnings management opportunities differ between auditors it sounds reasonable that, during the Financial Crisis, firms have stronger incentives to change to an auditor that allows more earnings management. I expect that this effect leads to more auditor changes during the Financial Crisis, compared to non crisis years.

**Audit Fees**

It sounds reasonable that especially in the Financial Crisis firms want to present their financial statements as favorable as possible. It is obvious that firms seek to reduce their costs and audit fees are one of the costs that can be reduced quite easily by hiring a less expensive auditor. Prior research shows that large audit firms have higher audit prices than small audit firms. For example Francis and Simon (1987) find that a Big 8 premium exists in the U.S. small client audit market. Francis and Stokes (1984) find that Big 8 audit prices in the Australian market are significantly higher than non Big 8 prices, both for small and large companies. On average, Big 8 auditors earn a 34% premium over non Big 8 auditors in the Australian market (Craswell, Francis & Taylor, 1995). Simunic (1980) finds that Big 4 audits around the world carry a premium relative to the audits of other firms, after controlling for client characteristics that affect audit fees (such as size, complexity and auditor-client risk sharing). Besides these differences in audit fee levels, another aspect can lead to additional incentives to change auditors. This aspect, called low-balling, is discussed in paragraph 2.2.2.
2.2.2 Low-balling
The AICPA (1978) reports that: “there are allegations that audit firms sometimes offer relatively low fees for the first year, or the first few years of an audit, with the expectation of recovering the initial loss in subsequent years”. This is consistent with Simon and Francis (1988), finding a 24% fee reduction in the initial year followed by a 15% fee reduction for each of the next two years after an auditor change. In highly competitive markets, audit firms often engage in low-balling: accepting unprofitable fees in the initial year or two, in order to “buy” the business (Bazerman, Sloan & Loewenstein, 1997 and DeAngelo, 1981b). Pong and Whittingham (1994) suggest that there was a persistent tendency for newly appointed auditors to charge less, on average, than incumbent auditors. Baber, Brooks and Ricks (1987) find in a time-series analysis on average 20% lower fees on initial audits. On the opposite Francis (1994) finds that for Australian firms, fees for initial engagements are higher than those for continuing engagements, because there are client specific risks that need to be investigated more extensively than for continuing engagements. However the evidence that low-balling occurs seems to be stronger than the findings of Francis (1994). So, this low-balling effect could bring firms strong incentives to change auditors because audit costs can be reduced quite easily.

2.2.3 Influence of economic crisis on audit fees
Next to the low-balling effect and the price differences between Big 4 and non Big 4 firms, some prior research argues that an economic crisis will influence the amount of audit fees. Maher, Tiessen, Colson and Broman (1992) find a significant decrease in audit fees during a period of increasing competition, simultaneously with the economic downturn of the late 1970s and early 1980s. Competitive pressures resulted in aggressive fee negotiation and competitive tendering of audit services (Beattie & Farnley, 1994). Maher et al (1992) concluded that the economic downturn could have contributed to the decrease in audit fees because it enabled firms to bargain more effectively with auditors. This implies that competition might increase during the Financial Crisis. Other studies (Casteralla, Francis, Lewis & Walker, 2004 and Jensen & Payne, 2005) find that audit fees decrease if competition increases. On the other hand, Simunic’s audit fee model

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6 It sounds reasonable that the audit market is extra competitive during the financial crisis. This is consistent with Maher, Tiessen, Colson and Broman (1992) who find increasing competition during the economic downturn of late 1970s and early 1980s.
(1980) suggests that audit fees are positive related to client business risk (which might increase during a crisis). This is consistent with Hill, Ramsay and Simon (1994) who find that audit fees increased during the savings and loan crisis. However, the competitive tendering and the improved negotiation positions might incentivize firms to change auditor, which could result in more auditor changes during the Financial Crisis.

2.2.4 The effect of price cutting on audit quality
Simon and Francis (1988) note that the AICPA believes that audit price cutting has the potential to impair auditor independence in the same way as unpaid prior years’ audit fees do. But it can be argued that both price cutting and unpaid fees are sunk costs, and thereby have no effect on subsequent behavior. This is consistent with DeAngelo (1981b) finding that low-balling itself does not impair auditor independence, but it simply is a competitive response to the incumbent auditor with the expectation to earn future quasi-rents. In other words, it will not affect the auditor’s propensity to be independent. However, other research shines a different light on sunk costs, which shows that sunk costs do affect subsequent decision making. Arkes and Blum (1985) find that the initial investment to obtain the new client, motivates the auditor’s eagerness to not lose the client, even in the presence of serious auditor-client disagreements. Kahneman and Tversky’s prospect theory (1979) suggests that different weights are placed on gains and losses; people tend to undervalue losses, and overvalue gains. So in a price cutting context, which probably took place during the Financial Crisis, auditors tend to overvalue the magnitude and certainty of future “normal” audit fees and underestimate losses.
Furthermore, it might be argued that price cutting means that: 1) the audit firm accepts a lower profit for an audit or 2) to compensate for the lower profit, they spend less audit hours on the client. Caramanis and Lennox (2008) find, in a sample consisting of 9,738 Greek audits, that there is a negative relation between audit hours and income increasing earnings management. Furthermore they find weak or insignificant associations between audit hours and the magnitude of income decreasing earnings management.
So overall, the literature gives rise to the suspicion that the audit price cutting may reduces audit quality, which may motivate firms to change to another auditor to provide themselves with more earnings management possibilities.
2.2.5 Auditor tenure

Davis, Soo and Trompeter (2000) find that long term auditor tenure impairs auditor’s independence and enables management to engage in more extensive earnings management. But long term auditor tenure could also improve financial reporting quality, because the auditor has more specific knowledge. In this case long term auditor tenure can reduce earnings management, which is consistent with Myers, Myers and Omer (2003). This conflict is a very delicate point in the current mandatory rotation discussion (Catanach and Walker, 1999). Because of the mixed effect of auditor tenure, it is uncertain whether auditor tenure is related to earnings management. Therefore I do not expect that this aspect leads to either more or less earnings management.

So, reducing the company’s audit costs can be achieved quite easily, by changing to a less expensive auditor (§2.2.1). Also, low-balling (§2.2.2) and the crisis (§2.2.3) can cause extra fee reductions. However it is hard to obtain data about the effect of an auditor change on audit fees, because databases do not separately record audit fees for the dismissed and engaged auditor, making it hard to define the effect of an auditor change on audit fees. Therefore, no empirical research is conducted to test this effect, but I assume that fee reduction possibilities incentivize firms to change auditor. Furthermore, firms can engage more in earnings management if they change to a low(er) quality auditor (§2.2.1). I expect that the above mentioned aspects incentivize firms to change auditor during the Financial Crisis. Hence, I hypothesize:

**H1**: The Financial Crisis leads to more auditor changes, compared to non crisis years.

2.3 Type of auditor changes

The type of auditor changes is based on the Big 4/non Big 4-dichotomy which is used in multiple other studies (for example Palmrose, 1986, Firth & Smith, 1992 and Choi & Wong 2010). The dichotomy distinguishes Big 4 and non Big 4 auditors. I also make use of this dichotomy. Based on this dichotomy there are four possible types of auditor changes, which are presented in table 1. The literature suggests there

<table>
<thead>
<tr>
<th>From:</th>
<th>To:</th>
<th>Big 4</th>
<th>Non Big 4</th>
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<tr>
<td>Big 4</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Non Big 4</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>
are differences between Big 4 and non Big 4 auditors, which is discussed in paragraph 2.2.1. These differences between Big 4 and non Big 4 auditors might be a reason for firms to change to a particular auditor. Table 2 indicates what reasons firms may have to change to a particular auditor. All the literature that is included in table 2 is already discussed in paragraph 2.2.1 and 2.2.2.

In this study I want to determine whether the Financial Crisis influences the firm’s choice for a particular auditor. So, I investigate whether firms choose for different types of auditor during the Financial Crisis, compared to non crisis years.

It is mentioned earlier that, during the Financial Crisis, firms have a greater tendency to present their financial statement as favorable as possible. My expectation is that the differences between Big 4 and non Big 4 auditors result in more changes to less expensive (non Big 4) and lower quality auditors (non Big 4) to make optimum use of audit fee reductions and earnings management possibilities. Hence, I expect that there are relatively more changes from Big 4 to non Big 4 auditors and less changes from non Big 4 to Big 4 auditors. This automatically means that there are relatively fewer changes from Big 4 to Big 4 auditors and more changes from non Big 4 to non Big 4 auditors.

Therefore, I hypothesize that:

**H2a**: There are relatively less changes from Big 4 to Big 4 auditors during the Financial Crisis, compared to non crisis years.

**H2b**: There are relatively more changes from Big 4 to non Big 4 auditors during the Financial Crisis, compared to non crisis years.

**H2c**: There are relatively less changes from non Big 4 to Big 4 auditors during the Financial Crisis, compared to non crisis years.

**H2d**: There are relatively more changes from non Big 4 to non Big 4 auditors during the Financial Crisis, compared to non crisis years.
<table>
<thead>
<tr>
<th>Auditor Change</th>
<th>Effect</th>
<th>Literature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non Big 4 → non Big 4</td>
<td>Audit fee reduction due to the low-balling effect</td>
<td>Baber et al. (1987), Bazerman et al. (1997), DeAngelo (1981b), Pong &amp; Whittingham (1994), Simon &amp; Francis (1988).</td>
</tr>
</tbody>
</table>
2.4 Earnings management

Earnings management is a widely cited topic in accounting literature. A commonly used definition of earnings management is given by Healy and Wahlen (1999):

“Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers.”

According to Healy and Wahlen (1999) firms have possibilities to engage in earnings management because accounting principles can be interpreted in more than one way, hereby creating space for earnings management.

The degree of earnings management in the financial statements is dependent on two factors:

1. The extent to which the firm engages in earnings management.
2. The extent to which the auditor detects and corrects earnings management.

Thus, both the firm and the firm’s auditor contribute to the extent of earnings management in the financial statements. The possible influence of the Financial Crisis on the behavior (with respect to earnings management) of both the client and the auditor, will be discussed in respectively paragraph 2.4.1 and 2.4.2.

2.4.1 The client

Little research has been conducted to examine the effect of the Financial Crisis on earnings management. However, Kim and Yi (2006) investigated the impact of the Asian financial crisis on earnings management behavior. The Asian financial crisis, which erupted in December 1997 had a significant impact on Asian economies. Kim and Yi (2006) investigated earnings management behavior of Korean firms in the period 1992-2000, which includes the crisis period. By including a dummy variable (valued 1 if the observation is from the post-crisis period (1998-2000) and 0 if the observation is from the pre-crisis period (1992-1997)), Kim and Yi (2006) find that Korean firms engaged in earnings management more intensively during the post-crisis
period than they did during the pre-crisis period. During the post-crisis period firms experienced significant drops in their profits and undergone major restructuring, which may have motivated them to manage earnings more extensively. Kim and Yi (2006) note that during the post-crisis period, firms were faced with more intense pressure from stock markets to meet investors’ expectations. Schwartz (1982) suggests that financially distressed firms are more willing to make income increasing accounting changes than healthy firms. Furthermore, Graham, Harvey and Rajgopal (2005) note that the occurrence of a loss can affect relationships with banks and creditors, for example due to the violation of covenants. Begley and Freedman (2004) suggest that covenant restrictions may explain why companies are reluctant to present losses and therefore engage in income increasing earnings management.

During the Financial Crisis, managers have expectations of temporary poor earnings. Degeorge, Patel and Zeckhauser (1999) suggest that next to managing earnings upwards, firms could also manage earnings downwards to pave the way for a brighter future. Chia, Lapsley and Lee (2007) find that service-oriented companies also engaged in income decreasing earnings management during the Asian financial crisis. When faced with such a situation, the managers’ incentives would be to save their companies and preserve their jobs instead of attempting to maximize their accounting based bonuses (Gilson and Vetsuypens, 1993).

So it sounds justified to suggest that firms, on average, engage more in earnings management during the Financial Crisis, compared to non crisis years. Therefore I hypothesize that:

H3: Firms engage more in earnings management during the Financial Crisis, compared to non crisis years.

2.4.2 The auditor

As described before, I expect that firms manage more earnings during the Financial Crisis, in comparison to non crisis years. This means that there is more earnings management in the financial statements before the client is audited. However, this should automatically lead to the effect that there is also more earnings management in the financial statements, after an audit is performed. This, because auditors do not detect and correct all the managed earnings in the financial statements (i.e. auditors are not fully competent and perfectly independent). Therefore,
I expect that, in absolute terms, there will remain more earnings management in the financial statements during the Financial Crisis, compared to non crisis years (Hypothesis 3). However, unaudited financial statements are not available, so I cannot determine whether auditors detect and correct less or more earnings management during the Financial Crisis.

However, the effect of an auditor change on earnings management is not yet appointed. The price cutting context, which probably occurred in the complete audit market during the Financial Crisis, might impair audit quality7, which leads to more earnings management. It is mentioned that firms may experience the biggest levels of price cutting if they change to another auditor, because other auditors aim at new clients and offer their audit services at low prices8. This would mean that during the Financial Crisis firms on average, have more possibilities to manage their earnings if they change to another auditor. Next to this effect, the types of auditor changes that are made during the Financial Crisis years are likely to be different from non crisis years (Hypothesis 2). I expect that more firms change from Big 4 to non Big 4 auditors and less changes from non Big 4 to Big 4 auditors, which increases the likelihood that more managed earnings are not detected and corrected by the auditor. This because of the fact that non Big 4 auditors provide lower quality audits than Big 4 auditors. So, also the expected differences in the type of auditor changes during the Financial Crisis, might result in more earnings management after an auditor change. So, I expect that newly appointed auditors detect and correct less misstatements due to the price cutting context. Furthermore I expect that there are more changes to lower quality auditors9, which result in more earnings management after an auditor change. Therefore, I expect that changing auditor during the Financial Crisis will result in more earnings management, in comparison to changing auditor in non crisis years. Therefore I hypothesize:

**H4**: Auditor changes during the Financial crisis lead to more earnings management, compared to auditor changes in non crisis years.

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7 Simon and Francis (1988) note that the AICPA believes that price cutting has the potential to impair audit quality.
8 Competitive pressures resulted in aggressive fee negotiation and competitive tendering of audit services (Beattie & Farnley, 1994)
9 The findings regarding this hypothesis are thus partly dependent on the results of Hypothesis 2.
3. Research Design
The previous chapter discusses the theory and hypotheses development relating to the possible influences of the Financial Crisis on auditor changes and earnings management. This chapter describes the research design to test these hypotheses. First, I will describe the data collection process, where after I will focus on two models: the modified Jones model and the empirical model of this study.

3.1 Data collection
As described before, this study focuses on the effect of the Financial Crisis on auditor changes and earnings management. In this study I use data from publicly registered U.S. companies over the period 2005-2009, which contains a pre-crisis period (2005-2007) and a post-crisis period (2008-2009). Therefore this is a very convenient time period to determine the effect of the Financial Crisis on auditor changes. For the data collection process, I make use of two different databases: AuditAnalytics and Compustat\(^{10}\). AuditAnalytics provides detailed audit information on publicly registered firms in the U.S., for example about auditor changes. This enables me to determine how many firms change auditor in a specific period and to what type of auditor they changed. The following data is obtained from the Auditor Change module in Audit Analytics:

- CIK-number (Central Index Key number)
- The dismissed auditor\(^{11}\)
- The engaged auditor\(^{11}\)
- Issues\(^{12}\) mentioned in the financial statements of the firm

The auditor change sample consists of, in origin, 8,424 observations within the period 2005-2009. Consistent with other studies (e.g. DeFond & Subramanyam, 1998 and Schwartz and Soo, 1996) firm mergers and audit firm mergers are excluded from the sample, because these are not directly related to the Financial Crisis, resulting in 861 deleted observations. A further 273 observations are deleted in 2009, because an audit firm’s registration was revoked by the Public

\(^{10}\) Both databases are included in WRDS (https://wrds-web.wharton.upenn.edu/wrds/), which is a web-based business data research service.

\(^{11}\) Information about the dismissed and engaged auditor is obtained to determine to what type of auditor firms change.

\(^{12}\) Issues are reasons why firms decide to change to another auditor. These are obtained to delete firms who, for example, changed auditor due to a merger of the incumbent auditor.
Company Accounting Oversight Board (PCAOB), which caused that clients were forced to seek another auditor. These auditor changes are deleted because this event is not caused by the crisis, while it quite strongly affects the relationship between the Financial Crisis and the number of auditor changes. After these exclusions the auditor change sample consist of in total 7,290 observations. To test whether the Financial Crisis leads to more auditor changes, I also make use of the Auditor During module of AuditAnalytics. This module contains raw data for all the firms in the AuditAnalytics database. Hereby I am able to relate the number of auditor changes to the total firms in the database. In fact, I control for the effect of sample size disparities throughout the years. Due to this control, the result of this test are honest and meaningful. Only the CIK-number and the incumbent auditor name are obtained from the Auditor During module. The auditor during sample consist of in total 85,943 observations, which contains the above mentioned 7,290 auditor changes. To investigate to what type of auditor firms change, a further 183 observations are deleted because it is unknown who is the newly appointed auditor.

The Compustat database is used to obtain data for earnings management objectives. The Central Index Key (CIK-number) is used to link firms between the AuditAnalytics and Compustat database. However, not all the firms that are recorded in AuditAnalytics are included in the Compustat database. In origin, my sample consists of 40,057 observations. A total of 10,133 firms that do not meet the data requirements\(^\text{13}\) are deleted from the sample. Consistent with other studies\(^\text{14}\), I excluded financial institutions (two digit SIC code: 60 to 69) from the sample because of the unique procedures required to estimate discretionary accruals for financial service firms, resulting in 2,518 deleted observations. In addition, outliers are deleted from the sample by removing the upper and lower 1% of all the components of equation 2 (p. 24) and the upper and lower 1% of the independent variables ROA and CAROA (equation 4, p. 26). This led to the removal of 3,288 observations. So for earnings management calculations, the final sample consists of 24,118 observations: 15,141 observations are from the pre-crisis period and 8,977

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\(^{13}\) This means that there was no (sufficient) data available to measure the discretionary accruals. For example the firms’ cash flow from operations or total assets were not given. Furthermore I estimated discretionary accruals per two digit SIC code. Observation that are in a two digit SIC code group which contains less than 6 observations are deleted from the sample, because the possibility arises that incorrect estimates are generated.

observations from the post-crisis period. In total 1,684 auditor changes are included in the final sample.

The following data is obtained from the Compustat database:
- Total assets (2004-2009)
- Revenues (2004-2009)
- Receivables (2004-2009)
- Net operating cash flow (2005-2009)
- SIC codes

3.2 Earnings management
In the following two paragraphs I will address two models. First of all, I will discuss my motivation for the modified Jones model and describe the method of that model. Thereafter I will discuss the empirical model which will be used to test the hypotheses.

3.2.1 Earnings management model
Earnings management is not directly observable in the financial statements. Throughout the years, several methods have been developed to measure earnings management. Analysis of earnings management often focuses on accruals\(^\text{15}\). These accruals are used to manage earnings, for example by increasing or decreasing estimates of bad debt reserves, warranty costs and inventory write-downs. Basically, accruals are the difference between reported earnings and the cash flow from operations. In the majority of the accrual based models, total accruals are split in discretionary accruals and non discretionary accruals. Discretionary accruals is the portion of total accruals that is expected to be managed as opposed to the non discretionary accruals, which is the portion of accruals that is expected to be unmanaged. This approach requires a model that estimates the discretionary component of reported income, because this is the portion where researchers are interested in. Several studies (for example Dechow, Sloan & Sweeney, 1995, Beneish, 1997 and Thomas & Zang, 2000) investigated which accrual based model is the best.

\(^{15}\) See for example Healy (1985), DeAngelo (1986), Jones (1991) and Dechow, Sloan and Sweeney (1995)
model to detect earnings management. The often cited paper of Dechow et al. (1995) tested several accrual based models by competing the specification\(^{16}\) and the power\(^{17}\) of the models. All of the models appear to be well specified, but the models also generate tests of low power for earnings management. The modified version of the model developed by Jones (1991) exhibits the most power in detecting earnings management, which is consistent with Beneish (1997) and Thomas and Zang (2000). Thereby, the modified Jones model is very suitable for this study because it captures income increasing and income decreasing earnings management, which are two forms of earnings management that may occur during the Financial Crisis. For these two reasons the modified Jones model (Dechow et al., 1995) is used in this study to examine the extent of earnings management. The modified Jones model is as follows:

\[
NDA_t = \beta_1 \left( \frac{1}{A_{t-1}} \right) + \beta_2 (\Delta \text{REV}_t - \Delta \text{REC}_t) + \beta_3 (\text{PPE}_t) \tag{1}
\]

where,

- \(NDA_t\) = estimated nondiscretionary accruals
- \(A_{t-1}\) = total assets at \(t-1\).
- \(\Delta \text{REV}_t\) = revenues in year \(t\) less revenues in year \(t-1\) scaled by total assets at \(t-1\).
- \(\Delta \text{REC}_t\) = net receivables in year \(t\) less net receivables in year \(t-1\) scaled by total assets at \(t-1\).
- \(\text{PPE}_t\) = gross property plant and equipment in year \(t\) scaled by total assets at \(t-1\)
- \(\beta_1, \beta_2, \beta_3\) = firm specific parameters

Estimates of the firm-specific parameters \(\beta_1, \beta_2, \beta_3\) are generated using the following model:

\[
\text{TA}_t = b_1 \left( \frac{1}{A_{t-1}} \right) + b_2 (\Delta \text{REV}_t - \Delta \text{REC}_t) + b_3 (\text{PPE}_t) \tag{2}
\]

where,

- \(\text{TA}_t\) = total accruals (which is: net income − cash flow from operations) in year \(t\) scaled by total assets at \(t-1\)
- \(b_1, b_2, b_3\) are the estimates of \(\beta_1, \beta_2, \beta_3\)

\(^{16}\) The specification of the model is determined by the frequency of type 1 errors. A type 1 error occurs if there is no earnings management, but the model suggest that there is earnings management.

\(^{17}\) The power of the model is determined by the frequency of type 2 errors. A type 2 errors occurs if there is earnings management, but the model suggest that there is no earnings management.
Finally, the discretionary accruals can be determined by using the following formula:

\[ \text{DA}_t = \text{TA}_t - \text{NDA}_t \]  

(3)

Where \( \text{DA}_t \) = discretionary accruals

### 3.2.2 Empirical model

This study investigates the effect of the Financial Crisis and auditor changes on the amount of discretionary accruals. Furthermore this study examines whether there is a difference, with respect to earnings management, between an auditor change that is made during the pre-crisis period and an auditor change in the post-crisis period.

The level of discretionary accruals is my dependent variable and the Financial Crisis and auditor changes are both independent variables. However prior research indicates that it is important to control for the effect of firm performance on accruals when using the Jones model or the modified Jones model. Dechow, Sloan and Sweeney (1995) and Kasznik (1999) show that the Jones model’s (Jones, 1991) estimate of discretionary accruals is positively correlated with earnings performance. Firms with low (high) earnings tend to have negative (positive) discretionary accruals. Similar to the approach used by Haw, Hu, Hwang and Wu (2004), I include three performance related variables: return on assets, defined as earnings before extraordinary items divided by lagged total assets (ROA); the absolute value of (ROA), denoted by AROA; and the absolute value of change in ROA, denoted by CAROA. I include these variables to control for the firm’s inherent accruals, reversals of prior-year accruals, and growth in earnings (Kasznik, 1999, McNichols, 2000, Klein, 2002 and Haw et al., 2004). Furthermore Dechow and Dichev (2002) show that larger firms tend to have more stable and predictable operations and hence report smaller amounts of discretionary accruals. To control for this size effect, I include firm size (SIZE), measured by the natural logarithm of the book value of total assets. Other research (Francis, Maydew & Sparks (1999), Becker, DeFond, Jiambalvo & Subramanyam (1998) and Francis & Krishnan (1999)) find that large audit firms appear to constrain manager’s ability to exercise accounting discretion. To control for the effect of audit quality differentiation, I include a dummy variable Big4, which takes the value of one if the firm is audited by a Big 4 auditor and zero if not.
So, to investigate the effect of the Financial Crisis and auditor changes on the amount of discretionary accruals, I developed the following model:

\[
DA_{it} = \beta \text{Crisis}_{it} + \beta \text{Audchange}_{it} + \beta \text{Big4}_{it} + \beta \text{Size}_{it} + \beta \text{ROA}_{it} \\
+ \beta \text{AROA}_{it} + \beta \text{CAROA}_{it} 
\]  

(4)

Where,

- \(DA_{it}\) = Discretionary accruals for firm \(i\) in year \(t\), obtained from the modified Jones model.
- \(\text{Crisis}_{it}\) = a dummy variable that takes the value of one if the observation of firm \(i\) is from the post-crisis period (2008-2009) and zero if the observation is from the pre-crisis period (2005-2007).
- \(\text{Audchange}_{it}\) = a dummy variable that takes the value of one if firm \(i\) changed to a new auditor in year \(t\) and zero if not.
- \(\text{Big4}_{it}\) = a dummy variable that takes the value of one if firm \(i\) is audited by a Big 4 auditor and zero if the firm is audited by a non Big 4 auditor in year \(t\)
- \(\text{Size}_{it}\) = the natural logarithm of total assets of firm \(i\) in year \(t\)
- \(\text{ROA}_{it}\) = return on assets (defined as earnings before extraordinary items divided by lagged total assets) for firm \(i\) in year \(t\)
- \(\text{AROA}_{it}\) = the absolute value of (ROA) for firm \(i\) in year \(t\)
- \(\text{CAROA}_{it}\) = and the absolute value of change in ROA for form \(i\) in year \(t\)

I do also test whether an auditor change in the post-crisis period time leads to more earnings management compared to an auditor change in the pre-crisis period. Therefore I execute a 2x2 Between Subjects Factorial ANOVA. This analysis enables me to determine if the effect of an auditor change on earnings management differs between the pre-and post-crisis period.
4. Results
This chapter describes the results of this study. Paragraph 4.1 outlines the results on the effect of the Financial Crisis on the number of auditor changes. Paragraph 4.2 discusses the results on the effect of the Financial Crisis on the type of auditor changes. Paragraph 4.3 shows descriptive statistics and the results on the correlation between the Financial Crisis, auditor changes and earnings management.

4.1 Number of auditor changes
Graph 1 shows the number of auditor changes per firm. Based on prior literature, which is discussed in paragraph 2.2, I expected that firms more often change auditor during the Financial Crisis. The results show an contradictory picture, as can be seen in graph 1 and the corresponding table. After controlling for sample size disparities (which can be found in the column “total firms in sample” of the graph’s corresponding table), I find that firms more often changed auditor in the pre-crisis period (2005-2007), compared to the post-crisis period. In the pre-crisis period, there were on average, 0.0955 auditor changes per firm, while in the post-crisis period there were on average 0.0677 auditor changes per firm. This means a 29.1% decline in the number of auditor changes per firm in the post-crisis period, compared to the pre-crisis period, which is inconsistent with Hypothesis 1. Although this difference is statistically insignificant\(^\text{18}\), it indicates that firms are less incentivized to change auditor during the Financial Crisis. This finding is not consistent with Williams (1988) and Stricharchuk (1983), who respectively find that managers have greater incentives to change auditor if their performance is poor and that firms seek new auditors to keep bad news out of the financial statements. During the Financial Crisis, firms even seem to be motivated to not change auditor. Possibly, firms are reluctant to change auditor because they are anxious that the new auditor does not agree with the existing accounting policies, which could lead to a confrontation with the new auditor (Williams, 1988). Overall, the findings suggest that the opportunities that firms have to reduce the companies’ audit costs and to engage in more intense earnings management, do not incentivize firms more strongly to change auditor during the Financial Crisis, compared to non crisis years.

\(^{18}\)This result is statistically insignificant due to the low number of observations. There are only 5 observations (2005, 2006, 2007, 2008, 2009), which makes it impossible to be statistically significant)
4.2 Type of auditor changes

Graph 2 and the corresponding table show the distribution of the type of auditor changes that firms made during the pre-crisis and post-crisis period. The results show that in the pre-crisis period about 60% of the changes are from a non Big 4 to another non Big 4 auditor, while the changes from Big 4 to Big 4 account for 15.47% of the total changes. Furthermore, 20.16% of the changes are from Big 4 to non Big 4, while the remaining 3.72% are auditor changes from non Big 4 to Big 4. The results from the post-crisis period show a different picture. Almost 70% of the changes are from a non Big 4 to a non Big 4 auditor, while the changes from a Big 4 to another Big 4 auditor remains more or less constant at 15.04%. About 5.6% of the firms change...
Graph 2: Type of auditor changes

Graph 3: Big 4 vs. non Big 4
from a non Big 4 to a Big 4 auditor, while approximately 9.6% of the firms make the opposite move. Graph 3 shows that the percentages of changes to both Big 4 and non Big 4 auditors is slightly different during the pre- and post-crisis period. Compared to the pre-crisis period, the post-crisis period shows a small increase in changes to Big 4 auditors. Overall, the results show that there are less changes from Big 4 to Big 4 auditors, which is consistent with Hypothesis 2a. However the difference between the pre- and post-crisis period is meaningless. I also find less changes from Big 4 to non Big 4 auditors during the post-crisis period, which is inconsistent with Hypothesis 2b. Furthermore, during the post-crisis period, there is an increase (from 3.72% to 5.63%) in auditor changes from non Big 4 to Big 4, which is inconsistent with Hypothesis 2c. Finally, the results are consistent with Hypothesis 2d, because I find a 15% increase\(^{19}\) in auditor changes from non Big 4 to non Big 4. However, this increase is not caused by a decline in changes from non Big 4 to Big 4 auditors, but by the fewer changes from Big 4 to non Big 4 auditors. Overall, these results indicate that the Financial Crisis does not incentivize firms to change to a less expensive or a lower quality auditor. A possible explanation for these findings might be that, during the Financial Crisis, firms prefer an auditor who provides higher quality audits and more credible financial statements instead of a less expensive low quality auditor.

**4.3 Results on earnings management**

In the following paragraphs the results on earnings management are described. Paragraph 4.3.1 gives descriptive statistics and paragraph 4.3.2 will address the regression results. Finally paragraph 4.3.3 will address the ANOVA-results which indicate the impact of the Financial Crisis on the effect of an auditor change on earnings management.

**4.3.1 Descriptive statistics**

Table 3 presents descriptive statistics for the all variables included in the empirical model (equation 4 at page 26). The mean amount of DA\(^{20}\) (discretionary accruals) is 1.04. The mean of dummy variable Crisis is 0.372, which means that 37.2% of the observations are from the post-crisis period. The mean of Audchange is 0.069, which means that there was an auditor change in

\[^{19}\text{This is the relative increase in changes from non Big 4 to non Big 4 auditors, calculated as follows: \((69.72-60.65) / 60.65 \times 100\% = 14.95\%\)}\]

\[^{20}\text{All the amounts of discretionary accruals are expressed in millions.}\]
6.9% of the observations. The remaining variables are all control variables. The mean ROA is -0.078 which means that, in this sample, firms on average have a negative return on assets. Of course, the mean of AROA (the absolute value of ROA) is positive, because all negative ROA’s are transformed to positive ROA’s in this variable.

### 4.3.2 Regression results

Table 3 reports the results of the main regression\(^{21}\) using the sample of 24,118 observations over the 2005-2009 period. The dependent variable in this regression is DA. Furthermore, table 4 contains the variables of interest (Crisis and Audchange) and five control variables (Big4, Size, ROA, AROA and CAROA). The results show that almost 28% of the variation in DA is explained by the different independent variables. This suggests that this model explains a part of

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>Number of obs = 24118</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>15616.118</td>
<td>7</td>
<td>2230.874</td>
<td>F( 7, 24110) = 1313.76</td>
</tr>
<tr>
<td>Residual</td>
<td>40940.8657</td>
<td>24110</td>
<td>1.69808651</td>
<td>Prob &gt; F = 0.0000</td>
</tr>
<tr>
<td>Total</td>
<td>56556.9837</td>
<td>24117</td>
<td>2.34510858</td>
<td>R-squared = 0.2761</td>
</tr>
</tbody>
</table>

| DA | Coef. | Std. Err. | t     | P>|t| | [95% Conf. Interval] |
|----|-------|-----------|-------|------|------------------------|
| Crisis | 1.531155 | 0.0175149 | 87.42 | 0.000 | 1.496825 – 1.565485 |
| Audchange | -0.0939647 | 0.033905 | -2.77 | 0.006 | -0.1604206 – -0.0275088 |
| Big4 | -0.2414805 | 0.023019 | -10.49 | 0.000 | -0.2865992 – -0.1963618 |
| Size | 0.1048355 | 0.0049156 | 21.33 | 0.000 | 0.0952005 – 0.1144704 |
| ROA | 0.1553428 | 0.0647583 | 3.22 | 0.001 | 0.0762528 – 0.3144328 |
| AROA | -0.2557157 | 0.091829 | -3.70 | 0.000 | -0.3913185 – -0.1201129 |
| CAROA | 0.2095402 | 0.0600211 | 3.49 | 0.000 | 0.1918951 – 0.3271852 |
| _cons | 0.0833765 | 0.0293503 | 2.84 | 0.005 | 0.025848 – 0.140905 |

---

\(^{21}\) The main regression corresponds with equation 4 on page 2.
the variability in DA, but that there are other factors, not included in this model, that also affect the amount of DA. Both the coefficients of Crisis and Audchange are significant at the less than 1 percent level. The coefficient on Crisis is positive, which is consistent with Hypothesis 3. This finding suggests that firms engage more in earnings management during the Financial Crisis, compared to the pre-crisis period. This finding is consistent with Kim and Yi (2006) who find that firms manage earnings more intensively during the Asian financial crisis.

The coefficient on Audchange is negative, which suggests that the level of discretionary accruals decreases after an auditor change. This finding could have implications for the mandatory rotation discussion (see paragraph 2.2.5), because it indicates that firms who change auditor, report less earnings management and thus have more reliable financial statements. This might imply that, for the newly appointed auditor, the effect of the increased independence is higher than the loss of client specific knowledge. Proponents of the mandatory auditor rotation could use this finding to convince their opponents.

Furthermore, the coefficient on Big4 is significantly negative, which is consistent with Balsam, Krishnan and Yang (2003), who find that clients of industry specialized auditors (Big 4) have lower levels of discretionary accruals, compared to firms who are audited by non industry specialized auditors (non Big 4).

4.3.3 ANOVA results
This study examines whether the effect of an auditor change on earnings management differs between the post- and pre-crisis period. To test this, I executed a 2x2 Between Subjects Factorial ANOVA. Especially, I am interested in the simple effect analysis which can be obtained from SPSS. The profile plot of the ANOVA (graph 4) gives a first impression of the effect of an auditor change on earnings management, both in the pre- and post-crisis period. The table that corresponds to the graph and some other relevant SPSS output is included in Appendix A. The y-axis indicates the level of discretionary accruals. The dummy variable Crisis, indicates on the x-axis whether the amount of discretionary accruals is from the pre-crisis period (0) or post-crisis period (1). The blue line indicates the level of earnings management if no auditor change has occurred, while the green line indicates the level of earnings management if an auditor change occurred. This graph shows that, in the pre-crisis period, there is a small difference in the level
of earnings management between firms who changed auditor and firms that did not change auditor. Firms who did not change auditor in the pre-crisis period, on average, show discretionary accruals of 0.473 while firms that do change auditor show discretionary accruals of 0.447 (Appendix A). So firms that change auditor in the pre-crisis show a slightly lower level of earnings management, compared to firms that did not change auditor in that period. In the post-crisis period the difference is bigger. Firms that do not change auditor in the post-crisis period show, on average, discretionary accruals of 2.019 while, firms that changed auditor in that period show discretionary accruals of 1.760. The graph illustrates that the difference in the post-crisis period is bigger than in the pre-crisis period. However, statistically, these differences are not yet appointed. Therefore I executed a pairwise comparison test (table 5), which shows whether the differences are statistically significant. The results of the pairwise comparison test indicate that firms that change auditor in the pre-crisis period, on average show a slightly lower level of earnings management. However, this difference is statistically insignificant (sig. = 0.515). This suggests that the level of earnings management in the pre-crisis period does not differ between

Graph 4: Profile plot on level of discretionary accruals
changing and not changing firms. The results are different for the post-crisis period. The table indicates that firms that change auditor in the post-crisis, show a significant (sig. = 0.000) lower level of earnings management, compared to firms that did not changed auditor in that period. These findings indicate that an auditor change in the post-crisis period reduces the level of earnings management while an auditor change in the pre-crisis period does not affect the level of earnings management. This means that during the Financial Crisis, the newly appointed auditors, on average, detect and correct more misstatements than auditors who continued their audit proceedings at the same client. This effect does not apply to the pre-crisis period. This finding is inconsistent with Hypothesis 4, because my expectation was that an auditor change in the post-crisis period would lead to more earnings management, because I expected that newly appointed auditors, on average, would provide lower quality audits (§2.4.2). However, the results suggest that, in the post-crisis period, newly assigned auditors have stronger incentives to detect and correct misstatements than auditors of firms who did not change auditor. This might imply that newly appointed auditors are more independent or competent than the incumbent auditors. A possible explanation for the different effect of an auditor change in the pre- and post-crisis period might be that the types of auditor changes differ between the pre- and post-crisis period (see

### Table 5: Pairwise Comparison test

<table>
<thead>
<tr>
<th>Crisis</th>
<th>Audchange</th>
<th>Audchange</th>
<th>Mean Difference (I-J)</th>
<th>Std. Error</th>
<th>Sig.</th>
<th>95% Confidence Interval for Difference</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0.026</td>
<td>0.040</td>
<td>0.515</td>
<td>-0.052 - 0.105</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>0</td>
<td>-0.026</td>
<td>0.040</td>
<td>0.515</td>
<td>-1.05 - 0.052</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0.259*</td>
<td>0.062</td>
<td>0.000</td>
<td>-0.380 - 0.138</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>0</td>
<td>-0.259*</td>
<td>0.062</td>
<td>0.000</td>
<td>-1.138 - -0.138</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on estimated marginal means

a. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

* The mean difference is significant at the .05 level.
graph 2 and 3). During the post-crisis period, there are more changes from non Big 4 to Big 4 auditors and less changes from Big 4 to non Big 4 auditors, compared to the pre-crisis period. In other words, there are more changes to higher quality auditors and less changes to lower quality auditors during the post-crisis period. It is already mentioned that these high quality auditors constrain manager’s ability to exercise accounting discretion. (Francis, Maydew & Sparks, 1999, Becker, DeFond, Jiambalvo & Subramanyam, 1998 and Francis & Krishnan, 1999). Thus, the lower level of earnings management after an auditor change during the post-crisis period, might be explained by the larger proportion of changes to high quality auditors, compared to non crisis years. However this effect could not be proven statistically, due to relative low number of auditor changes.\(^{22}\)

The results might also imply that the price cutting context\(^ {23}\) during the Financial Crisis did not impaired audit quality negatively. It was expected that the firms that changed auditor during the Financial Crisis could make optimum benefit of the price cutting context, because prior research (Arkes and Blum, 1985 and Kahneman and Tversky, 1979) gives rise to the suspicion that the price cutting context leads to lower audit quality. However, it may be the case that newly appointed auditors are aware of the firms’ motive, which is to change auditor to provide themselves with more earnings management opportunities. This might cause that the newly appointed auditor is extra alert on earnings management, which causes that the newly appointed auditors detects and corrects more earnings management.

\(^{22}\) There were 1211 auditor changes in the pre-crisis period, but only 473 auditors changes in the post-crisis period.

\(^{23}\) In this study it is assumed that the price cutting context occurred during the Financial Crisis.
5. Conclusion

This study investigates the influence of the Financial Crisis on auditor changes and earnings management. A large sample of publicly traded U.S. firms is investigated over a five year period (2005-2009). Prior research indicates that there are differences between Big 4 and non Big 4 auditors with respect to audit quality (e.g. Raman & Wilson, 1994) and audit fees (e.g. Francis & Stokes, 1984). I expected that these differences incentivize firms to change auditor during the Financial Crisis, which results in more auditor changes, compared to non-crisis years. Also, I expected that more firms change from a Big 4 to a non Big 4 auditor and that there were fewer changes in the opposite direction to make optimum use of earnings management possibilities and audit fee reductions. Furthermore, I expected that firms report more earnings management during the Financial Crisis and that an auditor change during the Financial Crisis results in more earnings management, compared to an auditor change in non-crisis years.

First, my results show that firms do not change auditor more often during the Financial Crisis. This suggests that the Financial Crisis does not incentivize firms to change auditors. They even seem to be incentivized to not change auditor. Possibly, firms are afraid that the new auditor does not agree with existing client/auditor agreements on accounting policies, which could lead to a confrontation with the newly appointed auditor (Williams 1988).

Second, I find less auditor changes from Big 4 to non Big 4 and more auditor changes from non Big 4 to Big 4 during the Financial Crisis. This finding suggests that the Financial Crisis does not incentivize firms to change to a less expensive or a lower quality auditor. A possible explanation for this finding might be that, during the Financial Crisis, firms prefer an auditor who provides higher quality audits and more credible financial statements instead of a less expensive low quality auditor. Probably firms want to avoid that shareholders become suspicious.

Third, my results show that firms engaged more in earnings management during the post-crisis period compared to the pre-crisis period. This is consistent with Kim and Yi (2006), who find higher levels of earnings management during the Asian financial crisis.

Finally, I find that an auditor change during the Financial Crisis reduces the level of earnings management, while an auditor change in the pre-crisis period does not affect the level of earnings management. This difference might be explained by the larger proportion of changes to high quality auditors during the Financial Crisis, compared to non-crisis years.
5.1 Limitations and possibilities for future research

This study has several limitations. First, the results on the number and type of auditor changes are statistically insignificant, due to the low number of observations (only five; the years 2005-2009). However, the results give indicates the influence of the financial crisis on the number and type of auditor changes. A possible addition to this study is to expand the timeframe of this study and include several other financial crises. However it will be hard to obtain data for such a long time period.

Second, the assumption is made that an auditor change in crisis time leads to lower audit fees than an auditor change in non-crisis years. This assumption is well argued, however not tested in this study. If this assumption proves to be incorrect during the Financial Crisis, this might explain the incorrectness of some hypotheses. A valuable supplement to this research is to examine the effect of auditor changes on audit fees for both crisis and non-crisis years.

Conducting a survey is one of the possibilities to obtain reliable data about audit fees that are related to the dismissed and engaged auditor. However, this was time technically not feasible. Another limitation of this study is that the modified Jones model is not perfect in determining the extent of earnings management. Like all other earnings management models, this model only gives a rough estimate (however the most reliable estimate) of the actual extent of earnings management. Thus, actual levels of earnings management may differ from my findings.

Furthermore, it is obscure whether this U.S. study is generalizable to other countries. It is generally known that the (legal) environment in the U.S. differs significantly from other countries. Lang, Raedy and Wilson (2006) investigated the characteristics of reconciled U.S. GAAP accounting data for U.S. and non-U.S. firms. They find that accounting data for non-U.S. firms show more evidence of earnings management and they suggest that earnings management is more an issue for non-U.S. firms than U.S. firms. They note that the legal environment is less arduous for non-U.S. firms and incentives to manage earnings are stronger. Their findings, which are consistent with Leuz, Nanda and Wysocki (2003), suggest that evidence of earnings management is strongest for firms with the weakest local investor protection. Thus, the degree by which this study is generalizable to another country, depends on the degree of investor protection in that country. A valuable addition would be to perform this study in another country where the regulatory legal environment is less arduous than the U.S.’s environment.
References


Appendix A

SPSS Output Factorial Anova

4. Audchange * Crisis

<table>
<thead>
<tr>
<th>Audchange</th>
<th>Crisis</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
</tr>
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<tr>
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<td>0</td>
<td>.473a</td>
<td>.011</td>
<td>.451</td>
<td>.495</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>2.019a</td>
<td>.014</td>
<td>1.991</td>
<td>2.046</td>
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<tr>
<td>1</td>
<td>0</td>
<td>.447a</td>
<td>.038</td>
<td>.372</td>
<td>.522</td>
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<tr>
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<td></td>
<td>1.760a</td>
<td>.060</td>
<td>1.641</td>
<td>1.878</td>
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</table>

a. Covariates appearing in the model are evaluated at the following values:

Size = 5.7234, Big4 = .69, ROA = -.0783, AROA = .1814, CAROA = .1098.

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
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</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>15633,379³</td>
<td>8</td>
<td>1954,172</td>
<td>1151,246</td>
<td>.000</td>
<td>.276</td>
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<tr>
<td>Intercept</td>
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<td>1018,210</td>
<td>599,850</td>
<td>.000</td>
<td>.024</td>
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<tr>
<td>Size</td>
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<td>759,751</td>
<td>447,586</td>
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<td>179,306</td>
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<tr>
<td>AROA</td>
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<tr>
<td>CAROA</td>
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<td>.001</td>
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<td>.000</td>
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<tr>
<td>Audchange * Crisis</td>
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<td>17,261</td>
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<td>.000</td>
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<td>24109</td>
<td>40923,604</td>
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<tr>
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<td>24118</td>
<td>82739,080</td>
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<td>56556,984</td>
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a. R Squared = .276 (Adjusted R Squared = .276)