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The Effect of Audit Tenure on Earnings Management

A study on Swedish Listed Firms

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Abstract:

This thesis investigates the relationship between audit tenure and earnings management for Swedish listed firms. The study focuses on the first five years of auditor-client relationships, a period in which auditors are still developing client-specific knowledge, and managers may be more inclined to exploit informational advantages. Using a panel dataset of Swedish listed companies covering the years 2014 to 2023, we employ two well-established models, the Modified Jones Model and the Kothari Model, to estimate discretionary accruals as a proxy for accrual-based earnings management. We find a statistically significant negative association between audit tenure and earnings management using the Modified Jones Model in our main regression model. This supports the hypothesis that longer auditor tenure in the early years leads to improved audit quality and reduced earnings management. In our indicator regression model, we find that auditors become significantly better at detecting earnings management during year 4 using the Modified Jones Model. The Kothari Model yields similar results in both regression models, although only significant for year 4 in the indicator regression model.

Keywords: Earnings Management, Auditor, Mandatory Auditor Rotation, Discretionary Accruals
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1. Introduction

1.1 Background

Financial reporting plays an important role in ensuring efficient resource allocation and decision-making by providing stakeholders with reliable information about a firm's economic position. However, the limited level of flexibility inherent in financial reporting also enables opportunities for earnings management, which is the practice of managers using accounting discretion to alter financial statements (Healy and Wahlen, 1998). Numerous accounting scandals have been linked to earnings management and external audit firms. The collapse of Enron Corporation in 2001 remains one of the most prominent examples. Enron exploited the flexibility of mark-to-market accounting method to inflate earnings and conceal losses due to the difficulties in assigning fair value compared to actual costs. This technique measures the value of an asset based on its current market value instead of its book value. Its long-time auditor firm of 15 years, Arthur Andersen LLP, and partner, David B. Duncan, approved their corporate reports. This case raised serious concerns about auditor independence, as extended tenure was attributed to high complacency that reduced oversight. The lack of challenge from the auditor contributed to significant earnings manipulations, ultimately leading to Enron's collapse. This case was one of the main reasons for major regulatory reforms, including the Sarbanes-Oxley Act in the United States of America and subsequent European Union directives on auditor rotation, emphasizing the importance of maintaining auditor independence (Segal, 2024).

While Enron is a severe and unusual case, it underscores the broader uncertainty around the optimal length of auditor tenure as too short tenure may reduce audit effectiveness and too long may erode independence. These questions motivate our study, which seeks to empirically examine the relationship between audit tenure and earnings management in the Swedish context, where auditor rotation is required after seven years (Sveriges Riksdag, 2005).

1.2 Previous Research

External auditors play a critical role in promoting financial transparency by independently evaluating a company's financial statements. One factor influencing audit effectiveness in detecting earnings management is audit tenure, referring to the duration of the relationship between an auditor and a client. There is an ongoing debate on whether longer audit tenure

improves or reduces financial reporting quality. Regulators argue that prolonged tenure may impair auditor independence, while some research have found that shorter tenure results in lower financial reporting quality due to auditors' lack of firm-specific knowledge (Johnson et al., 2002; Myers et al., 2003). One previous study has found that the magnitude of earnings management declines as audit firm tenure increases, and even continuing to decrease for overly long tenure, contradicting the case of Enron (Myers et al., 2003). On the other hand, another study found that overly long tenure leads to excessive familiarity which results in lower earnings quality (Chi and Huang, 2005).

Chen et al. (2008) presents the differing views on mandatory auditor rotation. Regulators argue that the mandatory auditor rotation is important due to the risk of auditors accommodating their clients' accounting choices to maintain good relationships and retain business as audit tenure increases. On the other hand, opponents argue that longer audit tenure enhances audit quality as auditors gain more client-specific knowledge, allowing them to better detect earnings management.

1.3 Contribution / Research gap

As previous research have found varying results regarding audit tenure and earnings management, there is still a need for further research into the topic. Sweden, with its regulation of auditor rotation at a maximum term of seven years, provides a suitable environment to study the initial effects of auditor rotation on earnings management. Additionally, to the best of our knowledge there is a lack of studies on the effect of audit tenure on earnings management in Sweden. Our research question is formulated as: Does external audit partner tenure affect the level of earnings management during the initial five years of the auditor-client relationship? Our thesis contributes to the existing earnings management and audit tenure literature by providing new insights into the effect of audit tenure on earnings management in a Swedish setting.

1.4 Methodology

We conduct a quantitative study, using two regression models, one linear regression model and one regression model including the years of audit tenure as indicators. This study is limited to Swedish listed firms, considering a timeframe of ten years, between 2014 and 2023, focusing

on accrual-based earnings management, which is assumed to be observed in discretionary accruals as estimated by the Modified Jones Model and the Kothari Model (Dechow et al., 1995; Kothari et al., 2005). We collect the data using the database Retriever : Business and individual firms' financial statements. The study does not assess other types of earnings management or consider industries with significantly different regulatory environments, such as the financial and real estate industry. Additionally, due to Sweden's mandatory audit rotation, the analysis primarily focuses on the first years after an auditor change rather than the long-term effects of extended tenure.

1.5 Findings

This study finds a negative association between audit tenure and absolute earnings management, indicating that longer audit relationships in the first years lead to improved financial reporting quality. Specifically, our results from the Modified Jones Model show that discretionary accruals decrease progressively over the first five years of an auditor's appointment. The Kothari Model, which controls for firm performance, indicates the same direction of change in earnings management over an auditor's tenure. Furthermore, the indicator regression model reveals that each year of audit tenure is associated with a decline in earnings management, especially in year four and five. These findings suggest that auditors gain client-specific knowledge over time, which strengthens their ability to detect and constrain earnings manipulation.

1.6 Disposition

This thesis is structured to present the theoretical background, methodology, and empirical findings related to the relationship between audit tenure and earnings management. Following the introductory chapter, Chapter 2 presents a literature review, which serves as the foundation for our theoretical framework. It also presents previous research. Chapter 3 describes the method used, including the sample selection, formulation of the hypothesis, model selection, variable definitions, and the regression models. In Chapter 4, we present the results from our regressions. These results are then analyzed and discussed in relation to existing literature in Chapter 5. The robustness and limitations of the findings are also discussed in this chapter.

Finally, Chapter 6 concludes the thesis by summarizing our findings and their relevance in the context of audit regulation and we make suggestions for future research.

2. Literature Review

In this section, we define earnings management and managers potential incentives for manipulating earnings. Furthermore, we explore the theoretical frameworks supporting our study, including the agency theory and information asymmetry, which includes the auditor's role in mitigating earnings management. Moreover, we comment on previous research.

2.1 Earnings Management

2.1.1 Definition of Earnings Management

Earnings management occurs when managers structure transactions to alter financial statements or use discretionary judgment in financial reporting, either to mislead stakeholders about a company's true financial performance or to influence contractual outcomes tied to accounting figures (Healy and Wahlen, 1998). This can involve both income-increasing and income-decreasing strategies, depending on whether the goal is to enhance short-term profitability or maintain earnings stability (Jones, 1991). Managers have several ways to exercise discretion in financial reporting. For example, trough estimations about future economic events, such as asset depreciation, pension obligations, bad debt provisions, and tax deferrals. Depending on the context, they can also influence the choice of accounting methods, such as inventory valuation and depreciation techniques, which impact reported earnings. Additionally, decisions over working capital can influence cost allocations and net revenues, while choices regarding discretionary expenses, such as research and development, advertising, and maintenance, can shift earnings between periods. Finally, managers can also decide on transactions that can influence specific financial outcomes, such as mergers, leases, or equity investments (Healy and Wahlen, 1998).

The effects of earnings management are complex. When used opportunistically, it can reduce transparency and mislead stakeholders, particularly when managers exploit private information that is unavailable to outsiders. However, in some cases, accounting discretion can be beneficial by making financial reports more informative, particularly when it helps overcome rigidities in

accounting standards. For example, firms may deliberately understate earnings as a signal of strong future performance. Earnings management presents both risks and benefits. While it can distort financial information and lead to misallocation of resources, it can also improve the informational quality of financial reports. Therefore, regulators must carefully evaluate when allowing managerial discretion enhances the usefulness of financial reporting and when it is detrimental (Healy and Wahlen, 1998).

Earnings management can generally be categorized into accrual-based earnings management and real earnings management. Real earnings management involves modifying actual business activities to impact financial results, such as adjusting production levels or discretionary expenses. In contrast, accrual-based earnings management manipulates accounting numbers through estimates and policy choices without changing real business operations (Kothari et al., 2005). Accrual-based earnings management primarily seeks to distinguish between normal accruals, which result from ordinary business operations, and discretionary accruals which reflect managerial intervention to influence earnings (Jones, 1991). Previous studies have generally found accrual-based models to be more feasible to estimate and detect compared to real earnings management.

When examining earnings management results, both signed and absolute values of discretionary accruals can be considered. The absolute values capture the magnitude of earnings management, regardless of direction, and serve as an indicator of the overall intensity of accrual-based manipulations. In contrast, the signed values of discretionary accruals indicate the direction of the manipulation. Positive signed values suggest income-increasing activities, while negative values imply efforts to decrease income. Evaluating both measures provides a comprehensive understanding of a firm's earnings management (Jones, 1991).

2.1.2 Detecting Earnings Management

To measure accrual-based earnings management, it is common to use models that aim to distinguish between normal accruals and discretionary accruals. Normal accruals, meaning non-discretionary accruals, arise from routine operations and are imposed through accounting regulations, while discretionary accruals may indicate managerial manipulation. This component gives managers some flexibility within the accounting regulations and can be used to adjust a firm's financial statements.

There are several models that have been developed to estimate discretionary components of reported earnings. More simple approaches treat all accruals as discretionary, whereas more sophisticated models attempt to separate discretionary and non-discretionary accruals (Dechow et al., 1995). One of the foundational models in this area is the Jones Model, introduced in 1991, which has been widely adopted in research investigating accrual-based earnings management. However, the model assumes that all revenue is non-discretionary, meaning it will remove part of the managed earnings from the discretionary accrual proxy, and thus not effectively detect earnings manipulation involving revenue recognition. This limitation can cause Type II errors, where true earnings manipulation goes undetected (Dechow et al., 1995).

In order to address this, Dechow et al. (1995) introduced a modified version of the Jones Model that adjusts for changes in receivables for the same period that change in revenues is recognized. This is the only adjustment relative to the original model. By excluding credit sales from revenue adjustments, the model reduces the likelihood of misclassifying manipulated revenues as normal. Credit sales are easier to manipulate, and managers can use them to inflate earnings without real cash flow (Dechow et al., 1995). This refinement improves detection of discretionary accruals and reduces false negatives. Dechow et al. (1995) finds that the Modified Jones Model generates the fewer Type II errors compared to the Jones Model. However, despite the improvement, the model may still suffer from Type I errors, falsely identifying earnings management, particularly when firms experience unusually strong or weak performance.

According to Kothari et al. (2005) “accruals of firms that have experienced unusual performance are expected to be systematically non-zero”. This implies that if a company performs extremely well or poorly, its accruals are likely to be consistently biased – inflated or deflated – not just due to manipulation, but because of performance itself. If accruals naturally move with performance, then simply observing high accruals does not necessarily mean the firm is managing earnings. This correlation affects the results when trying to isolate true earnings manipulation. Standard models like the Jones Model or Modified Jones Model do not control for how performance affects accruals. Therefore, these models will misinterpret performance-driven accruals as earnings management, leading to false positives, meaning Type I errors (Kothari et al., 2005).

To correct for this issue, Kothari et al. (2005) suggested a performance-matched model. This model incorporates return on assets as a control variable, allowing the model to account for the impact of firm performance on accruals. While the Modified Jones Model adjusts for revenue-

based discretion, it does not account for variations in profitability. On the other hand, the Kothari Model matches firms with similar financial performance, aiming to improve the detection of earnings management. In samples where performance varies significantly across firms, performance matching is particularly important.

2.2 Agency Theory and Information Asymmetry

2.2.1 Introduction to Agency Theory

Jensen and Meckling (1976) define an agency relationship as a contract in which one party, the principal, delegates decision-making authority to another party, the agent, to act some service on their behalf. A common example is the relationship between shareholders (principals) and the CEO (agent). This situation becomes problematic when both parties are utility maximizers, and their personal interests do not align. Hence, the agent may prioritize personal interests over those of the principal (Jensen and Meckling, 1976). This principal-agent conflict creates incentives for earnings manipulation, particularly when the manager's compensation is tied to financial performance or their ability to meet earnings targets. Since managers are the agent in this relationship, they may engage in earnings management to enhance their reported performance or maximize personal financial gains, potentially at the expense of shareholder value.

2.2.2 Information Asymmetry and its Impact on Financial Reporting

Akerlof (1970) defines information asymmetry as situations where one party has superior knowledge compared to another in a transaction. Information asymmetry occurs when managers have more information about the company's financial position than external stakeholders. As a result, Healy and Palepu (2001) argue that investors must rely on publicly available disclosures, which may be incomplete, outdated, or selectively presented to shape market perceptions which is an issue in financial markets.

The presence of information asymmetry poses a challenge to the Efficient Market Hypothesis, which assumes that asset prices fully reflect all available information (Fama, 1970). When key financial details are unevenly distributed, market mispricing becomes more common. Investors who lack access to the same level of information about the company as managers do, may

perceive higher risk, leading them to demand a higher risk premium, ultimately raising the cost of capital for firms (Easley and O'Hara, 2005).

Earnings management is more common in environments where information asymmetry is high, as managers can exploit their informational advantage to manipulate financial reports. Over time, this can weaken investor confidence and reduce trust in financial markets (Healy and Wahlen, 1998). If investors suspect financial misrepresentation, market participation may decline, and volatility may rise. This can mean that firms may face higher financing costs due to increased skepticism about reported financials (Easley and O'Hara, 2005).

2.2.3 Incentives for Earnings Management

There is a broad agreement that a company's financial performance is one of the key indicators of its overall health (Jones, 1991). In Europe, research has shown that annual reports are the most important source of information (Cascino et al., 2013). As a result, managers' compensation is often closely tied to financial metrics such as earnings and the ability to meet analyst forecasts (Payne and Robb, 2000). This connection creates strong incentives for managers to manipulate earnings to meet financial targets that influence their personal compensation.

Earnings have been found to be more important than cash flows when it comes to both external stakeholders and managerial incentives. In a survey of over 400 executives and financial officers, Graham, Harvey and Rajgopal (2005) discovered that earnings, rather than cash flows, were considered the most important metric for stakeholders. This focus on earnings rather than cash flows creates an environment where managers are incentivized to engage in earnings management, using the inherent flexibility in accounting standards to manipulate reported earnings without affecting actual cash flows (Jones, 1991).

However, while accrual-based earnings may be available to managers, it tends to be effective only in the short term. As Jones (1991) pointed out, "since the sum of a firm's income over all years must equal the sum of its cash flows, managers must at some point in time reverse any 'excessive' earnings-decreasing (or increasing) accruals made in the past". This need for reversal suggests that relying on accrual-based earnings management for extended periods is neither practical nor sustainable.

2.2.4 The Role of Auditors in Reducing Information Asymmetry

External auditors play a critical role in promoting financial transparency by independently evaluating a company's financial statements. Firms which are required to have an external auditor, such as publicly listed firms, need to have a certified public accountant (Talenom, 2025). Carmichael (1977) defines the auditor's role as: "… the auditor's job is to enforce standards for the preparation and presentation of accounting information. He does so by making an objective appraisal of management's judgments in applying those standards and by monitoring management's performance of its stewardship responsibility". Therefore, auditors serve as a third-party to the agent and principal and reduces the information asymmetry between them. However, factors like auditor independence risk and client pressure can weaken their effectiveness in mitigating earnings management.

Mandatory audit rotation is implemented based on the concern that auditors may become "too familiar" with management as audit firm or audit partner tenure increases, potentially comprising their independence and objectivity. Regulators argue that long audit tenure increases the risk of auditors accommodating their clients' accounting choices to maintain good relationships and retain business. However, opponents of mandatory auditor rotation suggest that longer audit tenure enhances audit quality, as auditors gain deeper knowledge of the client's operations and financial reporting, enabling them to detect earnings management more accurately (Chen et al., 2008).

2.3 Previous research

Johnson et al. (2002) examine the relationship between audit firm tenure and financial reporting quality. They categorize audit firm tenure into three groups: short (two to three years), medium (four to eight years), and long (nine or more years). Using a matched sample of clients using the six largest audit firms, they assess the quality of financial reports based on two key measures: (1) the absolute value of unexpected accruals and (2) the persistence of reported accruals in future earnings. Their findings suggest that short audit firm tenure, using medium tenure as benchmark, is associated with larger absolute discretionary accruals and lower accrual persistence, indicating lower financial reporting quality. In contrast, they find no statistically significant differences between firms with medium and long audit tenures, implying that extended auditor relationships do not lead to a decline in financial reporting quality.

Myers et al. (2003) examine the relationship between audit firm tenure and earnings quality, motivated by the debate on mandatory auditor rotation. They assess earnings quality using two measures of accruals: discretionary accruals and current accruals. Their findings indicate that the magnitude of both discretionary and current accruals declines as audit firm tenure increases. Furthermore, they observe that longer audit tenure is associated with less extreme income-increasing and income-decreasing accruals, suggesting that extended auditor-client relationships limit earnings management. Contrary to concerns that prolonged auditor tenure comprises auditor quality, their results suggest that longer tenure enhances quality by constraining management's ability to manipulate financial reports.

Carey and Simnett (2006) explore the impact of individual audit partner tenure on audit quality in the Australian context, a setting where mandatory firm rotation was not in effect at the time. They identify three proxies for audit quality. The first proxy being the likelihood of issuing going-concern opinions for financially distressed companies, the second being the level of abnormal working capital accruals, serving as a measure of earnings management, and the third proxy being beating or missing earnings benchmarks. Their key findings include that long audit partner tenure, which they defined as being greater than five years, is associated with a decline in audit quality. This was evidenced through increased levels of accruals, suggesting a higher likelihood of earnings management. Shorter tenure appears to coincide with higher audit quality. They find evidence that long tenure negatively affects the likelihood of issuing a going-concern opinion. These results imply that the auditor-client familiarity that comes with long tenure may compromise auditor independence and skepticism, supporting arguments for the periodic rotation of audit partners.

Chi and Huang (2005) assess the implications of mandatory auditor rotation by analyzing how both audit firm and audit partner tenure influence earnings quality, using discretionary accruals as a proxy. Their findings indicate that a moderate level of familiarity enhances the quality of earnings, as auditors become knowledgeable about their clients over time. However, excessive familiarity results in lower earnings quality, as it comprises auditor independence and reduces earnings quality. They find the cut-off point of positive and negative effects of familiarity to be around five years. A key insight from their research is that audit firm tenure plays a more significant role in maintaining earnings quality than audit partner tenure. This is due to situations when only the audit partner changes within the same firm, client-specific knowledge is usually retained and transferred internally, allowing the audit team to maintain continuity and

insight. In contrast, switching audit firms disrupts the knowledge transfer, effectively restarting the auditor's learning curve and reducing the quality of oversight in the short term. Furthermore, Chi and Huang (2005) find that Big 5 auditors, EY, PwC, KPMG, Deloitte, and formerly Arthur Andersen, tend to acquire client-specific knowledge more efficiently in the early stages of engagement. This suggests that firms audited by non-Big 5 auditors may face greater risks to earnings quality when subject to mandatory rotation, as the learning curve is steeper and slower.

Salehi et al. (2022) studied the effect of mandatory audit firm rotation on earnings management and audit fees. Using the agency theory, the study described how managers, driven by self-interest, may prioritize their own benefits over the shareholders' wealth maximization, leading to increased information asymmetry between them. Independent auditing is thus positioned as an important corporate governance mechanism that enables shareholders to monitor management's activities effectively. The authors see auditors as agents acting on behalf of the principals. They researched if mandatory audit rotation can improve the auditing quality in a financially distressed situation, where managers are more likely to commit financial fraud. A key argument presented in the study is that audit firm rotation strengthens auditors' ability to resist pressure from corporate executives. Long-term auditor-client relationships may lead to a situation that undermines the auditors' independence and neutrality due to excessive familiarity. However, the study also references research suggesting that audit firm rotation decreases audit quality, as newly appointed auditors may face challenges in detecting earnings manipulation due to a lack of familiarity with the client's financial practices. Their findings show that mandatory audit rotation significantly increases accruals-based earnings management and is consistent with their hypothesis that the mandatory auditors' rotation is associated with enhanced accounting manipulation.

3. Method

This section presents the methodology used to investigate the relationship between audit tenure and earnings management. We begin by stating our hypothesis, followed by outlining the scope of our work, sample selection, data sourcing, and industry classifications. Then follows a description of the models applied to estimate discretionary accruals which serve as our proxy for earnings management. The section then details our chosen analytical approach and

introduces the main regression model, along with an alternative version designed to capture possible non-linear effects over the period of audit tenure.

3.1 Hypothesis

Prior research has found that short audit tenure is associated with lower earnings quality, or more earnings management (Johnson et al., 2003; Myers et al., 2003). This raises the question of why auditor rotation is mandatory if short tenure potentially reduces financial reporting quality. Even though regulations on auditor rotations aim to reduce earnings management, previous research implies that in situations where a company has recently switched auditors, earnings management might increase (Salehi et al., 2022). Therefore, our research question is formulated to explore if external audit partner tenure affects the level of earnings management during the initial five years of the auditor-client relationship? We will use accrual-based earnings management and use discretionary accruals as a proxy for earnings management.

Earnings management incentives vary across firms, but managers may be particularly inclined to manipulate earnings when a new auditor is appointed. A newly engaged auditor may lack sufficient client-specific knowledge, making it more challenging to detect earnings management early in the engagement. Given this potential window of opportunity, we expect managers to take advantage of an auditor's limited familiarity with the firm's operations to engage in earnings management. Thus, we propose to test the following hypothesis:

H1: There is a negative association between audit partner tenure and earnings management in the first five years of tenure.

We will investigate whether there is evidence of accrual-based earnings management in the first years after an auditor rotation in a Swedish setting. We will use the Modified Jones Model and Kothari Model to estimate the accrual-based earnings management.

3.2 Scope of Work

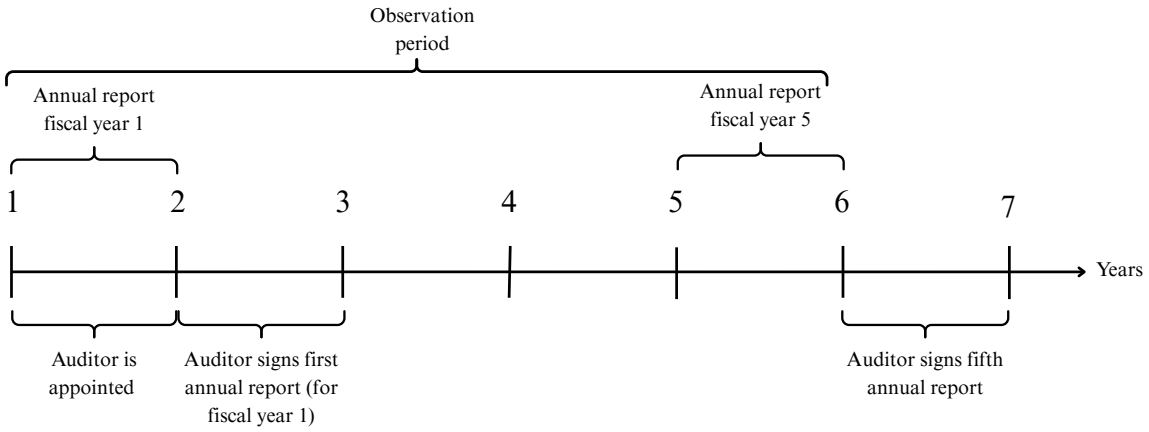
This study examines the relationship between external audit tenure and earnings management among listed companies in Sweden. We analyze firms with observations over five years during a time frame of ten years between January 1, 2014, and December 31, 2023, which enables us to collect a large dataset. While a longer study period increases the number of usable

observations, it also introduces the risk of structural shifts, such as implementation of new accounting standards and the economic effects of the COVID-19 pandemic, potentially influencing financial reporting practices. To mitigate such time-specific influences, we include year fixed effects in our regression models.

In Sweden, national legislation imposes a maximum term of seven consecutive years for the same individual auditor at a particular company, in line with the European Union audit rotation rule. However, following the amendment introduced in proposition 2009/10:204 to the Swedish Companies Act (2005:551), effective from 2010, an external audit partner can be appointed for a maximum period of four years per annual general meeting, unless otherwise specified in the company's articles of association (Sveriges Riksdag, 2005). Given this regulatory context, our study focuses on the first five years following an auditor change. This period reflects a period in which the auditor must have been reappointed at least once and allows us to capture a larger sample and the immediate effects of auditor rotation. Although Swedish regulations allow audit term of up to seven consecutive years, many companies have shorter auditor relationships. Including longer tenures would have reduced the number of usable observations, weakening the statistical power of our findings.

We define audit tenure beginning with year 1, which represents the first annual report signed by the newly appointed auditor. Although the auditor is typically appointed during the annual general meeting in year 1, the first signed audit report covers that same fiscal year and is usually signed and published in year 2. Therefore, year 1 marks the beginning of the auditor's engagement, and we treat this as the first year of tenure. In line with our hypothesis, we expect that the auditor's ability to detect and constrain earnings management improves over time, as familiarity with the client increases. As such, we examine audit tenure from year 1 through year 5, where year 5 is the fifth consecutive annual report signed by the same auditor. See Figure 1 for a visual timeline of how audit tenure is defined in our study.

Figure 1: Audit Tenure Timeline



3.3 Data sourcing

Data necessary to estimate earnings management was sourced from Retriever : Business. Data for cash flow from operating activities was manually obtained from the financial reports of each company in the final sample. Sector classifications were also obtained from Retriever : Business.

3.4 Sample Selection

The original sample that we exported from Retriever consisted of 728 individual companies over a timeframe spanning from 2014 to 2023, resulting in 7280 possible observations. In line with previous research, firms in the financial and real estate sectors have been excluded due to their accounting principles differing significantly from the rest of the sample (Roosenboom et al., 2013; Kalyta, 2009; Pourciau, 1993; Barton and Simko, 2002). Additionally, data from the year 2013 was also downloaded to calculate relevant variables such as return on assets and growth. Then, observations where net income was negative or zero were removed. Additionally, firms missing data for more than 20 percent of the variables of interest were removed from the sample. Thereafter, the dataset was filtered to only contain observations with a complete tenure of five years, meaning that they had to have the same auditor continuously for five fiscal years during our observation period, leaving us with 177 companies. When manually entering cash flow from operations to all remaining observations, more incorrect data was detected, removing nine companies. Then four companies were dropped when transforming our companies into industry groups. 41 companies were removed as they were alone in their industry, leaving us

with a final sample size of 123 companies, giving us 615 observations. See Table 1 for our sample size evolvement. Among our 123 companies we have 21 industry groups, as seen in Appendix A.

Table 1: Sample Size

Criteria	*Adjustments*	Number of companies
Initial sample		728
Missing/invalid financial data*	*-551*	177
Erroneous data**	*-9*	168
Additional data issues	*-4*	164
Exclusion of industries with fewer than two firms	*-41*	123
Final sample		**123**

3.5 Industry Classifications

To capture relevant results that account for both industry and time differences, we conduct a panel data approach. Since accounting practices can differ between industries, it is important to account for this when running our regressions (Messner, 2016). We use the European standard of Nomenclature of Economic Activities (NACE) codes for industry classification. This allows us to group our observations with closely comparable companies, ensuring that differing accounting practices across industries plays a minimal role in our regression results.

3.6 Models and variables

To measure accrual-based earnings management, we apply both the Modified Jones Model and the Kothari Model, consistent with previous research. In our study, discretionary accruals serve as a proxy for earnings management. We follow previous research in focusing on accrual-based earnings management due to greater feasibility in detecting earnings management. To estimate discretionary accruals, we first measure total accruals, which can be decomposed into a discretionary and non-discretionary component. Therefore, by removing non-discretionary

* Negative or zero revenue and missing data removal and removing companies' years that are not 0 to 5
** Incorrect data or companies that make R^2 equal 1.

accruals from the observed level of total accruals, we obtain an estimate of discretionary accruals (Dechow et al., 1995). The calculations are as follows:

$$Total\ Accruals = Net\ Income - Cash\ Flow\ from\ Operations \tag{1}$$

$$Discretionary\ Accruals = Total\ Accruals - Non - discretionary\ Accruals \tag{2}$$

Non-discretionary accruals reflect expected accounting adjustments, such as depreciation or change in working capital, that naturally occur as part of business operations. Hence, the non-discretionary component is not influenced by managerial judgment or manipulation and should be deducted from total accruals (Dechow et al., 1995). In the following sections we present how to estimate non-discretionary accruals and discretionary accruals.

3.6.1 Modified Jones Model

The first model we use to estimate the discretionary accruals is the Modified Jones Model, developed by Dechow et al. (1995) as an adjustment of the original Jones Model. This modification aims to correct for the original model's tendency to mismeasure discretionary accruals, particularly when firms exercise discretion over revenues. In this model, total accruals are regressed on firm characteristics that are expected to generate non-discretionary accruals, where the residuals from the regression are interpreted as firm-specific discretionary accruals, which serves as a proxy for earnings management. Total accruals are scaled by lagged total assets, as shown below:

$$\frac{TA_{it}}{Assets_{it-i}} = \underbrace{\beta_1\left(\frac{1}{Assets_{it-1}}\right) + \beta_2\left(\frac{\Delta REV_{it} - \Delta REC_{it}}{Assets_{it-1}}\right) + \beta_3\left(\frac{PPE_{it}}{Assets_{it-1}}\right)}_{\frac{\text{Non - discretionary accruals}}{Assets_{t-1}}} + \underbrace{\epsilon_{it}}_{\frac{\text{Discretionary accruals}}{Assets_{t-1}}} \tag{3}$$

Where TA_{it} is total accruals for firm *i* in year *t*, calculated as the difference between net income before extraordinary items and cash flow from operations (Equation 1). $Assets_{it-1}$ denotes total assets of firm *i* at the beginning of year *t*. ΔREV_{it} and ΔREC_{it} capture changes in revenue and receivables, respectively, in year *t*. PPE_t is the firm's gross property, plant, and equipment in year *t*. The residuals ϵ_{it} from this model serve as the firm-specific proxy for discretionary

accruals, DA_{it}. This approach is consistent with prior research, as residuals are commonly used as a measure of accrual-based earnings management (Jones, 1991; Dechow et al., 1995). The relationship is defined as:

$$\epsilon_{it} = \frac{DA_{it}}{Assets_{it-1}} \tag{4}$$

Thus, earnings management, EM_{it}, is estimated as:

$$EM_{it} = \frac{DA_{it}}{Assets_{it-1}} = \frac{TA_{it}}{Assets_{it-i}} - \frac{NDA_{it}}{Assets_{it-i}} \tag{5}$$

3.6.2 Kothari Model

The Kothari Model, developed by Kothari et al. (2005), builds upon the Modified Jones Model where return on assets, *ROA*, is added as an additional independent variable. Dechow et al. (1995) examined the specification and power of various discretionary accrual models, but did not account for performance-matching models. Kothari et al. (2005) addressed this limitation by adjusting for performance-related variations that can affect accruals. This is particularly important since commonly used discretionary accrual models, such as the Jones and Modified Jones models, tend to be mis-specified when applied to firms experiencing extreme performance. This way, the model allows for a more precise distinction between non-discretionary accruals and discretionary accruals. The Kothari Model is expressed as follows:

$$\frac{TA_{it}}{Assets_{it-1}} = \beta_0 + \beta_1 \frac{1}{Assets_{it-1}} + \beta_2 \frac{(\Delta REV_{it} - \Delta REC_{it})}{Assets_{it-1}} + \beta_3 \frac{PPE_{it}}{Assets_{it-1}} + \beta_4 ROA_{it} + \epsilon_{it} \tag{6}$$

This model includes a constant term, unlike previous models, to further control for heteroskedasticity. Furthermore, the inclusion of a constant mitigates issues arising from an omitted size variable and ensures that accrual measures are more symmetric, thereby improving the power of statistical tests (Kothari et al., 2005). By adjusting for differences in ROA, this model enhances the estimation of discretionary accruals.

3.7 Panel Data Approach

When analyzing earnings management using the Modified Jones Model and the Kothari Model, it is important to track a company's accruals over time. While some studies, such as Jones (1991), initially employed a time-series approach, this method has been criticized due to its reliance on extensive firm-level historical data, which may not always be available. More recent studies have adopted a cross-sectional approach, where firms within the same industry are analyzed annually to estimate discretionary accruals, as recommended by Kothari et al. (2005). However, the cross-sectional approach does not capture firm-specific changes over time and may introduce estimation bias due to variations in firms' business models and financial policies.

Our dataset is structured as an unbalanced panel, as firms enter the sample in different calendar years depending on when an auditor change occurs. However, each firm is observed for a complete set of audit tenure years 1 to 5, making the panel balanced in terms of tenure structure, though not in time.

This allows us to capture both cross-sectional and time-series variations across firms and tenure years. By using firm-year observations, panel data enables us to control for unobserved firm-specific heterogeneity, such as management style or corporate governance, which could influence earnings management practices. Furthermore, panel data allows us to examine how earnings management behaviors evolve after an external auditor change, providing stronger insights into the relationship between audit tenure and financial reporting quality.

3.8 Main Regression

3.8.1 Main Regression Model

A linear regression model is used to determine whether our independent variable has a significant impact on our dependent variable. To test our hypothesis, we follow previous literature and use the following equation (Carey and Simnett, 2006; Chen et al., 2008; Wang et al., 2015):

$$EM = \alpha + \beta_1 AuditTenure + \beta_2 Big4 + \beta_3 Size + \beta_4 ROA + \beta_5 Growth + \beta_6 Leverage + \beta_7 Loss + YearFixedEffect + FirmFixedEffect + \varepsilon \quad (7)$$

Where EM is discretionary accruals, $AuditTenure$ is the tenure of the external audit partner measured in years, $Big4$ is a dummy variable, taking the value 1 if the audit firm is one of big 4 companies (EY, PwC, KPMG, or Deloitte), $Size$ is the natural logarithm of a company's total assets, ROA is the return on assets, (measured as earnings before interest and taxes divided by net income), $Growth$ is the year over year change in net sales, $Leverage$ is the ratio of total assets to total liabilities, and $Loss$ is a dummy variable taking the value 1 if the company reported a loss in the current fiscal year.

3.8.2 Dependent Variable and Winsorisation

The dependent variable in our study is earnings management, *EM*, measured using discretionary accruals estimated through the residuals from the Modified Jones Model and the Kothari Model. Since our research focuses on the level of earnings management rather than its direction, we use the absolute values of discretionary accruals. This approach allows us to assess the intensity of earnings manipulation, regardless of whether firms are increasing or decreasing reported earnings. The signed values, which reflect the direction of manipulation, are therefore not relevant to our research question and are excluded from the analysis. To minimize the influence of extreme values, we apply winsorisation at the 5th and 95th percentiles, ensuring that outliers do not disproportionately affect our regression results.

3.8.3 Main Independent Variable

The main independent variable in our study is *AuditTenure*, defined as the external audit partner's tenure. Year 1 denotes the first year following a recorded change in auditor, meaning that the annual report for tenure year 1 is the first signed by the newly appointed auditor. Each subsequent year increases the tenure by one, up to year 5 in our sample. This variable, which is an ordinal variable, captures the duration of the auditor-client relationship at the individual partner level.

While some previous studies examine audit firm tenure, we focus on audit partner tenure because it more directly reflects the person responsible for evaluating discretionary accounting choices, such as accruals. We argue that focusing on the audit partner is theoretically more relevant in the context of earnings management, as it is the individual partner who exercises professional judgment when assessing accruals at discretion. This aligns with the structure of

Sweden's audit regulation, where partner rotation is mandated on a shorter basis than firm tenure, reflecting the regulator's view that audit quality is most sensitive to the individual auditor's independence and familiarity with the client.

3.8.4 Control Variables

Big4 is a dummy variable that takes the value of 1 if a company is audited by one of the four largest international auditing firms: PwC, KPMG, Deloitte, and EY (Kenton, 2024). These firms are generally associated with higher audit quality. Research by Chi and Huang (2005) suggests that large audit firms (formerly the Big 5) tend to acquire firm-specific knowledge more efficiently than smaller firms, which enhances their ability to detect irregularities. Therefore, we expect a negative association between *Big4* and earnings management.

Size is measured as the natural logarithm of the closing book value of total assets. The relationship between firm size and earnings management is complex. Kim et al. (2003) show that while firms of all sizes attempt to avoid reporting small losses or earnings declines, smaller firms are more likely to engage in earnings manipulation to avoid reporting losses. In contrast, larger firms often tend to manage earnings more aggressively to avoid reporting decreases in profit. Furthermore, larger firms are more likely to have stronger internal controls and are subject to greater public scrutiny, which can reduce information asymmetry and discourage earnings manipulation. They are also more likely to be audited by Big 4 firms and may avoid earnings management to protect their reputations (Meek et al., 2007). However, larger firms often face stronger pressure to meet market expectations, which may incentivize earnings management (Jensen and Meckling, 1976; Barton and Simko, 2002; Bassiouny et al., 2016).

ROA is the return on assets and is calculated by dividing earnings before interest and taxes by average total assets. It serves as a performance measure, with higher values indicating stronger financial reports. Lee et al. (2006) find that firms with stronger earnings performance tend to exhibit higher earnings quality. Conversely, low-performing firms are more likely to engage in earnings manipulation to offset poor results. Including return on assets in the model helps isolate earnings management from performance effects. Based on these findings, we expect a negative relationship between *ROA* and earnings management.

Growth is the year over year change in net sales. Rapidly growing firms may face incentives to sustain high performance or meet investor expectations, which can increase pressure to

manipulate earnings. Lee et al. (2006) find a negative relationship between earnings quality and firm growth. Therefore, a positive association between *Growth* and earnings management is anticipated since earnings management and earnings quality have a negative relationship.

Leverage is defined as the ratio of total assets to total liabilities in our study, which is the inverse of the traditional leverage ratio. In our model, a lower value indicates a higher degree of debt financing. Fung and Goodwin (2013) found that short-term debt increases the likelihood of accrual-based earnings management. As managers aim to meet covenant requirements and avoid costly renegotiations, they may choose accounting treatments that increase reported earnings (Bassiouny et al., 2016). Thus, while a positive relationship is expected in the traditional definition of leverage, our inverse formulation implies a negative association between our leverage variable and earnings management.

Loss is a dummy variable that equals 1 if the company reported a net loss the current fiscal year. Firms anticipating reporting a loss in the current fiscal year may face stronger incentives to manage earnings to return to profitability. Burgstahler and Dichev (1997) find that firms actively manage earnings to avoid reporting losses or earnings decreases. Heidarpoor et al. (2014) suggests that firms that have experienced losses in the prior year are more likely to use discretionary accruals to shift from negative to positive reported earnings. Therefore, a positive relationship is anticipated between current year losses and earnings management.

To control for factors that do not stay constant over time within firms and for time-specific external effects, our regression models include firm fixed effects and year fixed effects, reducing the risk of omitted variable bias and improving the robustness of our estimates.

3.9 Alternative Regression Model: Tenure Indicator

While the linear regression model assumes a continuous and linear relationship between audit tenure and earnings management, this assumption may not fully capture how the effect of tenure develops over time. Prior research of audit tenure on earnings quality may vary at different stages of the engagement (Carey and Simnett, 2006; Chi and Huang, 2005). To capture these potential non-linear effects and identify whether certain years of tenure are particularly associated with higher or lower earnings management, we construct an indicator model for audit tenure. Specifically, we include dummy variables for each year of tenure from year 2 through year 5, allowing us to observe how earnings management behavior evolves in each of the initial

years after an auditor change. We omit year 1 as a dummy variable from the regression and include an intercept term, meaning that the intercept captures the effect of year 1 and serves as the reference category. The coefficients for the remaining tenure years are interpreted relative to year 1. This approach allows for more flexible estimation, as it does not impose a fixed functional form on the relationship between tenure and earnings management. The regression model is as follows:

$$EM = \alpha + \beta_1 AuditTenure_2 + \beta_2 AuditTenure_3 + \beta_3 AuditTenure_4 + \beta_4 AuditTenure_5 + \beta_5 Big4 + \beta_6 Size + \beta_7 ROA + \beta_8 Growth + \beta_9 Leverage + \beta_{10} Loss + YearFixedEffect + FirmFixedEffect + \varepsilon \quad (8)$$

By comparing the coefficients of these year-specific indicators, we can better assess whether certain phases of the auditor-client relationship are more prone to earnings manipulation, giving us a better understanding of the dynamics of audit tenure under Sweden's mandatory audit rotation regulation.

4. Results

In this section we present our findings regarding earnings management over an auditor's tenure with a company. This section also includes descriptive statistics, robustness tests, and the results of the regression tests of our hypothesis.

4.1 Descriptive Statistics

As shown in Table 3, the Modified Jones Model and Kothari Model exhibit similar minimum and maximum values, as well as comparable standard deviations. In both models, the mean and median are noticeably closer to the minimum than the maximum value, indicating a positively skewed distribution. This suggests that most firms report relatively low levels of discretionary accruals, while a smaller number of firms exhibit substantially higher values, influencing the average upward.

When looking at the control variables, such as Growth, Leverage, and ROA, we clearly see that there are large outliers and that the control variables are positively skewed. To ensure the

robustness of our results, we re-estimated our regression models after applying winsorisation at the 5th and 95th percentiles to these control variables as well. The results remained materially unchanged, indicating that our findings are not driven by extreme observations in the control variables. Therefore, we chose to report the results based on winsorisation of the dependent variable only, to maintain the full variation in our explanatory variables while still controlling for influential outliers in the outcome.

The other control variables, Big 4 and Loss, are dummy variables and are therefore naturally bounded, eliminating the presence of outliers. Additionally, Size is already transformed using the natural logarithm, which reduces skewness and eliminates the need for winsorisation.

Table 2: Descriptive Statistics

Variable	Min	Median	Mean	Max	SD
Earnings Management: Modified Jones Model	0.006	0.064	0.096	0.355	0.093
Earnings Management: Kothari Model	0.005	0.092	0.064	0.290	0.083
AuditTenure	1.000	3.000	3.000	5.000	1.414
Size	7.946	12.192	12.641	20.260	2.437
Big 4	0.000	1.000	0.756	1.000	0.430
Growth	0.135	1.243	1.574	7.251	1.213
Leverage	0.232	2.295	3.952	32.769	4.297
Loss	0.000	1.000	0.517	1.000	0.500
ROA	-2.456	-0.011	-0.170	0.639	0.385

4.2 Correlation Matrix and Multicollinearity

Table 3 shows a Pearson correlation matrix displaying the correlation between our dependent variable, earnings management as proxied by either the Kothari Model or Modified Jones Model, and our independent variables. We discover high correlation between our two proxies for earnings management, which is expected as both models approximate earnings management similarly with only slight differences. We observe moderately high correlation between ROA and Size, Loss and ROA, and Leverage and Loss. A strong negative correlation between Loss and ROA is expected, as reporting a negative net income is likely to result in negative return on

assets. Similarly, the high positive correlation between Loss and Size could be explained if it is more likely that firms with high losses are also smaller. While some correlations between earnings management and our control variables align with our expectations, these relationships are explored in more detail in the analysis section.

In Appendix B we present the results of a variance inflation factor (VIF) analysis on our variables to further examine the possibility of multicollinearity. The resulting values from these tests are low and do not indicate the presence of multicollinearity. This means that the confidence intervals in the whole models should not be inflated by multicollinearity.

Table 3: Pearson Correlation Matrix

	Modified Jones Model	*Kothari Model*	*Tenure*	*Big 4*	*Size*	*ROA*	*Growth*	*Leverage*	*Loss*
Modified Jones Model	1								
Kothari Model	0.77***	1							
AuditTenure	-0.03	-0.05	1						
Big 4	-0.12***	-0.11***	0.00	1					
Size	-0.25***	-0.24***	0.10**	0.31***	1				
ROA	-0.24***	-0.22***	0.02	0.19***	0.56***	1			
Growth	0.16***	0.17***	-0.08*	-0.03	-0.09**	-0.03	1		
Leverage	-0.03	0.00	-0.03	-0.09**	-0.24***	-0.16***	0.09**	1	
Loss	0.13***	0.15***	-0.04	-0.19***	-0.61***	-0.70***	0.08*	0.32***	1

*Significance level: *p<0.1, **p<0.05, ***p<0.01*

4.3 Regression results

Our main regression model tests our hypothesis of whether audit tenure affects earnings management in absolute terms. The result of our regression is presented in Table 4. Both of the regressions, which run on the proxies obtained through the Modified Jones Model and Kothari Model, display similarities in regards to the coefficient and significance of audit tenure. The coefficient is negative and significant when using the Modified Jones Model. However, when examining the Kothari Model, the regression is only approaching significance at the 10% level.

The results of our alternative regression model with tenure indicators are presented in Table 5. The regression based on the Modified Jones Model display negative and significant coefficients for all four years, with an increase in the absolute value of the magnitude of the negative coefficient observed in years 4 and 5. Regarding the Kothari Model, only tenure indicator for year 4 is significant.

Regarding our control variables; Big 4, Size, ROA, and Loss show significant results and noteworthy coefficients for the Modified Jones Model. For the Kothari Model, no control variables with a noteworthy coefficient are significant. The explanatory power of the regressions ranges from 22.2 percent to 24.6 percent.

Table 4: Main Linear Regression Model Results [robust standard errors p-value]

	Modified Jones Model	**Kothari Model**
Audit Tenure	-0.021***	-0.011
	[0.009]	[0.120]
Big 4	-0.219***	-0.098
	[0.008]	[0.142]
Size	0.022*	0.006
	[0.060]	[0.524]
ROA	-0.105***	-0.020
	[0.000]	[0.547]
Growth	0.002***	0.002***
	[0.000]	[0.001]
Leverage	-0.001	-0.002*
	[0.638]	[0.073]
Loss	-0.045**	-0.015
	[0.030]	[0.322]
Year Fixed Effect	YES	YES
Firm Fixed Effect	YES	YES
Adjusted R^2	0.220	0.241
F-Statistic	2.249***	2.408***

*Significance level: *p<0.1, **p<0.05, ***p<0.01*

Table 5: Audit Tenure Indicator Regression Model Results [robust standard errors p-value]

	Modified Jones Model	**Kothari Model**
Audit Tenure year 2	-0.028**	-0.005
	[0.022]	[0.678]
Audit Tenure year 3	-0.035**	-0.012
	[0.049]	[0.443]
Audit Tenure year 4	-0.074***	-0.041**
	[0.002]	[0.043]
Audit Tenure year 5	-0.078**	-0.034
	[0.013]	[0.197]
Big 4	-0.220***	-0.101
	[0.007]	[0.132]
Size	0.022*	0.007
	[0.059]	[0.496]
ROA	-0.105***	-0.020
	[0.000]	[0.536]
Growth	0.002***	0.002***
	[0.000]	[0.001]
Leverage	-0.001	-0.002*
	[0.616]	[0.072]
Loss	-0.045**	-0.016
	[0.029]	[0.299]
Year Fixed Effect	YES	YES
Firm Fixed Effect	YES	YES
Adjusted R^2	0.222	0.246
F-Statistic	2.238***	2.417***

*Significance level: *p<0.1, **p<0.05, ***p<0.01*

5. Analysis

In this section, we present our analysis of the results between audit tenure and the level of earnings management. We also discuss the implications of the results, examine the robustness

of our regression models, assess the validity, reliability, and comparability of our findings and the limitations of our study.

5.1 Discussion of Earnings Management and Audit Tenure

Our hypothesis predicts a negative relationship between audit tenure and earnings management, suggesting that as the auditor-client relationship matures, the intensity of earnings manipulation declines. Discretionary accruals are used as the proxy for earnings management in both the Modified Jones Model and the Kothari Model.

In our main regression model, the results support our hypothesis. Audit tenure is negatively associated with earnings management, with the coefficient being statistically significant at the 1% level in the Modified Jones Model and approaching significance at the 10% level in the Kothari Model. This indicates that longer audit partner tenure is linked to reduced discretionary accruals, consistent with prior studies (Myers et al., 2003; Carey and Simnett, 2006; Salehi et al., 2022). The finding supports the view that auditors gain client-specific knowledge over time, enhancing their ability to detect and deter earnings manipulation.

In our alternative regression model, where we introduce indicator variables for audit tenure, the Modified Jones Model reveals a progressive decrease in earnings management over time, with all year-specific coefficients being negative and statistically significant. Notably, the magnitude of the coefficients increases with tenure, suggesting an increased effect of auditor familiarity on audit quality.

The Kothari Model also shows a consistent negative direction of the absolute value of discretionary accruals across all four tenure years, however, only year 4 is statistically significant at the 5% level. This partial significance may be attributed to the model's adjustment for firm performance via return of assets, which can reduce the sensitivity of discretionary accruals to other explanatory variables, including audit tenure.

The divergence in results between the two models may stem from the Kothari Model's control for performance, which can absorb part of the explanatory power of audit tenure if performance and tenure are correlated. However, as seen in Table 3, audit tenure and ROA are not correlated. Additionally, the Modified Jones Model, while more sensitive to revenue manipulation, may overstate significance in high-performance variability settings, something the Kothari Model is explicitly designed to correct.

Taken together, the results from both models provide overall support for our hypothesis, though the strength of the relationship is more robust in the Modified Jones Model. These findings reinforce the importance of considering auditor tenure when assessing financial reporting quality. Our results are consistent with the idea that external auditors serve as a mechanism to reduce information asymmetry between management and stakeholders in the first five years of audit tenure (Carmichael, 1977). From an information asymmetry and an agency theory perspective, our findings suggest that auditors act as a critical third party who limit the ability of managers to exploit their informational advantage. The decline in discretionary accruals over time indicates that auditors become more effective in constraining managerial manipulation. In other words, longer tenure helps reduce the asymmetry of information between agents and principal by strengthening the auditor's ability to detect earnings management.

One implication of our results is that, if it would be found that switching auditor increases earnings management, then our results indicate that a company not performing as desired and wanting to conduct earnings management to meet management's targets, would be incentivized to switch auditor to be able to do more earnings management in the first years of tenure of a new auditor.

5.2 Discussion of Earnings Management and Control Variables

The *Big 4* dummy variable exhibits a negative and statistically significant coefficient in both models, although with varying levels of significance. In the Modified Jones Model, the coefficient is significant at the 1% level, while in the Kothari Model it is approaching significance at the 10% level. This suggests that firms audited by a Big 4 auditor are associated with lower levels of earnings management, which aligns with the findings of Chi and Huang (2005), who argue that larger audit firms acquire client-specific knowledge more efficiently and thus are better equipped to constrain earnings manipulation.

Size is positively associated with earnings management in both models. However, the results are only statistically significant in the Modified Jones Model, at the 10%. The positive coefficient may initially appear counterintuitive, as larger firms often are subject to greater scrutiny from analysts, regulators, and media, which should deter manipulation. However, previous research find that large firms may still engage in earnings management, particularly to meet market expectations (Barton and Simko, 2002).

ROA shows a negative coefficient in both models, consistent with expectations that more profitable firms are less likely to manipulate earnings. However, statistical significance is only found in the Modified Jones Model, at the 1% level. The insignificance in the Kothari Model may reflect the performance adjustment already embedded in that model, which reduces the sensitivity of discretionary accruals to profitability. These results support prior findings suggesting that poorly performing firms have stronger incentives to manage earnings to obscure weak results (Lee et al., 2006).

Growth shows a small but positive and highly significant coefficient in both models, with p-values below 0.01. This suggests that higher growth firms tend to engage in more earnings management, which aligns with the prediction in our main regression model and prior studies (Lee et al., 2006).

Leverage shows a small negative coefficient in both models. The result is only significant in the Kothari Model, at the 10% level. Since a lower value in our definition reflects higher debt reliance, a negative coefficient implies that firms with more debt are more likely to engage in earnings management. This finding is consistent with Fung and Goodwin (2013) that managers facing tight debt covenants may manipulate earnings to meet contractual obligations. The direction of the relationship in our model is therefore logically consistent, though interpretation requires attention to the inverse nature of the leverage measure. However, as the coefficient is very small and not significant in the Modified Jones Model, it is difficult to tell whether this relationship holds.

Loss shows a negative coefficient in both models, with statistical significance only in the Modified Jones Model at the 5% level. The finding is contrary to theoretical expectations, as firms that reported losses in the fiscal year are generally expected to have stronger incentives to manipulate earnings upward to seem less unprofitable (Burgstahler and Dichev, 1997; Heidarpoor et al., 2014). It is also contradicting the correlation between discretionary accruals and Loss in Table 3, as they are positively correlated with high significance. One possible explanation is that firms already experiencing losses may have less flexibility or fewer tools available for manipulation, or that auditors may scrutinize them more closely, reducing their ability to engage in earnings management. However, this result should be interpreted with caution given the lack of significance in the Kothari Model.

5.3 Robustness of Regressions

The adjusted R-squared value of our regressions range from 0.220 to 0.246. We observe slightly higher values when using indicators for tenure instead of a single variable, but the difference is negligible. The explanatory power of the regressions is only moderate. However, the range of adjusted R-squared found in previous literature is large, indicating that the explanatory power can be greatly affected depending on how the regressions and data are set up. We attribute our modest R-squared values due to broad data collection of listed Swedish firms. While our narrow industry classification accounts for industry specific accounting standards, many classifications have few observations. The noisy nature of earnings management approximation ideally requires a large dataset. Increasing the number of observations per industry might have increased the explanatory power. However, there are simply many industry classifications among Swedish listed companies with few companies.

A Breusch-Pagan test was conducted on our regression results. The results of this test, found in Table 6, indicate significant heteroskedasticity. To ensure the validity of our results, the regressions were estimated using a robust standard errors model based on the HC1 heteroskedasticity consistent estimator. The results of the robust standard errors version of our regressions did not significantly change the significance of our coefficients. Our results are presented with the robust standard errors.

Table 6: Breusch-Pagan Test for Heteroskedasticity

Regression Model	Dependent Variable	Model	LM-Statistic	Degrees of Freedom	p-value
Main Regression Model	Discretionary accruals	Modified Jones Model	205.66	7	0.0002
	Discretionary accruals	Kothari Model	215.39	7	0.0000
Indicator Regression Model	Discretionary accruals	Modified Jones Model	202.93	10	0.0005
	Discretionary accruals	Kothari Model	210.58	10	0.0001

5.4 Validity, Reliability, and Comparability

The critical aspects of validity regarding our study are our choice of models to estimate earnings management trough discretionary accruals as well as the choice of variables we use in our model. By using the Modified Jones Model and Kothari Model, we increase validity, as these are established models when assigning a proxy for earnings management. Furthermore, by employing two different models to estimate earnings management, we aim to ensure that the choice of proxy model does not solely decide our results. These models are considered to estimate earnings management relatively well. However, they are reliant on how companies conduct their accounting and ideally requires them to do it as similarly as possible. By conducting a narrow industry groping, we try to mitigate this, but differences in accounting practices between companies in the same industry category can still exist.

The reliability of our study and our sources is considered to be relatively high. The methods used in this study are thoroughly described. Moreover, we conducted randomized tests on our dataset, ensuring that the data was correct and in accordance with the respective companies' annual report. Data found to be incorrect was manually corrected, furthermore, cash flow from operations was manually obtained from each company's annual report instead of approximated. Variables that require calculations are calculated with commonly used means and explicitly explained in the study. These steps help to increase the reliability of our results and data.

The comparability of the study is high, both in a Swedish and international context. We control for both time and firm specific changes in our regressions, allowing for comparisons with other timeframes. One note is that accounting practices can differ across countries, perhaps limiting international comparability. The means used to approximate earnings management are widely used and strengthens the comparability overall.

5.5 Limitations

There are some potential limitations with our study. One of them being the sample size. Although our number of observations is large, as we considered all Swedish listed companies possible, the study would benefit from an even larger sample. Expanding the study to include more countries could help increase the number of observations. We could also observe a larger timespan. Moreover, the differing significance of our two models does not inspire confidence, perhaps including even more proxy models could help provide a clearer picture. Another limitation of our study is that it only focuses on accrual-based earning management. Managers could also conduct real earnings management which could be relevant to examine in the context of audit tenure.

6. Conclusion

This study investigates the relationship between audit tenure and earnings management in the Swedish context, where mandatory audit partner rotation is required after a maximum of seven years. Using a panel dataset of listed Swedish firms from 2014 to 2023, we apply the Modified Jones and Kothari models to estimate discretionary accruals as a proxy for accrual-based earnings management. Our analysis focuses specifically on the first years following an auditor change.

The results provide empirical support for our hypothesis that earnings management decreases as audit tenure increases. This negative association is statistically significant using the Modified Jones Model. The Kothari Model yields results in the same direction, although with weaker significance. These findings suggest that as auditors gain more client-specific knowledge over time, they become better at detecting and constraining earnings manipulation.

Our indicator regression model provides further insight by showing a year-by-year reduction in earnings management in the Modified Jones Model. This has implications for policy

discussions regarding auditor rotation, as the results suggest that longer tenures, at least in the early years, enhance financial reporting quality.

In addition to the main variable of interest, several control variables also show significant relationships with earnings management. Firms audited by Big 4 auditors tend to engage less in earnings management. Other factors, such as profitability, firm size, and growth, also influence earnings management in line with theoretical expectations.

Overall, our findings suggest that in the Swedish setting, where regulations limit excessively long auditor tenures, longer audit relationships in the early years are beneficial for the audit quality and reduce opportunities for earnings manipulation. These findings contribute to the optimal auditor rotation policies and highlight the importance of considering both the risks and benefits of auditor tenure.

However, while our study highlights the benefits of auditor tenure during the first years, it does not investigate whether this trend continues or reverses in the later stages of an auditor relationship. Future research could investigate the later years of audit partner tenure, particularly in light of cases like Enron, which illustrate how excessive auditor familiarity may eventually impair audit quality. Given that our study does not include firms with very long auditor tenures, due to sample size constraints, it remains unclear whether this negative relationship persists, plateaus, or reverses over longer time horizons in the Swedish context. Using an indicator model similar to ours, researchers could examine whether the magnitude of the negative coefficients continues to increase as in our Modified Jones Model, or whether a turning point emerges at which audit quality declines due to excessive familiarity or reduced auditor independence. Such research could contribute valuable insights to the mandatory auditor rotation regulation, since our research and findings could serve as an argument against mandatory auditor rotation. If evidence shows that the quality of financial reporting continues to improve, or at least not deteriorate, until the seventh year of tenure, it may suggest that the current regulatory cap is sufficient or even conservative. Conversely, if a positive relationship between audit tenure and earnings management is found in later years, it would support arguments for stricter rotation policies.

Furthermore, examining pre- and post-implementation periods of Sweden's mandatory rotation rules could provide insights into how regulation has influenced the link between tenure and financial reporting quality. Researchers could also complement our focus on absolute values of

earnings management by analyzing signed discretionary accruals, particularly in relation to firm performance events such as losses.

While this study focuses exclusively on accrual-based earnings management, future research could benefit from incorporating real earnings management or employing a combined approach. Such analyses may help determine whether auditors are more effective at constraining one type of earnings management over the other. A broader perspective on how audit tenure influences different forms of managerial reporting behavior could provide valuable insights for regulators seeking to promote fair, transparent, and reliable financial reporting.

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Appendix

Appendix A.

Observations per industry sector

Sector	Frequency of companies
Manufacture of pharmaceutical preparation	2
Manufacture of other electrical equipment	3
Manufacture of non-domestic air conditioning equipment	3
Construction of residential and non-residential buildings	2
Wholesale of information and communication equipment	2
Publishing of video games	5
Other software publishing	6
Wired, wireless, and satellite telecommunication activities	2
Computer programming activates	9
Computer consultancy and computer facilities management activities	3
Other information technology and computer service activities	2
Computing infrastructure, data processing, hosting and related activities	2
Activities of head offices	43
Business and other management consultancy activities	7
Engineering related scientific and technical consulting activities	2
Engineering activates and related technical consultancy	2
Research and experimental development on biotechnology	4
Research and experimental development on natural sciences and engineering	20
Market research and public opinion polling	2
Specialized design activities	2
Total	**123**

Appendix B.

VIF Test for Multicollinearity

	VIF	**Tolerance**
Audit Tenure	1.02	0.98
Big 4	1.11	0.90
Size	1.86	0.54
ROA	2.15	0.47
Growth	1.05	0.95
Leverage	1.14	0.88
Loss	2.41	0.41

AI Usage Appendix

We used two generative AI tools during our research for this thesis. The models used were OpenAI's ChatGPT version GPT-4o and Google's Gemini version 2.0 Flash. The main use case for us was in troubleshooting errors in our python-based code. Moreover, these models were for language purposes. That is in giving feedback on sentence structure and correcting grammatical errors.

Our usage of generative AI models has benefitted our efficiency in coding and grammatical corrections. However, we have been critically assessing the outputs generated by the models. One strategy used to achieve this has been giving the models the exact same prompt independently and comparing the results to each other. Moreover, we have conducted independent tests on certain outputs generated by the models. For example, comparing the proposed feedback to traditional internet search results and grammatical corrections to traditional dictionaries.