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Earnings management by ordinary and interim CEOs in Nordic countries

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Abstract:

Earnings management theory predicts that incoming CEOs manipulate earnings in association with succession processes. Using data on 311 CEO changes in 217 listed firms in four Nordic countries, we examine this relationship with econometric methods, distinguishing between ordinary and interim CEOs. First, we find significant evidence for that firms on average manage earnings by 6.0% of total assets per year. Second, we present evidence indicating that incoming ordinary CEOs engage in income decreasing earnings management in the year of the change, to a magnitude of 1.5% of total assets. Third, we fail to find support in our data for that incoming ordinary CEOs manage earnings upward in the year following the transition year. Finally, we are also unsuccessful in providing evidence for the hypothesis that incoming interim CEOs engage in income increasing earnings management in the transition year.

Keywords: Earnings management, CEO changes, interim CEO

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1. Introduction

In this section, we provide a background of the concept of earnings management, present our purpose and research questions, and state the delimitations of our study.

1.1 Background

What is Lesson One in the 'New CEO Playbook'?

During your first few weeks on the job, announce some bold initiatives to clean up the mess left by your predecessor and try to look like a strong, decisive leader with a solid grip on the details. Oh, and be sure to announce a streamlining of operations and a large write-down of assets (often called a "big bath")—the larger the write-down, the better. Investors will be impressed, and, of course, it makes showing earnings growth in future periods infinitely easier; you just lowered the bar by shifting those future expenses into today's charge. Include in your announcement the need to write off bloated inventory and plant assets. Investors won't even penalize the company for the near-term loss, since it will all be packaged below the line. When tomorrow comes, you will report much improved profits, since many of tomorrow's costs have already been written off as part of the special charge. (Schilit, 2002)

The single most important item in company reporting is earnings. A large and positive bottom line indicates a sound business model, efficient operations and managerial skill. For publicly traded firms, this often translates into a soaring stock price and satisfied shareholders. For CEOs, large earnings are usually rewarded with large pay checks and excellent reputation.

Given the importance of earnings, the fact that managers sometimes undertake unconventional methods to increase them is no surprise. While most financial reporting is subject to detailed rules and standards, a certain degree of subjective judgements and estimations is required each year, influencing profits just as much as notes and coins. When managers use these opportunities for their own personal gain, it is called engaging in earnings management.

This thesis will explore the concept of earnings management. In particular, we are interested in the association between earnings management and CEO successions.

History has showed that when CEOs take the reins of a firm, this is often accompanied by swift downward changes in reported earnings, reflecting considerable nonrecurring expenses such as asset write-offs, loss provisions and restructuring charges.

By conducting this study, we want to test this relationship in a Nordic setting. We hypothesise that earnings management is practiced in Sweden, Denmark, Finland, and Norway. Furthermore, we postulate that newly appointed CEOs manage earnings downward in their first year of tenure, and that they in the following year reverse these expenses back into income. Last, we propose that interim CEOs lack the motives of ordinary CEOs to engage in income decreasing earnings management in their first year of tenure, and instead manipulate results upwards in order to impress the Board of Directors in hope of becoming the permanent CEO.

We test our hypotheses using econometric methods to analyse a dataset containing 311 CEO changes in 217 firms listed and domiciled in Sweden, Denmark, Finland, and Norway between 2002-2010, collected from recognised databases belonging to FactSet Research Systems and Six Financial Information. First, hypothesis testing is carried out to assess the prevalence and extent of earnings management. Second, we apply ordinary least squares methods to determine whether ordinary CEOs engage in income decreasing earnings management in their first year of tenure. Using the same method, we then attempt to find evidence for that ordinary CEOs manage earnings upward in the following year. Last, we test the hypothesis that interim CEOs engage in income increasing earnings management in their first year of tenure.

Our results show that earnings management exists in the countries studied, and that firms on average manages earnings upwards to a magnitude of 0.3% of beginning assets each year. Adjusting this for offsetting negative and positive earnings management, we find that firms on average manipulate earnings to a value of 6.0% of beginning assets. We also find evidence for that newly appointed ordinary CEOs are associated with negative earnings management in the year of their arrival, on average depressing profits by 1.5% of assets. However, we fail to find evidence for any income increasing earnings management, neither by ordinary CEOs in the year after the change, nor by interim CEOs in the year entering office.

Our findings are stable across various model specifications and prove to be robust in four out of five sensitivity tests challenging our econometric method.

The remainder of this paper is structured as follows. Following the introduction in Section 1, Section 2 outlines relevant theories and literature. Section 3 describes the data and method, while Section 4 contains the analysis of our results and a discussion of their validity. Section 5 concludes by presenting the insights from our paper, discussing the implications of our findings and providing suggestions for future research.

1.2 Purpose and research questions

The overarching purpose of this study is to enlighten actors on a number of Nordic stock markets on the prevalence of earnings management in connection to CEO change processes. By being aware of the issue, equity investors, creditors, and financial analysts can improve their decision-making, leading to more efficient resource-allocations. We also hope that this study can be used as a scientific foundation in discussions of stricter standard setting with regards to accruals. In addition, our aim is to provide accounting researchers with a better understanding of differences between newly appointed ordinary and interim CEOs and their incentives to engage in earnings management.

More specifically, our first step is to investigate if earnings management exists among firms listed on four Nordic stock exchanges. Second, we wish to study how CEO changes affect earnings management behaviour in the year of the change. Third, we want to dig deeper into how earnings management is reversed in the year following an ordinary CEO change. Finally, we aim to provide an understanding about differences in earnings management behaviour between ordinary and interim CEOs in association to CEO changes. Our research questions are formalised as follows:

I. *Does earnings management exist among listed Nordic firms?*

II. *Do newly appointed ordinary CEOs engage in income decreasing earnings management in the year of the change?*

III. *Do newly appointed ordinary CEOs engage in income increasing earnings management in the year following the change?*

IV. *Do newly appointed interim CEOs engage in income increasing earnings management in the year of the change?*

1.3 Delimitations

1.3.1 Time dimension

An important consideration when studying earnings management in association to CEO changes is to define which of the periods surrounding the change to focus on. This paper will exclusively study the year of the change (from here on referred to as the transition year), and the first full financial year immediately following the change (the post-transition year). Our intention is to study the behaviour of the incoming CEO rather than that of the outgoing, and will thus not include the year prior to the transition year in our study (the pre-transition year).

The study will be carried out on annual data because of two reasons. First, this enables comparison to a larger amount of previous studies, since a majority of these have used yearly data. Second, accruals models are usually not well specified to detect earnings management in quarterly data (Jeter and Shivakumar, 1999).

1.3.2 Geographical dimension

The study will cover firms domiciled and listed in Sweden, Denmark, Finland and Norway. We consider the countries culturally and institutionally similar to each other. Moreover, all listed firms in each of these countries are required to report their consolidated accounts according to IFRS[1]. Henceforth, we will refer to this geographical region as "the Nordics"[2]. The purpose of the study is not to analyse inter-country differences and therefore the countries will be treated as a region.

1.3.3 Firm dimension

Since large amounts of accounting data is needed to carry out this study, only listed firms were included in the sample to safeguard data availability. While prior studies usually focus on the Large Cap market segment, we include firms of all sizes to be able to generalise our results. The study will, however, not address differences in earnings management behaviour between firm sizes.

[1] PwC: "IFRS Adoption by Country" (2013-05-15)

[2] Traditionally, Iceland is considered a part of the Nordics. However, due to the last years' economic turmoil, we decided to exclude Iceland from our study.

2. Literature review

This section takes a closer look at the concept of earnings management and outlines the theories underpinning the association of earnings management and CEO changes. It then presents a number of comparable studies, leading up to our hypotheses.

2.1 Theory

2.1.1 Principal-agent theory

Previous research commonly attempts to explain and predict accounting decisions made by executives through the framework of the ***principal-agent theory*** (Ross, 1973; Jensen and Meckling, 1976; Fama, 1980; Eisenhardt, 1989). In the agency literature, there is typically a principal (firm owner) concerned with inducing the agent (CEO) to take the action the principal would take. Since the individuals are assumed to be utility-maximising, and information asymmetry prevails because of monitoring costs, there is a risk for moral hazard in that the CEO acts in his or her own interests rather than in the principal's. Closely linked to principal-agent theory is the ***Positive Accounting theory***, which also includes the assumptions of the principal-agent theory to foresee accounting decisions made by firms. The theory recognises that the CEO might engage in opportunistic behaviour for personal motives (Watts and Zimmerman, 1990). In this framework, there is reason to believe that CEOs might manage earnings in order to maximise the financial rewards from accounting number-based bonus plans. Assuming the manager's utility is also a function of non-pecuniary benefits (such as prestige), a wish to gain a favourable reputation with the firms stakeholders might further incentivise the CEO to engage in earnings management.

2.1.2 Earnings management

Earnings management is a term with several different definitions. In an attempt to capture what we perceive as earnings management, we choose to define it as "a purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain" (Schipper, 1989).

Financial reporting requires judgment and estimates. Due to the difficulty for an outsider to question these subjective opinions, a firm might use its discretion over accounting numbers to manage earnings upward or downward, depending on the situation. This particular type of earnings management is said to be accruals-based. Other types of earnings management include falsifying (Bruns and Merchant, 1990), switching accounting procedures (Healy, 1985) and real earnings management (undertaking actions impacting the underlying business activities of the firm) (Gunny, 2005). However, these fall outside of the scope of this study. Henceforth, the term earnings management will refer to accruals-based earnings management only.

Since the cash flows of a firm must equal accounting earnings in the long run – and accruals consequently must sum to zero over time – engaging in earnings management in theory refers to managers shifting the timing of revenues and expenses between periods. These shifts can be both income increasing and income decreasing. However, due to ***natural reversing*** of accruals, earnings cannot be continuously managed in one direction (Defond and Park, 2001). Earnings management is also limited to influencing items that are subject to managerial discretion, for example asset impairment, provisions for future losses, restructuring charges and revenue recognition. The aggregation of these items is usually referred to as discretionary accruals, which will be the proxy of earnings management in this study. Table 1 outlines common earnings management techniques according to Schilit (2002).

Table 1 – Earnings management techniques

Income increasing	Shifting current expenses to a later period	Recording revenue before completing any obligations under the contract
		Recording revenue far in excess of work completed on the contract
		Recording revenue before the buyer's final acceptance of the product
		Recording revenue when the buyer's payment remains uncertain or unnecessary
	Shifting future income to an earlier period	Improperly capitalising normal operating expenses
		Amortising costs to slowly
		Failing to write down assets with impaired value
		Failing to record expenses for uncollectible receivables and devalued expenses
Income decreasing	Shifting current income to a later period	Creating reserves and releasing them into income in a later period
		Improperly accounting for derivatives in order to smooth income
		Creating reserves in conjunction with an acquisition and releasing them into income in a later period
		Recording current period sales in a later period
	Shifting future expenses to an earlier period	Improperly writing off assets in the current period to avoid expenses in a future period
		Improperly recording charges to establish reserves to reduce future expenses

Detecting earnings management is quite hard, as discretionary accruals are difficult to separate from normal accruals. However, researchers have developed various techniques to approximate discretionary accruals (a review of these methods is provided in Section 2.1.5), and can so conduct statistical tests to investigate if firms manage earnings. A common way of doing this is by hypothesis testing on a sample of firms, exploring whether the mean of discretionary accruals is significantly different from zero. This technique has been employed by Davidson et al. (2005), Herbohn and Ragunathan (2008), Menon and Williams (2003), Reynolds and Francis (2000) and Frankel et al. (2002), among others. However, earnings management patterns are quite firm-specific. Therefore, there is a risk of failing to detect earnings management, since earnings are managed upward and downward simultaneously across firms. To mitigate these issues and to obtain a better understanding of the magnitude of earnings management, some researchers also carry out hypothesis tests on the absolute value of discretionary accruals.

2.1.3 The link between earnings management and CEO changes

Incentives for CEOs to manage earnings include both financial and non-financial rewards. A financial incentive for the CEO is maximising the payoff from variable compensation contracts[3] (bonus programs) over time. The payoff is usually determined as a portion of earnings, as a function of other accounting items or stock price, or through a subjective judgment passed by the Board of Directors (Bång and Waldenström, 2009). By linking compensation to accounting numbers, shareholders align the CEO's interests with their own in an attempt to overcome the agency problem (Garen, 1994). Even so, as reporting is only a proxy for firm performance, a CEO can attain the same reward from managing earnings as from actually increasing firm profitability.

Non-financial motives of earnings management are focused on opinions of the CEO's ability to create value for shareholders by achieving satisfying financial results. What the public thinks may in turn lead to a more favourable position on the managerial labour market. This means, that even in the complete absence of a bonus plan, CEOs still have incentives to manage earnings.

CEO change processes provide a number of windows for earnings management, including the pre-transition, transition and post-transition year (Wells, 2002). Both the outgoing and the incoming CEO are consequently able to engage in earnings management, although motives and predicted behaviour differ.

Murphy and Zimmerman (1993) puts forward two theories of earnings management behaviour by the outgoing CEO, both of them hinging on that outgoing CEOs place little value on future earnings compared to current period earnings. The ***horizon problem*** predicts that outgoing CEOs will manage earnings upward in order to boost accounting-based bonuses as much as possible before leaving the firm. The longer the notice before they are replaced, the more outgoing CEOs can engage in this type of activity. The ***cover-up hypothesis*** states that CEOs terminated against their will are inclined to exercise income-increasing earnings management to regain the trust of the shareholders and stay on the job. Both of the hypotheses regarding outgoing CEOs thus expect earnings to be managed upward before the CEO turnover.

[3] Since the purpose of our study is not to link bonus programs to earnings management, we will assume that the firms studied use accounting-based variable compensation contracts for CEOs to an extent that affects decision-making. For evidence on Swedish firms, see Bång and Waldenström (2009).

In relation to CEO changes, organisational reshuffling, dismissals, and change in strategies are carried out to reflect a new management style and to create the impression of that the firm is "starting over" (Coyle, 2007). Literature has also showed that new management is inclined to terminate old projects and to initiate new programs (Elliot and Shaw, 1988). While the measures above are likely to have cash flow effects, another important element of the succession process is a review of the firm's accounting numbers. This primarily involves ensuring that book values relate to the true market value of assets, and a reassessment of risks for future losses (Moore, 1973).

The ***big bath hypothesis*** explains the earnings management behaviour of incoming CEOs in their first year of tenure. Generally, this year is less relevant to CEO welfare than subsequent years. Elliot and Shaw (1988) argue that firm stakeholders generally hold incoming CEOs less accountable than outgoing CEOs for financial performance in the transition year. In addition to this, earnings-based bonus programs tend to only come into operation in the first full financial year of tenure (Wells 2002). Reducing earnings in the transition year might also lower the accounting benchmark that the bonus is based on, letting the CEO off with less difficult standards in following years.

The view that outgoing CEOs are to blame for transition year results, and the structure of earnings-based bonus programs, incentivises the incoming CEO to shift as much losses as possible to the year of the change. Therefore, CEOs are often quite pessimistic when reviewing the accounts of the firm they are entering, and record asset impairments, provisions and other income-decreasing accruals. Future income is then relieved of unavoidable depreciation charges, and write-backs of provisions may be released in the years following the change, further positively affecting future earnings. The firm can then report an improved earnings trend, attributable to the performance of the incoming CEO. Also, these earnings are now reported in years where earnings-based bonus programs are in full operation, maximising CEO compensation.

In summary, because of a wish to gain a favourable reputation with firm stakeholders and a desire to maximise the payoff from earnings-based bonus programs, we believe that incoming CEOs will engage in income decreasing earnings management in the transition year, and engage in income increasing earnings management in the first full financial year following the transition year.

2.1.4 Interim CEOs

The circumstances surrounding CEO changes are believed to impact how and to what extent CEOs manage earnings. Researchers of earnings management in association with CEO changes usually contrast between different types of changes in their studies. A common way of doing this is separating routine from non-routine changes[4] (Pourciau, 1992; Murphy Zimmerman, 1993; Wells, 2002; Bengtsson et al., 2008).

The identification of routine/non-routine changes requires manual collection of information regarding the circumstances surrounding the CEO change from company reports, press releases and news articles. The process involves a degree of subjectivity when reporting regarding the change is vague. Also, since firms are often reluctant to disclose the true reason for the change, especially surrounding non-routine changes, the sample is likely to be biased. This paper adopts a new and alternative classification of CEO changes, which can be applied objectively, focusing on whether the incoming CEO is classified as interim.

Ballinger and Marcel (2010) defines an interim CEO succession as when the position as CEO is vacated by the incumbent, and the Board of Directors are yet to name a permanent successor, but instead chooses to appoint an "interim CEO", "acting CEO" or "CEO until a permanent successor is named". The position as interim CEO is by definition temporary, and tenures are naturally on average shorter than for their permanent counterpart.

Interim CEOs are usually recruited from inside the firm. For example, it is common that the Chief Financial Officer (CFO), or the Chairman of the Board, steps up in between permanent CEOs. Another recruiting channel is hiring an experienced professional from an interim CEO consulting firm.

Interim CEOs represent an anomaly among CEOs in connection to earnings management. While ordinary CEOs expect tenure of at least a number of years, interim CEOs take the position knowing that the firm intends to replace him or her in the near future. However, anecdotal evidence shows that firms may hire the interim CEO on a permanent basis if they are satisfied with his or her performance. A famous example is that of Apple's former CEO, Steve Jobs, who started off as an interim

[4] Examples of other ways of partitioning CEO changes include retirement/non-retirement (Butler and Newman 1989) and changes where an insider was hired/changes where an outsider was hired (Geiger and North 2006).

CEO, but went to become the permanent CEO of Apple and carried out what is considered one of the greatest corporate turnarounds in U.S. history (Markoff, 2011).

While incoming permanent CEOs engage in income decreasing earnings management because they know they can reap the fruits in coming years, the interim CEO only has a limited time to impress the Board of Directors and firm stakeholders. While the directors have some insight into the firm's operations, they are unlikely to be able to monitor each accounting decision as closely as the CEO, and may so be susceptible to earnings management deception. However, the current state of knowledge of interim CEO bonus schemes is limited. Therefore we will not analyse any financial implications of earnings management for interim CEOs.

The incentives for earnings management are similar to those under the ***cover-up hypothesis***, but are now applied to the incoming CEO rather than to the outgoing CEO. This leads us to believe that a wish of receiving an offer to stay on as permanent CEO induces interim CEOs to engage in income increasing earnings management in the transition year.

2.1.5 Discretionary accruals estimation techniques

Since earnings management cannot be directly observed, it needs to be estimated. McNichols's (2001) review of research designs gives an overview of the landscape of estimation techniques. According to the author, there are three types of earnings management estimation models: "aggregate discretionary accruals" models that set out to capture total discretionary accruals, "specific accruals" models that use single discretionary income statement items (such as asset impairment and provisions), and "frequency distribution" models that examine the statistical properties of earnings to identify behaviour that influences them. The author mentions models developed by Healy (1985), DeAngelo (1986), Jones (1991), Dechow et al. (1995), and Kang and Sivaramakrishnan (1995) as the most influential within aggregate discretionary accruals approaches. Among successful specific accruals approaches the author lists McNichols and Wilson (1988), Petroni (1992), Beaver and Engel (1996), Beneish (1997) and Beaver and McNichols (1998). As to the frequency distribution approach, it was developed by Burgstahler and Dichev (1997) and Degeorge et al. (1999). A compilation of studies between 1993-1999 shows that the aggregate discretionary

accruals approach is the most common in earnings management studies in that time period.

Aggregate discretionary accruals approaches are separated into two strands: regression models and non-regression models (the Healy model and the DeAngelo model). The assumption of stationarity in non-discretionary accruals over time required in non-regression models is challenged by Jones (1991), who developed the first aggregate discretionary accruals regression model to control for changing economic circumstances for a firm. In an attempt to find a better specified and more powerful model, Dechow et al. (1995) alter the original Jones into the Modified Jones model, controlling for firms that exercise discretion over revenue by adjusting changes in revenue by changes in receivables. While their modification to the model proved successful as to the power of the proxy, they find that accruals models generally are misspecified for samples with firms exhibiting extreme financial performance. This is because earnings performance might be correlated with the test variable (in our case CEO change) in earnings management tests.

Kothari et al. (2005) tested several estimation models adjusted for firm performance, attempting to find a solution to the problem. Among the most successful ones was one that added a ROA_{t-1} term to the regression model, since then used by influential earnings management and CEO change studies such as Wilson and Wang (2010). This study will use this approach, referred to as the performance-adjusted Modified Jones model, to estimate discretionary accruals.

Originally, the Jones models were always estimated through a time series regression, where firm-specific coefficients were estimated in an estimation period. However, this technique has suffered major criticism. Jeter and Shivakumar (1999) points out that by requiring a long time series of data before the event period, sample sizes are often reduced and the representativeness of the data becomes questionable due to survivorship bias. McNichols (2001) agrees with this criticism, and adds that one should also be careful of making the assumption that data is stationary over such a long period. Instead, she recommends a cross-sectional approach, as first used by Defond and Jiambalvo (1994). While the time series approach used historical accruals to identify "normal" accruals for each firm, the cross-sectional approach puts a firm's accruals in relation to its industry. This introduces a limitation of the cross-sectional

approach, namely that it is unable to detect intra-industry contemporaneously correlated earnings management (Peasnell et al., 1999). The approach should consequently not be used when studying earnings management in relation to industry-wide shocks (an example is Jones, 1991, who studies earnings management during import relief investigations). However, this study uses the cross-sectional approach when estimating discretionary accruals.

2.2 Comparable studies

The existence of earnings management and the link to CEO changes was presented in the previous section. This section presents related works and digs deeper into three studies that in different ways attempted to explore how earnings management behaviour may vary depending on the circumstances surrounding the change. Together with theory, these comparable studies will help us form our hypotheses, presented in the subsequent section.

In a pioneering study, Moore (1973) examined and found discretionary income reductions in the form of write-downs and provisions to occur more often in newly appointed managers' first year of tenure. The findings of new managers taking an "earnings bath" by managing accruals were confirmed by subsequent research, which also found the effect to be more prominent when the new manager was hired from outside the firm (Strong and Meyer, 1987; Elliot and Shaw, 1988). Since Moore's study, the accounting academia have also covered scopes such as proxy contests for board seats (DeAngelo, 1986), CEOs improving short-term earnings during their final year in office (Butler and Newman, 1989; Dechow and Sloan, 1991), and management buyout offers (Perry and Williams, 1994). Three studies focusing on earnings management surrounding executive turnovers have been selected as the most comparable to this paper and will be reviewed in detail.

Wells (2002) – "Earnings management surrounding CEO changes"

With a sample of 77 CEO turnovers in Australia during the period 1984-1994, Wells (2002) investigated earnings management surrounding CEO changes, distinguishing between routine and non-routine successions. Using the time series modified Jones model to estimate discretionary accruals, Wells examined the pre-transition, transition and the two years after the CEO change. With predictions of finding income

increasing earnings management in the pre-transition and post-transition year, parametric and non-parametric tests only revealed weak empirical evidence. On the contrary, the period following CEO changes actually revealed income decreasing earnings management. In the transition year, the big bath hypothesis was supported with strongest evidence in the group of non-routine CEOs, where the incoming CEO most often is not associated with past decisions. Wells discusses that outgoing CEOs not remaining at any position in the firm, may be limited to affect the incoming CEOs decisions to take make large income reducing write-offs. Further, due to weaknesses with the Modified Jones Model, Wells suggests an incorporation of lagged accruals to the models to increase explanatory power.

While Wells study has showed a difference between routine and non-routine changes, our paper will use a similar reasoning but focus on a different partitioning. We expect to find differences between interim and ordinary incoming CEOs and also control for lagged accruals in our model specifications.

Godfrey et al. (2003) – "Earnings and impression management in financial reports: the case of CEO changes"

Godfrey et al. (2003) examined both earnings management and the presentational format of graphs in financial reports during CEO changes. The study found strong evidence for income-increasing earnings management in the post-transition year. Moreover, the proxy for discretionary accruals was estimated as the change in total accruals from one year to another, which may be considered a noisy measurement (Wilson and Wang, 2010). By focusing on 63 firms between the years 1992-1998, the strongest results in the sample were found in the subsample where the CEO resigned. Godfrey et al. (2003) also interviewed six managers with first-hand experience from Australian executive turnovers, in order to understand the extent of the phenomena. They stated that "clearing the decks" is normal and expected during times of CEO changes and that such activities occur even if the new CEO is an internal appointee.

In our study, we will use a more refined method than Godfrey et al. (2003) used to estimate discretionary accruals. Further, discussions will be held regarding the period when earnings management is predicted to be income increasing.

Wilson and Wang (2010) – "Earnings management following chief executive officer changes: the effect of contemporaneous chairperson and chief financial officer appointments".

Arguing that the cross-sectional modified Jones model adjusted for performance provides a more sophisticated technique to detect discretionary accruals than other methods, Wilson and Wang (2010) study the association between earnings management and concurrent changes in Chairman and CFO positions. When excluding abnormal items from the estimation of accruals, they fail to provide evidence of earnings management in the transition and post-transition year surrounding a newly appointed CEO. When adding abnormal items to the estimation, support was found for the big bath hypothesis in the transition year. However, when a CEO change was accompanied by a change in Chairman, significant income-decreasing earnings management was revealed in the transition year, whether abnormals were included or not. The authors discuss that concurrent CEO and Chairman appointments can be observed objectively, in contrast to routine and non-routine changes, which is argued to require a subjective judgment. Instead, Wilson and Wang states that their approach to a classifying CEO changes only requires data on hiring dates.

In line with Wilson and Wang (2010), we introduce a new classification scheme for types of incoming CEOs. We believe that annual reports provide more reliable statements regarding if the incoming CEO is interim or not, compared to if the turnover was classified as routine or not.

All in all, the current state of knowledge from prior research is mainly based on U.S. and Australian papers. Differences in research design can mainly be seen in the classification of the CEO change, the research method, and what years surrounding the change that was studied.

2.3 Hypothesis formulation

As can be concluded from the literature and studies presented, ordinary CEOs are believed to engage in income decreasing earnings management in the year of a change and income increasing in the following year. Conversely, interim CEOs are expected to pursue a permanent CEO position and therefore show income increasing earnings management already in their first year of office due to expectations of short tenure. However, to show differences between types of earnings management in years of executive turnovers, the predicted existence of earnings management first needs to be established. This reasoning has led us to the following hypotheses:

Hypothesis 1: Earnings management exists among listed Nordic firms.

Hypothesis 2: Newly appointed ordinary CEOs engage in income decreasing earnings management in the transition year.

Hypothesis 3: Newly appointed ordinary CEOs engage in income increasing earnings management in the post-transition year.

Hypothesis 4: Newly appointed interim CEOs engage in income increasing earnings management in the transition year.

3. Empirical approach

In this section, we describe our sample and explain the process of estimating discretionary accruals. Furthermore, we operationalise our independent variables and outline the econometric models used to test our hypotheses.

3.1 Data sources

The data used in this paper was provided by FactSet Financial Information and Six Financial Information. Financial data and firm information such as industry classifications, exchange listings, and filing dates was collected from the FactSet database. Data on CEO changes was supplied by Six Financial Information. All data has been subject to a randomised double checking process, carried out through examining annual reports, press releases and news articles.

3.2 Sample

Our initial data set comprised all Small Cap, Mid Cap and Large Cap firms listed on the OMX Stockholm, OMX Copenhagen, OMX Helsinki and Oslo Stock Exchange. The data collected on these firms was from the years 2002-2010. The industry categorisation was made according to ICB[5] standards, classifying firms into ten different industries.

The elimination process was conducted step-by-step in line with prior research in the earnings management field. First, all firms that did not have financial data available for the full period were excluded. Then, we eliminated all firms that did not change CEO once in the period 2002-2010. Furthermore, we decided to exclude firms with a fiscal year end other than December, due to difficulties in data handling in connection to CEO change dates. All firms belonging to the industry classification Financials were then deleted, due to differences in regulation and reporting. Since our discretionary accruals model requires more than 15 firms in an industry to provide an accurate estimate, we eliminated all firms classified in industries with fewer than 15 firms. These were Utilities, Oil and Gas, and Telecommunications.

In line with Wilson and Wang (2010), we excluded firms with negative equity, firms with revenue below 1% of total assets and firms with an absolute value of accruals

[5] Industry Classification Benchmark is an industry classification taxonomy owned by FTSE International.

exceeding 50% of total assets. These measures increase the representativeness of our sample, and limit the risk of that our results will be skewed because of extreme values. Finally, since our analysis does not allow double counting of CEO changes, we excluded all CEO changes that were followed by another change in the same year.

Table 2 presents our final sample consisting of 32 interim and 279 ordinary CEO changes in 217 Nordic firms over 1869 firm years during the period 2002-2010.

Table 2 – Descriptive statistics

CEO changes by market capitalisation, country and industry

	Firms	**Ordinary**	**Interim**
Small cap	117	171	18
Mid cap	54	59	6
Large cap	46	49	8
Total	**217**	**279**	**32**
Sweden	102	146	18
Denmark	23	25	1
Finland	56	63	6
Norway	36	45	7
Total	**217**	**279**	**32**
Basic materials	16	16	2
Consumer goods	28	38	6
Consumer services	16	17	3
Health care	19	27	4
Industrials	96	122	8
Technology	42	59	9
Total	**217**	**279**	**32**

3.3 Operationalisation of dependent variable

This section presents the estimation of our dependent variable, discretionary accruals.

Step 1

To understand the performance-adjusted Modified Jones Model, one needs to be familiar with the concept of accruals. While the term accruals was presented in Section 2, a more extensive walkthrough is provided below. Total accruals can be defined as all non-cash earnings. Thus, net income is the sum of cash flow from operations and total accruals[6].

$$NI_t = CFO_t + TA_t$$

where

NI_t = Net income in year t

CFO_t = Cash flow from operations in year t

TA_t = Total accruals for firm i in year t

Non-discretionary accruals can be viewed as non-cash items unsusceptible to management decisions, mandated by accounting standard-setting bodies (Healy, 1985), while discretionary accruals are the portion of earnings representing managerial interventions in the financial reporting process (Islam et al., 2011). Total accruals is the sum of non-discretionary and discretionary accruals.

$$TA_t = NDA_t + DA_t$$

where

NDA_t = Non-discretionary accruals in year t

DA_t = Discretionary accruals in year t

However, discretionary accruals are difficult to separate from normal accruals, and thus need to be estimated using an accruals model.

[6] This method of separating accruals from cash earnings is known as the cash flow method. Many earnings management researchers today regard this as superior to the balance sheet method. See Collins and Hribar (2002) for further discussion.

Step 2

By regressing total accruals on the independent variables in the model for every firm-year in our final sample using standard OLS we can derive the industry-specific coefficients:

$$\left(\frac{\mathrm{TA_{it}}}{\mathrm{A_{it-1}}}\right) = \alpha \quad + \beta_1\left(\frac{1}{\mathrm{A_{it-1}}}\right) + \beta_2\left(\frac{\Delta\mathrm{REV_{i,t}} - \Delta\mathrm{REC_{i,t}}}{\mathrm{A_{it-1}}}\right) + \beta_3\left(\frac{\mathrm{PPE_{i,t}}}{\mathrm{A_{it-1}}}\right) + \beta_4(\mathrm{ROA_{it-1}}) + \varepsilon_{\mathrm{it}}$$

where

α = Constant term[7]

$\mathrm{A_{it-1}}$ = Total assets for firm i in year t-1

$\Delta\mathrm{REV_{it}}$ = Change in revenues for firm i between year t-1 and year t

$\Delta\mathrm{REC_{it}}$ = Change in receivables for firm i between year t-1 and year t

$\mathrm{PPE_{it}}$ = Gross property, plant and equipment for firm i in year t

$\mathrm{ROA_{it-1}}$ = Return on assets[8] for firm i for year t-1

$\varepsilon_{\mathrm{it}}$ = Error term for firm i in year t

Step 3

Non-discretionary accruals are then computed by multiplying the firm variables in the model with the coefficient of the industry to which the firm belongs, denoted by $\mathrm{b_1}, \mathrm{b_2}, \mathrm{b_3}, \mathrm{b_4}$, and adding a constant term a.

$$\left(\frac{\mathrm{NDA_{it}}}{\mathrm{A_{it-1}}}\right) = \mathrm{a} + \mathrm{b_1}\left(\frac{1}{\mathrm{A_{it-1}}}\right) + \mathrm{b_2}\left(\frac{\Delta\mathrm{REV_{it}} - \Delta\mathrm{REC_{it}}}{\mathrm{A_{it-1}}}\right) + \mathrm{b_3}\left(\frac{\mathrm{PPE_{it}}}{\mathrm{A_{it-1}}}\right) + \mathrm{b_4}(\mathrm{ROA_{it-1}})$$

[7] The original and Modified Jones models do not contain a constant term. However, the performance-adjusted Modified Jones model includes the intercept to provide further control for heteroskedasticity and to make the model more symmetric. For further discussion, please see Kothari et al. (2005).

[8] Return on assets coefficient added to control for financial performance by Kothari et al. (2005). Return on assets has a number of different definitions across practitioners. This study uses the definition recommended by the Swedish Society of Financial Analysts: $ROA_t = \frac{IBIE_t}{\frac{A_t + A_{t-1}}{2}}$ where $IBIE_{i,t}$ is the sum of operating income and financial income (or the sum of pretax income and financial expenses).

Step 4

Using the equation below, DA_{it} can then be estimated. Total accruals less non-discretionary accruals are equal to discretionary accruals.

$$DA_{it} = TA_{it} - NDA_{it}$$

3.4 Operationalisation of independent variables

3.4.1 Operationalisation of test variable

When operationalising the CEO change variable, an important concern is to determine which CEO to assign the transition year to. Murphy and Zimmerman (1993) criticises Pourciau (1993) for assigning the transition year to the incoming CEO, and argues for assigning it to the outgoing CEO. Another way of determining the allocation of the transition year would be to select a cut-off point for the date of the change, for example nine months into the financial year. However, we criticise this approach as annual reports are usually published well into the following year, risking assigning the transition year to the outgoing CEO while the incoming CEO has had well enough time to engage in earnings management. Bengtsson et al. (2008) uses an alternative approach, and assigns the transition year to the CEO that signed the annual report. In cases where both the outgoing and the incoming CEO sign the annual report, the transition year is assigned to the outgoing CEO. While this technique is elegant as to addressing the legal consequences for a CEO of signing an annual report from a year where accounting decisions were not under his or her control, it is less applicable on large data samples. Accruals management is commonly exercised at the end of the financial year (Gunny, 2005), when the CEO clearly can view earnings before earnings management, and then decide on in what direction he wishes earnings to be managed. Due to that the research landscape provides no further clarity on this issue, this study assigns the transition year to the CEO that controls the firm at the end of the financial year. Further, considering that this study is on a yearly basis, the test variable is unable to address both CEOs if two changes occur in the same year and will instead treat this as one single change, where the transition year is assigned to the CEO who was in control of the firm at year-end.

$$\text{CEO change} = \begin{cases} 1 \text{ if CEO has arrived in the financial year} \\ 0 \text{ if no CEO has arrived in the financial year} \end{cases}$$

3.4.2 Operationalisation of control variables

Earnings management has been proved to correlate with a number of different factors in previous studies. The factors we have chosen to control for and their definitions are outlined below.

Leverage

DeFond & Jiambalvo (1994) found evidence that companies with high leverage use accruals strategies to manipulate reported earnings to stay within the terms of their debt covenant agreements. Therefore, high leverage is expected to correlate positively with discretionary accruals.

This paper will base the leverage variable on book value rather than market value mainly because of three reasons. First, market values of debt tend to be difficult to find for a large number of firms in our sample. Second, book values are more stable over time, providing a more representative view of a firm's financial position at a given point in time. Last, the theory surrounding earnings management and leverage are tied to debt covenants, which are commonly based on book values rather than market values. The variable is defined as the ratio of book value of interest-bearing liabilities to the book value of equity.

$$\text{Leverage} = \frac{\text{Debt}_t}{\text{Equity}_t}$$

Firm size

The relationship between firm size and incentives for earnings management has been examined by a wide range of researchers (Dechow and Dichev, 2002; Lee and Choi 2002; Sun & Rath, 2009). In their study, Lee and Choi (2002) show that small businesses tend to use earnings management to avoid losses more frequently than large firms. The authors also suggest that large firms are more likely to be monitored by financial markets and regulatory authorities than small firms. Consequently, we expect size to be negatively correlated with discretionary accruals.

We choose to use revenue as a proxy for firm size scaled by its natural logarithm.

$$\text{Firm size} = \ln(\text{Revenue}_t)$$

Lagged accruals

Following Geiger and North (2006) and Wilson & Wang (2010) we control for the natural reversing of accruals. This is because of the likelihood that large discretionary accruals are followed by reversed discretionary accruals the following year. The variable controlling for lagged accruals is designed as lagged accruals scaled by lagged assets.

$$\text{Lagged accruals}_t = \frac{\text{Total accruals}_{t-1}}{\text{Assets}_{t-1}}$$

Cash flow from operations

Dechow and Dichev (2002) found that cash flow from operations is to be negatively correlated with short-term discretionary accruals in the form of working capital. They argue that firms with high cash flows have a reduced need for positive accruals. This finding has been confirmed in later studies (Menon and Williams 2004; Wilson & Wang 2010) and will therefore also be controlled for in this study.

$$\text{Cash flow from operations}_t = \frac{\text{Cash flow from operations}_t}{\text{Assets}_{t-1}}$$

Business cycle

We argue that firms' stakeholders have lower expectations on reported earnings during recessions. Therefore, we believe that managers might shift future expenses to the current period, and blame the poor performance on the business cycle. We choose to control for fluctuations in the economy by defining a control variable as the Industrial Production Index (IPI) with the base in 2010, weighted with country population.

$$\text{Business cycle} = \text{Weighted IP index}$$

IFRS

Aussenegg et al. (2008) examined the impact of IFRS on earnings management in Europe and noted no difference in the level of earnings management. In a later study, Callao and Jarne (2010) found that earnings management actually increased in Europe after the introduction of IFRS. Judging by their findings, we expect the introduction of IFRS to be positively correlated with discretionary accruals.

We will control for the impact of the introduction of IFRS on earnings management with a dummy variable, indicating 1 if the year is 2005 or later and 0 if otherwise.

$$\text{IFRS} = \begin{cases} 1 \text{ if year is 2005 or later} \\ 0 \text{ if year is 2004 or earlier} \end{cases}$$

Earnings bath

Previous studies have found that when managers recognise that their firm will take a loss, they take further income decreasing accounting actions because the incremental loss of shifting more expenses to the current period is low (Healy 1985). This is commonly referred to as an earnings bath[9]. In the absence of a consensus in prior literature regarding the design of the variable controlling for earnings baths, we have chosen our own definition. If a firm's return on assets *before* discretionary accruals (ROABD) is lower than -5%, the value is assigned to the variable. Otherwise it takes the value of zero.

$$\text{ROABD}_t = \frac{\text{IBIE}_t - \text{DA}_t}{\frac{\text{A}_t + \text{A}_{t-1}}{2}}$$

$$\text{Earnings bath} = \begin{cases} \text{ROABD}_t \text{ if ROABD}_t < -5\% \\ 0 \text{ if ROABD}_t \geq -5\% \end{cases}$$

[9] The term "earnings bath" or "big-bath" is also used to describe the income-decreasing actions taken by new CEOs in the transition year.

Positive earnings

Burgstahler & Dichev (1997) provide evidence for that when firms are just below zero earnings, they engage in income increasing earnings management to avoid reporting a loss. We choose to measure this as when return on assets before discretionary accruals is below 0%, but not so far below that the firm decides to take an earnings bath. The variable takes the value of return on assets before discretionary accruals if between -5% and 0%. Otherwise it takes the value of zero.

$$\text{Positive earnings} = \begin{cases} ROABD_t \text{ if } -5\% < ROABD_t < 0\% \\ 0 \text{ if } -5\% \geq ROABD_t \geq 0\% \end{cases}$$

Fixed effects

Wooldridge (2006) suggests that model specifications where the dependent variable is likely to be affected by unobserved, time-invariant factors should be run as fixed effects regressions to control for these effects. Our dataset contains a number of variables that need to be controlled for by fixed effects, namely year, industry, firm and country. An example of this could be that some firms inherently manage earnings more than others due to corporate culture. For this reason, we will control for fixed effects in our model.

3.5 Econometric model

The existence of earnings management and its association with CEO changes are analysed using recognised methods widely applied in previous earnings management studies. As the sample sizes of the respective model specifications exceed 30, discretionary accruals are approximately normally distributed according to the central limit theorem (Newbold, 2007), allowing for hypothesis testing using a t-test.

Hypothesis 1, predicting that earnings management exists among listed Nordic firms, is tested by carrying out a two-sided t-test of that the population mean of discretionary accruals does not equal zero on conventional significance levels. Since the hypothesis disregards the sign of the mean, a complimentary t-test is done on the absolute value of discretionary accruals. The same rejection rule applies to this test.

Hypothesis 2-4, stating the link between earnings management and CEO changes, is tested by employing a series of ordinary least squares (OLS) regression models. Using this technique, we can examine the statistical significance of the correlation between

discretionary accruals and CEO changes. Regression analysis allows us to hold a number of control variables fixed to disentangle the unbiased (unaffected by other variables) association between earnings management and CEO changes. While OLS is a powerful tool when establishing relationships between variables, one should be cautious with assuming causality. Rather, a discussion needs to be held to provide arguments for as to why the association does not suffer from problems such as spurious correlation or reverse causality.

In order to carefully trail the effects of our control variables on the estimated correlation coefficient, a four-step framework is used to test each hypothesis. First, we apply a baseline regression without any control variables. Second, we add a set of *initial controls*, including leverage, firm size, cash flow from operations, lagged accruals, business cycle and IFRS. The third step adds *benchmark controls*, which are *earnings bath*, and *positive earnings*. Last, we add fixed effects variables to control for time-invariant factors. These are *year effects*, *industry effect*s, *firm-specific effects* and *country effects*. The four steps are labeled *Model specifications 1-4*. For detailed specifications, see Appendix.

As this study is limited to studying the effects of CEO changes on earnings management, we are only interested in the coefficient on the CEO change variable. While coefficients from all specifications will be analysed, the final conclusions will be drawn from *Specification (4)*, as this specification is least likely to be biased. For Hypothesis 2, a significantly negative coefficient, δ will lead us to reject the null hypothesis. For Hypothesis 3 and 4, however, we reject the null hypothesis if the coefficient is significantly positive.

4. Results and analysis

In the following section, we present, describe and interpret the results of the tests carried out to test our hypotheses. Moreover, we test the validity of our results by discussing our sample, as well as carrying out robustness tests.

4.1 Existence of earnings management

Hypothesis 1: Earnings management exists among listed Nordic firms.

Table 3 – T-test and descriptive statistics

	Observations	Mean	Standard deviation	95% Confidence interval
Discretionary accruals[a]	1869	0.34%*	8,54%	-0.05% to 0.73%
Absolute value discretionary accruals[b]	1869	6.01%***	6,08%	-5.74% to 6.29%

Statistically significant coefficients are expressed as follows: *** p<0.01, ** p<0.05, * p<0.1
[a] Two-tailed t-test if population mean ≠ 0
[b] One-tailed t-test if population mean > 0

Table 3 shows that discretionary accruals on average have been positive, with a mean of 0.34%. The t-test provides evidence that the findings are significant at the 10% level. The results indicate that firms in our sample on average have managed earnings in an income increasing direction, to a ratio of 0.34% of lagged assets. For a hypothetical firm with total assets of 1 billion SEK (hereafter known as *Firm A*), this means that positive discretionary accruals of 3.4 million SEK have been recorded.

Comparing the result to previous studies, for example Wilson and Wang (2010) (0.36%) and Herbohn and Ragunathan (2008) (1.0%), we find fairly modest earnings management levels. *Table 3* also shows that there is a 95% probability of that the population mean is between 0.05% and 0.73%. A standard deviation of 8.54% shows that the variability is quite high compared to the mean, suggesting that the magnitude and sign of discretionary accruals differs across firms.

While our two-tailed t-test of discretionary accruals is successful in finding evidence for the existence of earnings management, Menon and Williams (2003) state that the hypothesis testing of signed discretionary accruals is more reasonable if one has a clear prediction of in what direction earnings are managed. As discretionary accruals, just as non-discretionary, are supposed to equal zero over an extended time period,

income increasing and income decreasing discretionary accruals from a sample with firms with heterogeneous motives of earnings management may offset each other and prevent detection. Therefore, along with Reynolds and Francis (2000) and Menon and Williams (2003), we conduct a t-test on the absolute value of discretionary accruals in order to shine further light on the issue.

The results of the one-sided t-test show a sample mean of 6.01%, significant at a 1% level. This means that a firm with 1 billion SEK total assets records discretionary accruals to a value of SEK 60.1 million, regardless the direction of earnings management. This may be compared to the studies previously mentioned, where both Menon and Williams (2003) (10.36%) and Reynolds and Francis (2000) (8.72%) find larger discretionary accruals.

Our results are consistent with the ***Positive Accounting Theory***, predicting that executives make opportunistic accounting decisions in their own interests.

The null hypothesis of no earnings management in Nordic countries can be rejected on a 10% significance level.

4.2 Earnings management and CEO changes

Table 4 reports the results from the multiple regression analysis examining the association between discretionary accruals and CEO changes. To correct for heteroskedasticity, robust standard errors are used in all regressions. Regardless of type of CEO, the same four-step model has been applied throughout in order to explore how other explanatory factors of earnings management influence coefficient on CEO changes. Correlation between the independent variables can be found in Exhibit A in Appendix.

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Table 4 – Regression results

Ordinary least squares: Controls and Fixed effects

Model specification	**(1)**	**(2)**	**(3)**	**(4)**
Baseline	**x**	**x**	**x**	**x**
Controls[a]		**x**	**x**	**x**
Benchmark controls[b]			**x**	**x**
Fixed effects[c]				**x**
		Discretionary accruals		
Panel 1				
Ordinary CEO - Transition year	-1.25%**	-1.51%***	-1.53%***	-1.53%***
Robust standard errors	0.60%	0.58%	0.56%	0.56%
Observations	1869	1868	1868	1868
R-squared	0.3%	8.4%	14.3%	32.0%
Panel 2				
Ordinary CEO - Post-transition year	0.14%	0.36%	0.22%	0.38%
Robust standard errors	0.72%	0.68%	0.68%	0.65%
Observations	1862	1861	1861	1861
R-squared	0.0%	6.8%	19.5%	38.4%
Panel 3				
Interim CEO - Transition year	1.37%	0.70%	0.57%	0.59%
Robust standard errors	1.88%	1.69%	1.50%	1.63%
Observations	1869	1868	1868	1868
R-squared	0.0%	8.0%	13.9%	25.2%

Note: Ordinary least squares for 2002-2010. Regressions of discretionary accruals on CEO changes (% of beginning assets).
Statistically significant coefficients are expressed as follows: *** p<0.01, ** p<0.05, * p<0.1
[a]Controls: Leverage, Firm size, Cash flow from operations, Lagged accruals, IFRS, Business cycle
[b]Benchmark controls: Earnings bath, Positive earnings
[c]Fixed effects: Year, Industry, Firm and Country

4.2.1 Effects of ordinary changes in the transition year

Hypothesis 2: Newly appointed ordinary CEOs engage in income decreasing earnings management in the transition year.

The regression results in *Panel 1* show that ordinary CEO changes correlate negatively with discretionary accruals under all model specifications with a coefficient ranging from 1.25% to 1.53%. This relationship is statistically significant at a 5% level for specification (1), and at a 1% level for specifications (2), (3), and (4). Translating this into profits and losses, *Firm A* records 15.3 million SEK more negative discretionary accruals in years with an ordinary CEO change under model specification (4).

R-squared gradually increases from adding controls, and ends up at 32.0%. This is close to Wilson and Wang (2010) (41.3%) and larger than Menon and Williams (2003) (6.7%) and Herbohn and Ragunathan (2008) (6.4%). However, explanatory power of the two latter studies should rather be compared to specification (3), since they do not control for fixed effects. The goodness-of-fit compared to prior studies indicates that the model is fairly well-specified, lowering the risk for a biased estimate. This conclusion can be generalised to *Panel 2* and *Panel 3* as well.

Although the effect on the coefficient by adding control variables and fixed effects is limited, the estimate in specification (1) does display a minor positive bias towards zero, indicating an omitted variable bias. Scrutinising the first set of control variables, we find that firm size seems to be the source of the bias, being negatively correlated with ordinary CEO changes (indicating that small firms go through CEO change processes more often) as well as being significantly positively correlated with discretionary accruals. Thus, in specification (1), the variable for ordinary CEO changes captures effects linked to firm size. However, adding the second set of control variables and fixed effects have little effect on the estimate, while still adding to R-squared. This means that the beta on the ordinary CEO variable is unbiased by earnings baths and firms wishing to attain positive earnings. Also, time-invariant fixed effects seem to have little impact on the coefficient on ordinary CEO changes.

The magnitude and the negative sign on coefficient on the ordinary CEO change variable is in line with previous studies, such as Geiger and North (2006) (-0.50%) and Wilson and Wang (2010) (-0.32%). While none of the studies managed to find

support in data for a statistically significant correlation between firm years with CEO changes and discretionary accruals, one should note that the comparability of this study to their's is incomplete due to measurement differences. Wilson and Wang (2010) for instance adjusts their discretionary accruals estimate for extraordinary items. This is likely to give the study a smaller coefficient, since earnings management during CEO changes often take the form of large one-time asset impairments. However, the scope of our study is to capture these one-offs, and thus these are included in our proxy for earnings management.

While successful in proving correlation, further discussion is needed to infer a causal relationship. We believe that our model is well-specified in controlling for other factors that influence earnings management. However, we cannot totally rule out spurious correlation. It might be the case that write-downs and provisions for future losses are not caused by the CEO change per se, but rather is a new, accurate judgement of the benefits expected to flow from a firm's assets, in light of the poor financial performance that brings about the CEO change. While financial performance is controlled for in our estimation of discretionary accruals, we do recognise that this method may not capture all aspects. Even so, we argue that the problems of spurious correlation are limited and should not change our conclusions. Another issue is that of reverse causality. One could contend that large negative discretionary accruals is what causes the CEO change, leading us to wrongly infer that CEOs manage earnings. Since our definition of CEO changes makes sure that changes occur prior to closing the books of a financial year, we believe that the probability of this being the case is low. To conclude, while we are aware of the difficulties of claiming causality, we argue that our findings indicate a causal association between ordinary CEO changes and earnings management.

The results provide significant evidence for that the ***big-bath hypothesis*** is accurate in its predictions that incoming CEOs manage earnings downward in the transition year.

The null hypothesis that newly appointed ordinary CEOs do not engage in income decreasing earnings management in the transition year can be rejected in all model specifications.

4.2.2 Effects of ordinary changes in the post-transition year

Hypothesis 3: Newly appointed ordinary CEOs engage in income increasing earnings management in the post-transition year.

The results of the regression analysis outlined in *Panel 2* show a positive coefficient on firm years following an ordinary CEO change regardless of control variables included in the model. The baseline regression displays the smallest coefficient (0.14%), while specification (4) shows the largest (0.38%). Even though the coefficients are insignificant on all levels across all specifications, the changing magnitude of the coefficient indicates that the estimation might suffer from an omitted variable bias.

We identify leverage as the variable that biases the coefficient on CEO changes in specification (1) to be underestimated. ***Positive Accounting Theory*** expects leverage to be positively correlated with earnings management, meaning that firms with high debt to equity ratios are expected to manage earnings upward to stay within debt covenants. However, in line with Elliot and Shaw (1988), we find that a high degree of leverage correlates negatively with discretionary accruals. They argue that this might be caused by firms in financial distress attempting to create public legitimacy through decisive actions, such as making large write-offs. Moreover, as displayed in *Exhibit A* in Appendix, leverage correlates positively with CEO changes, an association we believe is attributable to CEO changes during financial distress and poor firm performance. These contingencies bias the coefficient in specification (1), while successfully controlled for in specification (2).

A potential explanation for our lack of significant evidence is the design of our test variable. Previous studies have used other definitions of the transition year than the one used in this study. A limitation to our choice of definition is that income decreasing earnings management might spill over to the post-transition year if the CEO arrives towards the end of the financial year. The CEO might then not have the opportunity to manage earnings due to the limited time in control, and may decide to wait until the following year. Earnings management by CEOs whose situation fit the above description might consequently offset income increasing earnings management in the post-transition year, and produce a small and statistically insignificant

coefficient. Furthermore, this reversing of accruals might be extended to several years, and dilute the coefficient magnitude in the post-transition year.

Another reason that might explain why we fail to find a significant correlation could be that we focus on the type of CEO, rather than on the type of change. Pourciau (1993), partitioning between routine and non-routine CEO changes, provides evidence for earnings management in the post-transition year after non-routine changes, indicating that a similar division might have helped us in proving our hypothesis. However, Godfrey et al. (2003) finds support for income increasing earnings management in the post-transition year with no such distinction. Wells (2002) does the same division of CEO changes as Pourciau (1993) does, but actually finds significantly negative discretionary accruals in the post-transition year. It is evident that previous literature does not provide a clear view on earnings management in the year after CEO changes. However, we do regard the decision not to partition CEO changes into routine and non-routine as a possible explanation as to why we cannot arrive at significant findings.

In summary, theory predicts ***natural reversing*** of accruals, which is when an ordinary CEOs manages earnings upward in the post-transition year. Stakeholders now hold them accountable for financial results, and bonus programs have come into full operation, leaving the CEO with both a non-financial and a financial upside. However, our results fail to show any significant evidence for CEOs engaging in income increasing earnings management in the post-transition year.

The null hypothesis that newly appointed ordinary CEOs do not engage in income increasing earnings management in the post-transition year cannot be rejected in any model specification.

4.2.3 Effects of interim changes in the transition year

Hypothesis 4: Newly appointed interim CEOs engage in income increasing earnings management in the transition year.

As can be seen in *Panel 3*, the correlation between discretionary accruals and firm years with interim CEO changes is positive across all model specifications, suggesting income increasing earnings management in connection to interim CEO changes. However, we find no evidence for the correlation to be significant. The coefficient

ranges from 0.57% to 1.37%, meaning that *Firm A* reports between about 5.7 and 13.7 million SEK more discretionary accruals in years of interim CEO changes, holding other factors still. However, in the lack of significant results, this cannot be projected on the population as a whole.

A possible explanation to why we find no significant relationship may be due to the short tenure of interim CEOs. Even if our theories regarding interim CEO incentives to manage earnings are correct, he or she may not control the firm long enough to manage earnings. We challenge this view because of two reasons. First, previous literature has found evidence of that interim CEOs are significantly correlated to return on assets and stock price performance (Ballinger and Marcel, 2010), indicating that interim CEOs in fact do have the time to affect the operations of the firm. Second, we argue that the prerequisite we stipulate in our definition of a CEO change – control in the end of the year – combined with the fact that median tenure of the interim CEO in our sample is 130 days, should provide the opportunity and enough time for the interim CEO to affect accounting decisions.

Our failure to provide evidence for the hypothesis of interim CEOs and earnings management could be a result of different motivations from the ones we are suspecting. There is a possibility that some interim CEOs do not wish to become the permanent CEO, and rather enjoyed his or her previous occupation. The costs of earnings management then exceed the expected benefits, leading to that the interim CEO avoids managing earnings upwards, and rather reports accurate numbers to consolidate his or her reputation. In cases where the Chairman steps in as interim CEO, the ***agency theory*** framework is challenged in that a representative of the principal is now simultaneously an agent for a limited period of time. This is likely to reduce any opportunistic behaviour due to that incentives are now better aligned.

Since we have found no indication of previous studies examining earnings management behaviour by interim CEOs in the transition year, we are unfortunately unable to compare our results to prior findings.

The null hypothesis that newly appointed interim CEOs do not engage in income increasing earnings management in the post-transition year cannot be rejected, regardless of model specification.

4.3 Validity of results

4.3.1 Sample critique

Due to the data eliminations made to arrive at our final sample, there is a risk that our sample is unrepresentative. For example, about half of our final sample consists of Small Cap firms. Since small firms have been proved to exercise earnings management to a larger extent than large firms, this may bias our results.

As we excluded firms belonging to the Utilities, Oil and Gas, and Telecommunications industries because of sample size issues, there is a risk of that our results are biased towards particular industries. While we regard this as a limitation to our study, these exclusions were necessary and unavoidable.

Since we eliminated firms with a fiscal year end other than December, our sample is skewed towards firms with regular financial years. We find it hard to believe that choice of financial year-end correlates with earnings management behaviour, and therefore consider this elimination randomised.

Since we only included firms that were listed during the entire time period studied, there is a risk for survivorship bias. Commonly, survivorship biases skew samples toward large, mature firms. In our case, however, a substantial portion of our sample is consists of Small Cap firms, and thus we regard the risk for survivorship bias as low.

When selecting what time period to study, we made sure to include both years of booms and recessions to make sure that our results would not be biased by the economic cycle. Therefore, we argue that there is no time window bias in our sample, and that our results can be generalised across time periods.

4.3.2 Statistical considerations

Multicollinearity

According to Wooldridge (2009), multicollinearity exists when two or more explanatory variables in a multiple regression model are highly, but not perfectly, correlated. Presence of multicollinearity does not violate any of the underlying assumption of OLS models nor harm the power of the model as a whole. However, high correlation between estimators may invalidate the results of an individual

predictor. Therefore, convention is to explore the extent of multicollinearity when using regression models in order to detect whether our test variable is highly correlated with any of the explanatory variables. Researchers can compute statistics providing estimates of whether the multicollinearity between variables is severe, such as VIF[10]. However, Wooldridge (2009) criticises these methods, and claims that there in fact exists no upper bound for when multicollinearity is "too high". With this in mind, we use Pearson's bivariate correlation matrix to assess the issue through judgement (Appendix, Exhibit A). In the matrix, we can see that correlation levels are low, and should not be a problem.

Autocorrelation

An assumption behind fixed effects when applied to panel data is the absence of autocorrelation. Wooldridge (2009) defines autocorrelation as when the error terms from a regression are correlated over time. As autocorrelation causes underestimation of the standard errors and thus overestimation of t-values, it increases the risk of making a Type I error. We test autocorrelation through a test developed by Drukker (2003). The results show that we are unable to reject the null hypothesis of no autocorrelation. However, since a Kernel density estimation plot indicates that the error terms of our regression models are normally distributed, the autocorrelation test can be disregarded and the assumptions behind OLS still hold.

4.3.3 Robustness tests

In order to test our findings for sensitivity in methodology and assumptions, we have carried out a number of robustness tests that one by one alters the design of our study. The robustness tests only retest Hypothesis 1 and Hypothesis 2, where significant results were found. The overall results of the robustness tests can be viewed in Exhibit B in Appendix.

For all tests, each continuous variable (discretionary accruals, leverage, lagged accruals and cash flow from operations) was winsorised with 1% in both tails to adjust for extreme values. Out of the 1869 observations, 36 observations were winsorised for discretionary accruals, lagged total accruals and cash flow from operations, and 18 observations were winsorised for leverage. Robustness test (1) is

[10] Variance inflation factor

done without using the winsorising technique. Results show that both Hypothesis 1 and 2 still hold after unwinsorising the variables.

Using OLS methods requires the presence of homoskedasticity (Wooldridge 2009). Homoskedasticity means that the variance of the unobserved error, u, should be constant. If variances are different across subsamples, the assumption of homoskedasticity does not hold. In the original regressions, heteroskedasticity has been controlled for by heteroskedasticity-consistent standard errors. In robustness test (2), we conduct our tests without this control to explore the existence of heteroskedasticity. Only applicable in regression model, this is consequently not tested for the t-test. As expected, the heteroskedasticity correction does not change our results, and thus does not impact our analysis.

By examining the descriptive statistics in *Table 1*, one might notice that our sample is skewed towards firms classified as Industrials. Although inherent differences across industries are controlled for in one of our model specifications by fixed effects, we find it necessary to test whether our results hold if using a subsample of our data, excluding Industrials. From robustness test (3), we can conclude that while Hypothesis 1 still holds, Hypothesis 2, predicting significant correlation between earnings management and ordinary CEO changes in the transition year, is rejected on all significance levels. We suspect that the loss of significance is attributable to the elimination of observations, resulting in a too small sample size.

Robustness test (4) sets out to see if the results still hold when excluding Denmark from the tests. Under these conditions, we reject the null hypothesis of Hypothesis 1 on a 10% significance level (signed), and on a 1% significance level (absolute). The results from testing Hypothesis 2 still hold. As this study concerns the Nordic countries as a collective, the weakening of results when excluding Denmark does not invalidate our findings.

The need to estimate discretionary accruals for conducting earnings management tests causes the studies to be inherently flawed. While regression models, such as the Jones model, mitigate some of these issues, they are far from perfect in detecting earnings management. For example, Jeter and Shivakumar (1999) find the power of the tests to be relatively low. This is especially true for subtle cases of earnings management, resulting in that large sample sizes are required for detection. Another limitation of

our accruals estimation is that the cross-sectional approach makes the assumption of that all firms in the same industry generates normal accruals according to the same pattern. Broad industry classifications ensure large samples, but reduce the accuracy of the estimate. For example, the assumption that accruals patterns are the same across an industry classification as diverse as Industrials can be considered bold, due to the wide range of business models and products represented in the category. To test the sensitivity of our findings to the choice of estimation model, robustness test (5) estimates discretionary accruals by the Modified Jones model (unadjusted for performance). The results from the tests are mixed. Regardless of estimation model, Hypothesis 2 still holds. Although we are still able to reject the null hypothesis for Hypothesis 1, the sign of the coefficient on non-absolute discretionary accruals changes from slightly positive to strongly negative. This indicates that our assumptions are fairly sensitive as to what estimation model is used. However, we regard the performance-adjusted Modified Jones model as better specified and will thus draw our conclusions on the results from our original model specifications.

5. Conclusion and suggestions for future research

In this section, we conclude our findings and their implications. We also give ideas for future research.

We believe that this study has made a valuable contribution to the current state of knowledge within the earnings management literature. Evidence has been found for that Nordic firms systematically manage earnings to a value of 0.3% of beginning assets each year. Adjusting this for offsetting income increasing and decreasing earnings management, discretionary accruals affect earnings to an absolute value of 6.0% of total assets. For a firm with total assets of 1 billion SEK, this means earnings management to a magnitude of 60 milllion. In our opinion, this is an economically significant amount of earnings manipulation.

Support is found in data for a significantly negative correlation between earnings management and ordinary CEO changes in the year of the transition. In a year with a CEO change, firms on average record 1.5% more negative accruals than in normal years. For the firm mentioned above, this translates into about 10.5 million SEK. While we cannot say for sure without further tests, we argue that much indicates that this relationship can be interpreted to be causal. We suggest that future researchers investigate the possibility of introducing an instrumental variable, in order to control for reverse causality.

With expectations of accruals to reverse in the subsequent year, our study fails to establish any association between years following ordinary CEO changes and earnings management. By continuing to refine the technique of how to assign the transition year between the outgoing and incoming CEO, future research might have a better chance at providing evidence for this activity.

We have found no significant evidence of that interim CEOs engage in income-increasing earnings management in the transition year. We rather hope that our results can be seen as an indication of differences in earnings management behaviour by ordinary and interim CEOs in association with CEO changes, helping future researchers to adjust for this in their studies, for example by excluding interim CEOs from the data sample.

In our opinion, earnings management is a serious threat to the public's faith in the equity markets. Firms' ability to raise funds at reasonable prices constantly needs to be safeguarded, as it constitutes a vital part of a dynamic market economy. We hope that our results can promote better decision-making in the investor community, and help financial analysts to be more vigilant against earnings management and its association with CEO changes.

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Appendix

Exhibit A – Correlation matrix

Combined correlation matrix between CEO change variables and control variables			
Variable	**Ordinary CEO - Transition year**	**Ordinary CEO - Post-transition year**	**Interim CEO - Transition year**
Leverage	0,008	-0,002	0.047*
Size	-0,024	0,003	-0,005
Lagged total accruals	0,017	-0,002	-0.050*
Cash flow from operations	-0,042	-0,034	-0,033
Business cycle	0,023	0,029	0.122*
IFRS	0.141*	0.058*	-0,017
Earnings bath	-0,007	-0,021	-0,028
Positive earnings	-0.051*	-0,009	0,009

Exhibit B – Robustness of findings

T-test and ordinary least squares: Robustness of findings

Robustness test	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
			Discretionary accruals		
T-test					
Discretionary accruals	0.29%*	-	0.44%**	0.28%*	-4.66%***
Absolute value discretionary accruals	6.19%***	-	5.94%***	6.09%***	7.80%***
Ordinary least squares [a]					
Ordinary CEO - Transition year	-1.48%**	-1.53%***	-0.36%	-1.61%***	-1.67%***
Robust standard errors	0.62%	0.52%	0.71%	0.59%	0.59%
Observations	1868	1868	1034	1670	1868
R-squared	31.7%	32.0%	28.3%	31.4%	39.3%

Note: Test for 2002-2010. T-test of discretionary accruals and regressions of discretionary accruals on CEO changes (% of beginning assets)
Statistically significant coefficients are expressed as follows: *** p<0.01, ** p<0.05, * p<0.1
[a] Model specification (4), including baseline regression, controls, benchmark controls and fixed effects.
(1) Unwinsorised
(2) Uncorrected for heteroskedasticity
(3) Excluding Industrials
(4) Excluding Denmark
(5) Discretionary accruals estimated using Modified Jones model

Exhibit C – Model specifications

$$\text{Discretionary accruals}_{it} = \alpha_1 + \delta_1 \text{CEOchange}_{it} + \varepsilon_{1it} \quad (1)$$

$$\text{Discretionary accruals}_{it} = \alpha_2 + \delta_1 \text{CEOchange}_{it} + \theta + \varepsilon_{2it} \quad (2)$$

$$\text{Discretionary accruals}_{it} = \alpha_3 + \delta_1 \text{CEOchange}_{it} + \theta + \varphi + \varepsilon_{3it} \quad (3)$$

$$\text{Discretionary accruals}_{it} = \alpha_4 + \delta_1 \text{CEOchange}_{it} + \theta + \varphi + \text{Fixed effects} + \varepsilon_{4it} \quad (4)$$

$$\theta = \beta_1 \text{Leverage}_{it} + \beta_2 \text{Firm Size}_{it} + \beta_3 \text{Cash flow from operations}_{it} + \beta_4 \text{Lagged accruals}_{it} + \beta_5 \text{IFRS}_t + \beta_6 \text{Business cycle}_t$$

$$\varphi = \beta_7 \text{Earnings bath}_{it} + \beta_8 \text{Positive earnings}_{it}$$

$$\text{Fixed effects} = \text{Year, Industry, Firm and Country}$$