The conservative newcomer
The effects on audit quality as a consequence of audit firm rotation in Swedish publicly listed companies 2008-2012

William Blomström and Peder Carlsson
Abstract
The topic of the effects of audit quality as a consequence of audit firm rotation has been debated for decades in business science. It has also been discussed in the political arena. In April 2013 the Legal Affairs Committee of the European Union voted for a draft law requiring mandatory audit firm rotation for periods of 14 years. Countries such as Sweden might face the possible changes in audit quality that the mandatory audit firm rotation entails. In the light of these events, we studied how the audit quality changes when audit firms rotate. Because we used the Jones Model and the Modified Jones Model, discretionary accruals were our proxy for audit quality. The initial sample consisted of all publicly listed companies which rotated audit firms from 2008 to 2012 in Sweden. We found that there was a statistically significant change in audit quality, in the form of higher discretionary accruals following the rotation. Based on earlier research claiming that higher discretionary accruals signifies low audit quality, our results suggest that audit firm rotation in Sweden leads to a diminished audit quality. This might be due to the loss of firm-specific knowledge. Our results also indicate that the new auditing firms are more conservative than the auditor firm prior to the rotation, which might be explained by the increased audit risk that is related to the audit of the first-year client.

Keywords: Audit firm rotation, Mandatory audit firm rotation, Jones Model, Modified Jones Model, Audit quality, Discretionary accruals.

Acknowledgments
We would like to express our gratitude to our supervisor, Karin Brunsson, who helped us develop our study, and James Sallis for helping us with statistics. We are thankful for their guidance and support from the initial to the final level of the research process. We would also like to thank the members of our seminar group for the valuable feedback and comments during the various seminar meetings.
# Table of contents

Introduction ........................................................................................................... 4

The threat against audit quality .............................................................................. 4

Support of mandatory audit firm rotation .............................................................. 5

Resistance to mandatory audit firm rotation ........................................................ 6

Mixed views of mandatory audit firm rotation ....................................................... 7

Problem definition .................................................................................................. 8

Research question .................................................................................................. 9

Theoretical framework ............................................................................................ 9

What is auditing? .................................................................................................... 9

What is audit quality? .............................................................................................. 11

Accrual accounting ................................................................................................. 12

Audit tenure and audit knowledge ......................................................................... 14

Audit risk .................................................................................................................. 15

The Jones Model .................................................................................................... 17

The Modified Jones Model .................................................................................... 19

Methods .................................................................................................................. 20

Research approach ................................................................................................. 20

Sample selection .................................................................................................... 20

Measure of concepts .............................................................................................. 22

Design of the data analysis ..................................................................................... 23

Critique of the methods ......................................................................................... 25

Validity .................................................................................................................... 25

Measurement validity ............................................................................................. 25

Internal validity ...................................................................................................... 26

External validity ..................................................................................................... 27

Coverage ................................................................................................................ 28
Measurement bias ................................................................. 28
Reliability .................................................................................... 29
Internal-observer consistency ......................................................... 29
Stability ....................................................................................... 29
Jones Model .................................................................................. 29
Type I and II errors ...................................................................... 31
Empirical results .......................................................................... 31
The Jones Model versus the Modified Jones Model ......................... 38
Conclusions ................................................................................ 39
Implications ................................................................................ 39
Contrasting previous research ....................................................... 41
Limitations .................................................................................. 43
Future research ........................................................................... 46
References ................................................................................... 47
Appendix ...................................................................................... 57
Introduction

In this chapter we present the problem background by providing a discussion regarding mandatory audit firm rotation and the consequences of implementing it. We present the reader with arguments in support of and in resistance to mandatory audit firm rotation in order to depict the lack of consensus in the debate. Afterwards, we define the problem and formulate a research question.

The threat against audit quality

"Much is at stake. If the European Commissioner Michel Barnier gets what he wants with his far-reaching proposal – joint audits, audit firm rotation and prohibition to advisory services for larger audit clients – the costs will increase and so will the complications for the business world. The Swedish model, which has brought us to international top ratings in areas such as corporate governance and accounting/auditing, runs the risk of being destroyed” (Brännström, 2011).

The man writing these lines is Dan Brännström, General Secretary of FAR, the professional institute for authorized public accountants, approved public accountants, and other highly qualified professionals in the accountancy sector in Sweden. These proposed changes stem from a final report published by the European Commission in 2011, which outlined proposals for changes to EU regulation of auditing practice. The purpose was to enhance audit quality in order to restore confidence to financial statements (Quick, 2012).

As can be seen from the quote by Dan Brännström, there is no unanimity when it comes to improving audit quality. One of the proposed changes to improve audit quality was by mandatory audit firm rotation. In April 2013 the Committee of Legal Affairs of the European Union approved a draft law which require mandatory audit firm rotation rule whereby auditors may inspect company books for a maximum of 14 years, which could be increased to 25 years if safeguards are put in place (Justice and Home Affairs, 2013). This time the proponents of mandatory audit firm rotation won, but the political debate is far from over. So is the theoretical discussion regarding mandatory audit firm rotation.

In the research world there are diverging opinions regarding the effects of mandatory audit firm rotation. The different opinions can be divided into two categories: one side that claims
that the effects of mandatory audit firm rotation are positive, and another side that claims that the effects of mandatory audit firm rotation are overall negative (Casterella and Johnston, 2013; Dao et al., 2008) Since there are divergent opinions in this area of study there is a need to investigate whether or not the quality is affected by audit firm rotation, thus to contribute to the debate of mandatory audit firm rotation.

**Support of mandatory audit firm rotation**

Researchers who are positive to mandatory audit firm rotation base their opinion on the increase of auditor independence and the argument that the audit quality is higher in the first years after the audit firm rotation. Arel et al. (2006), Dopuch et al. (2001) and Wang and Tuttle (2009) state that auditors who are subject to mandatory audit firm rotation are less cooperative and more likely to report a qualified audit opinion for their clients, indicating that auditor independence is higher when audit firms rotate. One way to form an opinion of an auditor’s independence and the auditor’s likelihood to report a qualified audit opinion is to look at the applied materiality level, i.e. to which level auditors consider misstatements in the financial statements as relevant. Misstatements are considered to be relevant and material if the misstatements affect a decision of a user of the statements. A low materiality level indicates a low threshold for the auditor to report a qualified audit opinion (Moriarity and Barron, 1976), which is not favorable for the client. Bates et al. (1982) found that rotation of audit firms or rotation of employees within the audit firm result in significantly lower materiality level meaning that auditors who experience rotation are more likely to report a qualified audit opinion thus being more independent with relation to their clients. This means that the likelihood of qualified opinions significantly decreases with long-term auditor-client relationship which also is supported by the findings by Deis Jr. and Giroux (1992, 1996) and Vanstraelen (2000).

After the financial crisis in 2008 the European Commission recognized a need to re-establish trust and market confidence. Auditing was considered a key contributor to this process (Quick, 2012). Since auditing is considered to produce comfort to the market, according to Pentland (1993), the perception of auditor independence is important in order to establish trust and market confidence. The European Commission believed that the perception of auditor independence is enhanced with mandatory audit firm rotation (Quick, 2012). These beliefs are supported by Dao et al.’s (2008), Gates et al.’s (2007) and Jennings et al.’s (2006) findings and they state that mandatory audit firm rotation would benefit the perception of independence and therefore the perception of audit quality as well. The enhanced perception
of audit quality due to auditor firm rotation may benefit the client’s relationship with banks (Daniels and Booker, 2011, 2009), its shareholders (Dao et al., 2008), and the legal and business community (Gates et al., 2006). In addition, according to Jennings et al. (2006) judges are less likely to consider auditor to be liable for fraudulently misstated financial statements when audit firm rotation occurs.

**Resistance to mandatory audit firm rotation**

Researchers who are negative to mandatory audit firm rotation focus their critique to the decrease of audit quality with shorter audit tenure. Chen et al. (2008), Johnson et al. (2002) and Myers et al. (2003) find that shorter audit tenure is associated with higher unexpected accruals compared to longer relationship suggesting that auditors appear to place greater constraints on both income-increasing and income-decreasing accruals as the relationship lengthens. In addition, Jenkins and Velury (2008) conclude that accounting conservatism is increased with longer audit tenure as compared to shorter audit tenure. Higher accounting flexibility allowed management to push the boundaries of generally accepted accounting principles, which resulted in higher discretionary accruals. Discretionary accruals signify that the company has used their own judgment to recognize an unrealized revenue or expense (Collin, 1997). These higher discretionary accruals in combination with decreased accounting conservatism pose a threat to the financial reporting quality and audit quality according to Chung and Kallapur (2003), Jackson et al. (2008) and Johnson et al. (2002). Therefore, audit reporting failures are significantly more frequent in the earlier years of the auditor-client relationship than when longer relationships occur (Geiger and Raghunandan, 2002), and fraudulent financial reporting is more likely to occur in the first three years of the auditor-client relationship (Carcello and Nagy, 2004).

Audit reporting failure occurs when a company files for bankruptcy and has not received a prior going-concern modified audit report (Geiger and Raghunandan, 2002). Moreover, in studying audit reporting failure Jackson et al. (2008) conclude that when audit tenure increases, the propensity to issue going-concern opinion increases as well, which reduces the likelihood of audit reporting failure. Therefore, consistent with Ruiz-Barbadillo et al.’s (2009) findings, mandatory audit firm rotation does not lead to an increase in going concern opinions to distressed companies which would indicate higher audit quality. In addition, Blouin et al. (2007) find that financial reporting quality was not improved for those Arthur Andersen clients who were forced into new shorter tenure audits, which they consider an argument against mandatory audit firm rotation.
Nor does mandatory audit firm rotation lead to an increased perception of auditor independence according to Kaplan and Mauldin (2008), which can be contrasted to the research that supports mandatory audit firm rotation and claim that it strengthens independence. Several authors have studied the effects of audit tenure and found that audit tenure is positively associated with investors’ perceptions of audit quality (Ghosh and Moon, 2005) and bond rating analysts’ perception of audit quality (Crabtree et al., 2006). Due to these factors, audit clients are able to decrease their cost of debt financing as investors’ perception of audit quality improves when audit tenure lengthens (Mansi et al., 2004). Nor is the perception of auditors’ independence among non-professional investors deteriorated as audit tenure lengthens (Kaplan and Mauldin, 2008). Thus, imposing mandatory audit firm rotation may result in unintended costs without any improvements in audit quality (Kwon, et al. 2010).

**Mixed views of mandatory audit firm rotation**

There are however research papers that have mixed views regarding mandatory audit firm rotation. Chi et al. (2011) state that longer tenure is negatively associated with unexpected accruals which is an argument against mandatory audit firm rotation. However, they argue that when the opportunity for accrual earnings management are constrained due to higher audit quality, other forms of earnings management occurs more often. Accrual earnings management is for instance the use of discretionary accruals in order to recognize or defer revenues, capitalize or expense certain costs and accounting valuation estimates in the accrual accounting (DeAngelo, 1986). Davis et al.’s (2009) results also suggest that short auditor tenure is associated with increased use of discretionary accruals indicating earnings management. However, when audit-client relationship extends beyond 15 years or more the positive effect of audit tenure expires and the auditor’s tolerance for earnings management rise. Thus Davis et al.’s (2009) results could be seen as concurrent to the Legal Affairs Committee of the European Union’s approval of the draft law which requires mandatory audit firm rotation after 14 years. Moreover, Li’s (2010) findings present a mixed view of audit tenure’s effect on accounting conservatism and audit quality. While large and strongly monitored companies are found to have a positive relation between audit tenure and accounting conservatism, small companies and weakly monitored are adversely affected. Supportive findings are presented by Nagy (2005), who concludes that discretionary accruals for small client companies are significantly lower after a forced audit firm rotation. For larger companies on the other hand, Nagy (2005) fails to find an association between the audit
clients and discretionary accruals. Thus, according to Li’s (2010) and Nagy’s (2005) findings, mandatory audit firm rotation would benefit the audit quality for small and weakly monitored companies but not large and strongly monitored. While their studies were performed in China and USA, Knechel and Vanstraelen (2007) studied small not publicly listed companies in Belgium and found that the evidence for audit quality to be increasing or decreasing as a result of auditor tenure is weak.

There are also mixed views concerning the perception of auditors’ independence. The United States General Accounting Office (2003) performed a study of the potential effects of mandatory audit firm rotation by asking the largest public accounting firms and Fortune 1000 publicly traded companies. The majority of the interviewed companies believed that audit failures were likely in the first years after the rotation as the new auditor has not yet acquired firm specific knowledge. However, regarding auditor independence and whether it would increase as a consequence of mandatory audit firm rotation, the perception varied depending on the types of companies that were asked. The possible variation in opinion of audit tenure’s implications on auditor independence is depicted by Shockley’s (1981) inability to find a significant relationship between auditors’, commercial loan officers’ and financial analysts’ perception of independence and audit tenure.

**Problem definition**

As can be seen from the discussion above, there is no homogenous view of the effects of mandatory audit firm rotation. Some claim that the audit quality will increase while others claim that it will decrease (Crabtree et al., 2006). Nevertheless, mandatory audit firm rotation has been implemented in the US (United States General Accounting Office, 2003), South Korea (Kwon et al., 2010), Italy (Dallocchio, 2005), Brazil (Jackson et al., 2008) and now it has been implemented in the entire European Union as well (Justice and Home Affairs, 2013). Since there is no consensus regarding the consequences of mandatory audit firm rotation, this area of research needs to be further explored. Otherwise, decisions regarding mandatory audit firm rotation might be based on erroneous information, which might lead to a decrease in audit quality.

The importance of audit quality is related to the stakeholders who are dependent on the firms. As the European Commission (2011) writes the publicly listed companies are of significant public interest because of their business, their size, their number of employees and their wide range of stakeholders. If a low level of audit quality leads to incorrect financial information
the consequences might be severe for a wide range of stakeholders. Stakeholders who might be affected are investors, customers, employees, communities, suppliers, trade associations, governments and political groups (Donaldson and Preston, 1995).

Since Sweden will face the implementation of mandatory audit firm rotation through the decisions by the European Union (Justice and Home Affairs, 2013) there is a need to study what implications mandatory audit firm rotation will have on audit quality in Sweden. Studies regarding audit firm rotation have treated other countries, for instance the US, China, Australia and Spain (Arel et al., 2006; Firth et al., 2012; Jackson et al., 2008; Ruiz-Barbadillo et al., 2009). In our search for information, we have found only one study of Swedish conditions (Tagesson et al., 2006) and that is merely a working paper using other proxies for audit quality and according to themselves they experienced measurement problems. This necessitates further studies of how audit firm rotation affects audit quality in Sweden.

**Research question**

How does audit firm rotation affect audit quality in Sweden?

**Theoretical framework**

*Our theoretical framework consists first of a discussion and a presentation of the concepts auditing and audit quality since they are related to our research question and need further clarification. Then we review accrual accounting which is considered to allow accounting flexibility and managerial judgment which could pose a threat to audit quality. Next, we discuss how audit tenure and audit risk may affect the audit quality. Last, we present the Jones Model and the Modified Jones Model, which will operationalize our empirical study in order to assess audit quality.*

**What is auditing?**

The concept of auditing might be explained as an independent examination of and the subsequent expression of opinion on the financial statements of an organization (A *dictionary of business.*, 1996). Auditors are expected to discover flaws in the client's accounting system, and report these breaches (DeAngelo, 1981). This is necessitated by laws. Auditors are bound by law to assure that the financial reports present a true and fair view of the client’s income statements and balance sheets (The Swedish Companies Act 2005:551, 9:31, p.1). However, these explanations would not grasp the depths of the complicated processes of auditing.
Pentland (2000) claims that auditing should not be seen as a neutral rendering of facts, rather it is a depiction of reality through accounted and audited numbers. He argues that auditors act as buffers between two symbolic worlds - they are more to be seen like movie critics than scientists. They interpret accounting systems, which are themselves interpretative products and they do so by following a variety of rules which are also open to interpretation. Thus, according to Power (1999), the knowledge base of the audit process is fundamentally obscure and requires judgment. And even though the rhetoric and procedures of auditing imply an analogy to scientific practice, the actual practice has only superficial similarities to the scientific practice, according to Pentland (2000). He writes that the rhetoric of science is a powerful legitimating device for audit practitioners, although auditing is not a science. In auditing, the samples, tests and interpretations are highly contextualized. And unlike laboratories there are no control groups – we never know what would have happened if the audit was not performed. "No wonder that audits are epistemologically obscure, auditors have adopted the rhetoric of scientific methodology without really being able to adopt much of the substance" (Pentland, 2000).

This criticism of the scientific nature of auditing makes it more important that auditors interpret the financial information in a true and fair manner. Since structured methodologies do not always grasp the reality of auditing, interpretations are needed to extract the knowledge (Francis, 1994; Power, 1999). According to Francis (1994) the auditor’s task is to understand the financial statements and evaluate whether or not they offer a fair and reasonable interpretation. The financial statement is a summary of transactions occurring every day. Since the auditor is distanced and not able to witness the actual transaction or action there is a need for subjective interpretation by the auditor which requires judgmental skills (Francis, 1994). The financial statements are open for interpretations not only for auditors but for the management as well. The International Financial Reporting Standards (IFRS) that Swedish publicly listed companies are required to follow (Westermark, 2005) offers according to Frings et al. (2012) managers personal judgment and discretion over the accounting system. According to Marden and Brackney (2009) auditors are therefore faced with the difficult task to assess management’s judgment on IFRS compliance rather than assessing compliance to established rules. Allowing this flexibility may result in a ‘your judgment against my judgment’ standoff between management and auditors (ibid). Thus Power (1999) and McCracken et al. (2008) argue that financial statements are often constructed and decided after interaction and negotiations between auditors and the management.
If auditing is not a science but a practice subject to subjective interpretations and judgment as Power (1999), Pentland (2000) and Francis (1994) suggest, then what is the value of auditing? An answer to that might be the production of comfort (Power, 1999). Pentland (1993) writes that auditing can be interpreted as a ritual which transforms the financial statements from an inherently untrustworthy state into a form that the auditors and the public can be comfortable with. Another notion regarding the function of auditing is that auditing might also produce legitimacy (Power, 2003). According to Power (2003) an important part of being a practitioner is to create representations of problems and solutions that are generally regarded as legitimate. Power (2003) claims that practice and legitimations of practice are not two distinct things, rather the practice is itself permeated and constituted by strategies of representation.

Legitimacy can be obtained through other means. Carrington (2010) writes about how professional appearances legitimize the auditors. Examples of professional appearances are dress code, long working hours and not bringing lunch to work. However, a more important aspect of professional conduct might be the documentation. Carrington (2010) mentions that the process and activities leading up to the production of the audit report such as evidence gathered are an important aspect of the professional conduct which is required of the auditor. An auditor cannot claim to have performed a test of a particular area if he or she cannot show documentation on it. Thus Power (1999) argues that to a large extent audit may be a collection of tests and an evidence gathering task. The evidence gathered in the form of documentation is important in order to defend any possible challenge from an authority or defend her or his professional appearance (Carrington, 2010) by showing that they were following routines that make sense and have value in the audit society (Power, 1999).

What is audit quality?

First of all, audit quality can be divided into perceived audit quality and actual audit quality (Jackson et al., 2008). This paper concerns actual audit quality, which can be measured by different proxies. The role of the audit is to enforce proper application of accounting standards (Francis and Dechun, 2008) and to assure that the financial reports present a true and fair view of the clients’ income statements and balance sheets (Swedish Companies Act 2005:551, 9:1, p.1). Thus it is a relationship between audit quality and financial reporting quality (Chung and Kallapur, 2003). It is this aspect of audit quality this paper studies and the proxy we have chosen in our paper is discretionary accruals since according to Francis and Dechun (2008) this proxy has been widely used in prior research concerning financial reporting quality. In
addition, discretionary accruals are also suggested to capture earnings management (e.g. Becker et al., 1998) which poses a threat to financial reporting quality and thus audit quality as well (Chung and Kallapur, 2003 and Francis and Dechun, 2008). Briefly explained, discretionary accruals signify that the company has used their own judgment to recognize an unrealized revenue or expense (Collin, 1997). More information about discretionary accruals can be found further down in the theory section. Another method that is widely used to assess audit quality is to study audit failures, which can be measured by two proxies: when generally accepted accounting principles are not enforced by the auditor and when an auditor fails to issue a modified or qualified audit report in the appropriate circumstances (Francis, 2004; Geiger and Raghunandan, 2002). Lawsuits against auditors might also be used as a proxy for audit quality (Carcello and Nagy, 2004). Yet another proxy is accounting conservatism, which means the estimations of earnings are cautious in order to prevent overvaluations (Iyengar and Zampelli, 2010; Jenkins and Velury, 2008).

**Accrual accounting**

There are two systems of measuring the performance and position of a company in accounting. One of them is accrual accounting and the other one is cash accounting. The general idea of accrual accounting is that the revenues are recognized when they are earned and expenses are recognized as they occur. The system is a basic accounting concept used in preparation of the profit and loss account and balance sheet. Cash accounting on the other hand recognizes transactions when they are received or paid. An important difference between the two systems is that in accrual accounting there will be some judgment involved and therefore uncertainty with respect to transactions. This means that the reader of financial statements of companies that use accrual accounting cannot have the same high level of confidence as in the financial statements of companies using cash accounting (A dictionary of business., 1996). The management might even misuse the flexibility in the accrual accounting system in order to elevate earnings (Healy and Palepu, 1993; Watts and Zimmerman, 2006). The judgment and the flexibility involved in the accrual accounting could be reflected by the level of discretionary accruals. According to Jackson et al. (2008) prior literature suggest that companies with higher levels of discretionary accruals are able to manage earnings which results in lower audit quality.

Two important accounting principles when it comes to accrual accounting are the revenue recognition principle and the matching principle. The revenue recognition principle involves
revenues to be recognized when a company has performed all, or a considerable amount, of
the services to be provided and cash receipt is reasonably certain. The matching principle
involves cash outlays related to revenues to be expensed in the period in which the firm
recognizes the revenue. By the implementation of such principles, the accrual process is
thought to reduce timing and matching problems inherent in cash flows so that earnings
accrual accounting performance measures can better assess firm values and operating
performance than operating cash flows.

Just as Dechow (1994) we use the term accrual in a broad sense, which includes both accruals
and deferrals. Accrued revenues are revenues that are earned during the period, even though
the cash has not been received. Accrued expenses are expenses that have been used or
employed during the period, even though it has not been paid yet (Adam, 1989). Deferred
expenses are expenses that have been paid in advance, even though the product or the service
has not been used. Deferred revenues are revenues that have been received in advance, even
though it has not been earned yet. These four terms can be categorized as liabilities or assets.
Accrued expenses and deferred revenues are liabilities, while accrued revenues and deferred
expenses are assets (A dictionary of business., 1996). An overview of these categories is
presented in Table 1.

Table 1 - Overview of accruals

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accrued revenues</td>
<td>Accrued expenses</td>
</tr>
<tr>
<td>Deferred expenses</td>
<td>Deferred revenues</td>
</tr>
</tbody>
</table>

Accruals can also be divided into the categories discretionary and non-discretionary. In
general the word discretion means the freedom given by one businessman to another
businessman to act what he or she thinks best in defined matters, but he or she must keep
within the limits of his directions (Adam, 1989). The term discretionary accrual signifies that
the company has used their own judgment when deciding to perform the accrual or not
(Collin, 1997). For instance, discretionary accruals might be assets that are written down,
revenues that are recognized or deferred, certain costs that are capitalized or expensed,
amortize intangibles and accounting valuation estimates (DeAngelo, 1986). As a comparison,
non-discretionary accruals cannot be influenced by the judgment of the companies; the values are fixed. Example of this is payroll taxes.

To measure accruals authors like Jones (1991) and DeAngelo (1986) use an expectations model. The expectations are based on a norm, which is established by numbers from earlier years. If the auditor makes an estimation which deviates from the norm, a difference in audit quality can be stated. This difference is called abnormal accruals by DeAngelo (1986) and Jones (1991). Abnormal accruals are henceforth called unexpected accrual since that is the term used in more recent research (e.g. Johnson et al., 2002). There can be no estimation whether this deviation in audit quality is positive or negative. If two different audit firms in cooperation with the same client produce different estimations, differences can be stated but it is impossible to conclude which of the estimations are correct since the real values cannot be known. Audited numbers are mere representations of reality where the auditor mediate between two symbolic worlds; a set of account and an interpretation of those accounts (Pentland, 2000). However, prior literature suggest that this change in audit quality through unexpected accruals is a decrease of audit quality (Balsam et al., 2003; Carey and Simnett, 2006; Chen et al., 2008; Chung and Kallapur, 2003; Jackson et al., 2008; Johnson et al., 2002; Myers et al., 2003).

**Audit tenure and audit knowledge**

Several authors discuss the relation between audit tenure and audit quality. A majority of the authors who discuss the subject find evidence that audit quality is lower in the first years of the audit-client relationship and that the audit quality increases when the tenure is longer (Carcello and Neal, 2000; Geiger and Raghunandan, 2001; Johnson et al., 2002; Myers et al., 2003; Stanley and Todd DeZoort, 2007). That can be explained supported by the argument that auditors who are established at a client have a comparative advantage compared to newly-recruited auditors due to the learning-curve of getting to know the client and the client’s specific operations and business processes (Bell et al., 1997; DeAngelo, 1981; Geiger and Raghunandan, 2001; Johnson et al., 2002; Knapp, 1991; Stanley and Todd DeZoort, 2007). Much of the knowledge in substantive analytical procedures are based on firm-specific knowledge, which makes firm-specific knowledge relevant (Bell et al., 1997; Kinney Jr. and McDaniel, 1996). When examining audit quality Ashton (1991), Balsam et al. (2003) and Krishnan (2003) find that auditors with more specific knowledge about the industry and the client performed better than auditors with more general knowledge. A reasonable explanation to the findings that audit quality increases with audit tenure and firm specific knowledge can
be found in Bonner and Lewis’s (1990) description of audit knowledge. According to them auditor knowledge includes three types of knowledge; (1) general accounting and audit knowledge such as generally accepted accounting and audit principles and the flow of transactions through the accounting system, (2) general business knowledge such as understanding management incentives, and (3) firm specific knowledge acquired with the specified client. Thus, firm specific knowledge acquired from experience with the client adds an extra dimension to the auditors overall audit knowledge which would benefit the audit quality.

Audit risk
According to accountants an audit is regarded as satisfactory as long as it was in accordance with “generally accepted auditing standards” (Kaplan, 1987). However, according to DeAngelo (1981) an audit is defined by its ability to discover a breach in the client’s accounting system and report the breach. Thus, according to financial statement users and the public, an audit failure has occurred when an auditor did not discover and report losses in major assets, understated liabilities, exaggerated profits, or any financial deception by the company and its management (Kaplan, 1987). The expectation from financial statement users and the public that audited financial statements have no hidden defects, profits are genuine, and all reported assets really do exist could be argued as an unreasonable expectation since audits are limited in scope and purpose. Every transaction is not checked, every asset is not accounted for to the penny, management’s basic integrity and judgments are not scrutinized from top to bottom (ibid). Instead an audit is to draw general conclusions from a limited examination of the domain under investigation (Power, 1999). This “expectation gap” where business failures in some cases are treated as audit failures increases the audit risk. Audit risk is the risk that the audit firm will suffer a loss resulting from the engagement via litigation and loss of reputation (Bell et al., 2002). A sign of high audit risk is auditing a first-year audit client (Hackenbrack and Nelson, 1996) and publicly traded audit clients (Brown and Johnstone, 2009). The reason these two categories are suggested to convey high audit risk is that the new auditor lacks sufficient knowledge about firm-specific risks (Myers et al., 2003) and that an audit failure in a publicly listed companies would receive more attention and thus result in more damage of the auditor’s reputation compared to an audit failure in a private company (Brown and Johnstone, 2009). Since our sample exclusively consists of first-year audit clients who are publicly listed our sample is exposed to the high audit risk of getting involved in litigation or a loss of reputation.
According to Power (1999) when companies collapse and have previously received a “clean” opinion from the auditors, public reaction focuses first on those auditors and the possibility of an audit failure. Kaplan (1987) writes that auditors are tempting to sue when business failures occur since they often are the only part that has not suffered financially and they are insured which increases the likelihood for the party who initiated the lawsuit to collect money if they win. Therefore Power (1999) argues that the legal risk permeates the audit and creates a certain mode of conducting the audit process in a defendable manner. Thus, the legal risk may create risk averse auditors. Kahneman (2011) argues that when people (e.g. auditors) are facing the risk of being evaluated ex post for their decisions they become risk averse and protect themselves by showing that they were following standard procedures (e.g. generally accepted accounting standards). Therefore Francis and Dechun (2008) argue that a rational response to the threat of litigation and sanctions for auditors are greater accounting conservatism on clients’ financial reports. Interestingly, Farmer et al. (1987) find that the threat of litigation is a demonstrated important factor that appears to reduce auditors’ willingness to accept a client’s proposed accounting treatments and instead act more conservative when interpreting generally accepted accounting standards. Moreover, auditors require more conservative reporting when they are auditing a first-year client (Hackenbrack and Nelson, 1996) and when they are held accountable for their decisions (Lord, 1992).

In addition to litigation risk, reputation provide incentives to avoid audit failures in order to repeat sales to its clients (Klein and Leffler, 1981). Maintaining a reputation for high quality is essential for auditing firms specifically (Krishnamurthy et al., 2006) since auditor reputation is argued to add credibility to client’s financial statements (Asthana et al., 2010; Krishnamurthy et al., 2006). Therefore a reputation loss may imply an economic loss for the audit firm since a reputation loss poses a threat to renewed contracts with its clients (Klein and Leffler, 1981) and the risk of fee discount, i.e. receive lower audit fees (Davis and Simon, 1992).

In summary, publicly listed first-year audit clients are considered to imply high audit risk which is suggested to influence the auditor to be risk averse and act conservative and cautious in order to prevent litigation and loss of reputation. When exposed to high audit risk, the conservative auditor are according to Francis and Dechun (2008) protecting their firm’s brand name and reputation from legal exposure and reputation risk which can arise from misleading and overly optimistic financial reports.
The Jones Model

Earnings management may take different approaches, such as the use of accruals, changes in accounting methods and changes in capital structure, e.g., debt defeasance, debt-equity swaps (Jones, 1991). An important advantage of the accrual approach is that it can potentially reveal the subtle income-reducing techniques used by the management, such as to write down assets, recognize or defer revenues, and capitalize or expense certain costs (DeAngelo, 1986). The accrual approach also captures the results of accounting estimations and changes in those estimates (ibid). Previous research in financial reporting demonstrates that accruals are extensively seen as a proxy for earnings management (Bartov et al., 2001; Becker et al., 1998; Gul et al., 2003; Heninger, 2001; Klein, 2002; Krishnan, 2003; Reynolds and Francis, 2000; Teoh et al., 1998; Vander Bauwhede et al., 2003) and financial reporting quality (Balsam et al., 2003; Carey and Simnett, 2006; Chen et al., 2008; Chung and Kallapur, 2003; Jackson et al., 2008; Johnson et al., 2002; Myers et al., 2003), and therefore audit quality as well (Chung and Kallapur, 2003).

However, aware of the fact that working capital, including accruals will fluctuate depending on the economic circumstances of the firm (Kaplan, 1985), there is a need for a model which controls for this. For example, changes in working capital accounts, such as accounts receivable, inventory and accounts payable depend to some extent on changes in revenues and changes in depreciations depends to some or large extent on changes in property, plant and equipment. The expectations model used in this paper is controlling the level of accruals by changes in revenue, property, plant and equipment (Jones, 1991). That is, the model when calculating the expected, or normal, accruals takes into account changes in revenues, property, plant and equipment. This is important since we are only interested in discretionary accruals which is a result of managerial discretion and not nondiscretionary accruals which are an effect of the economic circumstances such as changes in revenues, property, plant and equipment. Higher levels of discretionary accruals are considered to be positively associated with earnings management (Bartov et al., 2001; Becker et al., 1998; Gul et al., 2003; Heninger, 2001; Klein, 2002; Krishnan, 2003; Reynolds and Francis, 2000; Teoh et al., 1998) and negatively associated with financial reporting quality (Balsam et al., 2003; Carey and Simnett, 2006; Chen et al., 2008; Chung and Kallapur, 2003, 2003; Jackson et al., 2008; Johnson et al., 2002; J. N. Myers et al., 2003). Since a higher level of discretionary accruals indicates earnings management and lower financial reporting quality, a higher level of discretionary accruals are considered to be a sign of lower audit quality as well (Chung and
Kallapur, 2003; Jackson et al., 2008). However, this assumption that higher discretionary accruals per se is considered to be a sign of low audit quality is discussed in the limitations section in this paper.

Previous research reveals that the Jones Model is a model frequently used to distinguish between discretionary and nondiscretionary accruals and measure discretionary accruals as a proxy for financial reporting quality (Balsam et al., 2003; Chen et al., 2008; Chung and Kallapur, 2003; Jackson et al., 2008; Johnson et al., 2002; Myers et al., 2003) and earnings management (Bartov et al., 2001; Becker et al., 1998; Gul et al., 2003; Heninger, 2001; Klein, 2002; Krishnan, 2003; Reynolds and Francis, 2000). Jones (1991) used her model to test for earnings management during import relief investigations, but several authors have used it to assess audit quality (Balsam et al., 2003a; Becker et al., 1998; Chen et al., 2008; Heninger, 2001; Hyeesoo Chung and Kallapur, 2003; Jackson et al., 2008; Johnson et al., 2002a; Krishnan, 2003; Myers et al., 2003).

To a large extent total accruals are composed of depreciation expenses (DeAngelo, 1986). This fact implies two things. First, total accruals are normally negative due to depreciation expenses (DeAngelo, 1986; Healy, 1985). Second, to a large extent depreciation expenses arise from fixed assets acquired in prior years and these depreciation expenses are unaffected by managerial discretion (Kaplan, 1985). Thus, total accruals are to large extent nondiscretionary accruals and normally negative. The model’s ability to divide total accruals into discretionary and nondiscretionary accruals is of significant value for this paper. Another advantage of the model is that it also handles the fact that total accruals are normally negative (not zero). This is achieved by developing a (nonzero) benchmark for the expected total accruals based on total accruals prior to the audit firm rotation which is then considered as normal accruals (DeAngelo, 1986). Expected accruals are then compared to the observed actual accruals and the difference between the two values is considered as unexpected accruals (ibid). Thus, Jones Model’s ability to create a nonzero benchmark for expected total accruals allows measurement of the difference between expected and actual total accruals instead of measurement of the difference between the absolute value of total accruals which is believed to be negative in the first place and dependent on economic circumstances. The difference between expected and actual total accruals which are defined as unexpected accruals are considered as discretionary accruals (DeAngelo, 1986; Johnson et al., 2002; Jones, 1991; Teoh et al., 1998).
Moreover, the model is focused on discretionary accruals as part of total accruals instead of discretionary accruals as part of a particular accrual account. This design means that a larger portion of management’s manipulations should be captured according to Jones (1991). Since the use of discretionary accruals can be evident in different accounts, such as inventory, receivables, payables, depreciation, etc. (Kaplan, 1985), it is logical to include all accrual accounts in this study.

In summary, the Jones model will calculate this year’s expected total accruals based on previous years’ accruals and total assets and this year’s revenue, property, plant and equipment. The difference between the expected total accruals and this year’s measured total accruals are the error term which is interpreted as discretionary accruals in our study.

The Modified Jones Model
An assumption implicit in the Jones Model is that revenues are nondiscretionary (Dechow et al., 1995). However, management may use its discretion and accrue revenues at year-end when the cash has not yet been received and it is highly questionable if the revenues have been earned. Discretion like that would result in increased revenues and increased receivables, thus an increase in total accruals. Since the Jones Model controls for revenue changes the increase in total accruals, due to the increase in receivables, is considered as nondiscretionary accrual explained by the revenue increase. The Modified Jones Model, which was introduced by Dechow et al. (1995), relaxes the assumption that all revenues are nondiscretionary by adjusting the changes in revenues by changes in receivables. We describe how this is performed in the methods section below. The revenue is adjusted by changes in receivables because of the notion that management has more discretion flexibility over the recognition of revenue on credit sales than cash sales (Dechow et al., 1995). Thus credit sales resulting in receivables should not automatically be treated as nondiscretionary accruals explained by changes in revenue. Also Jones (1991) recognizes that revenues are not completely exogenous even though her model does not control for it.
Methods

This section elaborates on how the study is operationalized. Specifically, we describe our sample selection, how we measure audit quality and how we test our statistical hypothesis. In addition, critique of the used method is presented and discussed.

Research approach

Data were collected from the companies’ annual reports meaning that we did not participate in the collection but instead the data were collected by the companies in the course of their business. Thus the research relies on secondary data. This means that the data have been produced by professionals in accounting and finance leading to high-quality data (Saunders et al., 2009). Another advantage with data from companies’ annual reports is that it is an effective way to gather data for the researchers (ibid). The annual reports are public and easily accessible; therefore saved our time and money collecting the data. Moreover, an audit firm rotation is defined as the change in signing auditor firm of the auditor’s report as seen from the annual report. Year 0 in this study is the first annual report signed by the new audit firm. Year -1, -2 and -3 are the three years prior to the audit firm rotation.

Sample selection

According to the Swedish law public companies are required to employ at least one auditor (The Swedish Companies Act 2005:551, 9:1) and the Legal Affairs Committee of the European Commission’s draft law regarding mandatory audit firm rotation concerns public-interest entities (Justice and Home Affairs, 2013). Due to this, our area of study is restricted to publicly listed companies. The effects of mandatory audit firm rotation have been studied internationally (Firth et al., 2012; Jackson et al., 2008; Ruiz-Barbadillo et al., 2009) but in our search for literature we have only found one such study in Sweden (Tagesson et al., 2006) and that study was a working paper in which the authors experienced measurement problems. Therefore we want to make a contribution in this area of research.

The sample consists of companies which are publicly listed in Sweden and which were subject to an audit firm rotation during the years 2008-2012. Auditor rotation can either be a rotation of the whole audit firm or a rotation of an audit partner where the responsible audit partner is internally rotated off the client (Kramer et al., 2011). The study is limited to rotation of the whole audit firm, since the draft law from the European Union concerns audit firms. The decision to study the years 2008-2012 was motivated by the implementation of International Financial Reporting Standards (IFRS) in 2005 in Sweden (Westermark, 2005).
The implementation of the new accounting standards, IFRS, resulted in many cases significant restatements of the balance sheet and the income statement of Swedish companies; thus the financial numbers from 2004 were not comparable to the financial numbers from 2005 and forward. Since this study requires financial numbers from three years prior the audit firm rotation, companies which had an audit firm rotation during 2007 reported under IFRS for year 0 to -2 and under Swedish generally accepted accounting principles for year -3 which means that year -3 was not comparable with the other years. Companies with an audit firm rotation during 2008 were the first with comparable data for all of the years of interest.

Information about previous auditor firm rotations among publicly listed companies is found in books by Sundin et al. (2008-2012). The initial sample of auditor firm rotation among Swedish publicly listed companies during 2008-2012 consisted of 59 companies. However, banks were excluded due to the inherent differences in their reporting culture (Jackson et al., 2008). Companies which were not comparable for the years of interest due to mergers, acquisitions, reorganizations, changes in accounting periods and standards, changes in group structure and changes in auditor firm more than once were excluded. The exclusion of non-comparable resulted in a sample of 44 companies (Table 2). A small sample would have led to difficulties in achieving significant test statistics but on the other hand a large sample would result in less obvious relationships and differences being statistically significant (Anderson, 2003). Aware of the disadvantages of both small and large samples, the decision whether or not the sample size is sufficient can be determined by the F-value of the model. The F-value explains if the model is significant in estimating the dependent variable (Lind, 2010). When we have reached a significant level of the model there is no need to increase the sample further. The significance level of the model is presented in Table 4 in the section Empirical results.

Table 2 - Sample selection

<table>
<thead>
<tr>
<th>Sample selection</th>
<th>Excluded due to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial sample</td>
<td>Bank</td>
</tr>
<tr>
<td>59</td>
<td>1</td>
</tr>
</tbody>
</table>
Measure of concepts
What we are interested in is whether or not there are changes in audit quality due to auditor rotation. When Francis (2004) discusses audit quality he uses unexpected accruals as an indicator of audit quality. Therefore unexpected accruals are of interest for this thesis. As seen in the equation below: total accruals are calculated as the change in noncash working capital before income taxes payable less total depreciation expense (Jones, 1991). Noncash working capital is defined as the difference between current assets and current liabilities. However from current assets cash and short-term investments are excluded and from current liabilities are interest bearing short-term debt and long-term debt that is due in the current period are excluded (Damodaran, 2002 and Jones, 1991). Thus the equation will take the following form (Jones, 1991):

Equation 1:  \( \Delta TA = [\Delta CA - \Delta C - \Delta STI] - [\Delta CL - \Delta LD - \Delta ITP] - DAE \)

TA= Total accruals  CA= Current assets  C= Cash  
STI= Short-term investments  CL= Current liabilities  
LD= Long-term debt that is due in current period  
ITP= Income taxes payable  DAE= Depreciation and amortization expenses

Total accruals include both discretionary and nondiscretionary accruals but the interest of this study is in discretionary accruals. In order to control for changes in nondiscretionary accruals due to changes in the companies’ revenues and level of property, plant and equipment, two models are used; the Jones Model and the Modified Jones Model. The Jones Model takes the following form:

Equation 2:  \( \frac{TA_{it}}{A_{it-1}} = \alpha_i \left[ \frac{1}{A_{it-1}} \right] + \beta_{1i} \left[ \frac{\Delta REV_{it}}{A_{it-1}} \right] + \beta_{2i} \left[ \frac{PPE_{it}}{A_{it-1}} \right] + \varepsilon_{it} \)

TA= Total accruals  A= Total assets  REV= Revenue  
PPE= Gross property, plant and equipment  \( \varepsilon \)= error term
The error term, $\epsilon_{it}$, in the regression model is discretionary accruals (Jones, 1991). That is, $\epsilon$ represents the difference between total accruals and the expected total accruals. By changing the equation 2 to the following equation it is more obvious:

\[
\text{Equation 3: } \epsilon_{it} = \frac{T_{it}}{A_{it-1}} - \alpha_i \left[ \frac{1}{A_{it-1}} \right] - \beta_{1i} \left[ \frac{\Delta \text{REV}_{it}}{A_{it-1}} \right] - \beta_{2i} \left[ \frac{\text{PPE}_{it}}{A_{it-1}} \right]
\]

The Modified Jones Model takes the following form:

\[
\text{Equation 4: } \frac{T_{it}}{A_{it-1}} = \alpha_i \left[ \frac{1}{A_{it-1}} \right] + \beta_{1i} \left[ \frac{\Delta \text{REV}_{it} - \Delta \text{REC}_{it}}{A_{it-1}} \right] + \beta_{2i} \left[ \frac{\text{PPE}_{it}}{A_{it-1}} \right] + \epsilon_{it}
\]

REC = Net receivables

The equation for calculating the level of discretionary accruals with the Modified Jones Model takes the following form:

\[
\text{Equation 5: } \epsilon_{it} = \frac{T_{it}}{A_{it-1}} - \alpha_i \left[ \frac{1}{A_{it-1}} \right] - \beta_{1i} \left[ \frac{\Delta \text{REV}_{it} - \Delta \text{REC}_{it}}{A_{it-1}} \right] - \beta_{2i} \left[ \frac{\text{PPE}_{it}}{A_{it-1}} \right]
\]

**Design of the data analysis**

Due to the research question the study examines the relationship between audit firm rotation and audit quality. Audit quality is measured by the calculation of discretionary accruals and since discretionary accruals can theoretically take any value the dependent variable is treated as a continuous numerical variable (Newbold et al., 2007; Saunders et al., 2009). Therefore a least squared regression is adequate (Jackson et al., 2008). The least squares regression determining a regression equation by minimizing the sum of the squares of the differences between the observed total accruals and the predicted total accruals (Lind, 2010). The Jones and Modified Jones Model are two least squared regressions. Based on input from year -3 to -1, the two models determine a regression equation in order to predict the level of total accruals for year 0. The difference between the expected and the observed actual value of total accruals are the level of discretionary accruals which cannot be explained by changes in revenues, net receivables and the level of property, plant and equipment.
In order to determine whether or not the discretionary accruals after an auditor firm rotation are significantly unexpected, a one-sample t-test of hypothesis was performed by testing if discretionary accruals are significantly different from 0. When testing the discretionary accruals, the plus and minus sign before the level of discretionary accruals for each sample company are removed in order to avoid positive and negative level of discretionary accruals cancelling each other out. For example if the level of discretionary accruals for company 1 is -0.1 and the level of discretionary accruals for company 2 is +0.1, then the mean discretionary accruals would be 0 for the two companies and the t-test would conclude that there is no deviation from 0, which is incorrect since there are obviously deviations from 0. However if we remove the plus or minus sign the mean discretionary accruals are 0.1. Then we would perform a t-test to test if the 0.1 value is significantly different from 0. The one-sample t-test is performed with the help of the statistical software SPSS. The test includes five steps.

Step 1: State the null hypothesis (H₀) and the alternate hypothesis (H₁) (Lind, 2010). Since the interest of this study is in whether or not there are discretionary accruals after an auditor rotation, the null hypothesis should reflect this. The alternate hypothesis should be a statement that is accepted if the null hypothesis is false.

H₀: There is no significant difference between discretionary accruals before the audit firm rotation and discretionary accruals after the audit firm rotation, i.e. the discretionary accruals are zero.

H₁: There is a significant difference between discretionary accruals before the audit firm rotation and discretionary accruals after the audit firm rotation, i.e. the discretionary accruals are not zero.

Step 2: Select a level of significance. The level of significance is the risk you take of rejecting the null hypothesis when it is in fact true (Lind, 2010). The chosen significance level is 0.05.

Step 3: Select the test statistics. Since the standard deviation of the population is unknown, the study requires to use the sample standard deviation and due to this the t distribution is used (Lind, 2010).

Step 4: Formulate the decision rule. Since the discretionary accruals can deviate in two directions it is a two-tailed test (Lind, 2010). That means that the null hypothesis is rejected if the discretionary accruals after audit rotation are significantly higher or lower than zero. The critical value for 0.05 level of significance and a two-tailed test is 2.017. The critical value is
determined by the degrees of freedom which is the total number of observations minus the
total number of populations sampled (Lind, 2010). Total degrees of freedom in this study are
43 (44-1).

Step 5: Make a decision. Compare the test statistics calculated in step 3 with the critical value.
If the test statistics are higher than 2,017 or lower than -2,017 the null hypothesis is rejected at
the significance level of 0.05 (Lind, 2010).

Critique of the methods

Validity
Validity is concerned with the righteousness of the conclusions from the study and can be
divided into measurement validity, internal and external validity and ecological validity
(Bryman, 2011). Ecological validity is concerned whether the researchers intervene in natural
settings or create unnatural ones (ibid). Thus ecological validity is not a concern for this study
since we have taken a role of observers by reading annual reports.

Measurement validity
Measurement validity is concerned with whether the concept of measures used really measure
the intended concept (Bryman, 2011) and whether the measure of concepts provide the study
with information that answers the research question and meets the objectives of the study
(Saunders et al., 2009). The measurement validity in this study is whether or not discretionary
accruals are a valid proxy for audit quality. Audit quality is a subjective perception and how
to adequately assess audit quality is widely discussed. However, according to Saunders et al.
(2009) a way to evaluate measurement validity is to examine how other researchers have dealt
with this problem for a similar secondary data set in a similar context, and if they found that
the measures were suitable, then you can be more certain that the measures are suitable for
your research question and objectives as well. Therefore, in order to gain legitimacy for the
choice of discretionary accruals as a proxy for audit quality we have done a literature review
and found that discretionary accruals and Jones’ model are used as a proxy of audit quality
when audit quality and earnings quality is discussed and measured (Balsam et al., 2003;
Bartov et al., 2000; Becker et al., 1998; Chen et al., 2008; Francis, 2004; Francis et al., 1999;
Gul et al., 2003; Heninger, 2001; Chung and Kallapur, 2003; Jackson et al., 2008; Johnson et
al., 2002; Klein, 2002; Krishnan, 2003; Myers et al., 2003; Reynolds and Francis, 2000). Prior
literature suggests that firms with higher levels of discretionary accruals are able to manage
earnings which results in lower audit quality (Jackson et al., 2008). This assumption is further discussed in the limitations section.

However, using only one indicator (discretionary accruals) as a proxy may capture only a portion of the concept (audit quality)(Bryman, 2011). The concern here is that the level of audit quality may be reflected in other outcomes than the level of discretionary accruals as well. It is a weakness that this study’s measurement does not capture the whole perspective of audit quality. But on the other hand, Bryman (2011) argues that relying only on a single indicator is adequate for many purposes because the crucial part is whether the indicator is reliable and a valid representation of the concept. Since audit quality is positively associated with earnings quality measured by discretionary accruals (Becker et al., 1998; Francis, 2004; Francis et al., 1999; Jackson et al., 2008) we believe that the level of discretionary accruals to be a valid proxy for audit quality.

**Internal validity**

Internal validity is concerned with causality (Bryman, 2011) and is highly relevant for this study. This study’s statistical method is testing if there is a relationship between revenue, net receivables, property, plant, equipment and total accruals. If there is no relationship according to the statistical test, we are able to conclude that changes in total accruals are not entirely derived from changes in revenues, net receivables, property, plant and equipment (Lind, 2010). As a result they are considered to be explained by the audit firm rotation.

However, there are still several factors left which can explain the change of total accruals other than audit firm rotation and changes in revenues, net receivables, property, plant and equipment. In order to mitigate factors which can explain changes in total accruals we analyzed the initial sample in order to exclude non-comparable companies. Non-comparable companies were companies which have been subject to changes in the income statement and the balance sheet. Factors that might explain the change of total accruals were new accounting standards, changes in business concepts and operations, mergers, acquisition or changes in group structure, et cetera. The companies that were subject to these factors were defined as non-comparable and therefore excluded from the initial sample.

Thus the error term ($\varepsilon_i$ from equation 3 and 5) in the two Jones Models is the level of total accruals that are not explained by changes in revenues, revenues minus net receivables, property, plant, equipment, changes in accounting standards, changes in business concepts and operations, mergers, acquisition or changes in group structure. Since accrual accounting
allows for managerial flexibility and judgment (Dechow, 1994; Healy and Palepu, 1993) this study considers the error term ($\varepsilon_i$) to be a result of managerial discretion accepted by the auditor of the company. Therefore, in accordance with prior studies (Balsam et al., 2003; Bartov et al., 2001; Becker et al., 1998; Chen et al., 2008; Gul et al., 2003; Heninger, 2001; Chung and Kallapur, 2003; Jackson et al., 2008; Johnson et al., 2002; Jones, 1991; Klein, 2002; Krishnan, 2003; Myers et al., 2003; Reynolds and Francis, 2000), the error term ($\varepsilon_i$) is considered to be the level of discretionary accruals.

A relevant question to ask in order to evaluate the internal validity of this study is to ask whether or not the discretionary accruals are caused by something else than managerial discretion allowed by the auditor. By controlling for changes in revenues, net receivables, property, plant, equipment, accounting standards, business concepts and operations, mergers, acquisition and group structure, we believe that we have achieved an adequate level of internal validity. Although it is impossible to rule out all alternative explanations of changes in discretionary accruals, we are unable to identify an additional plausible alternative explanation. Thus we believe that the error term reflects managerial discretion sufficient to answer our research question. However, causality can never be fully determined by this method which we discuss in the limitations section.

**External validity**

Generalizability or external validity as it may be referred to is the concern of to what extent this study’s findings are generalizable to other research settings (Saunders et al., 2009). As stated previously, our research question concerns if the audit quality is affected when audit firms rotate. We are generalizing to mandatory audit firm rotation but are however studying voluntary audit firm rotation. This choice of generalization is discussed in the limitations in our conclusions section. Moreover, it is difficult to assess if it is possible to generalize the findings to other countries. To make such an assessment, accounting standards and other similarities or differences need to be studied, which is not the aim with our study. It could also be questioned if it is possible to generalize to companies that are not publicly listed. To investigate this, studies of similarities and differences between publicly listed companies and companies that are not publicly listed need to be performed. This is not the aim of the study either. As we write in the section Future research, these topics might be of interest to investigate in future studies.
Coverage

When using secondary data it is important that the data are available for the time period needed, for the population of interest and that the data contain variables that enable the study to answer the research question and meet the objectives (Saunders et al., 2009). The study did not exclude any company due to coverage problem. When Jones (1991) performed her study she used a simplified equation where total accruals were not adjusted to short-term investments (STI), current maturities of long-term debt (LD), or income taxes payable (ITP) due to coverage problem since these data were missing from the database she used. Several authors (Bartov et al., 2001; Dechow and Sloan, 1995; Gul et al., 2003; Myers et al., 2003) have used the simplified equation since then. We, on the other hand, did not gather the data from databases but directly from the annual reports. Thus we did not experience this problem and were able to use the complete equation for calculating total accruals. By adjusting total accruals by STI, LD and ITP we believe we have a comparative advantage in comparison with those studies which not. That is because these three items are not relevant when measuring discretionary accruals since they do not involve judgment (STI and ITP) or should not be considered as a current liability (LD). There is an advantage in gathering the data from the annual reports instead of databases. As Bernard and Skinner (1996) write, the Jones model might be improved if the data are taken from the annual reports and interpreted, in comparison to gathering data directly from large scale databases such as Compustat.

Measurement bias

When describing the research approach secondary data are described as high-quality data produced by professionals in accounting and finance. However, there is a risk of deliberate distortion which occurs when data are presented inaccurately on purpose due to managerial discretion (Saunders et al., 2009). It is not possible for us to analyze whether the data are presented correct or not, nor is it desirable in the study. The objective of the study is not to examine reality; rather the objective is to study a depiction of reality through accounted and audited numbers. Accounting and auditing are mere depictions of reality, not the reality itself (Pentland, 2000). Even though Swedish auditors are bound by Swedish law to assure that the financial reports present a true and fair view of the clients’ income statements and balance sheets (The Swedish Companies Act 2005:551, 9:31, p.1), this is not a guarantee for a correct depiction of reality. Since the study focuses on the depiction of reality through accounting and auditing, the possible inaccuracies in the secondary data do not threaten the validity of the study.
Reliability
Reliability is to what extent the data collection techniques and the analysis procedures used in this study yield consistent results (Saunders et al., 2009). Reliability can be divided into three subgroups; Internal-observer consistency, stability and internal reliability (Bryman, 2011). Internal reliability applies to multiple-indicator measures, thus is not relevant for this study. Since the data are easily accessible and the data do not require much judgment and the fact that the empirical work has been produced under cooperation between the both authors, it should result in high reliability.

Internal-observer consistency
Internal-observer consistency is concerned about whether there is a lack of consistency in decisions if two or more authors are involved (Bryman, 2011). The empirical data required for this study and used as input to equation 1 were normally well presented in the annual reports and did not require subjective judgment. In those few cases where judgment was needed in order to assess whether a number was to be included or excluded in the equation, the decision was made by both of us after a discussion. Thus, the risk of lack in consistency between the two authors was eliminated.

Stability
Stability is of concern whether a test performed on two different occasions on the same sample would yield the same or similar results. Since the data required to the test are easily accessible and will be accessible on a later occasion, the same data will be used on the later occasion. Thus, stability is not a concern to this study.

Jones Model
The Jones Model was criticized in previous literature according to Jackson et al. (2008), which is logical since it is an ambitious attempt to try to distinguish between discretionary accruals and nondiscretionary accruals. Bernard and Skinner (1996) discuss how well the Jones Model works. They describe it as the “best alternative currently available to test for earnings management” even though they are critical towards it. For instance, they write that the model treats most non-operating gains and losses and other special items as discretionary. The model might also treat some non-discretionary working capital accruals as discretionary. These mismeasurements of discretionary accruals lower at best the power of the research design to detect earnings management, and at worst influence the researcher to conclude that there is earnings management when none actually exists (Bernard and Skinner, 1996). It
should be noted that the critique from Bernard and Skinner (1996) concerns the original Jones Model, not the Modified Jones Model which emerged later. For instance, Bernard and Skinner (1996) criticize that receivables are not in the Jones Model. In the Modified Jones Model the receivables are taken into account, which strengthens the choice of this type of model.

In evaluating the Jones Model’s and the Modified Jones Model’s ability to detect earnings management Bartov et al. (2001) conclude that both models are successful in detecting earnings management. In addition, Dechow et al. (1995) evaluate the ability of five models to detect earnings management in which the Jones Model and the Modified Jones Model are included. They conclude that both models appear to produce reasonably well specified tests for a random sample of event-years and that both models provide more powerful tests of earnings management than the other models they are compared to. In addition, they conclude that the Modified Jones Model performs better than the Jones Model.

We have used the three years prior to the audit firm rotation as a benchmark sample and input to our regression analysis. This is compared to the year following the audit firm rotation. Thus we are testing whether discretionary accruals are significantly different from zero before and after the audit firm rotation within the same company. Another option would be to use other companies in the same industry that have not experienced audit firm rotation as a benchmark sample and input to our regression analysis. If we had chosen this method we would test if the firms with audit firm rotation have significantly different discretionary accruals than the firms which have not experienced audit firm rotation. We believe that using other companies as a benchmark sample and input to our regression analysis would lead to lower internal validity since differences between the companies may to some degree explain differences in discretionary accruals. Using prior years as a benchmark sample and input to our regression analysis eliminates this additional variable that might influence discretionary accruals. Our choice of prior years as a benchmark sample is motivated by our expectation of higher internal validity.

However, a potential disadvantage with our choice of benchmark sample is that it requires the sample companies to be comparable for the period of four years. This results that years before the implementation of the new accounting standards IFRS in 2005 could not be used in our benchmark sample, leading to a restriction of our sample size. The accounting standards prior to the implementation of IFRS are not comparable to IFRS, which is discussed in several annuals reports of 2005 (e.g. AcadeMedia, ACAP Invest and Broström). A larger sample
would however not necessarily be beneficial for the study, which is discussed in the section sample selection.

Type I and II errors
Type I error is conducted when the null hypothesis is rejected when it in fact is true (Saunders et al., 2009). Type I error in this study would be to conclude that there is a significant difference between discretionary accruals before audit firm rotation and discretionary accruals after audit rotation when in fact there is not. Type II error is the opposite of type I error, which means accepting the null hypothesis when it is not true. The risk of type I and II errors depends on the chosen significance level of the t-test and the sample size (Lind, 2010). An increase in sampling size would result in a higher risk of less obvious differences being found to be statistically significant thus conducting a type I error (Anderson, 2003). Inversely, a decrease in sampling size would result in higher risk of conducting a type II error. The significance level represent the probability of conducting a type I error (Saunders et al., 2009). Type I error is normally considered more serious than type II error by researchers thus it is generally more important to minimize type I error than type II error (Saunders et al., 2009). Due to that, an increase in sample size would pose a threat to our study and its conclusions.

Empirical results
In this section we present the findings of our research. First we present the models’ ability to estimate total accruals and the correlation amongst variables. Further we explain the relationship between total accruals (the dependent variable), revenues/revenues minus net receivables (independent variable, X1) and property, plant and equipment (independent variable, X2). Next we present the result of our test, answering whether or not there are higher discretionary accruals after the audit firm rotation. At last we present whether the total accruals and discretionary accruals are income-increasing or income-decreasing. When you as a reader are evaluating if the models and test are statistically significant, remember that the chosen level of significance is 0,05. That implies that the significance-level is required to be 0,05 or less in order to be statistically significant.

Since both the Jones Model and the Modified Jones Model yield the same result we present the results from both models but only discuss those of the Modified Jones Model. Thus we do not need to repeat ourselves and therefore we believe the text to be more interesting to follow.
Both models are stemming from one regression analysis with observations from the 44 sample companies and three years prior the audit firm rotation, resulting in 132 observations for each model. As presented in Table 3 multicollinearity does not exist in any of the two models. Multicollinearity exist when independent variables are correlated and according to Lind (2010) the general rule is that when the correlation between two variables are between -0.7 and 0.7 there is likely no problem of using both of the independent variables. No cases of too high correlation between variables are found in any of our models (Table 3). The two models are significant in explaining total accruals with a significance level of 0.002 for the Jones Model and 0.000 for the Modified Jones Model (Table 4). The R square-level of 0.229 for the Modified Jones Model indicates that the independent variables describes 22.9% of the variation in the dependent variable for the Modified Jones Model. Thus, revenues minus net receivables and property, plant and equipment explains 22.9% of the changes in total accruals. The remaining changes in total accruals are described 77.1% by the error term, which are interpreted as discretionary accruals. Thus, changes in total accruals are to the extent of 22.9% nondiscretionary and to the extent of 77.1% discretionary accruals according to the Modified Jones Model. Since the models are used as an expectation model the input to the models is from the years before the audit firm rotation (year -3 to -1). Consequently, the proportion of discretionary and nondiscretionary accruals symbolizes the proportion before the audit firm rotation. Whether the level of discretionary accruals is higher or lower after the audit firm rotation is discussed later in this section.
### Table 3 – Bivariate analysis of the correlation amongst variables

**Bivariate analysis of the correlation amongst variables**

<table>
<thead>
<tr>
<th></th>
<th>The Jones Model</th>
<th>The Modified Jones Model</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Accruals (Y)</td>
<td>Total Accruals (Y)</td>
</tr>
<tr>
<td>Total Accruals (Y)</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Revenue (X₁)</td>
<td>-0,298</td>
<td>Revenue - Net Receivables (X₁)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0,474</td>
</tr>
<tr>
<td>Property, Plant and Equipment (X₃)</td>
<td>-0,043</td>
<td>Property, Plant and Equipment (X₃)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0,043</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0,045</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>
Table 4 - Model Summary

<table>
<thead>
<tr>
<th>Variable</th>
<th>The Jones Model</th>
<th></th>
<th>The Modified Jones Model</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficients</td>
<td>Significance</td>
<td>Coefficients</td>
<td>Significance</td>
</tr>
<tr>
<td>Constant (α)</td>
<td>0,093</td>
<td>0,024</td>
<td>Constant (α)</td>
<td>0,108</td>
</tr>
<tr>
<td>Revenue (X₁)</td>
<td>-0,22</td>
<td>0,000</td>
<td>Revenue - Net Receivables (X₁)</td>
<td>-0,453</td>
</tr>
<tr>
<td>Property, Plant and Equipment (X₃)</td>
<td>-0,063</td>
<td>0,491</td>
<td>Property, Plant and Equipment (X₃)</td>
<td>-0,070</td>
</tr>
<tr>
<td>F-value</td>
<td>6,535</td>
<td></td>
<td>F-value</td>
<td>19,143</td>
</tr>
<tr>
<td>Significance</td>
<td>0,002</td>
<td></td>
<td>Significance</td>
<td>0,000</td>
</tr>
<tr>
<td>R Square</td>
<td>0,092</td>
<td></td>
<td>R Square</td>
<td>0,229</td>
</tr>
<tr>
<td>Adjusted R Square</td>
<td>0,078</td>
<td></td>
<td>Adjusted R Square</td>
<td>0,217</td>
</tr>
</tbody>
</table>

The coefficients presented in Table 4 are derived from total accruals for three years prior to the audit firm rotation. The coefficients are used to estimate total accruals for year 0, i.e. the year after the audit firm rotation. The average estimated coefficient for property, plant and equipment is negative (-0.07) which is the expected sign according to Jones (1991) since property, plant and equipment are related to income-decreasing accruals in terms of depreciation and amortization expenses. The average estimated coefficient for revenues minus net receivables is negative as well (-0.453). According to Jones (1991) the expected sign for revenue changes is not ex ante predictable since revenue changes may result in changes in both income-increasing and income-decreasing accruals. The fact that both coefficients are negative in our results means that there is a negative relationship between the independent variables (revenues minus net receivables and property, plant and equipment) and the dependent variable (total accruals). Thus, if a company in year 0, increases (decreases) its revenues minus net receivables and level of property, plant and equipment, the changes in
Total accruals are expected to have an income-decreasing (income-increasing) effect according to both models (Table 4).

Total accruals are influenced by economic circumstances of the company and those accruals are defined as nondiscretionary accruals (Jones, 1991). Those accruals that cannot be described as a result of economic circumstances are defined as discretionary accruals. As an indicator of economic circumstances the Modified Jones Model uses revenues minus net receivables, level of property, plant and equipment. Those are the independent variables in the model assumed to explain differences in the dependent variable. As noted earlier, the ability of both models to explain total variance are significant (Table 4). However, as presented in Table 4, our results show no statistically significant relationship between property, plant, equipment and discretionary accruals (significance: 0.408). Thus the independent variable which controls for property, plant and equipment does not add value to any of the two models.

Both the Jones Model and the Modified Jones Model yield the same results (Table 5). With both models we can reject the null hypothesis that discretionary accruals after an audit firm rotation are zero (T-value: 8.457 and 7.282, Significance: 0.000 and 0.000). Thus, at a significance level of 95% there has been a change in discretionary accruals after the audit firm rotation. The higher level of discretionary accruals (not zero) indicates a change in audit quality and more accounting flexibility for management to use their judgment in their recognition of income-increasing or income-decreasing accruals. Whether the higher level of discretionary accruals (not zero) is used in order to increase or decrease income is presented later in this section.
### One sample t-test of discretionary accruals

<table>
<thead>
<tr>
<th></th>
<th>Jones Model</th>
<th>The Modified Jones Model</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>H₀</strong>: Changes in discretionary accruals are zero</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T-value</td>
<td>8,457</td>
<td>7,282</td>
</tr>
<tr>
<td>Significance</td>
<td>0,000</td>
<td>0,000</td>
</tr>
<tr>
<td>Number of observations</td>
<td>44</td>
<td>44</td>
</tr>
<tr>
<td>Degrees of freedom</td>
<td>43</td>
<td>43</td>
</tr>
<tr>
<td>Maximum</td>
<td>0,495556</td>
<td>0,815841</td>
</tr>
<tr>
<td>Minimum</td>
<td>0,005250</td>
<td>0,008224</td>
</tr>
<tr>
<td>Mean</td>
<td>0,15021718</td>
<td>0,17555595</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>0,117817177</td>
<td>0,159904934</td>
</tr>
</tbody>
</table>

In Table 6 we seek to establish if the change in total accruals is income-increasing or income-decreasing. With this information we can determine if the new audit firm is more conservative than the previous audit firm, which will be discussed in the conclusions section. To reach the results in Table 6, we have not performed any t-test. Instead we have calculated the average actual and expected accruals for the whole sample. This differs from Table 5 in the sense that we allow positive and negative values to cancel each other out, in order to determine if the discretionary accruals are positively or negatively skewed. By doing this we can see if it is more income-decreasing or income-increasing in general.
The coefficients presented in Table 4 are used in order to estimate year 0’s total accruals based on year 0’s revenue minus net receivables and level of property, plant and equipment. Year 0 is the year after the audit firm rotation. As presented in Table 6, total accruals for year 0 are expected to be 4.6% of total assets. However, actual total accruals for year 0 are 4.2% of total assets (Table 6). The difference between actual and expected total accruals which is defined as discretionary accruals is thus -0.4% of total assets. This difference is statistically significant (Table 5) and indicates a higher level of discretionary (not zero) accruals than the previous three years. Since the discretionary accruals are negative (lower total accruals than expected total accruals) the discretionary accruals after the audit firm rotation had an income-decreasing effect on the financial statements.

To summarize, as presented in Table 4 both the Jones Model (significance level: 0.002) and the Modified Jones Model (significance level: 0.000) are statistically significant in explaining total accruals. The R-square of 0.229 for the Modified Jones Model tells us that changes in total accruals before the audit firm rotation consist of nondiscretionary accruals to the extent

1 Expected total accruals are derived from the coefficients presented in Table 4 and from this year’s revenues/revenues-net receivables divided by previous year’s total assets and this year’s level of property, plant and equipment divided by previous year’s total assets. The equations takes the following forms:

\[
\frac{T_A}{A_{it-1}} = \alpha_1 \left[ 1/A_{it-1} \right] + \beta_{11} \left[ \frac{\Delta \text{REV}}{A_{it-1}} \right] + \beta_{21} \left[ \frac{\Delta \text{PRE}}{\text{REV}_{it-1}} \right] + \varepsilon_{it}, \quad \frac{T_A}{A_{it-1}} = \alpha_1 \left[ 1/A_{it-1} \right] + \beta_{11} \left[ \frac{\Delta \text{REV} - \Delta \text{REC}}{A_{it-1}} \right] + \beta_{21} \left[ \frac{\Delta \text{PRE}}{\text{REV}_{it-1}} \right] + \varepsilon_{it}
\]

2 Derived with the following equation: \( \Delta T_A = [\Delta C - \Delta C - \Delta STI] - [\Delta CL - \Delta LD - \Delta ITP] - DAE \)

3 Difference between expected and actual total accruals

---

### Table 6 - Total Accruals

<table>
<thead>
<tr>
<th></th>
<th>Jones Model Mean</th>
<th>Modified Jones Model Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expected total accruals(^1)</td>
<td>0.055</td>
<td>0.046</td>
</tr>
<tr>
<td>Actual total accruals(^2)</td>
<td>0.042</td>
<td>0.042</td>
</tr>
<tr>
<td>Discretionary accruals(^3)</td>
<td>-0.013</td>
<td>-0.004</td>
</tr>
</tbody>
</table>
of 22.9% and the remaining 77.1% consists of discretionary accruals. As presented in Table 5, both models allow us to reject the null hypothesis and conclude that there are higher discretionary accruals (not zero) after the audit firm rotation (significance level: 0.000 and 0.000). As presented in Table 4, both models expect total accruals to be negatively related to revenues/revenues minus net receivables and the level of property, plant and equipment. Thus, the change in total accruals is expected to be income-decreasing as (income-increasing) revenues/revenues minus net receivables increases (decreases) (-0.220 and -0.453) and income-decreasing (income-increasing) when the level of property, plant and equipment increases (decreases) (-0.063 and -0.070). However, the property, plant and equipment variable is not statistically significant and does not add any value to any of the models in explaining changes in total accruals. As presented in Table 6, both expected and actual total accruals for year 0 are income-increasing. However, the actual total accruals are less income-increasing than expected total accruals. The difference between expected and actual total accruals is the discretionary accruals which are negative, thus income-decreasing (-0.013 and -0.004).

The Jones Model versus the Modified Jones Model
Both Dechow et al. (1995) and Jones (1991) recognize the fact that the Jones Model treats revenues as completely nondiscretionary even though management may use its discretion and accrue revenues at year-end when the cash has not yet been received and it is highly questionable if the revenues have been earned. Since the Modified Jones Model relaxes the assumption that all revenues are nondiscretionary it is suggested that the Modified Jones Model is superior the Jones Model. Therefore we find it interesting to use both models in our study in order to test if the Modified Jones Model is an improvement of the Jones Model or not. As presented in table 4, we find that the Modified Jones model performs better than the Jones Model both in respect to significance-level (0.000 versus 0.002) and R-square-level (0.229 versus 0.092). The difference in R square, which indicate that the Modified Jones Model describe 22.9% of total variance in total accruals while the Jones Model only describe 9.2% of total variance in total accruals, is substantial according to us.
Conclusions

In the conclusion section we present our conclusions regarding the research question: how does audit firm rotation affect audit quality in Sweden? We analyze our empirical material and discuss its implications for practitioners and researchers. We further discuss the limitations of our conclusions. At last, we suggest interesting topics for future research.

Implications

In this paper we examine the relationship between audit firm rotation and audit quality with the aim of evaluating how previous audit firm rotations in Sweden have affected audit quality.

As proxy for audit quality we use the level of discretionary accruals allowed by the auditors. Discretionary accruals represent the accounting flexibility for managers to use their judgment in the recognition of income-increasing or income-decreasing accruals.

The results of this study suggest that audit quality through higher levels of discretionary accruals is affected by the audit firm rotation and the results are consistent and statistically significant across both models used. Based on previous literature stating that higher discretionary accruals are negatively associated with financial reporting quality (Balsam et al., 2003; Becker et al., 1998; Carey and Simnett, 2006; Chen et al., 2008; Francis and Krishnan, 1999; Chung and Kallapur, 2003; Jackson et al., 2008; Johnson et al., 2002; Myers et al., 2003) our results indicate lower financial reporting quality thus lower audit quality when audit firms rotate. The relationship between audit firm rotation and the decrease of audit quality may be explained by the audit firm’s learning curve of getting more knowledgeable with the client’s specific operations and business processes (Bell et al., 1997; DeAngelo, 1981; Geiger and Raghunandan, 2001; Johnson et al., 2002; Knapp, 1991). Since audit knowledge can be argued to consist of three dimensions; (1) general audit and accounting knowledge, (2) general business knowledge and (3) firm specific knowledge (Bonner and Lewis, 1990), audit firm rotation diminishes the audit quality because of the loss of one of the dimensions of audit knowledge held by the client’s auditors. However, to uncritically accept the argument that higher discretionary accruals explicitly mean lower financial reporting quality and lower audit quality is simplistic and a discussion concerning this is held in the limitations section.

Our results also indicate that the new auditing firms are more conservative and allow less income-increasing total accruals than the auditor firm prior to the rotation. The difference cannot be explained by mergers, acquisitions, reorganizations, changes in revenues, net receivables, changes in property, plant and equipment, changes in accounting periods and
standards, changes in group structure and changes in auditor firm more than once. Instead, we suggest that they are discretionary accruals which are a result of managerial judgment. Since auditors are bound by law to assure that the financial reports present a true and fair view of the client’s income statements and balance sheets (The Swedish Companies Act 2005:551, 9:31, p.1), the auditors are required to assess the correctness of managerial judgments (Marden and Brackney, 2009). The indication that new audit firms are more conservative and allow less income-increasing managerial flexibility may be explained by the audit risk they are exposed to. Audit risk is the risk that the audit firm will suffer a loss resulting from the engagement via litigation and/or loss of reputation (Bell et al., 2002). Auditors are in many cases acting as a buffer between two symbolic worlds trying to interpret accounting systems which themselves are interpretative products (Pentland, 2000). Therefore auditors are facing difficult situations trying to assess the management’s judgments and interpretations of the accounting system (Marden and Brackney, 2009). IFRS, which Swedish publicly listed companies are required to follow (Westermark, 2005), offers according to Frings et al. (2012) managers the opportunity to use personal judgment and discretion over the accounting system. These subjective judgments and discretions increase the audit risk. In addition, the audit risk in our study is increased by the fact that our sample consists of publicly listed first-year audit clients who are, according to Hackenbrack and Nelson (1996) and Brown and Johnstone (2009), considered to be associated with high audit risk. The combination of the high audit risk with publicly listed first-year clients and the judgment involved in accrual accounting which can be evaluated ex post, we believe leads to risk averse auditors acting more conservative in order to protect the firm’s reputation and avoid litigations by reducing the risk of possible audit failures.

In sum, our results indicate that the new auditor in comparison to the old auditor allowed more accounting flexibility for managers to use their judgment resulting in more conservative accounting. In regard of mandatory audit firm rotation the results are mixed. More allowed accounting flexibility for managers are not explicitly negative but it does offer the management a greater possibility to influence the financial statement which is negative if the incentives of the management are dubious. On the other hand, our results indicate that management used the greater accounting flexibility to present more conservative accounting. Since it is suggested that accounting conservatism leads to persistent understatement of net asset values (Iyengar and Zampelli, 2010), it may help to (re-)establish trust and market
confidence which is the purpose of European Commission’s idea of mandatory audit firm rotation (Justice and Home Affairs, 2013 and Quick, 2012).

However, according to us, the net effect of audit firm rotation, displayed by our empirical results, poses a threat to the financial reporting quality and audit quality. More accounting flexibility for management means that financial statement users are to a larger degree dependent of management’s incentives and their judgment concerning the value of assets, liabilities and future cash flows.

**Contrasting previous research**

Our main contribution to the theoretical discussion is how audit quality is affected when audit firms rotate in Sweden. Few researchers have studied these effects in Sweden, and these few researchers have used other proxies for audit quality than we have in our study (Tagesson et al., 2006). As we have discussed there are diverging opinions regarding the effects of audit firm rotation among the researchers. The different opinions can be divided into two categories: one side that claims that the effects of mandatory audit firm rotation are positive and the other side that claims that the effects of mandatory audit firm rotation are overall negative (Casterella and Johnston, 2013; Dao et al., 2008).

Our results show that there is a difference in audit quality when audit firms rotate. Since we base upon the assumption of auditor knowledge increasing with the length of auditor tenure (Bell et al., 1997; DeAngelo, 1981; Geiger and Raghunandan, 2002; Johnson et al., 2002; Knapp, 1991) and higher level of discretionary accruals are considered to be a decrease of audit quality (Balsam et al., 2003; Carey and Simnett, 2006; Chen et al., 2008; Chung and Kallapur, 2003; Jackson et al., 2008; Johnson et al., 2002; Myers et al., 2003), our results imply that mandatory audit firm rotation should not be implemented due to the decrease in audit quality. This means that our study will be positioned on the side resisting mandatory audit firm rotation. Just like the majority of the research papers negative to mandatory audit firm rotation, our study points to a decrease of audit quality.

However, our results do not contradict the idea that independence increases with mandatory audit firm rotation. We have not studied independence and therefore we cannot express any estimation regarding this issue. The claim that independence increases with mandatory audit firm rotation might still be a valid point of view (Arel et al., 2006; Bates et al., 1982; Deis Jr. and Giroux, 1996; Deis Jr. and Guiroux, 1992; Dopuch et al., 2001; Wang and Tuttle, 2009; Vanstraelen, 2000).
Even though our paper concurs with other reports that are negative to mandatory audit firm rotation, this does not mean that all these researchers are studying the same type of audit quality. While we use discretionary accruals as a proxy for audit quality, there are others who use measurement of financial fraud (Carcello and Nagy, 2004), going-concern opinions (Geiger and Raghunandan, 2002; Jackson et al., 2008; Ruiz-Barbadillo et al., 2009), accounting conservatism (Jenkins and Velury, 2008) and size of audit firms (Tagesson et al., 2006). This also applies to the researchers that had mixed views regarding the implementation of mandatory audit firm rotation. The majority of them did not study how discretionary accruals were affected before and after the rotation of the audit firms, but rather a study of the relation between auditor tenure audit quality (Carey and Simnett, 2006; Li, 2010; Chi et al., 2011).

Although several authors who are skeptical to mandatory audit firm rotation used the same proxy for audit quality as we did, i.e. discretionary accruals (Blouin et al., 2007; Chen et al., 2008; Davis et al., 2009; Gul et al., 2009; Jackson et al., 2008; Johnson et al., 2002; Myers et al., 2003), almost none of them studied a change in audit quality when the audit firms rotate. The vast majority of them studied the relation between audit tenure and audit quality (Chen et al., 2008; Davis et al., 2009; Gul et al., 2009; Jackson et al., 2008; Johnson et al., 2002; Myers et al., 2003).

Blouin et al. (2007) however studied changes in audit quality as an effect of audit firm rotation through the usage of discretionary accruals. They studied audit clients that were forced to switch audit firms due to the demise of the audit firm Arthur Andersen. In accordance with our results, their results showed that the clients who followed their former audit teams to new audit firms (which is considered as no rotation) had lower discretionary accruals, i.e. higher audit quality, than the clients who chose new audit teams. Therefore they claim that mandatory audit firm rotation may not improve financial reporting. We wonder if their study has external validity, i.e. if it can be applied to other settings than the clients of Arthur Andersen. In order to compare the results, it would have been preferable, from our point of view, if the study was more similar to the one we have conducted. For instance, we should like to see other companies than clients to Arthur Andersen included in their study.

Nagy (2005), just like Blouin et al. (2007), studied clients who chose new audit firms after the downfall of the audit firm Arthur Andersen. Since we are studying publicly listed companies the results by Nagy (2005), indicating that the level of discretionary accruals declined for
smaller companies, might not be comparable. For Nagy (2005) these smaller companies consisted of the lower half of the sample based on size of the former clients of Arthur Andersen. The publicly listed companies we have studied have probably much more in common with the larger companies studied by Nagy (2005). These larger companies were not affected in terms of discretionary accruals, unlike our findings. Perhaps the difference can be found in the different markets. Publicly listed companies in Sweden and the clients of the demised audit firm Arthur Andersen also differ in terms of accounting standards, because during the time of study US companies were required to report under US Generally Accepted Accounting Principles (Marden and Brackney, 2009), while Swedish companies on the other hand are required to report under International Financial Reporting Standards since 2005 (Westermark, 2005).

Kwon et al (2010) find that the audit quality, which is measured by unexpected discretionary accruals, remains unchanged or decreased slightly after the rotation of audit firms. This contradicts our findings that there is a statistically significant change in audit quality following the audit firm rotation, although the contradiction might be explained by the differences in the studied samples. Our sample consisted of Swedish publicly listed companies. Kwon et al. (2010) studied publicly listed companies in South Korea. The accounting standards might differ between Sweden and South Korea. Other unknown factors might also differ.

Another conclusion we made was that the Modified Jones Model was better in explaining total accruals than the Jones Model. This confirms the findings by Dechow et al. (1995), who tested these models and found that the Modified Jones Model performed better.

**Limitations**

Even though prior research argues that higher discretionary accruals are negatively associated with earnings quality and audit quality we cannot really know. Since accounting in many cases are interpretations of a symbolic world requiring interpretations, assumptions and judgment there may be diverging opinions about what value is a true and fair picture of the “reality”. One thing is sure however, we do not know the “real” value of those examined assets, liabilities, and depreciation and amortization expenses. What we know is that, after the audit firm rotation, there are higher discretionary accruals. Maybe this change resulted in better audit quality, that the new auditor with a new point of view discovered errors in the financial statement which needed to be corrected resulting in higher discretionary accruals. Or
maybe the changes resulted in lower audit quality according to prior research (Balsam et al., 2003; Becker et al., 1998; Carey and Simnett, 2006; Chen et al., 2008; Francis and Krishnan, 1999; Chung and Kallapur, 2003; Jackson et al., 2008; Johnson et al., 2002; Myers et al., 2003).

The measurement validity in our study has to be considered when drawing conclusions about audit quality. Audit quality is a subjective perception and how to adequately assess audit quality is widely discussed. We are aware of the fact that when assessing audit quality we are in fact assessing discretionary accruals. Thus, the limitation is whether discretionary accruals are a valid proxy for audit quality and whether the proxy captures the whole concept of audit quality. According to us it would be naïve to think that discretionary accruals are a perfect reflection of audit quality but we do however find confidence in its usefulness due to the extent it has been used in prior research for assessing audit quality (Balsam et al., 2003; Bartov et al., 2001; Becker et al., 1998; Carey and Simnett, 2006; Chen et al., 2008; Gul et al., 2003; Heninger, 2001; Chung and Kallapur, 2003; Jackson et al., 2008; Johnson et al., 2002; Klein, 2002; Krishnan, 2003; Myers et al., 2003; Reynolds and Francis, 2000; Vander Bauwhede et al., 2003).

Our research question concerns whether or not an audit firm rotation affects audit quality through discretionary accruals. Thus, implicitly we assume that there is a causal relationship between the audit firm rotation and the audit quality through discretionary accruals. We are however aware of the fact that we are not able to conclude without any doubt whether or not there is a causal relationship between the audit firm rotation and audit quality. Our chosen method examines correlation relationship and since there are several factors that can explain changes in discretionary accruals, our paper should not be uncritically accepted as a study of causal relationship. However, in order to increase the internal validity of our study we have in two steps mitigated factors that can explain changes in discretionary accruals other than the audit firm rotation. First, the Jones Model and the Modified Jones Model control for economic circumstances through changes in revenues/revenues minus net receivables and property, plant and equipment. Second, non-comparable companies were excluded from the initial sample. Non-comparable companies are those which have been subject to changes in the income statement and the balance sheet, thus discretionary accruals, due to new accounting standards, changes in business concepts and operations, mergers, acquisition or changes in group structure, etc. Therefore, the changes in audit quality through discretionary accruals are explained by everything else other than those factors that the models control for
and those factors we have controlled for by excluding non-comparable companies. By doing this we believe the internal validity of this study to be sufficient to answer our research question but it is important to recognize this limitation when the conclusions are considered.

Since we are using discretionary accruals as a proxy for audit quality we do rely on the Jones Model and the Modified Jones Model to successfully distinguish between nondiscretionary and discretionary accruals. The Jones Model has received criticism in previous literature (Jackson et al., 2008) and Bernard and Skinner (1996) discuss the difficulties to separate total accruals into discretionary and nondiscretionary accruals. However their critique concerns for instance the fact that receivables are not taken into account, which they are in the Modified Jones Model. Moreover, even though they are critical to the Jones Model they describe it as the best “alternative currently available”. Also, Bartov et al. (2001) and Dechow et al. (1995) conclude that both the Jones Model and the Modified Jones Model are successful in detecting earnings management through the use of discretionary accruals. Even though prior research supports the models ability we are aware that a model can never fully capture managerial judgment allowed by its auditors which is the purpose of measuring discretionary accruals.

However, according to Kahneman (2011) about 200 studies have been performed in order to test whether or not human assessments are better than statistical models’ assessments. None of the studies have convincingly proven that human assessments have higher validity than statistical models. Instead, 60% of the studies display a significantly higher validity for the statistical models and the remaining 40% display no significant difference (Kahneman, 2011). Thus, even though the models do not fully capture managerial judgment, we believe using statistical models to measure managerial judgment are more adequate than using a qualitative method based on our subjective interpretations.

Finally, concerned with the external validity or generalizability we do not provide empirical results whether or not mandatory audit firm rotation did increase or decrease audit quality. But we do present evidence that under current regulatory regime of voluntary auditor rotation, audit quality is affected by an audit firm rotation and we believe our results are applicable when discussing the effects of mandatory audit firm rotation. We cannot find a plausible explanation that the effects on audit risk and audit knowledge would differ between voluntary and mandatory audit firm rotation. The loss of audit knowledge and the exposure to audit risk do not depend on whether the rotation is mandatory or voluntary.
Future research

Since our research paper has only studied one proxy of audit quality, we would appreciate to see further research in how audit quality is affected in Sweden when audit firms rotate through other proxies for audit quality. Tagesson et al. (2006) studied nine other proxies for audit quality, but that study should have been more thorough in order to be generalizable, according to us. The proxies for audit quality we recommend to be studied are accounting conservatism as studied by Iyengar and Zampelli (2010) and Jenkins and Velury (2008), lawsuits against auditors as studied by Carcello and Nagy (2004) and audit failures as studied by Francis (2004) and Geiger and Raghunandan (2002).

In our study we have merely examined publicly listed companies. Because we do not know if it is possible to generalize our findings to companies that are not publicly listed, we suggest that studies are performed on companies that are not publicly listed and which also have been subject to audit firm rotation. If differences in this type of suggested study can be detected, then we would also recommend studies of similarities and differences between companies that are publicly listed and companies that are not publicly listed, in order to explain the possible differences.

It would be interesting to study if it is possible to generalize our findings to other countries. Such a study would require investigations of similarities and differences of accounting standards and cultural practices such as routines and procedures. We also suggest studies, with the same methods as we have used, in other countries – both in countries which have voluntary audit firm rotation and countries that have mandatory audit firm rotation. A comparison of these countries could yield interesting findings.

Finally, we suggest future research regarding the property, plant and equipment-variable, which is a part of both the Jones Model and the Modified Jones Model. In our study the property, plant and equipment-variable was insignificant in explaining variance in total accruals and therefore did not add any value to the Jones Model or the Modified Jones Model. Therefore we suggest studies of the relevance of the property, plant and equipment-variable. The variable might differ in relevance between industries, for instance it might be more relevant in the real estate sector compared to the information technology sector, which we would like to studies of. Perhaps the variable is not relevant at all, and in such case it should be discarded from the Jones Model and the Modified Jones Model.
References


Dallocchio, M. 2005. “Heed the Italian experience - Mandatory rotation of audit firms has had a negative effect on audit quality and cost in Italy”, *Financial Times*, 10 February, p. 12


The Swedish Companies Act 2005:551, 9:1


### Appendix

<table>
<thead>
<tr>
<th>Number</th>
<th>Company</th>
<th>Year of rotation</th>
<th>Included or excluded</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3L System</td>
<td>2008</td>
<td>Included</td>
</tr>
<tr>
<td>2</td>
<td>Anoto Group</td>
<td>2008</td>
<td>Included</td>
</tr>
<tr>
<td>3</td>
<td>Ballingslöv</td>
<td>2008</td>
<td>Included</td>
</tr>
<tr>
<td>4</td>
<td>Betsson</td>
<td>2008</td>
<td>Excluded</td>
</tr>
<tr>
<td>5</td>
<td>Central Asia Gold</td>
<td>2008</td>
<td>Excluded</td>
</tr>
<tr>
<td>6</td>
<td>Cybercom Group</td>
<td>2008</td>
<td>Excluded</td>
</tr>
<tr>
<td>7</td>
<td>Elanders</td>
<td>2008</td>
<td>Included</td>
</tr>
<tr>
<td>8</td>
<td>Enaco</td>
<td>2008</td>
<td>Included</td>
</tr>
<tr>
<td>9</td>
<td>Getinge</td>
<td>2008</td>
<td>Included</td>
</tr>
<tr>
<td>10</td>
<td>Gunnebo</td>
<td>2008</td>
<td>Included</td>
</tr>
<tr>
<td>11</td>
<td>Havsfrun</td>
<td>2008</td>
<td>Included</td>
</tr>
<tr>
<td>12</td>
<td>Mobyson</td>
<td>2008</td>
<td>Excluded</td>
</tr>
<tr>
<td>13</td>
<td>NCC</td>
<td>2008</td>
<td>Included</td>
</tr>
<tr>
<td>14</td>
<td>Net Entertainment</td>
<td>2008</td>
<td>Included</td>
</tr>
<tr>
<td>15</td>
<td>Nolato</td>
<td>2008</td>
<td>Included</td>
</tr>
<tr>
<td>16</td>
<td>NOTE</td>
<td>2008</td>
<td>Included</td>
</tr>
<tr>
<td>17</td>
<td>SBC</td>
<td>2008</td>
<td>Included</td>
</tr>
<tr>
<td>18</td>
<td>Securitas Direct</td>
<td>2008</td>
<td>Excluded</td>
</tr>
<tr>
<td>19</td>
<td>Servage</td>
<td>2008</td>
<td>Included</td>
</tr>
<tr>
<td>20</td>
<td>Svolder</td>
<td>2008</td>
<td>Included</td>
</tr>
<tr>
<td>21</td>
<td>Thalamus Networks</td>
<td>2008</td>
<td>Excluded</td>
</tr>
<tr>
<td>22</td>
<td>AcadeMedia</td>
<td>2009</td>
<td>Excluded</td>
</tr>
<tr>
<td>23</td>
<td>Balder</td>
<td>2009</td>
<td>Included</td>
</tr>
<tr>
<td>24</td>
<td>Benchmark Oil</td>
<td>2009</td>
<td>Included</td>
</tr>
<tr>
<td>25</td>
<td>Billerud</td>
<td>2009</td>
<td>Included</td>
</tr>
<tr>
<td>26</td>
<td>Boliden</td>
<td>2009</td>
<td>Included</td>
</tr>
<tr>
<td>27</td>
<td>Chemel</td>
<td>2009</td>
<td>Excluded</td>
</tr>
<tr>
<td>28</td>
<td>Dagon</td>
<td>2009</td>
<td>Excluded</td>
</tr>
<tr>
<td>29</td>
<td>Hemtex</td>
<td>2009</td>
<td>Excluded</td>
</tr>
<tr>
<td></td>
<td>Company Name</td>
<td>Year</td>
<td>Status</td>
</tr>
<tr>
<td>---</td>
<td>----------------------------</td>
<td>------</td>
<td>----------</td>
</tr>
<tr>
<td>30</td>
<td>LifeAssays</td>
<td>2009</td>
<td>Included</td>
</tr>
<tr>
<td>31</td>
<td>Micro Systemation</td>
<td>2009</td>
<td>Included</td>
</tr>
<tr>
<td>32</td>
<td>Nilörngruppen</td>
<td>2009</td>
<td>Included</td>
</tr>
<tr>
<td>33</td>
<td>Shelton Petroleum</td>
<td>2009</td>
<td>Excluded</td>
</tr>
<tr>
<td>34</td>
<td>Swedol</td>
<td>2009</td>
<td>Excluded</td>
</tr>
<tr>
<td>35</td>
<td>Tradedoubler</td>
<td>2009</td>
<td>Included</td>
</tr>
<tr>
<td>36</td>
<td>Atlas Copco</td>
<td>2010</td>
<td>Included</td>
</tr>
<tr>
<td>37</td>
<td>Duroc</td>
<td>2010</td>
<td>Included</td>
</tr>
<tr>
<td>38</td>
<td>Probi</td>
<td>2010</td>
<td>Included</td>
</tr>
<tr>
<td>39</td>
<td>Rörvik Timber</td>
<td>2010</td>
<td>Excluded</td>
</tr>
<tr>
<td>40</td>
<td>Atrium Ljungberg</td>
<td>2011</td>
<td>Included</td>
</tr>
<tr>
<td>41</td>
<td>Avanza</td>
<td>2011</td>
<td>Excluded</td>
</tr>
<tr>
<td>42</td>
<td>Heba Fastighets AB</td>
<td>2011</td>
<td>Included</td>
</tr>
<tr>
<td>43</td>
<td>Modern Times Group</td>
<td>2011</td>
<td>Included</td>
</tr>
<tr>
<td>44</td>
<td>MSC Konsult</td>
<td>2011</td>
<td>Included</td>
</tr>
<tr>
<td>45</td>
<td>SAAB</td>
<td>2011</td>
<td>Included</td>
</tr>
<tr>
<td>46</td>
<td>Seco Tools</td>
<td>2011</td>
<td>Included</td>
</tr>
<tr>
<td>47</td>
<td>Sensys Traffic</td>
<td>2011</td>
<td>Included</td>
</tr>
<tr>
<td>48</td>
<td>Uniflex</td>
<td>2011</td>
<td>Included</td>
</tr>
<tr>
<td>49</td>
<td>Anoto Group</td>
<td>2012</td>
<td>Included</td>
</tr>
<tr>
<td>50</td>
<td>BioInvent</td>
<td>2012</td>
<td>Included</td>
</tr>
<tr>
<td>51</td>
<td>Bure Equity</td>
<td>2012</td>
<td>Included</td>
</tr>
<tr>
<td>52</td>
<td>Catena</td>
<td>2012</td>
<td>Included</td>
</tr>
<tr>
<td>53</td>
<td>Corem Property Group</td>
<td>2012</td>
<td>Included</td>
</tr>
<tr>
<td>54</td>
<td>Elos</td>
<td>2012</td>
<td>Included</td>
</tr>
<tr>
<td>55</td>
<td>IAR Systems</td>
<td>2012</td>
<td>Excluded</td>
</tr>
<tr>
<td>56</td>
<td>Intrum Justitia</td>
<td>2012</td>
<td>Included</td>
</tr>
<tr>
<td>57</td>
<td>Nordic Service Partners</td>
<td>2012</td>
<td>Included</td>
</tr>
<tr>
<td>58</td>
<td>Partnertech</td>
<td>2012</td>
<td>Included</td>
</tr>
<tr>
<td>59</td>
<td>Ratos</td>
<td>2012</td>
<td>Included</td>
</tr>
</tbody>
</table>