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The Effect of Earnings Management on Audit Fees
Evidence from the Manufacturing Industry

Accounting

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This study focuses on understanding the effect earnings management has on audit fees. Earnings management is studied by examining real earnings manipulation through sales manipulation and overproduction.

The study is done using an OLS regression analysis. The sample consists of companies in the manufacturing industry, chosen using two-digit SIC codes, data collected from the COMPUSTAT and AUDIT ANALYTICS databases. Observations are from US based firms, total of 9541 firm-year observations during the period of 2008 to 2014.

The results suggest that earnings management through sales manipulation and overproduction are inversely associated with the audit fee, suggesting that higher quality auditors decrease earnings manipulation practices.

Keywords audit fee, audit quality, earnings management, real earnings management

Tutkimus keskittyy ymmärtämään tuloksenjärjestelyn vaikutusta tilintarkastupalkkioiden määrään. Tuloksenjärjestelyä tutkitaan reaalioperaatioiden manipuloinnin, myynnin ja ylituotannon kautta. Tutkimusdata on kaksinumeroisilla SIC koodeilla valittu tuotantotoimialalla toimivista yrityksiä Yhdysvalloista. Data on kerätty COMPUSTAT ja AUDIT ANALYTICS tietokannoista, yritys-vuosi havaintoja on yhteensä 9541, vuosilta 2008–2014.

Keskeisimpänä löytönä on reaalioperaatioiden manipuloinnin negatiivinen yhteys tilintarkastuspalkkioon, joka viittaa siihen että tilintarkastuksen laadulla on tuloksenjärjestelyä vähentävä vaikutus.

Avainsanat   Tilintarkastuspalkkio, tilintarkastuksen laatu, tuloksenjärjestelty, reaalioperaatioiden manipulointi

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1 INTRODUCTION

1.1 Background of the Study

As statutory audits are deployed to enforce accountability, it is important to understand the basis of assessment for audit fees. There are numerous studies on the pricing of audit services (Simunic A. 1980, e.g. Chan, Ezzamel & Gwilliam 1993, Chung, Narasimhan 2002). Although various factors influence the size of an audit fee, there are some common determinants that are found and proven to have a strong correlation to audit fees. Generally used variables include company size, riskiness, complexity and whether the audit is performed by a 'big four' company, and if the audit is happening in the busy period. (Pong, Whittington 1994, Simunic A. 1980, DeAngelo 1981b, Brinn, Peel & Roberts 1994)

Accounting legislation and the Generally Accepted Accounting Principles (GAAP) leave discretion to managers over accounting policies and procedures, thus leaving flexibility to financial reporting. This all leads to the core of earnings management: Net income cannot be determined with one simple formula. This opens the door for earnings management, with motives arising from contractual, market, or management's personal incentives. (Graham, Harvey & Rajgopal 2005)

Earnings management has been a topic of academic research for over four decades (see e.g.Dechow, Sloan & Sweeney 1995, Healy 1985, Jones 1991). Traditionally, academic research has focused on accruals manipulation, that is, when earnings management is done through discretionary accruals. In addition, more recently there have been studies that indicate that managers are more willing to use real operation manipulations for earnings management purposes, rather than accruals manipulation (Graham, Harvey & Rajgopal 2005). Earnings management is a tricky subject, since it can distort the information that is provided in financial statements and thus possibly harm shareholders or other stakeholders, even though earnings management is not illegal per se. Furthermore, the implications earnings management might have can span further, as short-term value is preferred over long-term performance. (Gioielli, De Carvalho 2008) Engaging in earnings management often leads to deviating from

optimal operational practices, which in turn can cause harm to the firm (Ewert, Wagenhofer 2005). An example of such is a case where projects with positive net present value are ignored, thus long-term value disregarded in order to gain short-term earnings (Gunny 2005).

The main purpose of an audit is to assure that financial statements are fairly presented. And, as earnings management refers to altering the reported earnings from operating activities, it increases the audit risk. Nevertheless, the effect of earnings management has not been researched extensively from the point of view of audits.

1.2 Objectives and Contribution

The main objective of this study is to examine whether and how earnings management affects audit fees. I will concentrate on analyzing the effect of earnings management on audit fees in the manufacturing industry from data collected in the United States of America. I will examine the effects of the less studied field of earnings management done through real operations manipulation, instead of the widely used accruals models. Earnings management I will examine by reviewing both sales manipulation and overproduction. Extant academic literature is limited on this field in general, and even less so on the effects of the real earnings management on audit fees.

The empirical part of the study is implemented through a quantitative analysis using the ordinary least squares regression (OLS) model. First, the levels of earnings management are determined using parameter estimates following Roychowdhury (2006), and implementing a model developed by Dechow et al. (1998). Thus, I focus on the manipulation of real activities: sales manipulation and overproduction. The final sample includes 9541 firm-year observations from the US during the period of 2008 and 2014. The included observations are from companies that operate in the manufacturing industry, identified with two digit SIC codes of 20 through 39. This study contributes to the academic literature of both earnings management and audit fee through the results, by supporting the prior findings in large parts.

1.3   Structure

This study consists of seven chapters: after introduction, theories of both audit fee and earnings management are presented. These literature reviews will discuss the different approaches to the subject and cover the essentials. In the second chapter the different determinants of audit fees are reviewed, and in the third chapter earnings management is defined and I will review the different methods of engaging in it, as well as the different research methods. After the literature reviews, I will go through the prior studies in the field and develop the hypothesis in chapter four. Chapters five and six contain the research methodology and results, respectively. Finally, in chapter seven, I will present the discussion summarizing the main results of the study, and reflecting on the prior studies and in chapter eight are conclusions, limitations and the future research directions.

2 AUDIT FEES

In this chapter I will present a literature view of audit fees. The chapter is divided in to three themes, of which the first one is the theory of audit pricing. Following with the determinants of audit fees related to the auditor, including audit risk, the quality of the audit, and finally, presenting the attributes of the auditee affecting the audit pricing.

2.1 Audit Pricing Theory

The role of the auditor is to assure that financial reporting gives a fair and true view of the firm's financial performance. Moreover, the process of auditing will lower the risk that the company's financial statements have material misstatements or misleading information. Auditing has been found to be the most cost-efficient way to perform such controls and assurance activities. (Eilifsen et al. 2010). This partly explains the demand for an external audit, but it is not the only reason. Audit services are requested also when a statutory audit is not obligatory. In fact, audit services can be regarded as monitoring devices responding to potential conflicts of interest between owners and managers (Watts, Zimmerman 1983). The principal-agent problem arises when firm owners do not have all the information the managers have, leaving owners with difficulties evaluating the appropriateness of the management's decisions.

The principal-agent theory has been used as a general framework for audit pricing; a study by Nikkinen and Sahlström (2004) showed that audit fee was negatively related to management ownership, and positively to free cash flow. The results were consistent across several countries included in the study, whereas the control variables used had varying effects. An audit can be performed also for reasons other than the principal–agent problem. Besides the current and potential future owners, also the firm's customers, employees, and government agencies (DeAngelo 1981b) use financial reports. For example, Chow (1982) finds that a firm's debt ratio and the debt covenants including accounting measures, increase the demand for an external audit. Thus, contractual reasons are a significant factor in performing external audits (Carey, Simnett & Tanewski 2000).

An audit fee, according to the IFAC[1] ethical code, is determined by acknowledging the circumstances the audit is performed in, by the skills and knowledge required by the auditor, as well as the competence level of the auditor. Moreover, the time needed to perform the audit and accountability are factored in. In addition, the political and economic situation might affect the determination of an audit fee. According to the ethical code, the appropriate basis of assessment is either an hourly or daily rate for the work performed by the auditor. (Horsmanheimo, Steiner 2008)

Simunic (1980) developed a model for audit pricing in his seminal work. The model consists of the resource cost component, as aligned with the IFAC ethical code, and the liability cost component. (Kallunki, Sahlström & Zerni 2007) The model to determine the minimum expected cost is as follows:

$$E(C) = cq + E(d)E(l) \tag{1}$$

Where c is the cost of audit resources per unit, q is the quantity of resources used to perform the audit, $E(d)$ is the expected loss from litigation costs and other losses due to the audited financial statements, and $E(l)$ is the probability that the losses are realized to the auditor. (Kallunki, Sahlström & Zerni 2007, Simunic A. 1980)

There are a few conditions on this model: (1) both the auditor and the auditee are risk neutral and are to maximize their earnings every financial year; (2) resources are used efficiently both internally and externally from the audit control point of view; (3) the auditee and the auditor are both together and individually responsible for the possible material misstatements if resulting harm to the users of the financial statement information (Simunic A. 1980). Moreover, the auditor has to set the fee on a level that will enable enough resources to be used; inadequate resources or audit work hours can never be justified by the audit fee (Ittonen, Peni 2012).

The external audit is part of a firm's financial reporting. Thus, audit services can be regarded as an economic commodity, and therefore it has its substitutes (e.g. internal controls). For profit companies aim at minimizing the total cost of the audit (Simunic

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[1] International Federation of Accountants

A. 1980). Nevertheless, often auditing has been found to be the most cost-efficient way to perform such control and assurance activities (Eilifsen et al. 2010).

2.2   Audit Risk

The auditor report, as presented by the Public Company Accounting Oversight Board (PCAOBUS 2015), states that audits are planned and performed according to the standards of the Public Company Accounting Oversight Board to obtain reasonable assurance about whether financial statements are free of material misstatement. This highlights that the report is only an opinion on whether the information presented on the financial reports is correct and free from material misstatements. By definition, audit risk refers to an instance where an auditor issues an unqualified report despite a material misstatement in financial reports (Niemi 2003b). Thus, reasonable assurance expresses the risk that a material misstatement is left undetected even though the audit is performed according to the standards (Eilifsen et al. 2010).

The risk of material misstatement is composed of three components: the inherent risk and control risk, which relate to the auditee, and of detection risk that derives from the actions of the auditor (Niemi 2003b). The risk model for the audit is used to understand the compound risk related to the audit. The auditor follows the evaluation process to identify the risks for material misstatements in financial reports. The risk of material misstatement is then used to define the level of acceptable detection risk, and to plan the audit processes to be performed. (Eilifsen et al. 2010, Niemi 2003b). High inherent risk is found to increase the hours used by the auditor, even though not affecting the hour rate, high risk is positively correlated to the audit fee (Bell, Landsman & Shackelford 2001, Bradbury, Botica Redmayne 2014).

The audit risk is set at a such level that at the end of the engagement an audit opinion can be given (Eilifsen et al. 2010). When initiating the engagement, the auditor decides to bear the risk of financial loss, due to financial obligations or reputational loss arising for that particular client relationship (Niemi 2003b). Thus, the audit risk is an integral part of audit pricing, as is the process to define and diagnose the accepted level of the audit risk. Simunic (1980) has identified determinants that increase the audit risk: the

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auditee size and complexity, the auditee industry, and some balance sheet items, namely total assets, foreign assets, receivables and inventories at the year end. Size refers to total assets, revenues and other financial measures that indicate the extent of business operations. Complexity is measured by the number of subsidiaries, by the number of operational industries, and by the amount of foreign assets. (Simunic A. 1980)

Audit risk can be compensated by modifying and adding more powerful audit tests (Thornton, Moore 1993). When the auditor perceives a higher than normal risk in the planning phase, audit programs are increased accordingly to decrease the risk level back to acceptable. The extra work will naturally increase the audit fee. Moreover, risky clients tend to have higher probability to cause negative publicity and other liabilities to the auditor. These risks are translated in to the audit pricing through a higher fee (Hay, Knechel & Wong 2006). That said, empirical proof of risk premiums for audit fees are inconclusive and difficult to observe (Niemi 2000a, Niemi 2002).

2.3   Audit Quality and Auditor Size

DeAngelo (1981b) developed a two-dimensional definition of audit quality: first, the material misstatement must be detected, after which it must be reported. This definition has become the standard for addressing the issue since audit quality is unobservable. Thus researchers use surrogates or other indicators of audit quality to determine it. Some researchers use objective outputs, such as litigation rate, peer review ratings and the frequency of reissuing audit opinions, to determine audit quality. (Wooten 2003)

The cost of evaluating the audit quality remains at the consumers of the financial reporting. Since the actions and audit programs of an audit engagement are rarely observed by consumers, and moreover, consumers have only limited amount of information about the auditor-client relationship and the incentives of reporting a breach. The only observable outcome of the audit is the audit opinion, and since the vast majority is unqualified (Francis 2004) it is not highly informative regarding the

audit quality, since a firm may perform a low-quality audit and still give an unqualified opinion and go undetected (Wooten 2003).

Due to the difficulty of evaluating audit quality, the cost of the evaluation is likely to be significant, and therefore DeAngelo proposes less costly surrogates for audit quality. In her paper (1981b) she argues that the auditor size serves for such. She finds evidence that the size of the auditor correlates with audit quality and auditor independence. For a big audit firm with a large client base, the importance of any single client is lower than to a smaller firm, thus increasing the independence due to lower incentives to not report a breach. A bigger audit firm also has stronger incentive to maintain high quality in their audits, as they have more to lose if the quality is lowered and they give a flawed opinion. All in all, a smaller audit firm has more incentives to give a flawed opinion, and thus, the size of the audit firm can be perceived as a surrogate for audit quality. (DeAngelo 1981b)

Another incentive for the big firms to maintain their quality is that high quality enables the firms to charge higher fees. The international 'big four' companies are able to charge higher fees compared with the smaller firms. And since the price difference cannot be explained through monopolistic pricing, the difference is explained through product differentiation, that is, higher quality. This is supported by the fact that there are clients who are willing to pay a higher fee for a higher quality (Niemi 2000b) Even though clients prefer auditors who are able to maintain steady quality, there are also other consumers of the financial statements who may affect the auditor selection. For example, banks rely on bigger audit firms' quality (DeAngelo 1981b), which is worth noting when in need of loan. All these things have led to the high audit fee to be regarded as a sign of a high quality audit. This is based on the idea that auditors account for the additional audit programs in the audit fee (Ball, Jayaraman & Shivakumar 2012). The higher audit fee can result from either more audit hours or higher competence and thus higher hourly rate (Francis 2004).

As audits are not completely regulated by the law, the auditee can choose their auditor and other factors affecting the audit quality, such as the size of the auditor, the work experience of the responsible auditor, the size of the audit team, the average hourly

rate, the reliability of internal controls, and so on (Ball, Jayaraman & Shivakumar 2012). In fact, in a study of small Finnish companies, Niemi (2003a) finds that the size of the auditor and audit fee are positively correlated, and moreover, also competence level, work experience and whether the auditor is certified, affect the fee. Nevertheless, DeAngelo (1981b) assumes that there is no difference in the abilities between auditors, that is, they are technically equally qualified to perform a quality audit. The quality differences arise from two things: credibility and independence. And these are the factors valued by the consumers of the financial statement information, as they perceive the audit better quality if it is performed by an independent auditor. (DeAngelo 1981b) The big audit firms have a higher degree of independence, but also, their size provides another advantage compared with the smaller firms. Large auditees are often more complex than the smaller ones, operating in more than one industry. Thus, the bigger auditors are more likely to know and understand the different industries than the smaller ones. For these and similar reasons, big auditees choose one of the big four companies as their auditor, as auditor specialized in the industry decreases the possibility of a flawed opinion. (Carcello, Nagy 2004)

Where DeAngelo proposes size to be used as a surrogate for quality, Klein and Leiffler (1981) suggest that quality is estimated by the audit firm brand, rather than its size. According to them, long-term efforts on quality will enable the firm to charge higher audit fees. Although Klein and Leiffler have a differing point of view with DeAngelo, their approaches share the idea that audit firms specialize in a certain quality level (DeAngelo 1981b). Thus, the auditee will choose the auditor based on level of quality they want. From the client point of view, the quality of the audit is the same as the quality of the auditor (Niemi 2000b p.18).

Figure 1. The Interdependencies of Audit Quality
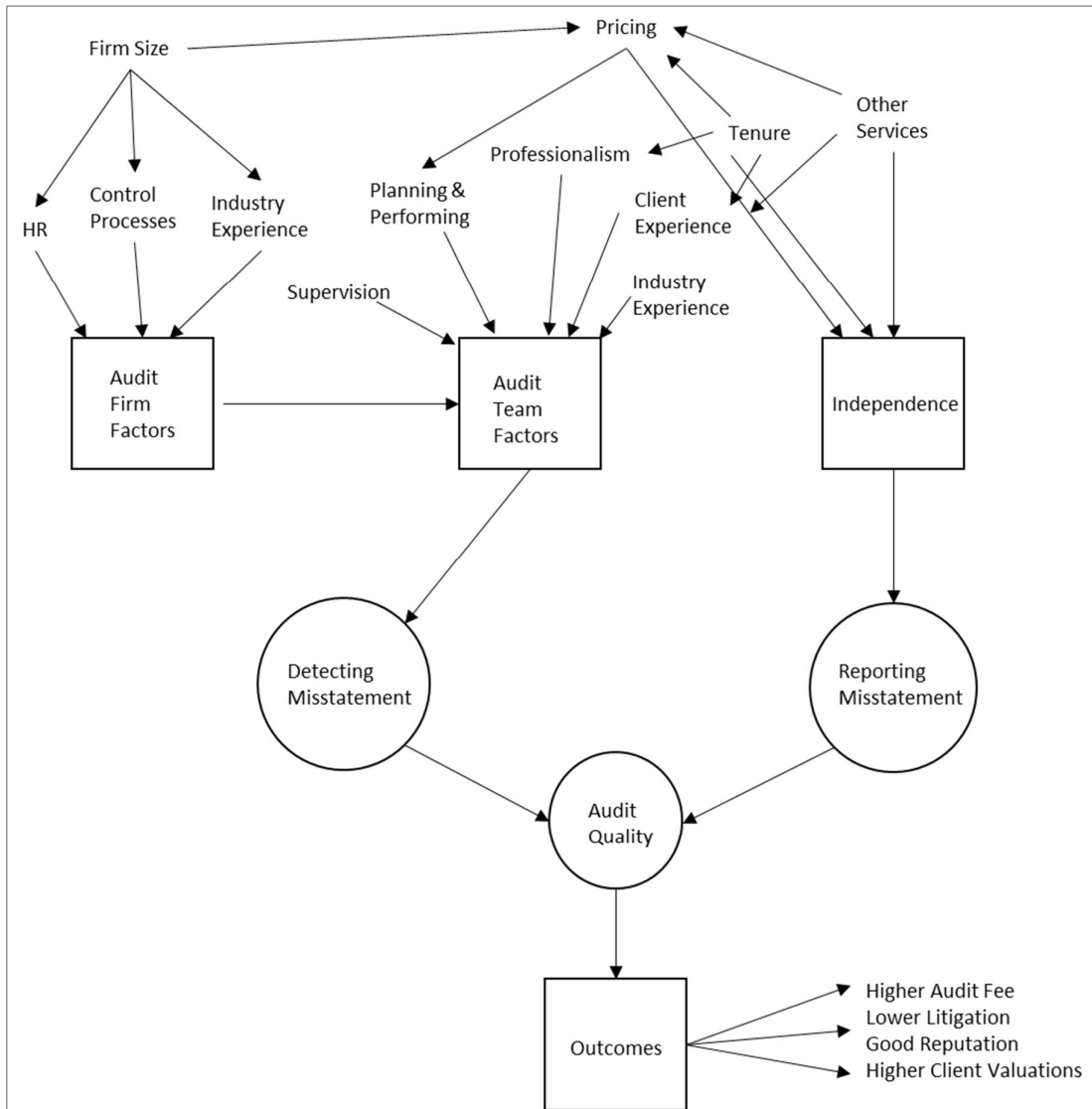
(Adapted from Wooten 2003)

2.4 Auditee Attributes

2.4.1 Size

Auditee size is by far the predominant determinant of the audit fee (Hay, Knechel & Wong 2006, Simunic A. 1980). The firms size is generally measured using total assets, or alternatively, using revenue. The size determinant explains on average over 70% of

the audit fee (Hay, Knechel & Wong 2006), which is natural since size correlates with the amount work required to perform the audit (Nikkinen, Sahlström 2004, Hay, Knechel & Wong 2006). Although the auditee size is vastly accepted in the academic literature as the predominant determinant, some criticism has fallen upon whether the audit fee and size are linearly related (Carson et al. 2004). There are several studies on the premiums paid to big auditors, segmenting the auditees by size or ownership (see e.g. Banker, Chang & Cunningham 2003, Francis, Simon 1987, Lee 1996). Furthermore, there are varying results also whether economies of scale with big auditees affect the audit fee (see e.g. Simunic A. 1980, Pong, Whittington 1994).

2.4.2 Complexity

The complexity of the auditee affects how many audit hours are required and thus, is reflected in the audit fee (Hay, Knechel & Wong 2006). The complexity of the auditee is more ambiguously defined compared to the size measure. Different studies have used different measures, but some of the more often used ones are (i) the number of (foreign) subsidiaries, (ii) the value of foreign assets scaled by total assets, (iii) the number of operating industries by SIC codes, and (iv) the amount of difficult to audit balances, such as receivables (see e.g.Chan, Ezzamel & Gwilliam 1993, Francis 1984, Hay, Knechel & Wong 2006, Simunic A. 1980).

With increased complexity, a more skilled auditor and greater work experience is required, thus increasing the hourly fee (Gibbins and Mason, 1988, as cited by Thornton & Moore, 1993), and more extensive audit procedures (Thornton, Moore 1993). This is in line with the findings of Simunic (1980), and similarly of Niemi (2005), who finds that audit fees are higher for foreign subsidiaries. Thornton and Moore (1993) also conclude that, in general, the marginal cost of auditor quality increases with complexity. Some literature speculates that higher audit fees are paid for the services of higher quality auditors as a response to more complex auditing problems (see e.g. Elliot and Korpi, 1978; Wallace 1984). Although, in short term audit complexity will not necessarily increase the total audit fee, as the quantity may be higher, the quality may be lower (Thornton, Moore 1993). On the contrary, Pong and Whittington (1994) found that big audit firms are relatively more efficient doing

complex audit work, thus, the premium for complex audit work was relatively lower in comparison with non-big audit firms.

2.4.3 Internal Control

"*Internal controls over financial reporting should provide reasonable assurance about the reliability of financial statements by setting in place policies and procedures related to maintaining accounting records, authorizations, and safeguarding of assets* "(Hogan, Wilkins 2008 p.219). Thus, internal controls are a substitute for audit procedures and the reliance on auditee inputs can reduce the auditor inputs (Palmrose 1986).

Studies performed after the Sarbannes-Oxley Act (SOX) find internal control weaknesses to positively correlate with the audit fee, either through higher billing rates or hours (Johnstone and Bedard, 2008, as cited by Hoitash et al. 2008; Hoitash et al. 2008). Hogan and Wilkins (2008) find that the severity of significant deficiencies or material weaknesses in the auditee's internal controls has an increasing effect on audit fees. Studies from the pre-SOX period have varying results (Mock, Wright 1999), or find no correlation between audit fee and internal control risks (Mock, Wright 1993, O'Keefe, Simunic & Stein 1994). These differing results relate to the two dimensions of the studies: whether (i) internal and external audits are each other's substitutes (Felix Jr, Gramling 2001), or (ii) they are complementary (Carey, Simnett & Tanewski 2000). Although, Sarkat et al. (2009) note that these two roles are not mutually exclusive: in a stronger governance framework, the internal audit may substitute some external audit work. Moreover, the Statements of Auditing Standards, number 65, allows an external auditor to evaluate whether the internal auditor's work can be used to reduce the procedures to (i) obtain understanding of internal controls, (ii) assess risk, or (iii) to reduce the substantive procedures of the financial statement audit (AICPA 2015). Niemi (2000a) confirms this with his finding of internal control level correlating inversely with the audit fee.

2.4.4 Risk

In the academic literature there are differences how researchers conceptualize the term 'risk'. Besides the previously discussed audit risk, in a competitive market, the

audit fee should also reflect the auditor business risk. The business risk is composed of, for example, lawsuits, sanctions or professional reputational or client losses (Brumfield, Elliott & Jacobson 1983). Bell et al. (2001) argue that the auditor business risk is shifted from firms to clients in the audit price. Jubb et al. (1996) note that auditor business risk has never had a direct measure in the audit fee studies, but instead, the auditee business risk is used as proxy for it. Moreover, client specific audit risk arises from the auditee business risk; Simunic (1980) uses measures for risk such as loss in last three years, net income scaled by total assets and the audit opinion. Jubb et al. (1996) state that there is a lot of confusion in the definition of risk in the empirical literature, and propose that the audit risk and business risk are separate dimensions of risk and should be both included in the audit fee models.

Francis (1984) finds a significant relationship between auditee riskiness and the audit fee. It can be because auditors need to perform more powerful tests to obtain the required degree of assurance when the auditee risk increases (Kinney 1975), and thus riskier clients require more audit time (Thornton, Moore 1993). Interestingly, in contrast to the theory, Bell et al. (2001) recovered a little to no evidence from their interviews with auditors that the expected cost of business risk is shifted to clients.

2.4.5 Profitability and Debt Ratio

Auditee profitability can be regarded as a form of risk measure, as it reflects the auditor's probability of loss when the auditee is in financial distress. One of the measures for financial distress is the debt ratio, and as in the case of auditee default, the cost incurred is borne by the auditor, thus the possible cost is translated in to the audit fee. (Simunic A. 1980) Hay (2006) finds a positive correlation between the debt ratio and audit fee, which is supported by the findings of Simunic and Stein (1996), as high debt ratio increases default risk. As a higher debt ratio is expected to increase the audit fee, an increase in profitability is expected to lower the audit fee, as the business risk is lower for the auditor (Hay, Knechel & Wong 2006).

As some studies find a positive correlation between the debt ratio and the audit fee (e.g. Hay, Knechel et al. 2006; Griffin, Lont et al. 2010), other studies have varying

results. Hay (2006) suspects that auditors are not as sensitive to auditee profitability differences as the audit fee models suggest. In a different approach, Dhaliwal et al. (2008) speculate whether the audit fee is a sign of a high quality audit and thus a sign of low default risk and highly reliable financial statements. In which case it would decrease the cost of debt and thus allow a higher debt ratio; or whether a high audit fee decreases the auditor independence, and thus lowers the financial statement reliability for which the cost of debt increases (Dhaliwal et al. 2008). Both approaches would somewhat contrast the idea behind the previously discussed financial risk approach, even though, the end result is the same. Hay et al. (2006) conclude that recent studies show that profitability, and especially loss, is ever more important driver for audit fees.

2.4.6 Industry

The differences between different industries have great effects on the financial statement audit. Some industries are more difficult to audit than others, and for example Simunic (1980) finds some evidence that these differences are translated in to the audit fee. Palmrose (1986) speculates that it is due to the differences in audit risk and or audit requirements. Gonthier-Besacier et al. (2007) find significant correlation between the information technology industry and the audit fee, whereas, financial institutions and utility companies have lower audit fees (Hay, Knechel & Wong 2006).

Danos and Eichenseher (1982) come to the conclusion that audit firms that gain market share in a specific industry, are more cost effective due to better operating efficiency or through economies of scale, compared with market share losers. To further develop the idea, cost effectiveness allows them to bid lower and thus gain new customers. Although it doubtfully is the predominant factor for decreasing the audit fees. When considering the banking industry, all the general variables of audit fee models are present and as significant, but some, such as inventories or debt ratios, are not meaningful (Fields, Fraser & Wilkins 2004). For this, most audit fee studies exclude banks and other financial institutions (e.g. Simunic A. 1980, Francis 1984, Hay, Knechel & Wong 2006) note that even though financial institutions have relatively larger assets, they are easier to audit, compared to companies with large balances of current assets,

receivables or intangible assets. In the Finnish market, it could be argued that financial institutions have relatively lower audit fees for two reasons: higher operating efficiency through auditor industry specialization (as suggested by Gävert 2014) combined with the easier-to-audit balance sheets.

As opposed to financial institutions, companies in the manufacturing industry are expected to have relatively higher audit fees than other industries. It is for the very reason that they have larger balances of current assets and more risky receivables that are consequently more laborious to audit (Hay, Knechel & Wong 2006). The balances that require special audit programs have been found to correlate with higher audit fees (Simunic A. 1980).

2.5   Other Determinants

In addition to the previously discussed factors affecting audit fees, there are studies on the effect of lowballing, that is, the initial audit engagement is discounted, in order to win the bid on the client, and later recuperate the loss (DeFond, Zhang 2014, Ettredge, Greenberg 1990, DeAngelo 1981a). Niemi (2000a) notes that also that production factors affect, and the different division of the audit work hours to a partner, manager and other auditors will affect the total audit fee. Ittonen and Peni (2012) find that the sex of the auditor affects the audit fees, as female auditors charge higher fees. They suspect that it is due to differences in the adventurism between men and women, thus adding either the required work or increasing the risk premium. Some studies have included an ownership variable to their model, and whether the auditee is publicly or privately owned (see e.g. Hay, Knechel & Wong 2006, Niemi 2005).

In addition to the determinants related to either the auditor or the auditee, there are also factors beyond the two parties of the audit engagement. One factor is the new financial reporting rules and requirements posed to auditing, increasing the amount of work, and consequently, increasing the audit fee (Menon, Williams 2001, Kim, Liu & Zheng 2012). Also, national regulations can affect the audit fee markets, as for example, Gregory and Collier (1996) state regarding the US and UK markets.

3 EARNINGS MANAGEMENT

In this chapter the reader is familiarized with to the topic of earnings management. I will concentrate on five different themes, all important from the earnings management point of view. I will start with definitions, after which I will explain the connection to accounting theory. After covering the management incentives, I will discuss the different types and means of earnings management. Lastly, I will present the different research methods used in earnings management studies.

3.1 Definition of Earnings Management

Earnings management literature attempts to understand whether earnings management exists, how and why managers manipulate earnings, and what the consequences are (McNichols F. 2000, Healy, Wahlen 1999). By a loose definition, earnings management is a strategy to generate accounting earnings, using managerial discretion over accounting choices (Phillips, Pincus & Rego 2003). Moreover, according to the definitions commonly proposed in the academic literature, earnings management is done by applying the discretion of the generally accepted accounting principles, the GAAP, (Hunt, Moyer E. et al. 2000) and is not to be confused with illegal activities that aim to manipulate financial results. In the following Table 1. Levels of Earnings Management, is condensed the difference of legal and illegal earnings management. Classifying by the reporting type, accounting can be (i) conservative, when the recognition of provisions and reserves is overly aggressive and restructuring charges and assets are overstated; (ii) it can be neutral, when earnings are a result of natural operations, thus no earnings management; (ii) it can be aggressive, when provisions for bad debts are understated or provisions and reserves are drawn down aggressively. Or (iv) it can be considered fraud, when accounting methods violate GAAP, for example when unrealized sales are recognized or inventories are overstated. (Dechow, Skinner 2000)

Table 1. Levels of Earnings Management

Reporting type	Accounting Choices
Within GAAP	
Conservative accounting	· Overly aggressive recognition of provisions or reserves
	· Overstating restructuring charges and asset write-offs
Neutral accounting, no earnings management	· Earnings are a result from natural operations.
Aggressive accounting	· Understating the provisions for bad debts
	· Overly aggressive draw down of provisions or reserves
Violates GAAP	
Fraud	· Recognizing unrealizable sales
	· Overstating inventory

Adapted from Dechow and Skinner (2000)

In the academic literature, there are many different definitions for earnings management. Here I present one commonly used definition, proposed 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." (Healy and Wahlen (1999, p.368)*

Taking this definition to parts, it covers both the costly-contracting approach; that is, earnings management is done as a means to influence contractual outcomes, as well as the information approach, that is, a means to intentionally mislead stakeholders (Ronen, Yaari 2008). Thus, it can be said that this definition highlights the managerial judgement in personal level, and the objective of misleading stakeholders. As Ronen and Yaari (2008) state, it does not distinguish between earnings management and

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normal activities resulting in earnings. Moreover, neither does it take into consideration the fact that not all earnings management is misleading, but aims at increasing informativeness (Healy, Wahlen 1999). Ronen and Yaari (2008) classify earnings management into three different types according to the purpose. Earnings management can be (1) beneficial, when signaling long-term value, that is taking advantage of the discretionary accounting treatments to signal private information on future cash flows (Fudenberg, Tirole 1995). It can be (2) malevolent: when concealing reducing transparency of either short- or long-term value (Healy, Wahlen 1999, Schipper 1989). Or (3) neutral: when revealing the short-term true performance (Healy, Wahlen 1999). They offer an alternative definition of (Muller III 1999) earnings management:

"Earnings management is a collection of managerial decisions that result in not reporting the true short-term, value-maximizing earnings as known to management. "(Ronen, Yaari (2008) p.27)

As the general definitions are still ambiguous, in order to clarify what is, or can be considered as earnings management, I will present some examples of the methods used to manage earnings, as noted by Ayres (1994), Bruns and Merchant (1990), Francis (2001) and others. (i) Methods relating to the GAAP, such as the choice of accepted treatments, timing of adopting new standards, estimate and valuation decisions. (ii) Methods relating to the classification of items in order to affect the operating income. (iii) Timing of revenue (expense) recognition (Bartov 1993, Gunny 2005) and decisions to over capitalize expenses (Muller III 1999), and (iv) real production and investment decisions. And lastly, (v) methods relating to the presentation of the financial statements, such as presenting Pro Forma earnings or reporting comprehensive income on the equity statement (Lee, Petroni & Shen 2006). As suggested by the literature, in this study I consider earnings management as manipulation within the discretion of the application of the GAAP.

By the definition by Healy and Wahlen, where the contractual outcomes tied to financial information are mentioned as a target, the two different means for earnings management are better covered; the accruals manipulation is done by using the judgement in financial reporting, within the GAAP; and the structuring transactions,

including the real earnings management methods. Next I will discuss these two means in more detail.

3.1.1 Accrual-based Earnings Management

Accruals are the difference between reported earnings and the cash flow from operations. Accruals can be further divided in to two components: non-discretionary accruals, and discretionary accruals (Cohen, Dey & Lys 2008), meaning the accruals that are up to the discretion of the management. To further clarify, the management has a set of procedures that are generally accepted in the accounting legislation, to work with while choosing the discretionary accruals (Healy 1985).

Manipulation practices

In the literature, several techniques are identified as aims to earnings management through discretionary accruals. One set of techniques arises from the US GAAP regulation demanding reserves for the future obligations. These so called *Cookie Jar Reserve* techniques can be created in periods of strong financial performance by overstating reserves, expenses, and / or by making one-time write-offs (Levitt 1998). And once created, in periods of weak financial performance, the reversal of accruals and reserves can reduce expenses and thus increase earnings (Kokoszka 2003). (ElMoatasem Abdelghany 2005) Although, the obligations need to be measurable and of high certainty to qualify for the reserve entries, the estimation of the future obligation creates the opportunity for earnings management. Such situations are for example, estimating sales returns, bad debt write-offs, and warranty costs.

Another set of techniques, the so called '*Big Bath*' techniques arise from accounting standards that allow management to do substantially restructure the business or eliminate operations in order to remain competitive. The incentive for managers is to "use" all expenses in one bad year instead and reporting only one year of poor performance, instead of several years. These kinds of techniques are often exploited when restructuring activities and changes in the management team are happening simultaneously. (Elliott, Shaw 1988, Levitt 1998) Again, it is the estimation of the expenses that offer the opportunity to deploy earnings management practices. Such estimations are needed in asset impairment and write-downs, and in disposal of

operations. By exploiting these techniques, by overstating the expenses current earnings will decrease, and by reversing excessive reserves future earnings will increase. (ElMoatasem Abdelghany 2005)

The next set of techniques entails the different practices used on assets. As the US GAAP requires passive investments to be categorized as either 'trading' or 'available for sale', it enables the management, by changing the holding intent, to report unrealized gains or losses, or to write-down impaired securities in order to decrease earnings (Hunton, Libby & Mazza 2006, Maines, McDaniel 2000). Moreover, assets providing long-term benefits are amortized, depreciated and depleted often based on estimates of factors such as the useful lifetime. The treatment of these kinds of assets offers several opportunities to manage earnings: through selecting the write-off method and period, by the estimation of salvage value, or by changing their status to non-operational. (Elliott, Hanna 1996)

Levitt (1998) notes two more techniques. First, in improper revenue recognition revenues are recognized before they are actually earned. Furthermore, Levitt notes that in the SEC's enforcement case filed in 1999 and 2000, over half of them had revenue recognition issues. In the other technique management is abusing the materiality concept, that is, management ignores mistakes and recording errors in the financial statements deliberately, assuming that they are insignificant.

3.1.2 Real Earnings Management

Real earnings management is earnings management through real operations manipulation in order to revise the reported earnings. That is, adjusting the timing and/or scale of the business activities. (Xu, Taylor & Dugan 2007) More specifically, earnings management is done by shifting income from one period to another periods, through the timing of the reported or the actual events (Degeorge, Patel & Zeckhauser 1999).

Manipulation practices

Extant academic literature presents a relatively unified view of the methods classified as real earnings management: (1) Increasing sales by offering price discounts or through more lenient credit terms; (2) Overproduction to report lower cost of goods; and (3) decreasing discretionary expenses, such as R&D. (Cohen, Dey & Lys 2008, Dechow, Kothari & Watts 1998, Gunny 2005, Roychowdhury 2004, 2006, Xu, Taylor & Dugan 2007)

The manipulation methods can be also categorized based on activity type: manipulation of operating and investing activities and manipulation of financing activities. The three presented methods all fall under the category of operational and investment activity manipulations. Under the same category goes the classification of investment transaction, aiming at two things: taking advantage of the treatment associated with the transaction such as business acquisitions, leases or equity investments; and the application of managerial judgement related to those transactions (Xu, Taylor & Dugan 2007). Similarly, in structuring financing activities, managers are able to advantage of the alternative accounting choices. Although, that falls under the category of manipulation of financing activities. So does the repurchasing of outstanding stocks to increase the future earnings per share (EPS), or to mitigate the dilution of the EPS. Furthermore, investing activities manipulations include such activities as granting stock options to increase earnings, or employing financial instruments, such as financial derivatives. (Xu, Taylor & Dugan 2007)

3.1.3 Earnings Management through Accounting Standards decisions

The Financial Accounting Standards Board (FASB) has issued on average five new standards per year since its formation in 1973. The normal transition period is two to three years prior to the mandatory adoption. Due to the adoption window, managers have the opportunity to choose the timing of the adoption that is the most favorable. (Ayres 1994). Also, switching from one GAAP method to a different one can be used as a method for earnings management, although the change cannot be made very frequently. Furthermore, conservative accounting, that is practicing accounting methods that keep carrying values of assets low, can be regarded as earnings

management, as the reported earnings are often lower than what would be under neutral/more liberal accounting choices. (Penman, Zhang 2002)

3.2 Earnings Quality and Earnings Management

Earnings quality refers to the amount of information earnings provide about the financial performance. The primary focus of financial reporting should be information about earnings, according to SFAC No.1, and it should represent the firm's financial performance during the reporting period (FASB 2008).

The key to understanding the concept of earnings quality, is to realise that quality, as well as the information it self, is conditional to a specific decision made by a specific decision-maker. The decision-makers include auditors, capital market participants, compensation committees and analysts, all of which have their own consequences of earnings quality. (Dechow, Ge & Schrand 2010) Thus, there is no unambiguous way to define or measure earnings quality.

Earnings quality determinants can be divided in to six groups: Firm characteristics, financial reporting practices, governance and controls, auditors, equity market incentives, and external factors (Dechow, Ge & Schrand 2010). Based on these determinants, many different earnings quality proxies are introduced in the prior literature, and Dechow et al. (2010) categorized them in to three groups: (1) the properties of earnings, as an indication of earnings management, (2) the investor responsiveness to earnings, and (3) the external indicators, viewed as indicators of either errors or earnings management. The first category includes many proxies that are used also for earnings management. In fact, earnings quality is the key to evaluate whether or not earnings management should be done. The general assumption is that earnings management erodes earnings quality (Dechow, Ge & Schrand 2010). Nevertheless, according to the definition of earnings quality, if the managed earnings are more informative than the unmanaged, assuming it is done within the GAAP, it should be allowed. The problem arises from the decision-relevance of the information, and culminates on who is judging. Thus, earnings management can be quality increasing or decreasing, depending on the motives behind it. Thus, it could be argued that earnings management with motive arising from management's personal

incentives are decreasing earnings quality, whereas motives purely towards increasing informativeness is increasing earnings quality.

3.3   Earnings Management Incentives and Constraints

Incentives

Earnings management incentives can be categorized in two groups, based on the object it relates to. The first group consists of management related objectives. First, depending on the contracts, management can have incentives to manipulate earnings to increase their compensation. Or, in a CEO turnover situation, in the last year of governing the leaving CEO can try to increase one's own bonus and/or chance to obtain the directorship, or the incoming CEO can manipulate earnings downwards in order to ease future earnings growth and to reset the previous CEO's earnings growth rate. (Wells 2002) A more borderline case for earnings management is insider trading, where the management might exploit their private information to make profits. Lastly, in a case of management buyout, management might attempt to manipulate earnings in order to reduce the share price to be paid. (Bergstresser, Philippon 2006, Perry, Williams 1994)

The second group consists of earnings management that relates to the users of the financial information. This category includes six types of case: (1) Meeting or beating a benchmark; this includes for example the earnings management to avoid reporting loss (Healy 1985). Managing earnings to increase the share price when either (2) issuing stock on initial public offering, on seasoned equity offering, or on new listings (Shivakumar 2000); or (3) financing a merger or acquisition by stock, in order to reduce the cost of the merger to shareholders (Perry, Williams 1994). Earnings management can be done also as a means in negotiation: (4) firms can try to impact on the cost of debt when borrowing bond covenants (Watts, Zimmerman 1978), or (5) downward manage earnings when in negotiations with the employee unions (Liberty, Zimmerman 1986). Lastly, (6) firms use earnings management to respond to regulatory constraints, such as taxes (Watts, Zimmerman 1978).

An alternative categorization often used in earnings management is dividing the incentives into contractual and stock market incentives. The assumption here is that managers are to act upon what is the best for the company. Although, recently some studies have acknowledged that the managers' personal incentives can also affect the decision-making process (Graham, Harvey & Rajgopal 2005, Roychowdhury 2006). Thus the manager can be looking after one's own interest, instead of maximizing the firm's welfare.

Constraints

Academic literature has identified several constraints or limits for management to manage earnings. Most of the constraints of earnings management activities are market based. Although, internal initiatives such as corporate governance can have a significant effect on the level of earnings management activities. This is supported by Dechow, Sloan and Sweeney (1996), who find internal governance structure to affect the level of earnings management. Also, the Public Oversight Board "urges the board of directors to play an active role in the financial reporting process" (1995 p.3). Moreover, the SEC calls for better governance practices to constrain earnings management, and studies suggest that the best practices are indeed associated with less earnings management (Bedard, Chtourou & Courteau 2004).

Besides corporate governance, the business environment can have a constraining effect on managers when it comes to earnings management. Political forces can influence it directly through accounting or tax laws, or through the laws protecting shareholders (Ball, Kothari & Robin 2000), or alternatively, indirectly through the impacts of market forces, such as shareholders or creditors (Porta et al. 1996). The SOX is an example of direct influence, bringing reforms that combat both corporate and accounting fraud among others (U.S. Securities and Exchange Commission 2002).

Where accounting standards leave discretion for the manager to engage in earnings management, the standards can create constrains to it. Sweeney (1994) finds that the previous accounting choices can limit the discretionary choices to be made, and Jiambalvo (1996) discusses the constraining effect of the costs to follow for the company if earnings management would be revealed. In general, the different

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accounting standards provided a different level of flexibility. Several studies have compared the International Accounting Standards (IAS) and International Financial Reporting Standards (IFRS) with the US GAAP. Goncharov (2006) explains the wider flexibility in IAS/IFRS by the fact that they are adopted in several countries, and thus, need to be more flexible to also converge to the national GAAPs. Therefore, it is suspected that countries or companies reporting under IAS/IFRS engage more likely to earnings management (Goncharov, Zimmermann 2006).

3.4 Methods to Detect Earnings Management

Without knowing the management's true intentions, it is difficult to identify earnings management with certainty. That is a criticism to the earnings management literature, where any earnings management identified could as well be a result of a missing variable or other behavior that is by mistake identified as earnings management. (Gunny 2005)

Higher than expected frequency of slightly positive earnings surprises, earnings changes, and earnings levels are found in prior research (Burgstahler, Dichev 1997, Degeorge, Patel & Zeckhauser 1999, Hayn 1995) which is consistent with earnings management aiming to meet benchmarks. These findings have inspired the later studies of earnings management to use such variables to signal for earnings management. Following Burgstahler and Dichew (1997), Leuz (2003) as well as Kerstein and Rai (2007) have used the small earnings as proxy for earnings management. Earnings were considered small if they fell within one percent of the value of the total assets or of the market value of the company. Nevertheless, Dechow et al. (2003) urge caution when using small profits as earnings management proxy since they found no evidence to support that the kinks around zero would be caused by earnings management. Thus, in the following section I will present other models and methods used in the academic literature to capture the different types of earnings management, first accrual-based and later real earnings management.

3.4.1 Models Detecting Accrual-Based Earnings Management

The academic literature has a variety of models detecting earnings management, and the accrual-based models are the most popular ones. The literature often focuses on the discretionary accruals (DA), estimating the discretionary components. The most popular models are briefly presented in the following.

The Healy model. Healy (1985) assumes that the systematic earnings management occurs always. Earnings management is detected by comparing mean total accruals (TA), scaled by lagged total assets (A). The mean total accruals from the period is used as a measure of non-discretionary accruals (NDA). The underlying assumption is that if total accruals is not zero, it is a sign of earnings management.

$$\textbf{DA}_{it} = \frac{TA_{it}}{A_{it-1}} \qquad (1)$$

The DeAngelo model. DeAngelo (1986) assumes that for a stationary company, the non-discretionary accruals in period *t* are equal to the non-discretionary accruals in the period *t-1*. Thus, the discretionary accrual, the earnings management component is

$$DA_{it} = \frac{\left(TA_{it} - TA_{it-1}\right)}{A_{it}} \qquad (2)$$

The Jones model. Jones (1991) proposed that the variations in revenues will cause variations on operating capital, and thus also changes in accruals. Also, the depreciation in the fixed asset decreases the accruals. Therefore, variance in the revenue (ΔREV) and fixed assets (PPT) are used as independent variables when predicting discretionary accruals. The equation to estimate coefficients is as follows:

$$TA_{ip}/A_{ip-1} = \alpha_1\,(1/A_{ip-1}) + \beta_1\,(\Delta REV_{ip}/A_{ip-1}) + \beta_2\,(PPT_{ip}/A_{ip-1}) + \varepsilon_{ip} \qquad (3)$$

And the equation to calculate the discretionary accrual component is as follows:

$$DA_{it} = TA_{it}/A_{it-1} - [\alpha_{1i}\,(1/A_{it-1}) + \beta_{1i}\,(\Delta REV_{it}/A_{it-1}) + \beta_{2i}\,(PPT_{it}/A_{it-1}) \qquad (4)$$

The Jones Cross-section model. DeFonf and Jiambalvo (1994) modified the Jones model to correct the data bias related to the time-series. They assume that non-discretionary

accruals are the same the across the industry. Thus, first the industry coefficient estimates are calculated as in the Jones model and then followed as in the Jones model.

The Modified Jones model. Dechow et al. (1995) further developed the underlying assumption of the Jones model, that all variances of revenue are non-discretionary, and deducted the variance of receivables (ΔREC), as credit sales can be used to manage earnings. Thus, the model is as follows:

$$DA_{it} = TA_{it}/A_{it\text{-}1} - (\alpha_i \, (1/A_{it\text{-}1}) + \beta_{1i} \, (\Delta REV_{it}/A_{it\text{-}1} - \Delta REC_{it}/A_{it\text{-}1}) + \beta_{2i} \, (PPT_{it}/A_{it\text{-}1}). \quad (5)$$

3.4.2 Methods Detecting Real Earnings Management

A motive for real earnings management suggested by Cohen and Zarowin (2010) is to mislead (certain) stakeholders that the normal course of operations has led to the reported earnings. As discussed previously in Chapter 3.1.2, real earnings management is most often studied looking for three different kinds of activities: increasing sales by price discounts, lowering the cost of goods sold by overproduction, and paring discretionary expenses, such as R&D or selling, general and administrative expenses (SG&A). In the field of discretionary expenses, maybe the most studied is the R&D expenditures. The findings suggest that there is a link between reduced expenditure and firms meeting or beating earnings benchmarks (Cohen, Zarowin 2010); R&D expenditures are reduced to increase short-term earnings by the soon-to-exit executives (Dechow, Sloan 1991). A similar link is found to asset sales, for example, Bartov's (1993) findings suggest that asset sales are used to even out bad earnings news.

Sales manipulation, mainly aiming at increased sales levels, can be obtained by temporarily offering price discounts and/or more lenient credit terms. The objective is to generate sales to the current period, instead of the following one. With positive sales margins the current period earnings will increase. If price discounts are used, marginal profits are expected to decline due to abnormally high production costs in relation to the sales level, and moreover, the CFO to be abnormally low in relation to sales. If a temporary increase in sales is obtained through more lenient terms, the delayed inflow

of cash might lead to lower CFO in relation to sales in the current period. (Roychowdhury 2006)

The third real earnings management method discussed in Chapter 3.1.2 was the overproduction to lower the reported cost of goods sold (COGS), and thus increasing earnings. The logic behind overproduction is that when the fixed overhead costs are divided to a greater number of units, the cost per unit will decline. However, the cash flows are generally also decreased, through additional holding costs, or if the over production is sold at a discount, through lower profit margins, leading to abnormally low CFO. The overproduction can be detected from abnormally low COGS for the period, or abnormally high annual production cost to given sales levels. In order to account for the additional inventories the production cost can be also defined as a sum of COGS and the change in inventory. (Roychowdhury 2006)

The general model is that the normal, or expected, level for these activities are estimated, and the difference between the expected level and the reported is considered abnormal, and thus identified as earnings management. (Cohen, Dey & Lys 2008, Dechow, Kothari & Watts 1998, Gunny 2005, Roychowdhury 2006, Xu, Taylor & Dugan 2007) In the following, I will present the widely used models, developed by Dechow et al. (1998) and implemented by Roychowdhury (2006):

The sales manipulation is detected by reviewing the normal and abnormal levels of cash flow from operations (CFO). The normal level is estimated by a linear function of sales and change in sales:

$$\frac{CFO_{it}}{Assets_{it-1}} = \beta_1 \frac{1}{Assets_{it-1}} + \beta_2 \frac{SALES_{it}}{Assets_{it-1}} + \beta_3 \frac{\Delta SALES_{it}}{Assets_{it-1}} + \varepsilon_{it} \qquad (6)$$

The normal level of production cost is estimated as a linear function of sales:

$$\frac{PROD_{it}}{Assets_{it-1}} = \beta_1 \frac{1}{Assets_{it-1}} + \beta_2 \frac{SALES_{it}}{Assets_{it-1}} + \beta_3 \frac{\Delta SALES_{it}}{Assets_{it-1}} + \beta_4 \frac{\Delta SALES_{it-1}}{Assets_{it-1}} + \varepsilon_{it} \quad (7)$$

And, lastly, the normal level of discretionary expense as linear function of sales:

$$\frac{DISEXP_{it}}{Assets_{it-1}} = \beta_1 \frac{1}{Assets_{it-1}} + \beta_2 \frac{SALES_{it}}{Assets_{it-1}} + \beta_3 \frac{\Delta SALES_{it}}{Assets_{it-1}} + \varepsilon_{it} \tag{8}$$

As the normal levels for CFO (6), production cost (7), and discretionary expense (8) are estimated, the abnormal levels are calculated by deducting the reported level from the normal level predicted from equations (6), (7) and (8). These variables are used as proxies for earnings management; upward managed earnings are indicated by abnormally low CFO, and/or abnormally low discretionary expenses, and/or abnormally high production costs. (Dechow, Kothari & Watts 1998, Roychowdhury 2006, Zang 2006, Cohen, Zarowin 2010)

4 HYPOTHESIS DEVELOPMENT

This chapter marks the beginning of the empirical part in this study. I will review the prior studies of both audit fee and the effects of earnings management on the audit fee, after which I will develop the hypothesis for this study.

4.1 Prior Findings

The audit fee determinants and earnings management are separately wildly studied in the academic literature. I will present here the relevant results and finding in the fields, first for the common explanatory audit fee variables, and afterwards the findings of effects of earnings management on audit fee.

4.1.1 The common explanatory audit fee determinants

In the prior studies common explanatory factors have been the auditee size, complexity, and risk, and they have found to have high explanatory power in the models, and as the studies have spanned across different samples, countries and time periods, the results can be regarded robust (DeFond, Francis & Wong 2000). Thus, I will not further discuss the findings of the auditee size, complexity and internal control as those are uniform in the academic research and the main findings are already presented in Chapter 2.4. Also, in Chapter 2.5 there I presented the '*lowballing*' and the effect of changes in the accounting standards and the national differences in accounting standards, but these factors are not further reviewed here, as they are beyond the scope of this study.

The results of the *busy season* are varied. Most studies find positive correlation with busy season and the audit fee (Chan, Ezzamel & Gwilliam 1993, Chaney, Jeter & Shivakumar 2004, Brinn, Peel & Roberts 1994, O'Sullivan 1999, Peel, Roberts 2003), but only some with statistical significance (Ireland, Lennox 2002). The evidence of price premiums paid for Big four (or previously big five, six, or eight) is also mixed, several studies finding an association of higher fees being paid for the big audit companies (Basioudis, Francis 2007, Ireland, Lennox 2002, Chan, Ezzamel & Gwilliam 1993, Francis, Simon 1987, Peel, Roberts 2003, Pong, Whittington 1994), but some studies finding evidence of the contrary (Simunic A. 1980, Chaney, Jeter & Shivakumar

2004, Seetharaman, Gul & Lynn 2002),and explaining it for example by the economies of scales obtained by the big four, that is then transferred in to the audit pricing (Simunic A. 1980).

Similarly, prior studies have found mixed results regarding the risk. There are studies focusing on understanding whether identified risk factors increase audit work, e.g. substantive testing, or modified audit plans. Mock and Wright (1999) conclude that in practice, audit plans are not strongly risk-adjusted. Similar conclusions are made also by Bedard (1989) and Mock and Wright (1993) using data from actual audit engagements. The accounting scandals (namely Enron and Worldcom) leading to fall of Arthur Andersen, one of the big audit firms, and the passage of the SOX in 2002 are also expected to increase the risk awareness of the auditors (Hogan, Wilkins 2008). As discussed previously in Chapter 2.4.4, the auditee risk is generally expected and found to correlate with the audit fee, but the difficulty is that risk can be defined in several ways. Some studies have used proxies such as inventories and receivables, on their own or combined, to signal riskiness and found correlation between those proxies and the audit fee (Simunic A. 1980, Francis, Simon 1987, Francis 1984). Also the internal control deficiencies and material weaknesses can signal risks and those are found to correlate positively with the audit fee (Raghunandan, Rama 2006, Hoitash, Hoitash & Bedard 2008). Although, as Ge and McVay (2005) state, the causality is difficult prove, whether the increase in the audit fee is due to the risk premium or due to the increased testing.

The prior research also uses the presence of loss in the preceding years as a sign of risk. There are many studies finding correlation between audit fee and previous year(s) loss (Simunic A. 1980, Basioudis, Francis 2007, Choi et al. 2008, Ireland, Lennox 2002). Despite the fact that some of these studies did not find statistical significance, I found no studies finding negative correlation. As the previous years' loss can also signal auditee's financial distress, Niemi (2003a) finds no evidence of financial distress increasing the audit fee.

4.1.2 The Effect of Earnings Management

As there is a conflict of interest on allowing earnings management on the financial statements, prior research has studied the effects on the level of earnings management allowed on financial statements due to the nonaudit services provided by the auditor to. The opposing views are that, (1) nonaudit services can strengthen the economic bond with the client, and thus lowering the independence and raising the pressure to allow earnings management (Simunic 1984), and (2) The provision of nonaudit services could increase auditor's reputational capital, decreasing the probability to give in to the demands of any one client (Arruñada 2013), as cited by (Frankel, Johnson & Nelson 2002). Discussion over the similar effect of the economic rents associated with audit fees exists in the academic literature, for example by DeAngelo (1981a) and Magee and Tseng (1990). Frankel et al. (2002) find positive association with nonaudit fees and small earnings surprises, as well as with the magnitude of discretionary accruals. These findings are favoring the first view, that the increased economic bond also means increased pressure to allow earnings management. Moreover, they find negative association with these earnings management indicators and the audit fee, which is in supported by the similar findings of Abbott et al. (2006).

Caramanis and Lennox (2008) find evidence that abnormal accruals that are increasing income are inversely correlated with audit hours, and furthermore, that firms are less likely to manage earnings upwards to just meet or beat the zero-earnings threshold. Their findings also indicate that the big five auditors' efforts have stronger impact on reducing earnings management aimed at increasing earnings compared with the non-big five auditors. The evidence that auditors have less impact on reducing downward managed earnings is in line with the prior studies suggesting that auditors have fewer incentives to constrain the downward earnings management (Caramanis, Lennox 2008).

4.2   Hypothesis Development

After the previously discussed theories and findings from the prior studies, I am ready to develop my research hypothesis.

The value of auditing is partly based on the decreased misstatements and false reporting of the accounting information in the financial statements, and thus reducing the agency costs (Becker et al. 1998, Watts, Zimmerman 1983). As discussed earlier, the academic literature hypothesizes that the audit effort correlates with the audit quality, which in turn, correlates with the earnings quality (Abbott, Parker & Peters 2006, DeAngelo 1981a, Becker et al. 1998, Hay, Knechel & Wong 2006). And earnings quality is generally considered to decrease with the earnings management (McNichols 2002, Schipper, Vincent 2003, Shivakumar 2000). Moreover, auditors are expected to avoid any causes for litigations and reputational losses, meaning that more audit effort is directed to detect and prevent earnings manipulation, thus resulting in higher audit fees (Bell, Landsman & Shackelford 2001, Niemi 2003b).

In the study conducted by Graham et al. (2005) managers admitted preferring real earnings management over the accruals-based. Managers were so eager to meet the short-term earnings benchmarks that they had even given up projects with positive NPV (Graham, Harvey & Rajgopal 2005). In certain economic situations real activities manipulation methods can be the optimal actions, but such activities can be considered earnings management if they are practiced more extensively than what would be the optimal (Roychowdhury 2006). Cohen et al. (2008) found that managers switched from accrual-based earnings management methods to real operations manipulation methods after the introduction of SOX, but keeping the overall level of earnings management unchanged. According to Roychowdhury (2006), real earnings management could be more costly in the long term, compared with the accruals manipulations, due to the sub-optimal decisions. The evidence suggests that managers prefer the real earnings management due to their own personal interests, despite that the company might bear costs greater than would result from accruals manipulations (Roychowdhury 2006).   Based on this, I concentrate on the effects of earnings management through real operations.

Following the previous discussion of prior findings, I propose my research hypothesis for this study as following:

H1: The Provision of Audit Services is associated with Real Earnings Management

5 RESEARCH METHODOLOGY

5.1 Estimation Models

I use proxies for the real activities manipulation as a means for earnings management. For the real activities manipulation, I will use estimate parameters to identify the normal and abnormal components of cash flow from operations (from here on CFO) and the normal and abnormal components of production costs. Following Roychowdhury's (2006) estimation model to reflect sales manipulation by dividing cash flow from operations (CFO) into normal and abnormal components, as a linear function of sales and change of sales, a model developed by Dechow et al. (1998). These proxies have evidence of their validity by subsequent studies carried out by Gunny (2005) and Zang (2006). Running a regression of the following model forms the estimate parameter:

$$\frac{CFO_{it}}{Assets_{it-1}} = \beta_1 \frac{\mathbf{1}}{Assets_{it-1}} + \beta_2 \frac{SALES_{it}}{Assets_{it-1}} + \beta_3 \frac{\Delta SALES_{it}}{Assets_{it-1}} + \varepsilon_{it} \qquad \textbf{(6)}$$

Where CFO represents the cash flow from operations for company *i,* in period *t* (Compustat annual data item 123). *Assets$_{it}$* is total assets of a company *i* at the end of period *t-1* (Compustat annual data item 6), *S$_{it}$* is the sales of a company *i* during period *t* (Compustat annual data item 12) and *ΔS_{t}= S$_t$ -S$_{t-1}$.*

The coefficient estimates from the equation (6) are used to estimate the firm-specific normal level of cash flow from operations. The abnormal cash flow from operations is obtained by deducting the estimated normal CFO from the actual CFO.

Similarly, the production cost is evaluated by following Roychowdhury (2006), using the model developed by Dechow et al. (1998). The production cost is the sum of cost of goods sold (Compustat annual data item 41), and change in inventories (Compustat annual data item 3). The normal level of production cost is calculated by combining the COGS and change in inventory during the financial year.

As overproduction leads to abnormally high production costs, the normal and abnormal component of the production cost is identified through estimating the normal production cost using a linear function of sales:

$$\frac{PROD_{it}}{Assets_{it-1}} = \beta_1 \frac{1}{Assets_{it-1}} + \beta_2 \frac{SALES_{it}}{Assets_{it-1}} + \beta_3 \frac{\Delta SALES_{it}}{Assets_{it-1}} + \beta_4 \frac{\Delta SALES_{it-1}}{Assets_{it-1}} + \varepsilon_{it} \qquad \textbf{(7)}$$

Where, in addition to the estimated normal CFO model's variables, $\Delta St_{it-1}/TA_{it-1}$ is the previous period's change in sales. The abnormal production cost component is obtained by deducting the estimated normal production cost from the reported cost.

Both estimates of abnormal components, the CFO and overproduction, are used as variables in the main analysis to evaluate the regression model's ability to explain variation in the audit fee values.

5.2 Model and Variables

The research variables include the dependent variable and the independent variables, which include both control variables and the research variables detecting earnings management. All the variables used in this study are presented in Table 2 below.

The dependent variable is the logarithm of the audit fee, LogFee. Audit fees are collected from the Wharton Audit Analytics database. As discussed previously, the audit fee is expected to correlate with audit quality, and thus also audit efforts, of the external auditor (Carcello, Nagy 2004, Caramanis, Lennox 2008, Frankel, Johnson & Nelson 2002, DeAngelo 1981b).

The independent variables include the audit fee determinants that are used widely in the academic literature. First, two variables to proxy for the auditee size: logarithm of total assets (Compustat data item 6) and logarithm of sales (Compustat data item 12). The auditee size is found to be the predominant determinant of the audit fee (Hay, Knechel & Wong 2006, Simunic A. 1980). Simply, large companies are more likely to have more and more varied risks (Hay, Knechel & Wong 2006).

Table 2. Regression Variables

Variable	Formulation	Exp. sign	Prior studies
LogFee	Logarithm of reported Audit Fee		Carcello, Nagy 2004; Caramanis, Lennox 2008; Frankel, Johnson et al. 2002; Abbott, Parker et al. 2006; DeAngelo 1981b
LogAssets	Logarithm of reported Total Assets	+	Hay, Knechel et al. 2006; Simunic A. 1980; Pong, Witthington 1994; Brinn, Peel et al. 1994
LogSales	Logarithm of reported Sales	+	Brinn, Peel et al. 1994; Pong, Whittington 1994
AR/TA	Receivables scaled by Total Assets	+	Simunic A. 1980
Big4	Binary: 1 = auditor is one of the big four auditors, otherwise 0.	+	DeAngelo 1981a; Palmrose 1986; Francis, Wilson 1988; Frankel, Johnson et al. 2002; Caramanis, Lennox 2008; Brinn, Peel et al. 1994
BusyPeriod	Binary: 1=FY ends in December, otherwise 0.	+	Brinn, Peel et al. 1994; Peel, Roberts 2003; Chan, Ezzamel et al. 1993
Small Earnings	Binary: 1 = earnings/total assets 0< x <0.01, otherwise 0.	-	Leuz, Nanda et al. 2003
Loss	Binary: 1 = reported loss in previous financial period, otherwise 0.	+	Kent, Routledge et al. 2010; Frankel, Johnson et al. 2002; Brinn, Peel et al. 1994
CFO/TA	Reported CFO scaled by Total Assets	+	Cohen, Dey et al. 2008; Gunny 2005; Roychowdhury 2006; Zang 2006
abCFO/TA	Reported CFO minus the estimated CFO, scaled by Total Assets	-	Cohen, Dey et al. 2008; Gunny 2005; Roychowdhury 2006; Zang 2006
PROD/TA	Reported production cost scaled by Total Assets	+	Cohen, Dey et al. 2008; Gunny 2005; Roychowdhury 2006; Zang 2006
abPROD/TA	Reported production cost (COGS + change in inventory) minus the estimated production cost, scaled by Total Assets	-	Cohen, Dey et al. 2008; Gunny 2005; Roychowdhury 2006; Zang 2006

As an average audit engagement includes work on both audit of transactions, as well as verification of assets, the use of both, total assets and sales, as a measure for the size can be regarded agreeable (Pong, Whittington 1994). Thus, positive association with the audit fee is expected of both of the variables, LogAssets and LogSales. The third variable controls for risk and complexity. In the prior studies, complexity is often controlled by using the number of foreign subsidiaries, but I choose to omit it due to the mixed results from prior studies (e.g. Francis, Simon 1987, Simunic A. 1980, vs. Maher et al. 1992, Craswell, Francis 1999). Therefore, I choose to use the accounts receivables to represent risk and complexity. Thus, the variable is the accounts receivables scaled by the total assets, AR/TA. The receivables ratio controls for the inherent risk, as well as for the complexity of the audit engagement; receivables are generally regarded as one of the more difficult accounts to audit (see e.g.Hay, Knechel & Wong 2006, Chan, Ezzamel & Gwilliam 1993, Simunic 1984).

The big four audit firms are considered higher-quality auditors, and thus, are expected to accept less earnings management, and more likely to detect and report any errors or irregularities (Becker et al. 1998). Moreover, the audit firm's size is associated with audit quality in the academic literature, and therefore, the Big4 variable is used as a binary variable to proxy audit quality (DeAngelo 1981a, Palmrose 1986, Francis, Wilson 1988, DeFond, Jiambalvo 1991). Observation receives a value of one if the auditor is one of the big four audit firms (EY, Deloitte, KPMG, or PWC) and all other auditors will be marked zero. In the prior literature there is discussion whether the big audit firms are charging premium as a compensation for the so-called busy period clients (e.g. Francis 1984, and Chan, Ezzamel & Gwilliam 1993). Thus, I will also add a binary variable, BusyPeriod, obtaining the value of one if the accounting year ends in December, and otherwise zero. Both the big four and busy period variables are expected to have positive coefficients.

Burgstahler and Dichec (1997) find discontinuity in the earnings distribution, suggesting that companies making a small loss are managing earnings upwards to beat the zero earnings benchmark. Prior studies have used a variable composed of net income or earnings before extraordinary items scaled by total assets to signal for small loss avoidance (Becker et al. 1998, Roychowdhury 2006, Leuz, Nanda & Wysocki 2003).

Thus, I will include a binary variable of small earnings (SmallEarnings) as a proxy for general earnings management. The variable will have a value of one if net income scaled by total assets is less or equal to 0.01. Otherwise the variable will be zero. As earnings management is expected to decrease when audit quality increases, I expect the coefficient to be negative.

Prior studies have used a dummy variable to capture loss in three preceding financial reporting periods (Kent, Routledge & Stewart 2010). Companies in financial distress and unprofitable companies are considered riskier and more challenging to audit (Simunic A. 1980). Moreover, the earnings management literature suggests that financial distress is a driver for upwards earnings management (e.g. Dechow, Dichev 2002). I choose to narrow down the range of loss to one year, in order to capture larger sample size: observation will have a value of one in this variable if the preceding financial reporting period's result was negative, otherwise zero. The expected coefficient sign is positive.

In addition to the previously discussed audit fee determinants, I will include in the regression model the variables for the previously estimated abnormal levels of both cash flow from operations and production cost. The reported scaled measures of both CFO and PROD levels are expected to correlate with firm size, and therefore the expected coefficient sign is also positive. Whereas the abnormal levels of both CFO and PROD are taken as signals of earnings management, similarly to the small earnings variable, they are both expected to be negative.

Regression Model

The research method is the regression analysis using the ordinary least squares regression. Regression analysis is used to determine the independent variables' ability to explain the dependent variables' variance. The regression models strength is that it can analyze several variables simultaneously. In this study, the regression analysis is used to determine the effect of the chosen variables on the audit fee. The chosen variables were discussed previously, and are presented in table 2. The regression model is as follows:

$$LogFee = \alpha_0 + \beta_1 LogAssets + \beta_2 LogSales + \beta_3 \frac{AR}{TA}$$

$$+ \beta_4 Big4 + \beta_5 BusyPeriod + \beta_6 Loss$$

$$+ \beta_7 SmallEarnings + \beta_8 \frac{abCFO}{TA} + \beta_9 \frac{abPROD}{TA} \qquad (9)$$

$$+ \beta_{10} \frac{CFO}{TA} + \beta_{11} \frac{PROD}{TA} + \varepsilon$$

5.3   Data

The data was collected from Compustat and Audit Analytics databases in Wharton Research Data Services. The sample consists of US firms, data collected from the period of seven years, between 2008 and 2014. A total of 12 710 firm-year observations were found, based on the two digit SIC codes between 20 and 39. Constructing the final sample, I eliminated those observations that didn't have all the needed information, meaning Audit Fee, Total Assets, Accounts Receivables, Income Before Extraordinary Items, Cost of Goods Sold, Inventory, Auditor, Audit Fee, and Financial Year end. After the elimination, 9541 firm-year samples were left.

From the final sample the scaled variables were winsorized at 1 and 99 percent levels. I did that to simplify the regression analysis, as outliers and skewed samples decrease the reliability of the results. I decided to winsorize the tails instead of deleting the observations. The aim of it was to diminish the significance of any single observation.

5.4   Descriptive Statistics

Table 3 reports the descriptive statistics for the research variables. The dependable variable, the logarithm of the audit fee ranged approximately from -1.71 to 1.794 while -0.012 being the mean. The logarithm of assets varied between 1 and 5.6, 2.74 being the mean assets size. The risk variable ranged between zero and 0.8, with a mean of 0.14. The big four dummy variable mean was 0.24, meaning that approximately a quarter of the observed companies were audited by a big four auditor. Slightly over 70 percent of the firms were audited during the busy period (mean 0.715) and only 5.6

percent of the firms had reported small earnings (equal or less than 1% of the amount of total assets).

Whereas more than a third of the observed firm-years reported loss (mean 0.356). The reported CFO ranged between -8.2 and 0.6, 0.03 being mean, and for the production cost between zero and 5.7, mean being 0.73. The CFO had a standard deviation of 0.266, that is quite low, but the standard deviation for the normal level of production cost was high, at 58%. The abnormal level of the CFO ranged from -8.3 to 0.7 and of the production cost between -4.6 and 5.8, and the mean was zero for both, as should be by definition when using an estimation method as in this study. The standard deviations for the abnormal levels of CFO and production cost are 66% and 26%, respectively.

Table 3. Descriptive Statistics

N = 9541	Minimum	Maximum	Mean	Median	Std. Deviation	Sum
LogFee	-1.710	1.794	-.012	-.002	.724	-119
LogAssets	1.000	5.605	2.740	2.686	.972	26141
LogSales	-1.174	5.677	2.601	2.666	1.126	24819
ARTA	0.000	0.844	.142	.131	.092	1359
Big4	0	1	.243	.000	.429	2314
Busy Period	0	1	.715	1.000	.452	6818
Loss	0	1	.356	.000	.479	3399
SmallEarnings	0	1	.056	.000	.231	539
PROD/Tat-1	0.000	5.722	.730	.578	.711	6966
abPROD/Tat-1	-4.560	5.783	.000	-.129	.658	0.00
CFO/Tat-1	-8.247	0.631	.027	.077	.266	257
abCFO/Tat-1	-8.260	0.732	.000	.052	.263	0.00

See variable descriptions in table 2

6 RESULTS

In this chapter I will present the results. I will start with the parameter estimate results for the regression model variables, after which correlation and multicollinearity analysis are covered. After the results of the main regression analysis, I will present also the results of the robustness test using t-1 values in the regression model.

6.1 Estimate Parameter Results for Model Variables

The regression coefficients for the regressions used to estimate the normal levels, as described in Section 5.1, are presented in Table 4. The estimation models are run using the entire sample, 9541 firm-years. The presented coefficients are unstandardized as they are used to calculate normal levels. In addition to coefficients, the table reports also the t-statistics. On the CFO model, compared with prior studies, the estimate variables had varying performance compared with what was expected. The intercept and inverse scale variable $1/TA_{it-1}$ followed the Dechow et al. (1998) results.

Table 4. Parameter Estimate Results

	CFO_{it}/TA_{it-1}	$PROD_{it}/TA_{it-1}$
Intercept	0.023 **	0.672 **
	-8.455	-96.574
$1/TA_{it-1}$	-0.011 **	0.006
	(-6.186)	-1.494
S_{it}/TA_{it-1}	**0.000** **	0.006 **
	(-2.936)	-14.812
$\Delta S_{it}/TA_{it-1}$	0.118 **	0.705 **
	-12.243	-29.311
$\Delta S_{it-1}/TA_{it-}$		0.124 **
		-12.364
Adjusted R^2	0.024	0.143

** Significant at the 5% level.

This table reports the estimated parameters in the following regressions:

$CFO_{it}/TA_{it-1} = \alpha 0 + \alpha 1(1/TA_{it-1}) + \beta 1(S_t/TA_{it-1}) + \beta 2(\Delta S_{it}/TA_{it-1}) + \varepsilon_{it}$

$PROD_{it}/TA_{it-1} = \alpha 0 + \alpha 1(1/TA_{it-1}) + \beta 1(S_{it}/TA_{it-1}) + \beta 2(\Delta S_{it}/TA_{it-1}) + \beta 3(\Delta S_{it-1}/TA_{it-1}) + \varepsilon_{it}$

The variables are winsorized at the top 1% and bottom 99% percentiles. The regressions are estimated for manufacturing industries, defined by two digits SIC codes. Table reports the coefficient and the t-statistics calculated using standard error of the mean. The table also reports the R2 for both of the regressions. See Section 5.1 for variable description.

The scaled sales variable is negative, contrary to the results obtained by Roychowdhury (2006) and scaled sales change followed Roychowdhury's (2206) results, which was contrary to the results obtained by Dechow et al. (1998). Regarding the production cost model, surprisingly the inverse scale variable was not statistically significant, and moreover, it was contrary to the results by Dechow et al. (1998) and Roychowdhury (2006). In the same vein, the previous year's change in sales was positive, which is contrary to the results by Dechow et al. (1998) and Roychowdhury (2006). The rest of the variables were both positive and statistically significant, following the prior studies results (Dechow et al., 1998 and Roychowdhury, 2006). The adjusted R^2 is significantly lower when comparison with the values obtained by Roychowdhury (2006), for the CFO model 2.4% and for the production cost model 14.3%.

6.2   Correlation Analysis

The correlation table (Table 5) reports the interdependencies between the model variables. The correlation coefficients provide preliminary results on which variables are significant regarding the study. Nevertheless, the correlation analysis can only measure correlation between two variables and a statistically significant correlation is not necessarily as significant in the actual regression analysis. Still, the correlation analysis is also a mean to obtain preliminary results on multicollinearity. (Heikkilä 2010 pp. 91-92)

The correlation table shows that according to the Spearman's rank correlation the dependent variable, LogFee, has a statistically significant positive correlation with LogAssets, LogSales, Big4, BusyPeriod, SmallEarnings, CFO/TA and abCFO/TA. There is a statistically significant negative correlation between LogFee and Loss. There is a statistically insignificant correlation between LogFee and AR/TA (positive) and the Production cost variables, PROD/TA and abPROD/TA, which both are negative. In comparison to the Pearson correlations, the results look alike, significant positive correlation with all except AR/TA, Loss, SmallEarnings and the production cost variables. There is a negative, and statistically significant correlation with Loss and also with AR/TA, which differs from the Spearman's correlation. The production cost

variables are also negative, but unlike in Spearman's, in Pearson's correlation they are statistically significant, leaving only the SmallEarnings variable insignificant. Also notable is that the abnormal CFO is positively correlated, and statistically significant, to the production cost variables, even though prior studies suggest that these should be negatively correlated as over production tends to lead to abnormally low CFO, and vice versa, sales manipulation resulting to high sales tend to raise the production costs (Roychowdhury 2006)

The strongest correlation between the research variables in Spearman's rho is between LogFee and LogAssets (0.903), LogAssets and LogSales (0.961), PROD/TA and abPROD/TA (0.910), and CFO/TA and abCFO/TA (0.958). In Pearson's the strongest correlations are between the variables as in Spearman's, 0.754, 0.920, 0.925 and 0.988 respectively. These results are signaling that there might be problem with the multicollinearity within the variables, indicating that a multicollinearity analysis is needed.

Table 5. Correlation Table

Spearman's rho / Pearson	LogFee$_{it}$	LogAssets$_{it}$	LogSales$_{it}$	AR$_{it}$/TA$_{it}$	Big4	Busy Period	Loss$_{it}$	Small Earnings$_{it}$	PROD/TA$_{it-1}$	abPROD/TA$_{it-1}$	CFO/TA$_{it-1}$	abCFO/TA$_{it-1}$
LogFee		.903 **	.881 **	.016	.131 **	.060 **	-.311 **	.029 **	-.015	-.019	.312 **	.312 **
LogAssets$_{it}$	.754 **		.961 **	-.032 **	.123 **	.048 **	-.406 **	.035 **	-.020 *	-.039 **	.405 **	.395 **
LogSales	.697 **	.920 **		.123 **	.087 **	.014	-.452 **	.034 **	.150 **	.119 **	.459 **	.444 **
AR$_{it}$/TA$_{it}$	-.023 *	-.062 **	.145 **		-.080 **	-.103 **	-.156 **	.022 *	.466 **	.440 **	.127 **	.116 **
Big4	.107 **	.113 **	.073 **	-.081 **		.052 **	.009	-.021 *	-.056 **	-.063 **	.007	-.001
Busy Period	.058 **	.055 **	.001	-.074 **	.052 **		.065 **	-.030 **	-.087 **	-.088 **	-.069 **	-.067 **
Loss$_{it}$	-.230 **	-.397 **	-.462 **	-.126 **	.009	.065 **		.032 **	-.139 **	-.040 **	-.614 **	-.547 **
SmallEarnings$_{it}$	.019	.031 **	.038 **	.014	-.021 *	-.030 **	.032 **		.019	.035 **	-.051 **	-.039 **
PROD/TA$_{it-1}$	-.040 **	-.032 **	.092 **	.277 **	-.035 **	-.064 **	-.060 **	.022 *		.910 **	.092 **	.045 **
abPROD/TA$_{it-1}$	-.038 **	-.044 **	.076 **	.284 **	-.044 **	-.070 **	-.002	.032 **	.925 **		.001	.022 *
CFO/TA$_{it-1}$	.210 **	.349 **	.499 **	.187 **	-.004	-.069 **	-.459 **	.032 **	.029 **	.005		.958 **
abCFO/TA$_{it-1}$	.211 **	.346 **	.493 **	.181 **	-.008	-.073 **	-.436 **	.035 **	.011	.005	.988 **	

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

This table reports the Pearson and Spearmans' Rho correlations for the entire sample of 9541 firm-years over the period 2008-2014.

See Table 2 for variable description.

6.3 Multicollinearity

For the sake of reliability of the regression analysis, it is important that the collinearity between the research variables is not too strong.. That is, the variables should not correlate with each other too much. The so called multicollinearity affects the variables that have collinearity to have too much importance in the regression analysis. Multicollinearity can be detected by examining the tolerance or the VIF value. Tolerance is a value that implies how much of the dependent variable's change is explained by other variables: the lower the value, the higher the dependence for the variable under scrutiny. The VIF value is the inverse of tolerance, thus, the higher the VIF the more probable it is that multicollinearity will skew the results of the regression analysis. In general, VIF is not allowed to top the limit value of 10. The primary concern is that the regression results and the standard errors for the coefficients can become notably magnified. The collinearity statistics for all the variables are presented in the following Table 6.

Table 6. Collinearity Statistics

	Tolerance	VIF
$LogAssets_{it}$	.096	10.39 ***
LogSales	.084	11.96 ***
AR_{it}/TA_{it}	.708	1.41 ***
Big4	.975	1.03 ***
Busy Period	.969	1.03
$Loss_{it}$	.676	1.48 ***
$SmallEarnings_{it}$	.991	1.01
$PROD/TA_{it-1}$	.124	8.08 ***
$abPROD/TA_{it-1}$	.125	8.01 **
CFO/TA_{it-1}	.021	47.65
$abCFO/TA_{it-1}$	.021	46.62

***. Correlation is significant at the 0.01 level (2-tailed).
**. Correlation is significant at the 0.05 level (2-tailed).
See Table 2 for variable description.

Although in this study there are variables that exceed the limit value, the variables that do so, the logarithm of assets and of sales, are actually expected to correlate, and moreover, as they are merely control variables, the multicollinearity concerns can be discarded on these variables. Due to the high collinearity of the CFO and Production cost variables, the regression model is run in four stages, to explicitly show the effect of the multicollinearity on the coefficients and significance.

6.4   Regression Analysis

Regression analysis is used to examine the several independent variables' simultaneous effect on the dependent variable. The regression analysis is divided in to four parts. First, the regression analysis is carried out using the traditional variables used to explain the audit fee, as discussed previously in Chapter 5.2, in order to have control results (Model 1). After which, the actual regression analysis is carried out including the chosen variables to further explain the determination of the audit fee and illustrating the effect of earnings management on audit fee (Model 2). The third regression (Model 3) includes all the variables, and thus presents also the variables with the multicollinearity problem, the CFO and production cost variables. On the last stage, the regression is run without the estimates of abnormal CFO and production cost (model 4). The results of the regression analysis are presented in the Table 7.

6.4.1   The Control Variable Model

The first model includes the control variables commonly used in the existing research of audit fees in order to provide a ground for comparison for the earnings management model results. In order to better understand the mutual effects, the standardized coefficients are presented. On the first model, as presented on the table, the size measure variable, Log Assets$_{it}$ is both positive and statistically significant, 0.756, and out of all the control variables, has the strongest effect on audit fee. Also the variable presenting riskiness of the firm, AR/TA, as well as the dummy variables for Big4 and Loss have a positive and statistically significant effect on audit fee, although the effect is not as strong as with assets (0.031, 0.021 and 0.074 respectively). Although, in prior studies if the audit is happening in the busy period, that is, if the financial year ends in December, it has had a positive and significant effect on the audit fee, in my regression

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and data this is not implicit; the coefficient is positive (0.010) but statistically not significant. Neither is the other size proxy, LogSales, although positive coefficient of 0.033.

The explanatory power of the model, the R value, grows as new variables are added, thus it is more informative to use the adjusted R. The adjusted R grows only if the explanatory power truly grows, regardless of the number of the variables. The adjusted R for the model is 0.576, thus, the control variables explain 57.6 percent of the changes in the audit fee. This can be regarded as fairly good explanatory power. Based on these findings, the control variables seem to work as expected and it is justified to use them on the audit fee regression model.

6.4.1 The Research Variable Models

The second model is used to determine the effect that the research variables have on the audit fee. The models through two to four are used to evaluate the research hypothesis, and the findings are compared with prior studies.

After adding the agent variables to the model, the control variables remained statistically significant if they were on the first model so. The coefficient of the risk variable grew to 0.032, the Big4 dummy decreased by 0.001 to 0.020, and the statistically not significant Busy Period declined to 0.008, as did the Loss dummy, to 0.60. What is interesting is that the other size proxy, LogSales, became statistically significant, and the coefficient inclined to 0.114, and LogAssets declined to 0.697. From the added variables, the general earnings management proxy variable, SmallEarnings, was negative and not statistically significant with a coefficient of -0.005. The abnormal component of production cost and cash flow from operations, the abPROD/TA and abCFO/TA, were both statistically significant, with a coefficient of -0.023 and -0.066 respectively.

Table 7. Determinants of Audit Fee

The dependent variable is the log of audit fee, LogAuditFee

Independent Variable	Expected sign	Model 1		Model 2		Model 3		Model 4	
		Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat
Log Assets$_{it}$	+	.756	37.724 ***	.697	32.739 ***	.686	32.081 ***	.686	32.081 ***
LogSales	+	.033	1.584	.114	4.996 ***	.127	5.517 ***	.127	5.517 ***
AR$_{it}$/TA$_{it}$	+	.031	3.927 ***	.032	4.020 ***	.033	4.141 ***	.033	4.141 ***
Big4	+	.021	3.070 ***	.020	2.978 ***	.021	3.060 ***	.021	3.060 ***
Busy Period	+	.010	1.547	.008	1.165	.008	1.220	.008	1.220
Loss$_{it}$	+	.074	9.709 ***	.060	7.523 ***	.055	6.936 ***	.055	6.936 ***
SmallEarnings$_{it}$	+			-.005	-.807	-.005	-.803	-.005	-.803
abPROD/TA$_{it-1}$	-			-.023	-3.255 ***	-.039	-2.069 **		
abCFO/TA$_{it-1}$	–			-.066	-7.757 ***	-.018	-.402		
PROD/TA$_{it-1}$	+					.068	3.605 **	.071	8.322 ***
CFO/TA$_{it-1}$	+					.089	1.937	.033	4.562 ***
Intercept			-65.330 ***		-56.259 ***		-56.259 ***		-56.259 ***
Year dummies?		Yes		Yes		Yes		Yes	
N		9541		9541		9541		9541	
Adjusted R^2		.576		0.579		.580		.580	

***. Statistically significant at the 1% level (two tailed)

**. Statistically significant at the 5% level (two tailed)

I included year dummy variables for each sample year. The models are estimated using ordinary least squares regression.

LogAssets$_{it}$ = Log of Assets of company i in year i. AR$_{it}$/TA$_{it}$ = Receivables scaled by total assets of company i in year t. Big4 = one if the audit is performed by one of the Big Four Audit firms (Deloitte, EY, KPMG, PWC); otherwise zero. BusyPeriod = one if the financial year ended in December, otherwise zero. SmallEarnings$_{it}$ = one if the Net Income of company i in year t was less than 1% of the total assets; otherwise zero. Loss$_{it}$ = one if the Net Income was negative; otherwise zero. PROD/ TA$_{it-1}$ = Production Cost of company i in year t scaled by Total Assets of company i in year $t-1$. abPROD/TA$_{it-1}$ = the abnormal component of actual Production Cost of company i in year t, calculated by subtracting the estimated PROD from the actual. CFO/TA$_{it-1}$ = Cash Flow from Operations of company i in year t scaled by Total Assets of company i in year $t-1$. abCFO/TA$_{it-1}$ = the abnormal component of actual Cash Flow from Operations of company i in year t, calculated by subtracting the estimated CFO from the actual.

On the third model, I added the scaled reported production cost and CFO. The addition had little effect on the control variables in comparison to the previous model. Nevertheless, the variable for the abnormal component of CFO lost its statistical significance, and resulted in an incline in the coefficient of the abPROD/TA, -0.039. From the new variables, only reported production cost was statistically significant, with a positive coefficient of 0.068, whereas CFO was 0.089. I interpret these as result of multicollinearity, and in order to support it, I ran the fourth model, where I did not include the abnormal variables, but instead only the scaled reported PROD and CFO. This change did not affect the control variables compared to the coefficients and significance of the model three at all. Moreover, the both PROD/TA and CFO/TA were statistically significant and positive, 0.071 and 0.033 respectively, which I interpret to support the multicollinearity speculation.

The adjusted R^2 grew from the first model by 0.3 percentage points, the explanatory power totaling to 57.9 percent in the second model, and to 58.0 percent in the third and fourth models. This is evidence that the earnings management models do explain the audit fee variation better than the more traditional variable of the control model (model 1).

6.4.2 Sensitivity Analysis

I performed a sensitivity analysis on the audit fee using the same regression model as in the main analysis, but used the prior year observations for the independent variables and estimated the CFO and Production cost for the previous year through which the abnormal levels of CFO and Production costs were computed. The results for the regression analysis are presented in Table 8.

The first size variables stayed positive and statistically significant, LogAsset with a coefficient of 0.682, and the second size variable, LogSales with 0.125. The risk variable's coefficient factor declined to 0.019, as did the coefficient of the Big4 variable to 0.018. Both of these variables also stayed statistically significant. The busy period variable's coefficient factor increased to 0.019 and interestingly became statistically significant.

Table 8. Regression analysis results for Audit Fee using t-**1** variables

LogAuditFee sensitivity analysis

	Coeff.	t-stat	sig.
LogAssets$_{it-1}$	.682	37.851	.000
LogSales$_{it-1}$	.125	6.760	.000
AR/TA$_{t-1}$	-.019	-2.940	.003
Big4	.018	2.927	.003
BusyPeriod	.019	3.229	.001
Loss$_{t-2}$	.054	7.586	.000
SmallEarnings$_{t-2}$	-.006	-1.008	.009
abCFO$_{t-1}$	-.002	-.259	.439
abPROD$_{t-1}$	-.004	-.685	.042
Intercept		180.752	.000
Year Dummies	Yes		
Adjusted R	.608		
N	9 541		

***. Statistically significant at the 1% level (two tailed)

 **. Statistically significant at the 5% level (two tailed)

I included year dummy variables for each sample year. The models are estimated using ordinary least squares regression.

LogAssets$_{it}$ = Log of Assets of company i in year t-1. AR/TA = Receivables scaled by total assets of company i in year t. Big4 = one if the audit is performed by one of the Big Four Audit firms (Deloitte, EY, KPMG, PWC); otherwise zero. BusyPeriod = one if the financial year ended in December, otherwise zero. SmallEarnings $_{t-1}$ = one if the Net Income of company i in year t-1 was less than 1% of the total assets; otherwise zero. LogSales$_{it}$ = Log of Sales of company i in year t-1. Loss$_{it-1}$ = one if Net Income of the company i in year t-1 was negative. abCFOTA $_{it-1}$ = the abnormal component of actual Cash Flow from Operations of company i in year t-1, calculated by subtracting the estimated CFO from the actual. abPRODTA $_{it-1}$ the abnormal component of actual Production Cost of company i in year t-1 calculated by subtracting the estimated PROD from the actual.

The previous year's loss was positive (0.054) and statistically significant. The general earnings management proxy, small earnings in the previous financial year was negative (0.006) and statistically significant. The abnormal levels of CFO and production cost were both negative, -0.002 and -0.004 respectively, but only the abnormal level of production cost was statistically significant. The overall adjusted R square for the robustness model was lower than in the actual model, with an explanatory power of 60.8 percent. The number of observations was the same as in the actual model, total of 9541 firm-years.

7 DISCUSSION

In this study, I performed a regression analysis on audit fees with dependent variables controlling for size (LogAssets and LogSales), riskiness (AR/TA), audit quality (Big4), as well as for the busy period and loss, and variables controlling for earnings management, in general (SmallEarnings), and specifically for real earnings management (the estimated abnormal levels of cash flow from operations and production cost: abCFO and abPROD).

My adjusted R^2 for the control model and for the earnings management models were somewhat low in comparison with prior studies. It might be that the traditional audit fee model may not be so well specified to earnings management, or it might be due to omitted variables. Nevertheless, prior studies have found the auditee size to explain most of the variation in audit fees (Simunic 1984, Francis 1984), and this is the case also in my study. Similarly, my results follow Simunic's (1980) findings regarding the risk variable, (AR/TA) that is a statistically significant and positive coefficient. Also, as prior studies have found the 'big four' (or big five, six or eight) audit firms to have higher fees, although the findings are not uniform, my results suggest that the big audit firms do have positive association with higher audit fees (Brinn, Peel & Roberts 1994, Frankel, Johnson & Nelson 2002, Niemi 2003b).

In prior studies performing an audit during the busy period has had a positive and significant effect on the audit fee, in my regression and data this is not implicit; the coefficient is positive (0.008) but statistically not significant. There are also mixed results in prior studies regarding this (Brinn, Peel & Roberts 1994). In my study, this might be due to the fact that from the observed firms a large number is audited during a busy period (as can be seen from the descriptive statistics, over 70%), thus diluting the effect of non-busy period "discount" fee. Loss variable was statistically significant with a positive coefficient, as expected based on the reviewed literature.

The expected direction for the abnormal levels of CFO and PROD was negative, as they signal earnings management and only lower quality auditors are expected either allow it or, not be able to detect it, assuming that the audit fee correlates with the audit

quality. This reasoning is supported by the results. The abnormal levels of both CFO and production cost are negative and statistically significant. Similarly the expected sign and rational behind the small earnings was supported with a negative coefficient, although not statistically significant.

The robustness test is explaining the results from the primary model even better. As the audit fee might be negotiated to large extend already in the beginning of the year, the *t-1* variables can be expected to better explain the earnings management effects. And so the results do: The loss variable is positive and statistically significant as expected, and in line with the prior studies; loss in the previous year might indicate financial distress, and therefore the firm should be audited more carefully, thus resulting in a higher audit fee. Small earnings coefficient is positive, although only marginally, but more interestingly now statistically significant. Thus, it is in favor of the assumption of audit quality correlating with audit fee. The estimation variables for the abnormal levels of CFO and PROD are both negative, but only the production cost variable is statistically significant. As there are no prior studies regarding the effects of real earnings management on audit fees, I have no explanation for this behavior. I can only assume that the real operation manipulation might be more difficult to detect in general, and maybe overproduction to decrease production cost is easier to identify to earnings management in comparison to sales manipulation practices.

The reasons for the differences compared with the prior studies results may lie in several things. First, the more defined data can affect the results, as prior studies are conducted with several industries (see Roychowdhury 2006), or the financial crisis can have played a role in the changes in company performance. As the financial crisis has lowered the consumption and firms may have had to adapt and entered to the price discounts, thus lowering the CFO and as inventories might have not been sold out, also the production costs have declined.

The difference in the adjusted R^2 in my study in comparison to prior studies might be due to narrower data, as I have included only manufacturing industry, or it can be due to variable selection.

8 CONCLUSIONS

This study has two kinds of implications. First, the academic contribution to the literature of the audit fee determinant, by demonstrating the association of earnings management and audit fee. In addition, this study focuses on the real earnings management, rather than the accruals-based earnings management. Earnings management literature has traditionally focused on accruals manipulation, but recent research findings indicate that real earnings manipulation might have become more common in today's business environment (e.g. Li et al. 2011; Graham et al. 2005; Roychowdhury 2006), and therefore, this study is contributing to the literature by bridging the gap between the academic literature and business practice.

The results indicate that earnings management is inversely associated with audit fee, and thus suggesting that higher quality auditors are less inclined to allow it. That means that companies are able affect the degree of earnings management possibilities, by choosing the level of audit quality through choosing their auditor. By choosing a high quality auditor, e.g. one of the big four, a firm is narrowing down the possibilities of engaging in earnings management.

The results of this study are valuable to several parties. In general, the results help the financial statement users to better draw conclusions, whether the earnings presented might be managed, simply by knowing the auditor of the firm. The results are not that relevant to auditors, as the earnings management, especially the real earnings management, is done within the GAAP, and therefore it is up to the auditor whether to accept earnings management or not. On the other hand, auditors might find the results useful to better evaluate the risks for earnings management associated with a client, and moreover, the required audit work and quality to prevent it, if so desired. The findings might be interesting also to the standard setters in to some extent, as the academic literature argues that the earnings management shifted from accruals-based to real earnings management due to the introduction of SOX.

Limitations & Further research

My study does have some weak spots. As the earnings management is difficult to measure reliably, thus the results are dependent on the correctness of the estimation models and their ability to measure appropriately for the earnings management. Also the data gathered from the Compustat database might not be fully accurate simply due to errors when entering the data to the database. These factors have negative impact on the reliability of the results. In general, my study neither provides any proof for causality, whether the association of earnings management and audit fee actually has cause and effect relations ship or not. This is since the earnings management studies focus only on quantitative data, and thus there is no reliable proof of the causality behind the findings, nor there any suggestions of omitted variables or other factors. Thus, future research should focus on finding proof for the causality and further tying the result to business practice.

Moreover, the prior studies have speculated if earnings management is compensated in the nonaudit fees. Thus a proposition for future research is to study whether that is the case regarding the earnings management through real operation manipulation.

9 REFERENCES

Abbott, L.J., Parker, S. & Peters, G.F. 2006, "Earnings management, litigation risk, and asymmetric audit fee responses", *Auditing: A journal of Practice & theory,* vol. 25, no. 1, pp. 85-98.

AICPA 2015, *, SAS No. 65. "The Auditor's Consideration of the Internal Audit Function in an Audit of Financial Statements"* [Homepage of American Institute of Certified Public Accountants, Inc.;], [Online]. Available : http://www.aicpa.org/Research/Standards/AuditAttest/DownloadableDocuments/AU-00322.pdf [2015, 07/12].

Arruñada, B. 2013, *The economics of audit quality: private incentives and the regulation of audit and non-audit services,* Springer Science & Business Media.

Ayres, F.L. 1994, "Perceptions of earnings quality: What managers need to know", *Strategic Finance,* vol. 75, no. 9, pp. 27.

Ball, R., Jayaraman, S. & Shivakumar, L. 2012, "Audited financial reporting and voluntary disclosure as complements: A test of the confirmation hypothesis", *Journal of Accounting and Economics,* vol. 53, no. 1, pp. 136-166.

Ball, R., Kothari, S. & Robin, A. 2000, "The effect of international institutional factors on properties of accounting earnings", *Journal of Accounting and Economics,* vol. 29, no. 1, pp. 1-51.

Banker, R.D., Chang, H. & Cunningham, R. 2003, "The public accounting industry production function", *Journal of Accounting and Economics,* vol. 35, no. 2, pp. 255-281.

Bartov, E. 1993, "The timing of asset sales and earnings manipulation", *Accounting Review, ,* pp. 840-855.

Basioudis, I.G. & Francis, J.R. 2007, "Big 4 audit fee premiums for national and office-level industry leadership in the United Kingdom", *Auditing: A Journal of Practice & Theory,* vol. 26, no. 2, pp. 143-166.

Becker, C.L., DeFond, M.L., Jiambalvo, J. & Subramanyam, K. 1998, "The effect of audit quality on earnings management", *International reviews of immunology,* vol. 16, pp. 1-24.

Bedard, J., Chtourou, S.M. & Courteau, L. 2004, "The effect of audit committee expertise, independence, and activity on aggressive earnings management", *Auditing: A Journal of Practice & Theory,* vol. 23, no. 2, pp. 13-35.

Bedard, J.C. 1989, "An archival investigation of audit program-planning", *AUDITING-A JOURNAL OF PRACTICE & THEORY,* vol. 9, no. 1, pp. 57-71.

Bell, T.B., Landsman, W.R. & Shackelford, D.A. 2001, "Auditors' perceived business risk and audit fees: Analysis and evidence", *Journal of Accounting research,* , pp. 35-43.

Bergstresser, D. & Philippon, T. 2006, "CEO incentives and earnings management", *Journal of Financial Economics,* vol. 80, no. 3, pp. 511-529.

Board, P.O. 1995, "Directors, Management, and Auditors: Allies in Protecting Shareholder Interests", *Stamford, CT: POB.Public Oversight BoardDirectors, Management, and Auditors: Allies in Protecting Shareholder Interests1995,* .

Bradbury, M.E. & Botica Redmayne, N. 2014, "Audit Effort and Pricing Differences among the Large Audit Firms: Evidence from a Public Sector Setting", *International Journal of Auditing,* vol. 18, no. 1, pp. 90-100.

Brinn, T., Peel, M.J. & Roberts, R. 1994, "Audit fee determinants of independent & subsidiary unquoted companies in the UK—an exploratory study", *The British Accounting Review,* vol. 26, no. 2, pp. 101-121.

Brumfield, C.A., Elliott, R.K. & Jacobson, P.D. 1983, "Business risk and the audit process", *Journal of Accountancy,* vol. 155, no. 4, pp. 60-68.

Bruns, W.J. & Merchant, K.A. 1990, "The dangerous morality of managing earnings", *Management Accounting,* vol. 72, no. 2, pp. 22-25.

Burgstahler, D. & Dichev, I. 1997, "Earnings management to avoid earnings decreases and losses", *Journal of Accounting and Economics,* vol. 24, no. 1, pp. 99-126.

Caramanis, C. & Lennox, C. 2008, "Audit effort and earnings management", *Journal of Accounting and Economics,* vol. 45, no. 1, pp. 116-138.

Carcello, J.V. & Nagy, A.L. 2004, "Audit firm tenure and fraudulent financial reporting", *Auditing: A Journal of Practice & Theory,* vol. 23, no. 2, pp. 55-69.

Carey, P., Simnett, R. & Tanewski, G. 2000, "Voluntary demand for internal and external auditing by family businesses", *Auditing: A Journal of Practice & Theory,* vol. 19, no. s-1, pp. 37-51.

Carson, E., Fargher, N.L., Simon, D.T. & Taylor, M.H. 2004, "Audit fees and market segmentation-Further evidence on how client size matters within the context of audit fee models", *International Journal of Auditing,* vol. 8, no. 1, pp. 79-91.

Chan, P., Ezzamel, M. & Gwilliam, D. 1993, "Determinants of audit fees for quoted UK companies", *Journal of Business Finance & Accounting,* vol. 20, no. 6, pp. 765-786.

Chaney, P.K., Jeter, D.C. & Shivakumar, L. 2004, "Self-selection of auditors and audit pricing in private firms", *The Accounting Review,* vol. 79, no. 1, pp. 51-72.

Choi, J., Kim, J., Liu, X. & Simunic, D.A. 2008, "Audit pricing, legal liability regimes, and big 4 premiums: Theory and Cross-country evidence*", *Contemporary Accounting Research,* vol. 25, no. 1, pp. 55-99.

Chow, C.W. 1982, "The demand for external auditing: Size, debt and ownership influences", *Accounting review, ,* pp. 272-291.

Chung, S. & Narasimhan, R. 2002, "An International Study of Cross-sectional Variations in Audit Fees", *International Journal of Auditing,* vol. 6, no. 1, pp. 79-91.

Cohen, D.A., Dey, A. & Lys, T.Z. 2008, "Real and accrual-based earnings management in the pre-and post-Sarbanes-Oxley periods", *The accounting review,* vol. 83, no. 3, pp. 757-787.

Cohen, D.A. & Zarowin, P. 2010, "Accrual-based and real earnings management activities around seasoned equity offerings", *Journal of Accounting and Economics,* vol. 50, no. 1, pp. 2-19.

Craswell, A.T. & Francis, J.R. 1999, "Pricing initial audit engagements: A test of competing theories", *The Accounting Review,* vol. 74, no. 2, pp. 201-216.

Danos, P. & Eichenseher, J.W. 1982, "Audit industry dynamics: Factors affecting changes in client-industry market shares", *Journal of Accounting Research, ,* pp. 604-616.

DeAngelo, L.E. 1986, "Accounting numbers as market valuation substitutes: A study of management buyouts of public stockholders", *Accounting Review, ,* pp. 400-420.

DeAngelo, L.E. 1981a, "Auditor independence,'low balling', and disclosure regulation", *Journal of Accounting and Economics,* vol. 3, no. 2, pp. 113-127.

DeAngelo, L.E. 1981b, "Auditor size and audit quality", *Journal of Accounting and Economics,* vol. 3, no. 3, pp. 183-199.

Dechow, P.M. & Dichev, I.D. 2002, "The quality of accruals and earnings: The role of accrual estimation errors", *The accounting review,* vol. 77, no. s-1, pp. 35-59.

Dechow, P.M., Kothari, S.P. & Watts, R.L. 1998, "The relation between earnings and cash flows", *Journal of Accounting and Economics,* vol. 25, no. 2, pp. 133-168.

Dechow, P.M., Richardson, S.A. & Tuna, I. 2003, "Why are earnings kinky? An examination of the earnings management explanation", *Review of Accounting Studies,* vol. 8, no. 2-3, pp. 355-384.

Dechow, P.M. & Skinner, D.J. 2000, "Earnings management: Reconciling the views of accounting academics, practitioners, and regulators", *Accounting Horizons,* vol. 14, no. 2, pp. 235-250.

Dechow, P.M. & Sloan, R.G. 1991, "Executive incentives and the horizon problem: An empirical investigation", *Journal of Accounting and Economics,* vol. 14, no. 1, pp. 51-89.

Dechow, P.M., Sloan, R.G. & Sweeney, A.P. 1996, "Causes and consequences of earnings manipulation: An analysis of firms subject to enforcement actions by the sec*", *Contemporary accounting research,* vol. 13, no. 1, pp. 1-36.

Dechow, P.M., Sloan, R.G. & Sweeney, A.P. 1995, "Detecting earnings management", *Accounting review, ,* pp. 193-225.

Dechow, P., Ge, W. & Schrand, C. 2010, "Understanding earnings quality: A review of the proxies, their determinants and their consequences", *Journal of Accounting and Economics,* vol. 50, no. 2, pp. 344-401.

DeFond, M.L., Francis, J.R. & Wong, T.J. 2000, "Auditor industry specialization and market segmentation: Evidence from Hong Kong", *Auditing: A Journal of Practice & Theory,* vol. 19, no. 1, pp. 49-66.

DeFond, M.L. & Jiambalvo, J. 1994, "Debt covenant violation and manipulation of accruals", *Journal of Accounting and Economics,* vol. 17, no. 1, pp. 145-176.

DeFond, M.L. & Jiambalvo, J. 1991, "Incidence and circumstances of accounting errors", *Accounting review, ,* pp. 643-655.

DeFond, M. & Zhang, J. 2014, "A review of archival auditing research", *Journal of Accounting and Economics,* vol. 58, no. 2, pp. 275-326.

Degeorge, F., Patel, J. & Zeckhauser, R. 1999, "Earnings management to exceed thresholds*", *The Journal of Business,* vol. 72, no. 1, pp. 1-33.

Dhaliwal, D.S., Gleason, C.A., Heitzman, S. & Melendrez, K.D. 2008, "Auditor fees and cost of debt", *Journal of accounting, auditing & finance,* vol. 23, no. 1, pp. 1-22.

Eilifsen, A., Messier, W.F., Glover, S.M. & Prawitt, D.F. 2010, "Auditing and assurance services" in McGraw-Hill Higher Education, .

Elliot, R.K., Korpi, A.R. & Melvin, F.S. 1978, "Factors affecting audit fees, in cost benefit analysis of auditing" in *Commission on Auditors' Responsibility* AICPA New York, .

Elliott, J.A. & Hanna, J.D. 1996, "Repeated accounting write-offs and the information content of earnings", *Journal of accounting research,* , pp. 135-155.

Elliott, J.A. & Shaw, W.H. 1988, "Write-offs as accounting procedures to manage perceptions", *Journal of Accounting Research,* , pp. 91-119.

ElMoatasem Abdelghany, K. 2005, "Measuring the quality of earnings", *Managerial Auditing Journal,* vol. 20, no. 9, pp. 1001-1015.

Ettredge, M. & Greenberg, R. 1990, "Determinants of fee cutting on initial audit engagements", *Journal of Accounting Research,* , pp. 198-210.

Ewert, R. & Wagenhofer, A. 2005, "Economic effects of tightening accounting standards to restrict earnings management", *The Accounting Review,* vol. 80, no. 4, pp. 1101-1124.

FASB 2008, , *Statement of Financial Accounting Concepts No. 1* [Homepage of Financial Accounting Standards Board], [Online]. Available   **:**
http://www.fasb.org/cs/BlobServer?blobcol=urldata&blobtable=MungoBlobs&blobkey=id&blobwhere=1175820899258&blobheader=application/pdf [2015, 08/07].

Felix Jr, W.L. & Gramling, A.A. 2001, "The contribution of internal audit as a determinant of external audit fees and factors influencing this contribution", *Journal of Accounting Research,* vol. 39, no. 3, pp. 513-534.

Fields, L.P., Fraser, D.R. & Wilkins, M.S. 2004, "An investigation of the pricing of audit services for financial institutions", *Journal of Accounting and Public Policy,* vol. 23, no. 1, pp. 53-77.

Francis, J. 2001, "Discussion of empirical research on accounting choice", *Journal of Accounting and Economics,* vol. 31, no. 1, pp. 309-319.

Francis, J.R. 2004, "What do we know about audit quality?", *The British accounting review,* vol. 36, no. 4, pp. 345-368.

Francis, J.R. 1984, "The effect of audit firm size on audit prices: A study of the Australian market", *Journal of Accounting and Economics,* vol. 6, no. 2, pp. 133-151.

Francis, J.R. & Simon, D.T. 1987, "A test of audit pricing in the small-client segment of the US audit market", *Accounting Review, ,* pp. 145-157.

Francis, J.R. & Wilson, E.R. 1988, "Auditor changes: A joint test of theories relating to agency costs and auditor differentiation", *Accounting Review, ,* pp. 663-682.

Frankel, R.M., Johnson, M.F. & Nelson, K.K. 2002, "The relation between auditors' fees for nonaudit services and earnings management", *The Accounting Review,* vol. 77, no. s-1, pp. 71-105.

Fudenberg, D. & Tirole, J. 1995, "A theory of income and dividend smoothing based on incumbency rents", *Journal of Political economy, ,* pp. 75-93.

Gävert, J. 2014, *Tilintarkastuksen keskittyminen vinouttaa ammattitutkinnot.*

Ge, W. & McVay, S. 2005, "The disclosure of material weaknesses in internal control after the Sarbanes-Oxley Act", *Accounting Horizons,* vol. 19, no. 3, pp. 137-158.

Gibbins, M. & Mason, A.K. 1988, *Professional judgment in financial reporting,* Canadian Inst of Chartered.

Gioielli, S.P.O. & De Carvalho, A.G. 2008, "The dynamics of earnings management in IPOs and the role of venture capital", *SSRN Working Paper, .*

Goncharov, I. & Zimmermann, J. 2006, "Do accounting standards influence the level of earnings management? Evidence from Germany", *Evidence from Germany (December 2006), .*

Gonthier-Besacier, N., Schatt, A. & Pong, C. 2007, "Determinants of audit fees for French quoted firms", *Managerial Auditing Journal,* vol. 22, no. 2, pp. 139-160.

Graham, J.R., Harvey, C.R. & Rajgopal, S. 2005, "The economic implications of corporate financial reporting", *Journal of Accounting and Economics,* vol. 40, no. 1, pp. 3-73.

Gregory, A. & Collier, P. 1996, "Audit fees and auditor change; an investigation of the persistence of fee reduction by type of change", *Journal of Business Finance & Accounting,* vol. 23, no. 1, pp. 13-28.

Gunny, K.A. 2005, "What are the consequences of real earnings management?", .

Hay, D.C., Knechel, W.R. & Wong, N. 2006, "Audit Fees: A Meta-analysis of the Effect of Supply and Demand Attributes*", *Contemporary accounting research,* vol. 23, no. 1, pp. 141-191.

Hayn, C. 1995, "The information content of losses", *Journal of Accounting and Economics,* vol. 20, no. 2, pp. 125-153.

Healy, P.M. 1985, "The effect of bonus schemes on accounting decisions", *Journal of Accounting and Economics,* vol. 7, no. 1, pp. 85-107.

Healy, P.M. & Wahlen, J.M. 1999, "A review of the earnings management literature and its implications for standard setting", *Accounting horizons,* vol. 13, no. 4, pp. 365-383.

Heikkilä, T. 2010, *Tilastollinen tutkimus,* Edita Publishing Oy, Helsinki.

Hogan, C.E. & Wilkins, M.S. 2008, "Evidence on the audit risk model: Do auditors increase audit fees in the presence of internal control deficiencies?", *Contemporary Accounting Research,* vol. 25, no. 1, pp. 219.

Hoitash, R., Hoitash, U. & Bedard, J.C. 2008, "Internal control quality and audit pricing under the Sarbanes-Oxley Act", *Auditing: A Journal of Practice & Theory,* vol. 27, no. 1, pp. 105-126.

Horsmanheimo, P. & Steiner, M. 2008, "Tilintarkastus–asiakkaan opas" in *Tilintarkastus–asiakkaan opas* WS Bookwell, Juva, pp. 163-165.

Hunton, J.E., Libby, R. & Mazza, C.L. 2006, "Financial reporting transparency and earnings management", *The Accounting Review,* vol. 81, no. 1, pp. 135-157.

Ireland, J.C. & Lennox, C.S. 2002, "The large audit firm fee premium: A case of selectivity bias?", *Journal of Accounting, Auditing & Finance,* vol. 17, no. 1, pp. 73-91.

Ittonen, K. & Peni, E. 2012, "Auditor's gender and audit fees", *International Journal of Auditing,* vol. 16, no. 1, pp. 1-18.

Jiambalvo, J. 1996, "Discussion of "Causes and Consequences of Earnings Manipulation: An Analysis of Firms Subject to Enforcement Actions by the SEC"*", *Contemporary Accounting Research,* vol. 13, no. 1, pp. 37-47.

Jones, J.J. 1991, "Earnings management during import relief investigations", *Journal of accounting research,* , pp. 193-228.

Jubb, C., Houghton, K. & Butterworth, S. 1996, "Audit fee determinants: the plural nature of risk", *Managerial Auditing Journal,* vol. 11, no. 3, pp. 25-40.

Kallunki, J., Sahlström, P. & Zerni, M. 2007, "Propensity to switch auditors and strictness of legal liability environment: The role of audit mispricing", *International Journal of Auditing,* vol. 11, no. 3, pp. 165-185.

Kent, P., Routledge, J. & Stewart, J. 2010, "Innate and discretionary accruals quality and corporate governance", *Accounting & Finance,* vol. 50, no. 1, pp. 171-195.

Kerstein, J. & Rai, A. 2007, "Intra-year shifts in the earnings distribution and their implications for earnings management", *Journal of Accounting and Economics,* vol. 44, no. 3, pp. 399-419.

Kim, J., Liu, X. & Zheng, L. 2012, "The impact of mandatory IFRS adoption on audit fees: Theory and evidence", *The Accounting Review,* vol. 87, no. 6, pp. 2061-2094.

Kinney, W.R. 1975, "Decision theory aspects of internal control system design/compliance and substantive tests", *Journal of Accounting Research,* , pp. 14-29.

Klein, B. & Leffler, K.B. 1981, "The role of market forces in assuring contractual performance", *The Journal of Political Economy,* , pp. 615-641.

Kokoszka, R.J. 2003, "Recognizing the signs", *Internal Auditor: Risk Watch,* , pp. 64-67.

Lee, D.S. 1996, "Auditor market share, product differentiation and audit fees", *Accounting and Business Research,* vol. 26, no. 4, pp. 315-324.

Lee, Y., Petroni, K.R. & Shen, M. 2006, "Cherry Picking, Disclosure Quality, and Comprehensive Income Reporting Choices: The Case of Property-Liability Insurers*", *Contemporary Accounting Research,* vol. 23, no. 3, pp. 655-692.

Leuz, C., Nanda, D. & Wysocki, P.D. 2003, "Earnings management and investor protection: an international comparison", *Journal of Financial Economics,* vol. 69, no. 3, pp. 505-527.

Levitt, A. 1998, "The numbers game", *The CPA Journal,* vol. 68, no. 12, pp. 14-19.

Liberty, S.E. & Zimmerman, J.L. 1986, "Labor union contract negotiations and accounting choices", *Accounting Review,* , pp. 692-712.

Magee, R.P. & Tseng, M. 1990, "Audit pricing and independence", *Accounting Review,* , pp. 315-336.

Maher, M.W., Tiessen, P., Colson, R. & Broman, A.J. 1992, "Competition and audit fees", *Accounting Review,* , pp. 199-211.

Maines, L.A. & McDaniel, L.S. 2000, "Effects of comprehensive-income characteristics on nonprofessional investors' judgments: The role of financial-statement presentation format", *The Accounting Review,* vol. 75, no. 2, pp. 179-207.

McNichols F., M. 2000, "Research design issues in earnings management studies", *Journal of Accounting and Public Policy,* vol. 19, pp. 313-345.

McNichols, M.F. 2002, "Discussion of the quality of accruals and earnings: The role of accrual estimation errors", *The accounting review,* vol. 77, no. s-1, pp. 61-69.

Menon, K. & Williams, D.D. 2001, "Long-term trends in audit fees", *Auditing: A Journal of Practice & Theory,* vol. 20, no. 1, pp. 115-136.

Mock, T.J. & Wright, A. 1993, "An exploratory study of auditors' evidential planning judgments", *Auditing,* vol. 12, no. 2, pp. 39.

Mock, T.J. & Wright, A.M. 1999, "Are audit program plans risk-adjusted?", *Auditing: A Journal of Practice & Theory,* vol. 18, no. 1, pp. 55-74.

Muller III, K.A. 1999, "An examination of the voluntary recognition of acquired brand names in the United Kingdom", *Journal of Accounting and Economics,* vol. 26, no. 1, pp. 179-191.

Niemi, L. 2003b, "Riski ja sen hinnoittelu tilintarkastuksessa", *Tilintarkastus-Revision,* vol. 5, pp. 17-24.

Niemi, L. 2005, "Audit effort and fees under concentrated client ownership: Evidence from four international audit firms", *The international journal of accounting,* vol. 40, no. 4, pp. 303-323.

Niemi, L. 2003a, "Essays on audit pricing" in Helsinki School of Economics and Business Administration, .

Niemi, L. 2002, "Do firms pay for audit risk? Evidence on risk premiums in audit fees after direct control for audit effort", *International Journal of Auditing,* vol. 6, no. 1, pp. 37-51.

Niemi, L. 2000a, "Tilintarkastuksen hinnoittelu Suomessa", *Tilintarkastus–Revision,* vol. 7, pp. 35-42.

Niemi, L. 2000b, "Tilintarkastusmarkkinoiden rakenne ja toiminta" in Helsingin Kauppakorkekoulu, Helsinki.

Nikkinen, J. & Sahlström, P. 2004, "Does agency theory provide a general framework for audit pricing?", *International Journal of Auditing,* vol. 8, no. 3, pp. 253-262.

O'Keefe, T.B., Simunic, D.A. & Stein, M.T. 1994, "The production of audit services: Evidence from a major public accounting firm", *Journal of Accounting Research, ,* pp. 241-261.

O'Sullivan, N. 1999, "Board characteristics and audit pricing post-Cadbury: A research note", *European Accounting Review,* vol. 8, no. 2, pp. 253-263.

Palmrose, Z. 1986, "Audit fees and auditor size: Further evidence", *Journal of accounting research, ,* pp. 97-110.

PCAOBUS 2015, *, Illustrative Reports* [Homepage of Public Company Accounting Overshight Board, US], [Online]. Available: http://pcaobus.org/Standards/Auditing/Pages/Auditing_Standard_1_Appendix.aspx [2015, 07/06].

Peel, M.J. & Roberts, R. 2003, "Audit fee determinants and auditor premiums: Evidence from the micro-firm sub-market", *Accounting and Business Research,* vol. 33, no. 3, pp. 207-233.

Penman, S.H. & Zhang, X. 2002, "Accounting conservatism, the quality of earnings, and stock returns", *The accounting review,* vol. 77, no. 2, pp. 237-264.

Perry, S.E. & Williams, T.H. 1994, "Earnings management preceding management buyout offers", *Journal of Accounting and Economics,* vol. 18, no. 2, pp. 157-179.

Phillips, J., Pincus, M. & Rego, S.O. 2003, "Earnings management: New evidence based on deferred tax expense", *The Accounting Review,* vol. 78, no. 2, pp. 491-521.

Pong, C.M. & Whittington, G. 1994, "The determinants of audit fees: Some empirical models", *Journal of Business Finance & Accounting,* vol. 21, no. 8, pp. 1071-1095.

Porta, R.L., Lopez-de-Silane, F., Shleifer, A. & Vishny, R.W. 1996, *Law and finance, .*

Raghunandan, K. & Rama, D.V. 2006, "SOX Section 404 material weakness disclosures and audit fees", *Auditing: A Journal of Practice & Theory,* vol. 25, no. 1, pp. 99-114.

Ronen, J. & Yaari, V. 2008, "Earnings management" in Springer, .

Roychowdhury, S. 2006, "Earnings management through real activities manipulation", *Journal of Accounting and Economics,* vol. 42, no. 3, pp. 335-370.

Roychowdhury, S. 2004, *Management of earnings through the manipulation of real activities that affect cash flow from operations, .*

Sarkar, J.B., Hossain, S.M. & Islam, M.S. 2009, "Impact of Internal Audit and Audit Committee Characteristics on External Audit Fees: A Case Study of Banks in Bangladesh", *ASA University Review,* vol. 3, no. 2, pp. 171-185.

Schipper, K. 1989, "Commentary on earnings management", *Accounting horizons,* vol. 3, no. 4, pp. 91-102.

Schipper, K. & Vincent, L. 2003, "Earnings quality", *Accounting horizons,* vol. 17, pp. 97.

Seetharaman, A., Gul, F.A. & Lynn, S.G. 2002, "Litigation risk and audit fees: Evidence from UK firms cross-listed on US markets", *Journal of Accounting and Economics,* vol. 33, no. 1, pp. 91-115.

Shivakumar, L. 2000, "Do firms mislead investors by overstating earnings before seasoned equity offerings?", *Journal of Accounting and Economics,* vol. 29, no. 3, pp. 339-371.

Simunic A., D. 1980, "The Pricing of Audit Services: Theory and Evidence", *Journal of Accounting Research,* vol. 18, no. 1, pp. 161-190.

Simunic, D.A. 1984, "Auditing, consulting, and auditor independence", *Journal of Accounting research, ,* pp. 679-702.

Simunic, D.A. & Stein, M.T. 1996, "Impact of litigation risk on audit pricing: A review of the economics and the evidence", *Auditing,* vol. 15, pp. 119.

Sweeney, A.P. 1994, "Debt-covenant violations and managers' accounting responses", *Journal of Accounting and Economics,* vol. 17, no. 3, pp. 281-308.

Thornton, D.B. & Moore, G. 1993, "Auditor choice and audit fee determinants", *Journal of Business Finance & Accounting,* vol. 20, no. 3, pp. 333-349.

U.S. Securities and Exchange Commission 2002, *, Sarbanes-Oxley Act of 2002.* Available: https://www.sec.gov/about/laws/soa2002.pdf [2015, 07/10].

Wallace, W.A. 1984, *A time series analysis of the effect of internal audit activities on external audit fees,* Institute of Internal Auditors Research Foundation.

Watts, R.L. & Zimmerman, J.L. 1983, "Agency problems, auditing, and the theory of the firm: Some evidence", *Journal of Law and Economics,* , pp. 613-633.

Watts, R.L. & Zimmerman, J.L. 1978, "Towards a positive theory of the determination of accounting standards", *Accounting review,* , pp. 112-134.

Wells, P.A. 2002, "Earnings management surrounding CEO changes", *Accounting and Finance,* vol. 42, pp. 169-193.

Wooten, T.C. 2003, "Research about audit quality", *The CPA Journal,* vol. 73, no. 1, pp. 48.

Xu, R.Z., Taylor, G.K. & Dugan, M.T. 2007, "Review of real earnings management literature", *Journal of Accounting Literature,* vol. 26, pp. 195.

Zang, A.Y. 2006, *Evidence on the tradeoff between real manipulation and accrual manipulation,* ProQuest.