The opportunistic aspects of financial reporting have largely been investigated under the umbrella term of earnings management. However, most research is devoted to capital market settings and listed firms in large economies, including the United States in particular. As a contrast, this dissertation examines earnings management based on tax incentives among private firms in European settings. In particular, the four interrelated essays analyze situations where the statutory corporate tax rate in a country is changed and firms are expected to report lower (higher) earnings while the tax rate is higher (lower) to reduce their total tax burden. While these tax changes are introduced to enhance international tax competitiveness, they also give rise to strong incentives for earnings management. For example, when the tax rate is to be decreased, firms may employ various accruals to defer earnings from high to low tax periods.

The first essay of the dissertation contributes to the literature by investigating decomposed measures of earnings management instead of relying on a broad measure that does not provide much insight. Based on Swedish private firms, the analyses clearly show income-decreasing earnings management on the aggregate level before two tax rate cuts. The aggregate results are later observed to be largely driven by unexpected changes in accounts receivable.

The second essay uses Finnish data and provides evidence that private firms, under certain circumstances, also change the end of the fiscal year to achieve benefits around tax reforms. Further, the analyses demonstrate that a reform that simultaneously lowers corporate tax and hikes dividend tax creates conflicting incentives to manage earnings.

The motivation behind the third essay stems from the debate on the appropriate level of book-tax conformity. The essay documents that higher conformity between accounting and tax reporting in jurisdictions is associated with more earnings management in response to an upcoming change in the tax rate. A contribution of this study is the analysis of a clear incentive for earnings management instead of a sole focus on absolute measures.

In the fourth and final essay, private firms that use external help in the financial reporting process are separated from firms that do not. The hypothesis is that firms, that handle their accounting function internally, have greater possibilities to influence their reporting opportunistically. The results also suggest that the minority of smaller private firms who perform the tasks in-house, and have the knowledge and resources needed, are able to manage taxes to a larger extent.
Dennis Sundvik

Earnings Management in Response to Corporate Tax Rate Changes

Essays on Private Firms

Helsinki 2016
Earnings Management in Response to Corporate Tax Rate Changes: Essays on Private Firms

Key words: Earnings management, tax reforms, discretionary accruals, tax incentives

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PART I

BACKGROUND, THEORY, METHODS AND FINDINGS
1 INTRODUCTION

1.1 Background and research context

This doctoral dissertation examines earnings management in response to corporate tax rate changes in a private firm context. By definition, the topic of this dissertation is therefore linked with the financial reporting processes of firms. In general, firms engage in financial reporting and disclosure activities to communicate information to outsiders on how the firm is performing and how it is governed. One of the ultimate products of the financial reporting process, the financial information or the statutory financial statements, may become particularly useful to different stakeholders in the making of future economic decisions concerning investments and resource allocation. This is especially true in the context of public firms that are listed and traded on a stock exchange because the stakeholders of these firms primarily retrieve information about a firm’s financial position via the official financial statements. Another common characteristic of public firms is that they have minimal managerial ownership and a large number of shares that frequently change owners on publicly traded stock markets. In many cases, the owners or shareholders of public firms are also quite geographically dispersed. Meanwhile, the opposite applies to private firms. These private firms, at the other end of the spectrum, cannot offer their shares to the public and they are not listed on any stock exchange. Furthermore, private firms generally produce financial reports for other reasons than public firms and outside investors more rarely take the role of the most influential stakeholder.

The core focus of this dissertation is involved with the financial reporting of non-listed firms, and more specifically private limited liability firms. These private firms make up the foundation of the global economy and are an important source of economic growth, since they contribute deeply to employment, entrepreneurship, and innovation in countries worldwide. Furthermore, most firms operating in the European Union (EU) are privately held. In fact, micro, small and medium-sized enterprises constitute up to 99 percent of all firms in the EU. In contrast to public firms, these firms are generally more closely held, have a shorter owner-manager distance and their shares are not publicly traded. The major objective of financial reporting in private firms is therefore not to inform financial statement users such as investors about the financial performance of the firm. Rather, the financial reporting objectives of private firms are more likely to be influenced by issues of taxation and dividend distribution (Ball and Shivakumar, 2005).

Ideally, managers of firms should use internal information to prepare external information that gives a true and fair view of the firm’s financial state and performance. In essence, this means that firms should report both relevant and reliable accounting information to outsiders. Completely reliable reporting would be based on realized cash flows alone. However, in a limited space of time, cash flows are associated with severe matching and timing problems due to the fact that cash is not always flowing in during the same period as the related business transactions take place. This makes firm cash flows a performance measure filled with noise (Dechow, 1994). Completely relevant reporting, on the other hand, would be based on the current value of expected future
cash flows. Thereby, the concept of accrual accounting is introduced on the financial reporting arena, and simultaneously, components of discretion.

The periodical earnings of a firm are commonly defined as the sum of cash flows and accruals. The latter component separates the recognition of revenues and expenses from actual cash flows. The relevance of financial reports increases as accruals recognize the effects of various transactions when they occur rather than when the cash flows are realized. However, the reliability of the reported accounting information usually suffers when the relevance increases because accruals also introduce an element of discretion. This is because managers must, to some extent, make certain decisions and different subjective assessments of different assets and liabilities when preparing the financial statements. Examples of such decisions and assessments are to determine the depreciable lives of assets or when to recognize bad debt. Generally speaking, this discretion or flexibility in financial reporting may be utilized in two separate ways. First, the discretion may be used to reduce the information asymmetry between managers and owners by enhancing the relevance of the financial statements. Second, the discretion may also be utilized in an opportunistic manner. When such opportunistic behavior is involved in the financial reporting process, marginally adjusted earnings can be presented as actual earnings by the management. For example, with the help of different accrual adjustments, the management of a stock-listed firm may opportunistically adjust a small loss upwards so that it miraculously transforms into a small profit. This is a plausible scenario when the management knows that zero earnings are an important target to beat and positive earnings are interpreted as a positive sign on the stock market. Considering that a public firm manager’s wealth is generally tied directly to the firm’s stock price movements and because target beating decreases employment risk, it is not surprising that these managers would try to use the discretion myopically in an opportunistic manner. A plethora of accounting studies has examined the opportunistic aspects of financial reporting under the umbrella term of earnings management.

The concept of earnings management may be understood as the use of judgment and subjectivity in the preparation of the financial statements due to some ulterior motive. In most cases, earnings management is considered to lie within the frames of what Generally Accepted Accounting Principles (GAAP) allow. In other words, earnings management is not something illegal per se, but different stakeholders may be misled about the economic performance of a firm who is involved with earnings management. When accruals are managed, the term accrual-based earnings management is commonly used. Recent research has also considered the act of real earnings management, which in contrast to accrual-based earnings management affects cash flows and involves the management of operational activities such as sales manipulation, overproduction and the reduction of discretionary expenses. In the context of this dissertation, it may be noted that the financial reporting processes of neither public nor private firms are completely free from discretion. Most of the prior earnings management research, however, is devoted to publicly traded firms in large and developed economies, including the United States (US) in particular. For instance, public firms and their managers have been noted to manipulate earnings in order to influence the way that the firms’ stock prices and managers’ bonus-related compensation evolve (Healy, 1985). Researchers also document that firms engage in
earnings management to avoid the violation of debt covenants (DeFond and Jiambalvo, 1994) and to reduce political costs (Jones, 1991). This dissertation contributes to this line of research with four essays examining the accrual-based earnings management activities of private firms in non-US settings. The dissertation also contributes to the stream of research studying the link between taxation and earnings management, which has received relatively little attention in the prior literature. The events of study in the essays within this dissertation are all situations where the statutory corporate tax rate in a country is changed. These events are recognized as strong incentives for earnings management and various reforms are analyzed, both in a single-country context and with an international perspective.

Changes in the corporate tax rate are also recognized as a strong incentive for earnings management in the prior literature. Guenther (1994), among others, focuses on intertemporal income shifting and analyzes a historical US tax reform which reduced the maximum corporate tax rate from 46 percent to 34 percent. Based on this large tax rate decrease, managers wanting to minimize the tax expense of their firm were expected to accelerate deductions into tax years before the effective year of the tax reform and postpone income into tax years after the introduction of the lowered tax rate. In other words, firms were expected to report lower earnings while the tax rate was higher and subsequently higher earnings when the tax rate was lower in order to reduce their total tax burden. According to the empirical results, large public firms and firms with low debt levels reported significantly negative current accruals for the year prior to the tax rate reduction. Recent research also indicates that private firms manage earnings more than public firms in the event of a corporate tax rate change (Lin, Mills and Zhang, 2014). This finding is consistent with the view that private firms are more aggressive tax planners (Shackelford and Shevlin, 2001). One underlying argument is that private firms face fewer agency problems than do public firms. Another argument is that private firms face less capital market pressure in relation to public firms. More specifically, the private firms are not driven by conflicting and strong incentives to show high earnings to the same extent as their public counterparty. In addition to this, corporate taxes are often seen as an unappealing cost in many private firms and these firms are habitually eager to minimize such costs.

In the previous literature on earnings management in general and corporate tax rate changes in particular, private firms have received only limited attention. Studies focusing on private firms in isolation are especially rare. Another characteristic of earlier studies is the solitary application of broad-based measures of earnings management such as total discretionary accruals that do not provide much insight into how the earnings are managed. Prior earnings management studies with a focus on corporate tax rate changes have neither undertaken cross-jurisdictional investigations nor examined alternatives to earnings management to any larger degree. Furthermore, previous studies on intertemporal income shifting also lack in terms of joint evaluations of tax reforms that create conflicting incentives (Shackelford and Shevlin, 2001). Hanlon and Heizman (2010) also call for more work to help understand the reporting behavior of privately held firms overall and especially with respect to taxation. They also encourage the use of private firms in research, not only as a comparison group for publicly held firms. The investigations performed within the scope of this dissertation are a response to this call.
1.2 Objective of the dissertation and research questions

The objective of the dissertation is to enhance the understanding about tax-induced earnings management in private firms. More closely, the goal is to examine the effect of changes in statutory corporate tax rates on measures of earnings management in private non-listed firms. The dissertation is composed of four related empirical essays. A central theme in all of the essays is that tax reforms where the statutory corporate tax rate is reduced are used as the events of study. The main research questions posed in the individual essays are the following:

1. How do firms manage earnings through accruals around statutory corporate tax rate changes?

2. Are alternative tax-minimization tools other than earnings management exploited when the statutory corporate tax rate is reduced?

3. Are the earnings of private firms managed more around corporate tax rate reductions in high book-tax conformity jurisdictions than in low book-tax conformity jurisdictions?

4. Does outsourcing of accounting tasks affect the magnitude of the earnings management reaction to a reduction in the corporate tax rate?

By answering the first research question, an understanding about the specific earnings management vehicles or specific accruals used in this particular context may be given. Prior literature has mainly focused on broader earnings management metrics and the answer to this research question may provide greater insight into how the earnings are managed. The second question is concerned with surrogates for earnings management in settings where the corporate tax rate is to be changed. One potential substitute is to change the end of the fiscal year to take advantage of a lower corporate tax rate prematurely. Another is the incentive to manage earnings in a conflicting direction based on dividend tax considerations. In the third research question, an international perspective is applied. This perspective sheds light on cross-jurisdictional differences in the response to corporate tax rate changes with a special focus on the conformity between book and tax income. That is, how closely financial accounting profits and taxable profits are linked. Finally, the answer to the fourth research question potentially enhances our understanding about factors that limit the extent of earnings management around corporate tax rate changes. Here, accounting service providers are considered as potential mitigating parties.

The research questions are answered in the following essays. Each essay is numerically linked with one research question, so that the first essay provides an answer to the first research question, et cetera. To clarify the contributions of the individual essays, this first part of the dissertation also provides a chapter where the essays are summarized. The contributions of the individual essays are subsequently also connected to each other in order to clarify the contributions of the dissertation as a whole.
1.3 Research process

The research methodology applied within this doctoral dissertation follows well-established traditions in financial accounting research. Furthermore, positive accounting research is conducted, which tries to offer an explanation of accounting practice in line with Watts and Zimmerman (1978; 1986; 1990). In each of the four essays, the main research method applied is multivariate regression analysis. This form of analysis is supplemented with graphical and numerical descriptive statistics, tests of mean and median, and correlation analyses. Empirical measures of discretionary accruals and unexpected specific accruals are computed as proxies for earnings management. The variables used for estimating the proxies of earnings management and the control variables are retrieved from the financial statement data of limited liability firms that meet certain requirements. Actual tax return data is used together with financial statement data in one of the essays. Furthermore, the sample firms in each essay only comprise private firms. These firms are foremost registered in Finland and Sweden, but also in other European countries.

1.4 Outline

The remainder of the first part of the dissertation is organized as follows. Chapter 2 includes a literature review with a presentation of the relevant framework on earnings management, which defines the concept and evidence thereof, with a specific focus on the difference between private and public firms. The second chapter also includes an overview on how earnings management has been measured in the previous literature. In Chapter 3, particular attention is given to earnings management fueled by tax incentives such as earnings management in response to corporate tax reforms. Here, the previous tax research in accounting, the role of book-tax conformity and alternative responses to tax reforms are also discussed. Chapter 4 provides a summary of each essay. The essays are presented in their complete form in the second part of this dissertation. Lastly, Chapter 5 concludes the first part of the dissertation.
2 LITERATURE REVIEW OF EARNINGS MANAGEMENT

This chapter discusses various aspects of earnings management. These aspects are fueled by the questions pertaining to what the concept is all about, how earnings management has been measured in accounting literature and the kind of situations where earnings management has been empirically shown to occur. The theoretical underpinnings of earnings management are also discussed within this chapter, in addition to an explanation as to why earnings management should be perceived differently in private and public firms.

2.1 Definition of earnings management

The concept of earnings management stems from the trade-off between relevance and reliability in financial reporting. Highly relevant financial reports solely include realized cash flows, whereas highly reliable reports are concerned with the current value of expected future cash flows. Since accounting rules and legislation demand a portion of both relevance and reliability, financial reporting is therefore associated with certain elements of discretion as discussed in the introduction to this dissertation. This is also where earnings management comes forward.

Academic accounting literature has seen many definitions of the term earnings management. Derived from the opportunistic use of the discretion in financial reporting, early literature defined the notion of earnings management as “a purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain” (Schipper, 1989:92). Here, earnings management is viewed through an opportunistic lens. This is also something that is done in the popular definition of Healy and Wahlen (1999). They discuss the concept as a firm’s alteration in its financial reports or reported economic performance with the ultimate goal of either misleading stakeholders or influencing the outcomes of contracts that are based on accounting numbers. In both of these definitions, earnings management is restricted to the management of accounting accruals. More than a decade later, in a somewhat broader definition, Walker (2013) perceives earnings management as:

“The use of managerial discretion over (within GAAP) accounting choices, earnings reporting choices, and real economic decisions to influence how underlying economic events are reflected in one or more measures of earnings.” (Walker, 2013:446)

This contemporary definition is involved with accrual-based earnings management or accounting choices, as well as real earnings management or economic choices. In other words, this definition allows for the management of both components of earnings, namely accruals as well as cash flows. Schipper (1989) also discusses the real form of earnings management as a possible extension to her definition by including acts such as the timing of real investments and financing decisions. In the view of Beneish (2001), however, earnings management is a pure financial reporting phenomenon and does not encompass deviations from rational investment behavior. In the empirical essays of this
dissertation, the accrual form is the only one tested for. Firstly, this is due to the costly nature of real earnings management relating to the direct cash flow effect. Managers could cut marketing and advertising costs to save cash in the current period as an example of upward real earnings management. However, such actions will negatively affect future sales and cash flows. Similarly, if shipments of merchandise are delayed as another real action example, the short-term result will be lower earnings and cash flows. However, an indirect effect will also be dissatisfied customers and inventory holding costs which may result in other cash flow effects. In contrast, accounting choices may allow earnings to be managed upwards or downwards without direct effects on cash flow. Examples of accrual-based earnings management would be to expense rather than capitalize items as much as possible or to increase the bad debt provision to the maximum allowed. These actions will have a negative effect on earnings, although the cash flows will not directly be affected. Secondly, due to the lack of detailed information on cash flow among private firms, the accrual form of earnings management is the only form tested for.

In line with Walker (2013), Beneish (2001) takes two views on earnings management by noting the opportunistic behavior perspective as well as an information perspective. From the information viewpoint, earnings management occurs when the management wants to communicate or signal their private expectations about future cash flows to external parties. The goal of informative earnings management is to improve the relevance of the financial reporting and enhance the usefulness of the financial statement information. This is something that would increase value, in contrast to the opportunistic standpoint whereby managers act out of self-interest and thus, decrease value through their actions. The information perspective is also presented in Dechow and Skinner (2000) and Scott (2014). However, in the remainder of this dissertation, the term “earnings management” more or less refers to the opportunistic form of earnings manipulation. Earnings management is frequently also used as an indicator for financial reporting quality or earnings quality in the financial accounting literature, where more absolute earnings management is equal to lower quality earnings and where higher quality is preferred (Dechow, Ge and Schrand 2010).

Generally, both earnings management through accounting choices and through real economic choices are considered as legal actions. In other words, earnings management is seldom attributed to fraudulent accounting. Meanwhile, it is important to note that earnings management often precedes fraud. In an analysis of earnings management research, Dechow and Skinner (2000) distinguish between conservative and aggressive accounting with neutral accounting in between. All of these are positioned within GAAP where neutral accounting is not intervened by any form of earnings management. Fraudulent accounting, on the other hand, violates GAAP and is commonly not considered within the scope of earnings management. An example of such directly fraudulent reporting would be to record fictitious sales in order to boost profits, whereas the real earnings management surrogate would be to accelerate sales by granting price discounts or offering lighter credit terms. An example of aggressive accounting within GAAP is to understated the provision for bad debts. This dissertation does not consider fraud in the definition of earnings management.
Many of the definitions of earnings management do not rely on any income statement item in particular. For example, the definition of Healy and Wahlen (1999) argues that earnings management has an impact through accounting numbers, which mean that various financial ratios or disclosures of other forms may also be altered. In other definitions, it is deliberately stated that net income is the earnings number being manipulated. In the empirical part of this dissertation, the firms are expected to particularly alter the items that have an impact on the taxable income figure.

2.2 Theoretical foundations of earnings management

One of the key theoretical foundations in the studies of earnings management is agency theory. The concept of agency theory was introduced by Jensen and Meckling (1976) and this theory highlights the conflict of interest between principals and agents. In the practical context of firms and earnings management, these two parties are observed as the owners and managers of the firms, respectively. According to Jensen and Meckling, a firm may be viewed as a nexus of contracts or contracting relationships. Here, the contracts are for instance different forms of compensation contracts of managers and financial contracts between the firm and its creditors or debtholders. The owners of a firm will be rewarded with the residual profits that remain once the management and debtholders and other stakeholders have received their contractual rewards. Based on the contracts, potential conflicts may arise between the managers that run the firm and the owners of the firm. Conflicts may also evolve between the owners or shareholders and the other external parties such as debtholders. According to agency theory, there are also potential information asymmetries between the managers and external owners. First, a moral hazard problem may emerge when the external owners cannot observe the actions and choices of the management. Naturally, it is not easy for outer parties to determine the riskiness of investment choices, manager workload, or whether the inside managers act out of self-interest or not. Second, there is an adverse selection problem because managers have private access to valuable information. In other words, inside managers may know more about the firm’s financial performance than its outside owners.

As such, agency theory adds something to the explanation as to why there is an information demand among debtholders and shareholders. However, agency theory does not directly explain why accounting earnings may be useful for contracting purposes. When considering the central role of contracts, it is very likely that earnings management could be driven by contractual concerns. For instance, the opportunistic behavior perspective takes the contracts as given and predicts how managers will behave with respect to the contracts that the firm has accepted (Watts and Zimmermann, 1986). According to another view, termed as the efficient contracting perspective of Holthausen (1990), all stakeholders are rational and know that anything is possible in the playing field, including earnings management. Therefore, the parties will see through the act of earnings management and incorporate this possibility in the contract. In this manner, the parties work out the efficient trade-off of the costs and benefits of earnings management. Finally, the information perspective on earnings management focuses more on the adverse selection problem rather than the problem of moral hazard. In this perspective, it is in the interest of investors to encourage
managers to communicate some of the inside information relevant to predicting future cash flows. When managers are allowed to utilize some discretion over reported earnings, and when they use the discretion to communicate their private information, all interested parties will gain from it.

These agency issues are, however, not applicable in all types of firms per se. For instance, the agency issues between owners and managers and between other groups, such as owners and lenders, differ in private and public firms. According to Ball and Shivakumar (2005), private firms are less likely to be affected by these issues than public firms. Private firms could, for example, be owner-managed and in that case, any change in the firm value will be directly reflected in the wealth of the owner. In such a scenario, any observed discretion in the financial reporting process can be attributed to rational maximization of value rather than to opportunistic incentives. The fact that ownership in private firms tends to be much more concentrated among insiders leads to more aligned incentives of owners and managers. Likewise, owners that do not manage the private firm are generally also insiders, such as board members and relatives, and these people most probably demand lower quality information when communicating with the managers of the firm (Ball and Shivakumar, 2005). The following section will more thoroughly distinguish between private and public firms, both by comparing the innate characteristics and by considering the varying incentives for earnings management in these firms.

2.3 Earnings management in private versus public firms

For several decades, the engagement in earnings management among public firms (i.e., listed firms with publicly traded securities) has been studied extensively in accounting literature. Meanwhile, the number of studies incorporating private firms (i.e., non-listed private limited liability firms) has remained quite small. One large reason for this lagged second wave of private firm research likely relates to issues of data availability. Another potential reason is that public firms are often portrayed as having greater incentives for earnings management and therefore pose as more lucrative research objects. More recently, studies on private firms have started to emerge not only as a comparison group for public firms, for example, but also independently to test specific hypotheses in the particular context of these firms. In a discussion about earnings management regarding private and public firms, it is however of primary importance to remember the intrinsic similarities and differences between the two firm types.

Although there may be jurisdictional differences in the regulatory environment for private and public firms, in most important aspects, the regulatory regimes that govern financial reporting are often equivalent to both types of firms (Ball and Shivakumar, 2005). To begin with, there are only minor differences with respect to the firm name regulations. In many countries, public firms must be identified by including an indication of them being a public firm in the firm name. Both groups commonly have a minimum share capital requirement before business activities may be initiated,
and the public requirement is often relatively higher. Furthermore, the purpose of the business activities is to generate profits for the shareholders, unless another purpose is provided in the articles of association. Both types of firms must also file their financial statements within a limited period of time after the end of the fiscal year. In addition, the financial statements must be prepared in accordance with applicable accounting standards and in line with GAAP. In the EU, firms listed in European securities markets are also required to apply International Financial Reporting Standards (IFRS). Listed firms are also required to provide additional disclosure. The financial statements of both firm types must, however, normally be audited if the firm exceeds a certain size. All in all, the regulatory influences are generally similar to both privately held firms and publicly traded corporations since accounting regulation is based on legal form.

While private limited firms face roughly the same accounting standards as public firms, capital market forces largely affect the latter while the effect on the former is significantly smaller. This is one of the major factors that drive differences in earnings management in private versus public firms. Private firms also differentiate from public firms in terms of several other related features (Van Tendeloo and Vanstraelen, 2008; Hope, Thomas and Vyas, 2013). For example, in terms of ownership, financing, governance, and executive and compensation structures, these groups differ from each other. To begin with, private firms are more closely held than public firms and they are often owner-managed whereas public firms have external managers. Additionally, private firms are commonly family-owned and family-governed. Another classic characteristic of private firms is that major capital providers often have insider access to internal information and take a more active role in management (Chen, Hope, Li and Wang, 2011). In addition, private firms cannot attract capital from public capital markets nor are their shares publicly traded as in the case of public firms. The financial statements of private firms are also not widely distributed to the public. Lastly, the wealth of public firm managers is generally also tied directly to the firm’s stock performance.

A primary difference between public and private firms also lies in the size of the firm (Hope et al., 2013). This factor can account for a variety of reporting incentives. While there are of course many enormous private corporations, the fact still remains that 99 percent of all firms in the EU are micro, small and medium-sized enterprises. Furthermore, an interesting characteristic of smaller private firms is that they do not always prepare their financial statements themselves. This has also been recognized in prior research, and since many small businesses do not have the know-how or resources needed to produce the financial statements internally, the accounting tasks are instead commonly outsourced to an external service provider (Everaert, Sarens and Rommel, 2007; Niemi, Kinnunen, Ojala and Troberg, 2012; Ojala, Niskanen, Collis and Pajunen, 2014). In a firm that uses external help in the financial reporting process, the actual preparer role of the financial statements is shifted from within the firm to the outside. Whether the accounting is done completely externally or without external intervention may also be considered as a crucial factor with respect to the extent of

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1 E.g., the minimum share capital of a Finnish private limited liability company shall be EUR 2,500 and that of a public limited liability company EUR 80,000 (Limited Liability Companies Act – Finland 624/2006, Chapter 1, Section 3).
earnings management in a firm. This is because the external party might act as an additional monitoring mechanism to the firm, in addition to the mandatory auditors.

Prior studies have exploited the many important differences between the firm types and compared the financial reporting quality or the extent of earnings management in private versus public firms. In this context, higher quality is associated with less earnings management, and vice versa. As a first example, Burgstahler, Hail and Leuz (2006) find that European private firms engage in more earnings management when compared with public firms. This is interpreted as evidence of higher quality reporting in public firms. Similarly, Ball and Shivakumar (2005) document that public firms report more conservatively than private firms and that earnings quality is therefore lower in private firms. Instead of using a measure of earnings management, they use a measure of accounting conservatism. More recently, Hope et al. (2013) examine US firms and found that public firms in general report with higher quality and more conservatively. Earlier studies that focus on more restricted samples, present alternative findings. For instance, Beatty and Harris (1999) and Beatty, Ke and Petroni (2002) find more earnings management among public banks than among private banks. Meanwhile, Sundgren (2007) finds no significant difference in earnings management between Finnish listed and non-listed firms.

Furthermore, researchers commonly explain the potential differences between private and public firms with a hypothesis of demand. For instance, Ball and Shivakumar (2005) argue that the documented differences depend on the demand for and supply of financial reporting. The reason that there is high demand for financial reporting in public firms arises from the information asymmetry between managers and other stakeholders that include shareholders, lenders, suppliers and customers. High quality financial reporting could potentially reduce this asymmetry. Meanwhile, private firms are more likely to resolve the information asymmetry problem with the help of insider access mechanisms. The same mechanisms are not allowed among public firms due to formal insider regulation. The findings of higher reporting quality in public firms are supported by this demand hypothesis. Furthermore, it is also argued that the demand for quality information in private firms arises more from other sources, such as tax, dividend and compensation payment policies, and objectives other than meeting the information needs of external capital providers. In general, the line of arguments in Hope et al. (2013) follows the same pattern.

However, Hope et al. (2013) continue the public-private firm analysis and find that public firms are more eager to engage in earnings management in certain settings where such firms have stronger underlying incentives as exemplified by earnings target beating or when they face a reduced demand for their financial information. This finding is based on an opportunistic behavior hypothesis which suggests that managers of public firms conceal true performance from outside parties via manipulation of financial information. The major driver behind this hypothesis is the fact that public firms are subject to capital market pressures, whereas private firms are not. This fact increases the earnings management incentives of public firms (Graham, Harvey and Rajgopal, 2005). Other incentives may of course also motivate managers to manage earnings. These are further discussed in Chapter 2.5.
2.4 Statistical measures used to detect earnings management

One central problem with the study of earnings management is an issue of measurement. The underlying reason for this issue is that earnings management is not directly observable from the financial statements of a firm. Correctly speaking, earnings management tends to be rather invisible and for it to be successful its occurrence normally needs to go undetected. Earnings management cannot even be correctly measured if a researcher knows that the management of a firm has engaged in such behavior. There are bodies, such as the US Securities and Exchange Commission (SEC), who issue restatement requirements for firms with alleged accounting and/or auditing misconduct. In practice, however, firms and managers under investigation have often crossed the line between what is earnings management and what is outright fraud (Dechow and Skinner, 2000). Based on the need for systematic measures of direct earnings management in large samples, researchers have endeavored to measure the extent of manipulation in earnings in various ways. A result of this endeavor is a whole stream of accounting literature that solely focuses on the development of various measurement models and variations to prior methods. This stream of research is, however, also important because the results of earnings management studies hinge critically on the performance of the underlying models because the researcher typically draws major inferences based on the outcome measures.

McNichols (2000) recognizes three frequently used research approaches to measure earnings management: the aggregate accruals approach, the specific accruals approach, and the distributional approach. Early earnings management literature had a tendency to rely on a single accounting choice at a time, for instance by comparing the inventory valuation scheme last in first out with the alternative of first in first out. However, researchers soon realized that firms have discretion over a number of items. A result of this insight was the birth of aggregate accruals models where all of the firm’s choices may be captured in a single number. Healy (1985) and DeAngelo (1986) were the first to use total accruals and the change in total accruals, respectively, to measure management discretion over earnings. The accrual component of earnings was either determined with a cash flow approach or with a balance sheet approach. With a cash flow approach, total accruals are estimated by the difference between reported accounting earnings and cash flows from operations. With a balance sheet approach, the accruals are typically captured by the annual changes in accounts receivable and inventory minus annual changes in accounts payable minus depreciation and amortization expense. Subsequent to these pieces of research, Jones (1991) applies a regression approach to model normal or non-discretionary accruals as a linear function of change in sales and gross property, plant and equipment. By doing so, she could analyze the abnormal or discretionary accruals that remained when normal accruals were subtracted from total accruals. These discretionary accruals are then interpreted as earnings management. Put differently, discretionary accruals are separated from

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2 Total accruals (TACC) are assumed to include both discretionary (DACC) and non-discretionary (NDACC) components. Mathematically, it can be expressed in the following way: TACC = DACC + NDACC. The discretionary accruals are accruals that the management has control over whereas the non-discretionary accruals constitute the expected level of accruals or accruals that the management has no or little control over (e.g., accruals mandated by different accounting rules).
non-discretionary accruals in the same way as wheat is separated from the chaff. In the original model, Jones (1991) estimates the regression coefficients using a firm specific time series comprising data prior to an event year. The expected level of accruals was then calculated using the estimated coefficients with event year data. What began as a small step examining firms that would benefit from import reliefs soon progressed to a giant leap in the earnings management literature. Since the introduction of the Jones model, discretionary accruals have been the most popular proxy for earnings management in the accounting and finance literature. Several researchers also develop the model of Jones (1991) into a model with greater statistical performance (e.g., Dechow, Sloan and Sweeney, 1995; Kothari, Leone and Wasley, 2005). Walker (2013) argues that the growth of interest in the topic of earnings management was, to some extent, partly driven by the advent of these readily calculable metrics. Other researchers have also evolved the detection models. For example, DeFond and Jiambalvo (1994) and Peasnell, Pope and Young (2000) suggest that abnormal accruals models should be estimated cross-sectionally for every industry. Later, Dechow and Dichev (2002) propose a model based on cash flows and accrual reversals that have frequently been used as a measure of accrual quality. More recently, Dechow, Hutton, Kim and Sloan (2012) provide a new approach to test for accrual-based earnings management that can be used when the researcher has priors concerning the timing of accrual reversals. In this discussion, a remark could be interjected that the measures used to capture real earnings management developed by Roychowdhury (2006) largely resemble the discretionary accrual approach. Roychowdhury (2006) introduced archival measures of abnormal cash flows from operations, abnormal discretionary expenses, and abnormal production costs that also use an abnormal component or the residuals from various linear regressions as a proxy for real earnings management.

Despite the popularity of the aggregate accruals approach, this detection method has been subject to a wide front of criticism. For instance, Dechow et al. (1995) find that most accrual-based tests estimate discretionary accruals with error. Additionally, Dechow and Skinner (2000) state that the early methodologies are not that good at identifying earnings management. Furthermore, Thomas and Zhang (2000) show that many of the discretionary accrual models do not perform better than a simple assumption that the total accruals proportion equals -5 percent of total assets. The data requirements in the specific Jones (1991) time series models have also been connected with several potential problems, including survivorship bias and non-stationary regression coefficients (Peasnell et al., 2000; Young, 1999). In more detail, Ecker, Francis, Olsson and Schipper (2011) criticize the industry-based estimation samples commonly used for these models and propose size-based estimation samples instead, especially in cases where sample attrition due to the minimum number of industry peers is a big problem. Despite the waves of criticism, studies continuously use aggregate accruals in the accounting and finance literature in the absence of better measures. Recently, these measurement models are also expanding into other disciplines where earnings management or discretionary accruals needs to be tested or controlled for.

A second major approach to detect earnings management is the modeling of a specific accrual. This method is potentially a cleaner approach than the aggregate one since it allows for direct measurement of the effects of independent variables on the
accrual in question. Typically, specific accrual studies concentrate on a single industry setting with sizeable specific accruals. An example of such an industry is banking and the use of loan loss reserves (Beaver and Engel, 1996). The key aspect of a specific accrual model is that an expected as well as an unexpected component is identified. Then, the unexpected component is interpreted as evidence of earnings management as in the aggregate accruals approach. In this context, Marquardt and Wiedman (2004) may be mentioned as one study that developed several specific accrual measures to capture the unexpected components of accounts receivable and payable, inventory, accrued liabilities, depreciation, and extraordinary items.

The third major approach is to explore the distributional properties of levels and changes in various earnings variables. This stream of studies generally tests for a discontinuity in the statistical distribution of a variable such as net income around a suspicious threshold such as zero earnings or prior year’s earnings. This approach is developed by Burgstahler and Dichev (1997) and DeGeorge, Patel and Zeckhauser (1999). In a typical study applying the distributional approach, loss avoidance is studied by constructing a histogram of earnings surprises surrounding zero. The number of observations with small profits is then compared with the number of observations with small losses. A smooth earnings distribution around zero is interpreted as unmanaged earnings whereas a discontinuity is interpreted to be a sign of earnings management.

The earnings management discussed in the empirical part of this dissertation largely relates to activities incorporating accrual-based income shifting between periods. Therefore, a signed measure is to be applied which can provide insight into the exercise of discretion and the direction of it. The measures used in the essays are foremost discretionary or unexpected accruals that are estimated with aggregate accruals models. Different model variations are, however, utilized in the context of the essays to mitigate the shortcomings of the approach. In the analyses, positive discretionary accruals are interpreted as a sign of income-increasing or upward (i.e., positive) earnings management, whereas negative discretionary accruals are interpreted as a sign income-decreasing or downward (i.e., negative) earnings management. Utilization of the signed metric criterion means that the popular approach by Dechow and Dichev (2002) cannot be used. This is because their measure refers to an absolute quality measure of how well accounting earnings map into cash flows and does not explain anything about the direction of earnings management per se. In the first essay, unexpected specific accrual measures are also used to capture the individual accrual movements together with a measure of aggregate discretionary accruals as proof of concept. Modeling of more detailed specific accruals, such as bad debt provisions, is not feasible in the context of this dissertation since research settings where such data is available are not examined in the essays. The distributional approach is neither applied within the frames of this dissertation, since it only identifies distributional irregularities and does not convey anything about how earnings are managed. Nor does it provide any deeper understanding of the direction of the manipulation. In relation to this, Dechow, Richardson and Tuna (2003) examine the kinkiness of earnings and caution researchers in the use of discontinuities as a measure of earnings management. Taken together, these characteristics lead to the reliance on signed accrual models in the empirical part of this dissertation.
2.5 Documented incentives for earnings management

As mentioned above, previous empirical literature on earnings management has largely focused on public firms. Therefore, the documented incentives for earnings management are also largely influenced by the public firm setting. This setting is often described to be largely affected by capital market forces. However, the agency theory view portrays a firm as a nexus of contracts. Hence, almost any contract between a public or private firm and its stakeholders could provide a basis for earnings management incentives. In the previous literature, three principal groups of incentives have been documented to influence the occurrence of earnings management (Walker 2013). These are (1) contracting incentives, (2) capital market incentives, and (3) third-party incentives.3 These incentives will be further discussed below.

First, contracting incentives concern earnings management to achieve contractual terms or targets that are based on reported earnings. In this context, firms are expected to manage earnings upwards to avoid the violation of a debt covenant in which reported earnings or an accounting ratio is involved (DeFond and Jiambalvo, 1994; Dichev and Skinner, 2002). In the context of private firms, external providers of capital are less likely to rely on published financial statements, and the private firms may also communicate through other means. The geographically dispersed and large number of owners in public firms, on the other hand, are more likely to rely on financial statements. In addition, formal regulations often prevent public firms from communicating directly to shareholders via private channels. These factors suggest that public firms have stronger contracting incentives than private firms. Moreover, executive compensation contracts are also often based on earnings performance measures, and a classic article by Healy (1985) shows that US directors manage earnings to improve their bonus contracts. These executive compensation schemes are also more applicable in public firms.

Second, capital market incentives arise due to the benefits of a favorable valuation in the capital markets. Studies, however, examine the idea that managers use earnings management to manage share prices both upwards and downwards. For instance, there is evidence that initial public offering firms manage earnings upwards to achieve a higher listing price (Teoh et al., 1998).4 Meanwhile, Perry and Williams (1994) provide proof that income-decreasing earnings management occurs before management buyouts. As such, capital markets studies vary according to the assumptions made about investor rationality. Some assume that investors are misled by the managed earnings while others assume that investors see through it. Because private firms are largely owned by managers or families, these capital market incentives are less likely to exist in their unique setting.

Finally, third-party incentives relate to potentially all stakeholders apart from investors. These include customers, employees, suppliers, tax authorities, regulators

3 Healy and Wahlen (1999) provide a similar classification that has been regularly cited in previous literature. Their incentive groups are categorized according to the following factors: (1) capital market expectations and valuations, (2) contracts written in terms of accounting numbers, and (3) anti-trust or other government regulation.

4 The particular findings by Teoh et al. (1998) have, however, later been questioned by Ball and Shivakumar (2008).
and legislators, as well as rival firms. As with the prior groups of incentives, these incentives may lead to upward or downward earnings management depending on the situation. For example, Jones (1991) examines firms in industries subject to import relief investigations. She finds that such firms tend to manage earnings downwards in the year of the application during such investigations to achieve a better position. Another example is Kasanen, Kinnunen and Niskanen (1996), who show that dividends are an important determinant of earnings management in a Finnish debt-dominated capital market with concentrated ownership during the time period 1970 to 1989. As such, this setting creates incentives for a smooth stream of dividends directed at powerful institutional shareholders. Due to this, firms were noted to manage earnings upwards when unmanaged earnings were lower than the previous year’s dividend payouts, so that the institutional investors become satisfied. Moreover, the Finnish corporate tax rate was high at the time and taxable income was closely tied to accounting earnings. Therefore, the firms with unmanaged earnings higher than the previous year’s dividend payouts were found to manage earnings downwards in order to reduce taxes. As in this case, most prior research on third-party incentives assumes that managers make decisions in the interest of shareholders at the expense of the third parties, such as tax authorities.

Especially within the third group of incentives, important private firm research has been produced. One stream of this research has focused on tax incentives since one of the main objectives of private firms’ financial reporting is tax determination. It has been shown that private firms often choose accounting policies that lead to lower earnings (e.g., Coppens and Peek, 2005, Kosi and Valentincic, 2013). The reason behind this behavior is that these choices allow them to minimize the present value of their tax payments and gain tax benefits. Coppens and Peek (2005) apply the distributional approach for the measurement of earnings management among private firms in eight European countries and focused on earnings management incentives in the absence of capital market pressures, namely in the form of incentives related to taxation. They also distinguish between high and low book-tax conformity countries, where high conformity means that financial accounting profits and taxable profits are highly aligned; and vice versa with low conformity. The findings of Coppens and Peek (2005) indicate that private firms in both high and low book-tax conformity countries manage earnings to avoid losses, but not to avoid earnings decreases. An explanation provided for this result suggests that the value of stakeholders’ explicit claim on private firms’ cash flows is mostly related to the level of firm performance and not to the change in firm performance. The authors suggest that avoidance of earnings decreases is more frequently occurring in well-developed capital market contexts for public firms. Furthermore, a supplementary finding is that private firms in countries with a high alignment between financial and tax accounting do not avoid reporting small losses. In other words, the high book-tax conformity level prevents firms from managing earnings upwards because financial accounting choices will directly affect taxable profits, and higher earnings will lead to higher corporate income taxes. Moreover, an additional test reveals that private firms in some high book-tax conformity countries also smooth their earnings, possibly because avoiding high earnings reduces taxes, while avoiding low earnings reduces the likelihood of being inspected by the tax authorities.
The other example studying tax incentives, Kosi and Valentincic (2013), observe private firms and their write-offs in the light of tax-minimization incentives. They study two separate regimes, one before a new tax legislation became effective, where asset write-offs are tax deductible expenses, and another when the new tax legislation is effective, where asset write-offs are no longer tax deductible. The firms they analyze are also small and the shift in legislation is viewed as a natural experiment, where only one of several reporting incentives is changed and the others remain unchanged. The authors predict that tax-minimization incentives play an important role for write-offs in the sample firms. Ultimately, they find that the regime change decreased the likelihood and magnitude of such write-offs.

In the next chapter, similar tax incentives will be discussed in further detail. There, the ultimate focus lies not only on the incentive to reduce taxes in general, but also on the specific incentive to manage earnings that arises when the corporate tax rate is changed.
3 CORPORATE TAX RATE CHANGES AND EARNINGS MANAGEMENT

Despite the vast literature on earnings management in various areas, relatively little attention has been directed at the connection between earnings management and taxation. While the literature provides evidence that earnings are managed in order to affect investors, it is of interest to note that several important research gaps exist within the topic of taxation. This is based on the fact that the taxman could be considered as one of the largest shareholders of most firms. Depending on the tax rate, firms distribute a larger or smaller part of their profits to this subordinate shareholder almost every year, via corporate taxes. This is also recognized in the literature review of Graham, Raedy and Shackelford (2012) as a feature that distinguishes studies of accounting for income taxes from other areas of financial reporting. In this chapter, the topic of corporate taxation is linked with earnings management. A literature overview of tax research in accounting in general and evidence on earnings management in response to corporate tax rate changes in particular, is provided.

3.1 Corporate taxation and corporate tax rates

Taxes provide the basis for public spending in the country where they are collected. As such, the collection of taxes may guarantee the maintenance of a national defense, as well as law and order within a country. In many countries, taxes also cover other expenses such as health care, the education system, and various retirement benefits. Taxes are, from a general point of view, collected through consumption tax, capital tax, personal income tax, and corporate tax. On a deeper level, there are several differences in the country-specific rules associated with these taxes. However, it can be stated that a consumption tax is an indirect tax which is collected in the production and consumption process. At the same time, the other three forms are direct taxes that are levied on income. Throughout this dissertation as a whole, corporate taxes and their impact on firms are of broad interest. Events where corporate taxation is changed are given special attention. Furthermore, the areas of personal income tax and capital tax are particularly discussed in the second essay of this dissertation. In more detail, the second essay deals with shareholder-beneficiaries, such as dividends or assets that limited liability firms distribute to their shareholders. These beneficiaries are taxed as provided by specific rules, which also vary between countries.

Furthermore, the rate of the corporate income tax is one of several aspects of what makes a country attractive for investment. Therefore, one of the main trends in worldwide corporate taxation during the last decade has been to lower the statutory corporate tax rate. The tax rate may be lowered in one or several steps. A common motivation behind such tax rate cuts is to create an international tax advantage, guarantee competitiveness, and to attract foreign direct investment. Another underlying reason is presumably to lower the corporate tax burden in the country, thereby providing an incentive for the domestic firms to expand their business, which may reduce unemployment. More recently, some countries are also doing the opposite
by increasing their corporate tax rate to cover for fiscal shortfalls. This is also illustrated in Figure 1, which demonstrates the overall decline in average corporate tax rates in different regions between the year 2006 and 2015, based on KPMG’s Corporate and Indirect Tax Survey. Between 2013 and 2014, nine countries increased their corporate tax rate and 24 countries decreased their corporate tax rate. According to KPMG, the EU average corporate tax rate was 22.15 percent in 2015 compared with 24.83 percent in 2006. For the OECD member countries, the average rate was 24.77 percent in 2015 and 27.67 in 2006. Meanwhile, the global average is currently 23.68 percent compared with the 2006 average of 27.50 percent.

![Figure 1 Average corporate tax rates in different regions](image)

3.2 Tax research in accounting

According to Shackelford and Shevlin (2001), tax research has long attempted to find out whether taxes matter at all. If taxes matter, the natural follow-up question is how much they matter and if taxes do not matter, the follow-up question is to ask why not. Tax research within the field of accounting has largely followed a framework developed by Scholes and Wolfson (1992) to address these questions. This conceptual framework is developed around three central themes, defined as all parties, all taxes, and all costs. The first theme, all parties, is associated with the notion that effective tax planning requires consideration of all parties when reflecting the tax implications of a proposed transaction. For example, both corporate and employee taxes should be considered when structuring compensation plans. The second theme, all taxes, suggests that not only explicit taxes (taxes paid directly to the government) should be considered in making investment and financing decisions, but also implicit taxes (taxes paid indirectly in the form of lower before-tax rates of return on tax-favored investments). With regard to the third theme, all costs, it is understood that taxes only represent one...
among many business costs, and that all costs must be considered in a tax planning process. Here, an example is the tradeoff between corporate financial accounting objectives and tax objectives. The third theme has resulted in a tradeoff literature where researchers observe the interaction of financial reporting costs and tax factors and the effects of agency costs on tax-minimization. Shackelford and Shevlin (2001), furthermore, note that the largest body of tax research in accounting focuses on the coordination of taxes and other factors in business decisions. This literature is further dissected in the following paragraph. They also note two other major areas of interest, namely taxes and asset prices, and multijurisdictional tax research and global tax planning.

In terms of the literature on tax and non-tax tradeoffs, Shackelford and Shevlin (2001) first discuss financial reporting considerations based on the fact that tax-minimizing strategies often result in lowered book income and that many business choices involve weighing the tax incentives to lower taxable income against the financial reporting incentives to increase book income. In their review, topics such as inventory accounting, compensation structure, intertemporal income shifting, capital structure, divestitures, and asset sales are discussed. Most of the studies in these areas involve public firms and it is also evident that the incentive to report increased book income is considerably higher among public firms than among private firms. Furthermore, the topic of intertemporal income shifting is of greatest interest in this dissertation, and this area is further highlighted in Chapter 3.3. Shackelford and Shevlin (2001) continue to discuss agency costs and review studies that evaluate the effects of adverse selection and moral hazard on tax planning in settings of compensation and tax shelters.

Based on the prior literature of tax research in accounting, it becomes apparent that a large portion of the studies have focused on questions that have received previous attention in the broader field of financial accounting. Tax research in accounting also investigates some of the same problems as tax research in economics and finance (Hanlon and Heizman, 2010). Therefore, studies intersecting accounting and taxation could be questioned. Graham et al. (2012), however, recognize that at least four features motivate such studies and these features encourage researchers to use the tax accounts to address a variety of research questions that would otherwise be difficult to address using other accounts. First, corporate tax is the only expense that all for-profit firms face and this tax may be substantial, more than a third of pre-tax profits in some countries. This point makes taxation one of the most pervasive among financial reporting topics. Second, the tax accounts provide information to both the usual consumers of financial reporting information and to an adversarial party in the form of the state or the tax authorities. Based on this, and consistent with the all costs theme of Scholes and Wolfson (1992), firms must balance the information flows to the tax authorities with those to other users of the financial statements. Third, depending on the link between financial accounting profits and taxable profits, the tax accounts provide an alternative measure of income and contain information about the firm’s profitability. Finally, Graham et al. (2012) acknowledge that the tax expense is never reported in the operating income of a firm, which likely will influence how stakeholders such as investors, creditors and managers view this expense.
Hanlon and Heitzman (2010) also review tax research in accounting and provide a number of recommendations for future research. According to them, the first area open to explore is loss firms, because the general understanding of loss firms is not very good. Focus could, for instance, be directed at the use of tax-loss carryforwards. Second, the lack of evidence on the taxation of financial securities or financial institutions is highlighted. Third, a demand for research involving international tax issues is noted. For example, how corporate tax rates affect foreign investment decisions and the effect of higher book-tax conformity could be investigated. Finally, and of utter importance for this dissertation, Hanlon and Heitzman (2010) stress that it would be vital to have more research on privately held firms due to their distinctive ownership structures, financial reporting incentives, and importance in the economy.

3.3 Evidence on corporate tax rate changes and earnings management

Corporate taxation may be observed as an explicit contract between the owners of a firm and the government of a country. As a consequence, earnings management may also be linked with taxation and researchers have also studied the occurrence of tax-induced earnings management (Graham et al., 2012). In terms of corporate tax rate changes, the decisions to change the taxation may directly give rise to significant tax accounting incentives for earnings management among firms operating in the country where the tax rate is changed. The incentive to manage tax income downward when the corporate tax rate is reduced has correspondingly been studied by a number of researchers (e.g., Guenther, 1994, Lopez, Rieger and Lee, 1998). Similarly, Wong, Lo and Firth (2015) analyze the behavior among Chinese firms when tax rates increase. Shackelford and Shevlin (2001) discuss this phenomenon under the topic of intertemporal income shifting. All in all, the quintessence in this stream of research is that corporate tax rate changes provide an excellent window of opportunity to save taxes by shifting income from high tax rate periods to periods with lower tax rates. The uniqueness of earnings management around changes in tax legislation relative to regular tax-minimization, through the management of accounting accruals, is that permanent economic gains can be obtained when the corporate tax rate is changed. Such permanent economic gains are possible when higher taxable income is presented in a period with a lower corporate tax rate, and lower taxable income is presented in a period with a higher corporate tax rate. Even on a longer time horizon, the grand total of this tax saving equation is a positive figure.

Meanwhile, when accruals are managed due to general tax-minimization incentives, in times absent of changes in corporate income tax rates, the act of earnings management seldom results in positive economic consequences for a firm. As exemplified by Coppens and Peek (2005), such earnings management may be performed by applying income-decreasing accruals-based earnings management to lower the taxable income. While such behavior may lead to reduced taxes in the short-run, the long-run consequences will most likely not be so. The main reason behind this fact is the inherent property of accruals, namely, the reversal nature. Specifically, accrual accounting allows the financial effects of current transactions to be recognized in the current period rather in the period when the cash flows are realized. Subsequently, accruals should reverse when the cash flows are realized. Therefore, if
earnings are initially managed downwards with various accrual vehicles to achieve lower taxable income in one period, the downward managed accruals will consequently reverse in the following periods and then lead to higher taxable income and ultimately, higher taxes. Over the longer horizon of time, the grand total of this tax saving equation is zero. Long-run positive economic gains of such behavior can, however, be achieved if the accrual reversals occur in loss years. To conclude, accounting researchers regard the event of a corporate tax rate change as a strong tax-saving incentive for earnings management.

Prior research in the subject area of intertemporal income shifting focuses almost exclusively on a single reform, namely, the US Tax Reform Act of 1986 (TRA86). The TRA86, among many other changes, reduced the US statutory maximum corporate tax rate over a transition period of two years from a tax rate of 46 percent to a much lower level of 34 percent. This tax rate change is expected to provide an incentive to shift the recognition of revenue and expenses across periods (see Figure 2). Income may, for instance, be shifted by decreasing accruals before the event. Afterwards, the accruals are increased through the natural reversal process. Guenther (1994) explains that deferring $1.00 of taxable income from a pre-TRA86 tax rate year to a post-TRA86 tax rate year would be equivalent to earning 22 percent. If firms maximize the firm’s value by minimizing tax costs, he assumed that managers present income-decreasing accruals in the year before TRA86 became effective. According to the results of Guenther, large firms reported significantly negative current accruals prior to the tax rate reduction, which is seen as evidence of earnings management. Current accruals were also observed to be positively related to debt levels but not to managerial ownership. As such, Guenther (1994) includes proxies for financial reporting costs, in accordance with the Scholes and Wolfson (1992) framework and observes that many firms may choose to forego a current tax savings to avoid reducing financial statement net income. Lopez et al. (1998) further find that the probability of making negative discretionary current accrual shifts in the financial statements before the effective year of the TRA86 is directly related to public firms’ tax aggressiveness.

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Before tax rate decreases After tax rate decreases

46 percent → 34 percent

Income-decreasing accruals Income-increasing accruals

Figure 2 Income shifting between periods around TRA86.

Other researchers have also examined this form of intertemporal income shifting around the TRA86 in the US. For instance, Scholes, Wilson and Wolfson (1992) provide evidence that firms deferred revenue recognition and accelerated expense recognition due to the prospective decline in tax rates. In their paper, they examine shifting of gross margin and selling, general, and administrative expenses. Maydew (1997) is another

5 This percentage is simply calculated with the following equation: 1.00 x (1 - 0.34) = 1.22 x (1 - 0.46).
researcher investigating the TRA86 setting. He provides evidence that firms with net operating loss carrybacks deferred income and accelerated expenses to enlarge tax refunds from pre-1986 high-tax years. Additionally, he finds that the intertemporal income shifting was increasing in the associated tax benefits and decreasing in the related financial reporting costs. Furthermore, Calegari (2000) finds that firms reduced their income-increasing accruals with relatively high book-tax conformity. Low book-tax conformity accruals are, however, not found to be adjusted.

Although most studies on earnings management in these contexts seem to focus on a specific US event several decades ago, some studies have also found that managers of public firms in other settings alter their financial reporting decisions to take advantage of cuts in the tax rate. Roubi and Richardson (1998) provide an empirical investigation of discretionary current accruals as an earnings management tool among nonmanufacturing firms in Canada, Malaysia and Singapore in response to changes in the statutory corporate tax rates in these respective countries. Firms in Canada and Singapore were found to manage their earnings while only weaker results were noted in the Malaysian context. The last finding was attributed to cultural factors, for instance relating to the higher degree of authority and enforcement that is built into the Malaysian accounting system. In a Chinese context, Lin, Lu and Zhang (2012) use the simulated marginal tax rate as an earnings management incentive indicator and current discretionary accruals as a measure of earnings management when studying the impact of a changing enterprise income tax law. The corporate income tax rate was to be changed from 33 to 25 percent in the year 2008 and they find evidence of significant downward tax-induced earnings management in 2007. For state-owned firms, firms with an audit committee, and firms with disclosed certified internal control reports, the evidence was weaker. In contrast to many of the prior studies focusing on tax rate decreases, Wong et al. (2015) examine earnings management in anticipation of tax rate increases. Their focus lies on upward tax management among firms listed on the Shanghai Stock Exchange. Although such firms generally face a flat income tax rate, the Chinese central and local governments offer firms a basket of tax incentives and tax holidays, which leads to changing tax rates for a firm within fiscal years. Their findings suggest that firms generally tend to accelerate their taxable income but avoid overly aggressive financial reporting in the period just before a tax rate increment. However, firms with higher book management incentives or lower tunneling incentives were noted to manage their taxable income and book income upward together.

Research on corporate tax rate changes has also attracted empirical investigations of private versus public firms. These studies are fueled by a hypothesis suggesting that the overall effect of tax-induced earnings management is expected to be relatively stronger for private firms. This hypothesis is based on the differing characteristics of private and public firms, as discussed in Chapter 2.3. In line with the expectations, Lin et al. (2014) find that the behavioral response to a corporate tax rate change was larger among Chinese private firms in relation to public firms around the 2008 statutory tax rate reduction. Here, the underlying reason behind the finding is attributed to weaker capital market constraints and less developed tax enforcement for private firms. In addition, the private firms also have lower nontax costs associated with reporting lower earnings. Similarly, Goncharov and Zimmermann (2006) find that public firms manage taxes to a lesser extent than private firms. They analyze a Russian context and also find
that a change from high to low book-tax conformity altered the reporting behavior of public firms more than that of private firms. Furthermore, Watrin, Pott and Ullmann (2012) note that tax accounting incentives influenced private firms more than public firms around the 2001 German corporate tax rate cut. The diverse ownership structure and the higher agency costs between public firm managers and owners were found to incentivize these managers to focus more on financial accounting incentives and less on the tax accounting incentive to lower taxable income before the tax decrease.

3.4 The role of book-tax conformity

Most European countries have a strong link between taxable income and reported book earnings. In other words, book-tax conformity is generally strong in Europe, but there are of course cross-country differences and cases of a clearly lower conformity as well.\textsuperscript{6} In the US, the level of book-tax conformity is currently low (Hung, 2001; Atwood, Drake, and Myers, 2010). This (low) conformity level is associated with a two book system and firms in the US generally produce two sets of financial statements. This means that two parallel schemes are used for calculating income. Firstly, book income is reported through one set of financial statements (in line with accounting rules, i.e., US GAAP). Secondly, tax income is reported through a separate financial statement (in line with public sector rules, i.e., the US Tax Code and IRS regulations). As such, these two financial statements may bear little resemblance to each other and follow distinct rules. As a result, the dual reporting of low book-tax conformity regimes is proposed to be associated with delicate forms of reporting abuse. Put differently, public firms that produce parallel but different financial statements are simultaneously able to overstate profits to the capital markets and understate profits that are reported to the tax authorities (Desai, 2005). By doing so, these firms are able to satisfy investors on potentially manipulated grounds and concurrently avoid taxes. Book-tax conformity is a timely topic because there is an ongoing debate in the literature and among policymakers about whether or not the US should conform its two measures of income into a single one. The proposal is to tax accounting earnings directly, or marginally adjusted accounting earnings. With respect to other countries, Hanlon and Heitzman (2010) report that, over time, both moves away from a conformed system and towards a conformed system has been occurring. When the IFRS was adopted in the EU, it was seriously considered to make the income measured under IFRS the common consolidated tax base. However, at that time, this move was postponed.

Researchers such as Ball, Kothari and Robin (2000) consider the link between financial and tax accounting as an important factor in firms’ reporting behavior. Furthermore, several pros as well as cons of conforming book and tax income have been proposed in the literature. This has led to a long-standing and polarized debate among researchers, regulators, and legislators worldwide. At one end of the spectrum, several studies (Desai, 2005, Whitaker, 2005, Yin, 2001) argue that low book-tax conformity is a potential breeding ground for earnings management and overall abuse.

\textsuperscript{6} For example, Coppens and Peek (2006) and Burgstahler et al. (2006) classify the United Kingdom and the Netherlands as low book-tax conformity countries. Meanwhile, Belgium and France are classified as high book-tax conformity countries.
This line of reasoning is based on the idea that increased conformity can constrain book as well as tax aggressiveness. Therefore, high book-tax conformity would be the ideal, with high earnings quality and increased tax compliance as consequences. On the other hand, conflicting arguments have also been put forward by researchers who cast doubt on the supremacy of high conformity. Hanlon, Kelley and Shevlin (2005) and Hanlon and Shevlin (2005) foremost debate that capital market investors and taxing authorities demand very different kinds of information. So, if there is only one income measure for both stakeholder groups, the flexibility of reporting will be severely affected. Then, tax-minimization incentives are also preferred over other incentives such as to convey information concerning the economic position and performance of a firm (Atwood et al., 2010). Taken together, high book-tax conformity is argued to be associated with a loss of accounting information for capital markets.

Empirically, a limited number of researchers have tried to answer the question as to which system is to be preferred. In most cases, this has been done by analyzing whether higher levels of earnings management are associated with high or low conformity. These studies commonly use a dichotomous variable to separate high from low book-tax conformity based on law. The alternative is to use more detailed and empirical measures of book-tax conformity. These measures are based on book-tax differences and the larger the book-tax differences are, the weaker the relationship between taxable and book income is (i.e., the lower the level of book-tax conformity). The book-tax differences occur in two forms which are termed permanent and temporary book-tax differences (Hanlon and Shevlin, 2005). Permanent book-tax differences refer to items that are included in only one of the income measures but never in both of them. Examples of such differences depend on the jurisdiction, but common items are internally generated intangible assets that are included in the financial statement but not in the tax statement, and tax non-deductible expenses such as fines, penalties, and bribes. Tax exempt items may be dividends received from other firms and provisions for contingent losses. Other book-tax differences are temporary. These arise due to differing requirements for the timing of recognition of income and expense items and they are called temporary since the effect of the divergence will reverse in the future. Examples of such book-tax differences include reserves for bad debt and warranty expenses as well as depreciation reserves and depreciation adjustments.

The results of the studies examining book-tax conformity and earnings management have so far, however, been rather mixed and conflicting. First, the finding of no significant effect of book-tax conformity on earnings management has been presented (Leuz, Nanda and Wysocki, 2003). Second, researchers have attributed more earnings management to higher book-tax conformity. For example, Watrin, Ebert and Thomsen (2014) contribute to the debate with evidence of significantly more (downward) earnings management among European firms. Likewise, Blaylock, Gaertner and Shevlin (2015) analyze consolidated financial statement data across 35 countries and report more absolute earnings management where book-tax conformity is strong. In a single-country analysis, Watrin et al. (2012) also observe that firms reporting higher book than taxable income engage in less tax-induced earnings management. The third group of studies link more earnings management with weaker conformity. For example, Tang (2015) shows that higher mandatory conformity is
associated with lower levels of earnings management. All in all, it is clear that the results are rather ambiguous and inconsistent.

3.5 Other responses to tax reforms

Corporate tax rate changes are often a part of larger corporate tax reforms or general tax reforms. This means that other changes are frequently introduced simultaneously with the change in the corporate tax rate. In other words, these tax reforms may provide firms with incentives other than to defer income from one period to another. For instance, the TRA86 included other provisions than a statutory tax rate reduction that provided incentives to manage taxable income. Specifically, the TRA86 eliminated a previously accepted allowance method for bad debts. To minimize the impact of the change, firms could maximize their allowance for doubtful accounts before the effective date. Similarly, the TRA86 introduced rules that require capitalization for tax purposes of certain costs associated with property constructed or held for resale. Firms could accelerate costs to occur before the effective date and thereby, these firms could avoid capitalizing such costs under the new tax legislation. Shackelford and Shevlin (2001) also recognize that TRA 86's alternative minimum tax simultaneously provided incentives to shift income in the opposite direction. For example, Gramlich (1991) finds that firms shifted book income from 1987 to 1986 for tax saving purposes. However, Choi, Gramlich and Thomas (2001) later dilute such findings on methodological grounds. Meanwhile, Shackelford and Shevlin (2001) note that researchers have not performed any joint evaluations of the various incentives that the TRA86 gave rise to.

In a tax reform when the corporate tax goes down or up, a popular countermeasure is to adjust the dividend tax. This is something that was performed in the Finnish 2005 tax reform, for instance. When the corporate tax rate was decreased, the dividend tax was increased. Put differently, when the firm-level tax went down, the taxation at the owner-level was hiked. In this reform, the previous system of full dividend imputation was repealed and replaced with a system of partial double taxation of dividends. As a response to the hike in dividend taxation, researchers have noted that private firms who anticipated the coming changes increased their dividend payouts before the taxation was tightened (Kari, Karikallio and Pirttilä, 2008).

In the light of the German tax reform of 2000-01, Blasch and Weichenrieder (2007) present yet another alternative response to a tax reform where the corporate tax rate is changed. The article concentrates on special tax incentives for firms with fiscal years different from the calendar year. According to the transition rules of the reform, these firms could save taxes by aligning their fiscal year with the calendar year. With the help of such an act, these firms could take advantage of a decreased corporate tax rate earlier than without any form of alignment. Based on listed firms, Blasch and Weichenrieder (2007) show that the firms actually took advantage of this reform. The sample firms simply incurred non-tax costs of changing the fiscal year to avoid a tax cost.
3.6 Summary and research gaps

Corporate taxes are an important source for government spending. During the last decade, countries all over the world have changed the level of the statutory corporate tax rate in various attempts to improve the country's attractiveness for foreign investment or to stimulate the economy. Corporate tax rate changes, however, also cause other effects. In connection to this, previous accounting literature has delivered evidence that a corporate tax rate change may provide firms with an incentive to shift income from one period to another. In other words, firms may be expected to respond to a change in the corporate tax rate with an act of earnings management. For instance, when the corporate tax rate is to be reduced, firms may decrease their accruals before the effective date of the new rate and let the accruals reverse when the higher tax rate is in use. By so doing, lower earnings may be reported while the tax rate is still high, and lower earnings can subsequently be reported when the tax rate has been decreased. The ultimate result of this would be tax savings. Thus, the act may be observed as a form of tax management because the definitive goal is to reduce the tax burden. This sort of tax management is commonly involved with intertemporal income shifting between periods or fiscal years with a central goal of generating positive and permanent economic gains.

According to prior research, the underlying incentive for earnings management around corporate tax rate changes is expected to be stronger among private firms than among public firms. This is because private firms, among other things, do not have as many conflicting incentives as do public firms. Private firms, for example, do not face the same capital market pressure to produce positive earnings, because they are not listed on a stock exchange and have publicly tradeable shares. The amount of private firm research on responses to corporate tax rate changes has to date, however, been rather scarce. Thus, more work on private firms may be motivated. More research on private firms overall in this context would also provide an answer to the call of Hanlon and Heizman (2010) for a better understanding of the tax reporting behavior of privately held firms.

Furthermore, a conclusion in the study of Watrin et al. (2012) is that tax accounting incentives are strongly reflected in the financial statements when book-tax conformity is high. Here, it can be noted that the prior studies performed on the specific TRA86 reform were done in a US setting, where the level of book-tax conformity is much lower. In settings where book-tax conformity is higher, the impact of book earnings management on taxable income is expected to be larger. The justification for this statement is that when taxable income is more affected by earnings management, more earnings management will be applied than in a situation with a smaller taxable income effect. As such, it is essential to focus research efforts in this area on settings with a higher conformity between book and tax income, since this is also where the costs will be the highest.

Focusing on the various measures of earnings management used in prior research, it is evident that broad measures have frequently been used. One of the most popular measures is discretionary accruals, which measures earnings management on the very aggregate level. Using more detailed measures would allow for more insight into how the factual earnings are managed. For example, measures of specific accruals
could be utilized (Marquardt and Wiedman 2004). Taking into account the importance of insights into earnings management practices for monitoring bodies, there is surprisingly little evidence of more specific accrual movements in response to corporate tax rate changes.

In addition to this, a research gap may be identified, since most of the earlier pieces of work within this field focus solely on the incentive that the corporate tax rate change itself gives rise to. However, there are also other incentives that should be investigated, some of which may, potentially, also be conflicting to the incentive given by the corporate tax rate cut. For example, if the corporate tax rate is to be decreased and earnings are hypothesized to be managed downwards, a conflicting incentive could arise for some firms if the taxation of dividends is simultaneously hiked. Relating to this, Shackelford and Shevlin (2001) also indicate that there is a lack of research that incorporates joint evaluations of the potentially conflicting incentives that a tax reform may give rise to. Yet another research gap exists that relates to the tax reform response of fiscal year adjustments. Previous research in the form of Blasch and Weichenrieder (2007) has only examined public firms who incur potentially large costs with changing the end of the fiscal year. These costs include the preparation costs of additional financial statements, additional shareholder meeting costs, additional audit costs, and other decision costs. In a small private firm context, these costs may be very unsubstantial. Therefore, fiscal year adjustments could be examined for private firms. In this light, it would also be of interest to relate such an action to other tax-saving instruments around a tax reform, such as earnings management.

Moreover, Ball et al. (2000) hypothesize that the conformity between financial and tax accounting can play an important role in firms’ reporting behavior. However, there is little direct evidence supporting this hypothesis. Based on the reasoning that settings with high book-tax conformity have been hypothesized to nurture actions of earnings management, researchers could combine corporate tax rate changes, earnings management and variation in book-tax conformity in one study. Prior empirical studies on earnings management and book-tax conformity have a narrow focus on earnings management in general or in absolute terms. This stream of research could be extended by analyzing events where there are clear incentives of earnings management, as exemplified by a corporate tax rate change. Such a study could also concentrate on private firms, because prior studies have largely investigated the relationship among public firms.

Finally, one characteristic of smaller private firms has not received any attention in the context of corporate tax rate changes. This characteristic is driven by the fact that many small firms do not have the knowledge or resources needed to prepare financial statements internally. As a solution, these firms usually outsource their accounting tasks (Everaert et al., 2007, Niemi et al., 2012; Ojala et al., 2014). In turn, this is something that could have an important effect on the extent of earnings management in response to tax reforms. Namely, if the accounting tasks are outsourced, then the actual preparer role of the financial statements lies outside of the firm. This might imply that the firm cannot steer the earnings to the same extent as in a situation where the accounting function is internal. This line of reasoning is also viewable in Höglund and Sundvik (2016b) where the evidence shows that outsourcing of accounting tasks
such as the preparation of the financial statements in small private firms increases the financial reporting quality.
4 SUMMARIES OF THE ESSAYS

This doctoral dissertation consists of four essays that incorporate studies of earnings management in response to corporate tax rate changes. The studied settings comprise private firms in European countries and, in particular, Finland and Sweden. All the essays are single-authored, except for the fourth short essay which is co-authored with Dr. Henrik Höglund. Two of the essays have already been published in refereed journals. This chapter provides a brief overview of the essays and their respective contribution to the literature. All the essays are presented in their complete form in Part II of this dissertation.

4.1 Earnings management around Swedish corporate income tax reforms

The first essay (Sundvik, 2016) in this dissertation examines two events where the corporate tax rate has been decreased in a Swedish private firm setting. The Swedish corporate tax rate was lowered in two stages during the period of analysis, both in 2009 and in 2013. First, the corporate tax rate was lowered from 28 percent to 26.3 percent, and subsequently it was lowered to 22 percent. These tax rate cuts are expected to have created an excellent window of opportunity for firms, especially private ones, to defer income from the period with the higher tax rate to the period with the lower tax rate.

This study differentiates itself from prior studies that have mostly examined income shifting through very broad-based measures of earnings management in low book-tax conformity settings such as the US. In the current essay, a decomposition approach is undertaken when accrual-based earnings management is studied. This means that specific accruals are studied instead of a sole focus on the highly aggregated level using measures such as total discretionary accruals. In addition, the current essay focuses on the Swedish private firm setting, which may be characterized as a high book-tax conformity setting, since book income of Swedish firms largely resembles taxable income. In such a setting, the earnings management effect is expected to be stronger in terms of actual tax savings. Therefore, earnings management is also expected to generally occur among the firms.

Financial statement data of 3,254 private firms was collected from the Orbis database of Bureau van Dijk. First, total discretionary accruals are used as an aggregate proxy for earnings management, estimated by following Callao and Jarne (2010) and Kothari et al. (2005). Second, unexpected changes in specific accruals are calculated with reference to Marquardt and Wiedman (2004). The accruals analyzed are accounts receivable, inventory, accounts payable, and depreciation. In multivariate analyses, OLS regression models were applied to capture the levels and changes between years in the different measures of earnings management.

Based on the empirical results with an aggregate measure of earnings management, statistically significant income-decreasing earnings management occurred before both of the studied reforms. This effect is also observed to be economically significant considering the average levels. When the specific accruals are studied in isolation, the regression results reveal that unexpected changes in accounts
receivable are the main reason behind the extent of aggregate earnings management. Weaker evidence is provided that the inventory and depreciation accruals were used to manage earnings around the corporate tax rate changes as well. However, accounts payable is not found to be utilized for tax saving purposes in this context. Taken together, accrual-based earnings management is observed around both reforms. Thus, the tax reducing actions are noted to be persistent over time.

The contribution of the first essay lies in the analysis of private firms in a high book-tax conformity setting. Besides differentiating from previous studies, this study also contributes to the debate on the effects of different levels of book-tax conformity. Furthermore, this study also contributes to the literature because the specific reforms analyzed have not been examined in previous research. The study also adds to studies utilizing the Swedish research context. In addition, the study contributes with evidence from not only one but two consecutive tax reforms. Moreover, this study contributes by investigating decomposed measures of earnings management instead of relying on a single and broad measure that does not provide that much insight into how the earnings are managed.

4.2 Tax-induced fiscal year extension and earnings management

In the second essay, a tax-minimization technique around a tax reform other than earnings management is explored and compared with downward as well as upward earnings management. The essay uses the Finnish 2005 corporate tax reform as a natural experiment for this purpose. The reform provides an excellent setting for such investigation because it included not only a corporate tax rate change but also other components that give rise to potentially conflicting incentives. As of 1 January 2005, the Finnish corporate income tax rate was decreased from 29 to 26 percent. When the tax rate went down, dividend taxation was simultaneously hiked. In the reform, a new system of partial double taxation of dividends was introduced and the old system with full dividend imputation was gradually abolished. Based on these two major changes in taxation, two different incentives for earnings management are hypothesized to emerge. First, the tax reform created a strong incentive for firms to manage their earnings downwards prior to the reform in order to avoid corporate tax by generating a lower taxable income while the tax rate still was still high. Income could then be shifted forward from 2003 and 2004 to periods with the lower tax rate. Second and alternatively, earnings could be managed to avoid owner’s tax. The private firm owners could be hypothesized to manage earnings upwards before the reform became effective so that higher dividends could be distributed while the dividend tax was still lower. The previous system of dividend taxation was gradually repealed with 57 percent of dividends being taxable in the adjustment year of 2005; as of 2006, 70 percent of dividends became taxable. Thus, the upward earnings management must have been employed in 2003, and potentially also in 2004, so that larger dividends could be paid out in 2004 and 2005, while the partial double taxation was not yet fully in place.

The new tax code was applicable to all fiscal years that ended in 2005. With reference to this, the transition rules around the reform created a special tax incentive for firms with a fiscal year ending in the latter parts of the 2004 calendar year. These firms could take advantage of the reduced corporate tax rate prematurely and save
corporate taxes by closing their 2004 books on the 2005 side of the calendar year. Firms not reacting in this manner, however, were taxed according to the old legislation for the fiscal year that ended within 2004. An important point made in this essay is the small cost of changing the fiscal year-end in private Finnish firms.

In the essay, the fiscal year changers and two groups of non-changers were identified. The first group of non-changers has retained earnings close to zero and the other group has high retained earnings. A rationale behind this separation is that the first group will need to manage earnings upwards in order to be able to distribute dividends at all, while the second group may focus on a corporate tax-minimization strategy because they already have distributable funds. A matching procedure was then implemented to match changers and non-changers. Total discretionary accruals were used as a main proxy for earnings management following Callao and Jarne (2010) and Kothari et al. (2005). All financial statement data was retrieved from the Voitto+ database of Suomen Asiakastieto Oy.

According to the logistic regression results, firms that postponed the fiscal year-end were mainly influenced by the expected taxable profit in the last period with the higher tax rate. For the non-changers, earnings management was noted as an alternative response to the reform. Furthermore, an earnings management approach proved to be less economically significant than the decision to change the fiscal year-end. In 2014, the Finnish CIT rate was further reduced and a number of firms prepared to extend their fiscal years similarly as in the 2005 case. In this latter reform, however, a restriction was retroactively implemented in order to prevent fiscal benefiting. The findings in the current essay provide evidence that such restrictions may be purposive.

This essay contributes to the literature by investigating the still rather unexplored decision to extend the fiscal year around a corporate tax reform and its connection with tax-induced earnings management. Only one prior study within the public economics discipline (Blasch and Weichenrieder, 2007) has analyzed the decision to change the fiscal year-end in a tax reform context. However, no prior study has simultaneously observed the effect of earnings management as an alternative tax-saving instrument in such a situation. Second, this essay studies private non-listed firms in a high book-tax conformity setting and contributes to this under-researched area of the literature (Kari et al., 2008; Watrin et al., 2012). Finally, the essay also contributes to the scarce literature on reasons for changes in the fiscal year-end with an analysis of this specific tax reason.

4.3 Book-tax conformity and earnings management in response to tax rate cuts

The third essay links research on the level of book-tax conformity and earnings management with research settings involving corporate tax rate cuts. The motivation behind the essay stems from the debate on the appropriate level of book-tax conformity. Prior research has empirically used earnings management in attempts to provide guidance on whether high or low book-tax conformity is associated with more earnings management. In this stream of research, studies have often solely used absolute measures of earnings management and only studied earnings management in general, in the absence of any material incentive that would allow for an analysis of the
manipulation direction. In addition, prior studies have almost exclusively focused on public firms. The purpose of the current essay is to extend the previous literature on these matters.

First, a large sample of financial statement data for over 30,000 private firms distributed throughout 12 jurisdictions of the European region - including Russia - was collected. The financial statement data was retrieved from the Orbis database of Bureau van Dijk. A common denominator in all of the jurisdictions was that they had reformed the corporate taxation during the period 2007 to 2014 by decreasing the income tax rate. The period of analysis in the empirical part of the essay comprised two fiscal periods immediately preceding the corporate tax rate cut. Second, the level of book-tax conformity was assessed by calculating a continuous measure consistent with Watrin et al. (2014). Finally, earnings management was measured with different variations of discretionary accruals, albeit these were mainly in line with Callao and Jarne (2010) and Kothari et al. (2005).

According to prior research, the sample firms are expected to engage in income-decreasing earnings management prior to the event where the corporate tax rate is going to be decreased. However, emphasis is also put on the fact that if taxable income is closer to financial statement income, the earnings management effect will be stronger in terms of actual tax savings. Therefore, this essay tests the hypothesis that there will be more (less) income-decreasing earnings management if book-tax conformity is higher (lower). The association between earnings management before corporate tax rate cuts and the level of book-tax conformity is then examined with panel regressions. It is documented that higher conformity between accounting and tax reporting in a jurisdiction is associated with more earnings management in response to an upcoming change in the corporate tax rate. This result is also consistent with the hypothesis of the study. A number of sensitivity tests are run to confirm the robustness of the results.

To summarize, this essay provides a contribution to the literature in three ways. First, the study combines the analysis of a clear incentive for earnings management with an analysis of the book-tax conformity effect on earnings management. As such, a clear contribution is made because prior studies have foremost observed the two forms of analyses in separation and only looked at earnings management in general when examining the links with book-tax conformity. Second, this study highlights private firms, whereas prior studies have narrowed it down to public firms. Watrin et al. (2014) underline the importance of single financial statements and how these have been underestimated in earlier analyses of book-tax conformity. Third, there are several single-country studies with the topic of corporate tax rate changes. Meanwhile, this study contributes with a multi-country approach that adds to the understanding about tax-induced earnings management in response to recent events in different countries. Furthermore, this study has practical implications for evaluators of tax reforms and the current study is also important for countries considering the level of book-tax conformity in association with future tax reforms.

4.4 Outsourcing of accounting tasks and tax management

In the fourth and final essay (Höglund and Sundvik, 2016a), private firms that outsource their accounting tasks and private firms that handle their accounting
function internally are put against the other. The act of outsourcing accounting tasks frequently occurs in smaller firms (Everaert et al., 2007; Niemi et al., 2012; Ojala et al., 2014). A reason for this is that some firms simply do not have the knowledge or resources needed to perform the accounting tasks in-house. Then, a simple and cost-efficient solution is to focus on the core business activities and outsource the accounting tasks to an external service provider. This external party will then perform day-to-day bookkeeping tasks and ultimately also prepare the financial statements.

This essay analyses one specific event of a change in the corporate tax rate. Here, the Finnish 2014 tax reform is studied. As of January 2014, this reform lowered the Finnish corporate tax rate from 24.5 to 20.0 percent. This large drop creates an excellent natural experiment to test the hypothesis that firms who perform accounting tasks internally engage in more downward earnings management before a corporate tax rate cut than firms who have outsourced their accounting tasks. It is hypothesized that firms performing their own accounting have greater possibilities to influence their reporting in an opportunistic manner than firms who use external help in the financial reporting process. In addition, external accountants are here proposed to act as an additional monitoring mechanism to the auditor.

An internet-based survey was directed to small private Finnish firms in order to gather information on firms who outsource accounting tasks and firms who perform such tasks internally. This information is otherwise not available in Finland. The survey had an effective response rate of 20 percent and the final sample size was 1,386 firms. The larger majority of firms are found to outsource accounting tasks. Furthermore, financial statement data was gathered for the sample firms from the Voitto+ database of Suomen Asiakastiety Oy. In addition, an actual taxable income variable was collected from the tax returns provided by the Finnish Tax Administration. With the combination of this data, the essay utilizes a unique and rich data set. In the essay, earnings management is estimated in the form of discretionary accruals following Kothari et al. (2005). Then, a regression model is estimated, where an interaction variable between actual taxable income and an indicator variable indicating outsourced accounting tasks is the variable of main interest. This regression is run for the years 2012 to 2013. The last year is the year whereby firms are expected to apply income-decreasing accruals in anticipation of the 2014 tax rate cut.

Consistent with the expectations of the behavior before tax rate cuts, firms are noted to engage in income-decreasing earnings management as taxable income increases. However, the results for the year prior to the effective year of the reform also reveal that firms outsourcing accounting tasks to an external service provider engage in significantly less income-decreasing earnings management than firms performing these tasks themselves. In other words, the results suggest that the minority of smaller private firms who perform these tasks in-house, and have the knowledge and resources needed, are also able to manage taxes to a larger extent. A number of robustness tests are performed to verify the results. For example, it is noted that a part of the sample firms may be eligible for an audit exemption due to their small size, in accordance with the current auditing act. The number of sample firms with non-audited financial statements is, however, concluded to be so small that these firms are not able to affect the results in any significant manner.
The fourth essay provides a contribution to the literature in various ways. First, Finland is used as the research setting and this means that a high book-tax conformity setting is utilized, which has not been the standard setting in prior studies. Strong evidence is provided that the firms engage in earnings management before a corporate tax rate cut, with the help of unique actual taxable income data retrieved from the firm-specific tax returns not available in many countries. Second, this essay contributes to the literature by being the first to analyze the differential engagement in earnings management among firms who either outsource their accounting tasks or perform them internally. Thereby, the essay takes a wider view of earnings management and provides an examination of a factor other than the auditor that limits earnings management in private firms. Finally, as smaller private firms are utilized as the objects of study, this essay also contributes to the literature with evidence on the financial reporting practices of this under-researched group of firms.

Due to the letter nature of the final essay, together with the journal limitations, the essay admittedly gives a somewhat restricted insight into the data and robustness of the results. However, the more extended study performed in Höglund and Sundvik (2016b) provides further insight into the same data material and this article also includes additional sensitivity checks not reported in the final essay of this dissertation.
5 CONCLUDING REMARKS

In summary, this dissertation studies issues related to earnings management in private firms with a special focus on tax incentives. Earnings management is generally described as managerial discretion over accounting and reporting choices with an ultimate goal of influencing how economic events are presented in some measure of earnings. Agency theory is often considered as one of the key theoretical foundations of earnings management, where conflicts between public firm owners and managers are important factors. Evidence exists that public firm earnings, for instance, are managed in order to achieve a higher share price. For the purpose of this dissertation, it is also central to note that earnings management may also exist in private firms.

Furthermore, prior research shows that private firms manage earnings to reduce taxes. Within the scope of this dissertation, specific tax incentives are further investigated and these incentives are generated by various tax reforms. A common denominator in the tax reforms investigated is that they have reduced the statutory corporate tax rate. Such reforms may allow firms to defer income from a low tax period to a high tax period in order to achieve permanent tax savings. In many cases, these reforms are observed as one-time events. Therefore, these events may be utilized as natural experiments in research on tax-induced earnings management. The general purpose of the dissertation is to enhance the understanding about tax-induced earnings management in private firms. In more detail, the purpose is to examine the effect of changes in statutory corporate tax rates on measures of earnings management in private non-listed firms in various settings.

Private firms are interesting research objects in this context for a number of reasons. First of all, private firms are generally not as affected by owner-manager agency issues as public firms are (Jensen and Meckling, 1976; Ball and Shivakumar, 2005). The economic incentives of managers are therefore more closely aligned with the economic incentives of the owners. In some cases, especially in small firms, the owner is simultaneously the manager and a change in the value of the firm will be reflected in the owner’s wealth. Tax savings through earnings management can therefore be a likely act in a private firm context. Second, private firms face weaker capital market pressures than publicly traded firms. Tax enforcement is in many cases also less developed for private firms. In addition, the nontax costs associated with reporting lower earnings before a corporate tax rate cut is arguably lower for private firms than public firms. Third, the fact that micro, small and medium-sized enterprises constitute up to 99 percent of all firms in the EU should also be taken into consideration. This suggests that private firms are indisputably important players in the global economy.

This dissertation contributes with four essays on the topic of earnings management in response to corporate tax rate changes. One by one, the essays answer research questions that are related to (1) how earnings are managed through accruals around statutory corporate tax rate changes, (2) what alternative tax-minimization tools other than earnings management may be used when tax rates change, (3) how the jurisdictional level of book-tax conformity impacts the earnings management response to a corporate tax rate change, and (4) whether outsourcing of accounting tasks have an
effect on the magnitude of the earnings management reaction to a tax reform where the
corporate tax rate is changed. Taken together, the empirical essays contribute to the
existing earnings management literature in several ways. First of all, the essays
examine private limited liability firms and the reactions among these to changes in
corporate taxation. As such, the essays function as a response to the call by Hanlon and
Heizman (2010) for more research on the reporting behavior of private firms in general
and with respect to taxation in particular. Private firms are also believed to react
strongly to changes in taxation and this is also something that is consistently proved
throughout the empirical part of this dissertation. As such, this dissertation adds to the
relatively limited literature that focuses on the financial reporting of private firms in
isolation. Among other topics, prior studies explore asset write-offs (Kosi and
Valentincic, 2013), the association between loss avoidance and book-tax conformity
(Coppens and Peek, 2005) and the association between earnings smoothing and cost of
debt (Gassen and Fülbier, 2015). Through this literature, the idea that financial
accounting choices are driven by tax, debt contracting and dividend considerations is
put forth. This dissertation stresses the existence of and provides further evidence on
tax- and dividend-based earnings management.

Second, the essays all shed light on non-US settings that provide a rich data
environment that allow for in-depth analyses and more complete investigations. For
example, the Finnish Tax Administration grants access to the tax returns of firms that
is not available in many other settings. The inclusion of such unique data provides an
extra layer to the analysis, the results, and the conclusions. Shackelford and Shevlin
(2001) also encourage the use of such data. Moreover, by examining several
jurisdictions, this dissertation may also capture variations in the level of book-tax
conformity and link these variations with other variables. Furthermore, by focusing on
smaller code-law countries that use local accounting rules in several of the essays,
settings with more opportunities to manage earnings are examined. This is an
advantage in contrast to studies utilizing dominant institutional settings such as the
US, where firms apply US GAAP that is foremost designed to guarantee investor
usefulness of accounting information.

Third, the essays included in this dissertation collectively contribute to previous
literature by including several other new elements into the analysis. For example, the
research conducted is not only focused on a single measure of earnings management
that is very broad in its nature. Instead, this dissertation contributes with evidence of
more detailed earnings management by utilizing unexpected changes in specific
accruals (Marquardt and Wiedman, 2004), as also suggested by McNichols (2000).
Moreover, alternative responses to corporate tax rate changes are investigated that do
not only comprise the management of earnings through accruals. Additionally, the
under-researched characteristic of private firms, the use of external help in the
financial reporting process, is investigated within this dissertation. Lastly and in
addition to the above mentioned, the first part of the dissertation provides an overview
of the earnings management concept in private firms and illustrates in more detail
what has been done in relation to the topic of earnings management, with a special
focus on earnings management around corporate tax rate changes.

It is of great importance and interest not only to academicians but also to a
number of other stakeholders to understand what is driving firms and managers to
engage in earnings management and how the earnings are managed. The results and conclusions generated by this doctoral dissertation provide evidence that private firms in a number of countries have engaged in earnings management around tax reforms. As such, the findings may interest various stakeholders when evaluating financial statements during such events. These stakeholders include, but are not limited to, customers, suppliers, employees, investors, creditors, independent auditors, and tax authorities. For example, creditors such as banks are important stakeholders in the context of private firms because loans from banks are the main source of external finance for private firms (Santikian, 2014). The evidence put forth that firms present lower profits before a corporate tax rate change and a subsequently higher profits is something that could have an effect on creditors in their reading of financial statements. Independent auditors could also apply the findings of the dissertation in practice in the auditing process. Additionally, the tax authorities could use some of the results in the identification process of likely tax avoiders. Furthermore, the findings may have policy implications for reforming accounting and tax reporting systems around the world because the level of book-tax conformity is highlighted in several parts of the dissertation. The individual tax reforms analyzed and the examination of firm responses also provide an interesting lesson for future tax policy and structuring of future corporate tax reforms that aim to change the corporate tax rate.

While several attempts have been made to confirm the validity and reliability of the empirical work in this dissertation, this study is subject to some of the usual limitations of earnings management studies of this type. At least three important caveats are worth emphasizing. First, the domicile of the firms under investigation in three of the individual essays is limited to one country. This may pose a potential challenge in terms of generalizability, even though the studied private firm settings often resemble that of private firms in other countries. However, future studies could compare countries in order to confirm this point. Meanwhile, it is important to remember that a single-country examination provides a natural control for the legislative environment. Furthermore, the sample in the third essay could also be extended to include other countries because the current sample is limited to a smaller geographic region of the world. Second, discretionary accruals are a somewhat noisy measure of earnings management. The findings in the empirical essays are, however, robust to diverse proxies and a series of sensitivity tests. While other related research also uses similar measures, future research using more stable earnings management metrics would be a useful extension. Further use of tax return data could also be encouraged in these forms of studies. Third, another potential limitation is also present in several of the essays when conflicting incentives are not given great attention. However, the event of a corporate tax rate change is often considered as a strong one-time incentive to manage earnings. Therefore, other commonly occurring incentives may become obsolete during this period in time. However, future research is encouraged to further examine the potential impact of conflicting incentives to manage earnings.
REFERENCES


PART II

THE ESSAYS
Earnings management around Swedish corporate income tax reforms

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Abstract: Prior literature considers a change in the national corporate income tax (CIT) rate as a strong firm incentive to manage earnings. This article examines the link between two recent CIT reforms in Sweden and earnings management with a large dataset of private firms. The effects of tax rate cuts are estimated on aggregate measures as well as on decomposed measures of accrual-based earnings management. The results suggest that taxation clearly influences these firms in their high book-tax conformity setting. Downward earnings management is documented before the reduction in the CIT rate, consistent with research on public firms with lower book-tax conformity. Primarily accounts receivable is noted to drive these results. Weaker evidence is provided with the inventory and depreciation accrual vehicles. The tax effects are statistically and economically significant. Furthermore, the income-decreasing behaviour prior to the CIT reforms is observed to be persistent over time.

Keywords: book-tax conformity; earnings management; corporate income tax; CIT; discretionary accruals; financial accounting; private firms; specific accruals; Sweden; tax accounting incentives; tax reform


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1 Introduction

Accounting literature observes accrual-based earnings management (EM) to function as a tax reducing tool that provides lower taxes for a firm in the short-run. However, in the long-run, the lowered taxes will normally revert to an unadjusted level due to the reversal nature of accruals. Meanwhile, a national change in the corporate income tax (CIT) rate
creates an excellent window of opportunity to obtain long-run economic gains. In a case where the tax rate is to be decreased, income may be shifted from the higher tax rate period to the lower rate period. Thereby, the shifted income will be taxed according to a lower tax rate which results in lower taxes overall. A number of researchers (e.g., Scholes et al., 1992; Guenther, 1994; Roubi and Richardson, 1998) have examined such scenarios and provided evidence that public firms engage in income-shifting for tax saving purposes via EM.

Only limited EM research has specifically focused on private firms in contexts where the CIT rate is changed although the reliability of private firm financial statements is very important to the economic system as a whole (Bartolini et al., 2014) and private firms have different characteristics regarding ownership and reporting incentives than public firms (Van Tendeloo and Vanstraelen, 2008). To some extent, however, private firms have been noted to engage in more tax-induced EM than public firms (Watrin et al., 2012; Lin et al., 2014). With this background and as a response to the call for more work on private firm’s reporting behaviour by Hanlon and Heizman (2010), the objective of this study is to investigate how private firms react to a reduction in the tax rate in terms of EM.

Furthermore, related research has mainly considered broad-based measures of EM by for instance relying merely on aggregated accrual models. In this study, a decomposition approach is applied in order to observe the certain accrual vehicles used. Specific unexpected accruals are studied to observe, for instance, whether certain firm characteristics have an impact on the tax-induced EM. Meanwhile, total discretionary accruals are used as a broader proxy. The main sample includes 3,254 Swedish private firms and the analysed period in time incorporates the 2009 and 2013 reductions in the Swedish CIT rate.

The results of this study are aligned with the prediction that firms seize the window of opportunity that a cut in the national CIT rate provides. Generally, the study highlights that statistically and economically significant EM was a response to the reforms. This tax-aggressive behaviour is also observed to be persistent over time. Especially EM through the specific accrual of accounts receivable (AR) is observed. The inventory and depreciation accruals are also employed in the expected manner, but to a smaller extent. However, no evidence of accounts payable (AP) manipulation is found.

The contribution of this article is three-fold. First, the current study examines private firms in Sweden, which in this context is an excellent research arena because the explicit EM incentive is assumed to be specifically strong in high book-tax conformity settings. Here, the final taxation is strongly tied with accounting decisions and the tax authorities represent one of the main users of the financial statements which creates a great natural experiment to analyse the effect of recent tax reductions. This is a major contribution in contrast to most prior research that is based on public firm evidence from the low book-tax conformity setting of the USA. As such, the study also contributes to the debate on the effects of book-tax conformity level in different countries (e.g., Watrin et al., 2012). A study of Swedish private firms is also interesting for an international audience since the setting resembles that of private firms in other countries and the economic importance of private firms should not be underestimated.

Second, the adjustments in the Swedish corporate tax rate have not been subject to any previous extensive research and offer an opportunity to examine two recent consecutive tax rate reductions, which has not been performed in the prior literature. The tax reforms in comparable neighbouring countries such as Finland or Norway have not
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been analysed in previous accounting research either. Thus, this study contributes with evidence on tax-induced EM from an unexplored setting that allows for the analysis of two reforms. Hence, this study adds to the understanding about the specific accounting behaviour of Swedish firms and overall to the understanding about private firms’ reporting behaviour over time. In addition, this study also adds to the relatively scarce number of accounting studies utilising the Swedish research context.  

Third, this study decomposes aggregate EM into specific accruals which provides another contribution to the literature. The study illustrates the specific accrual vehicles utilised in the context of a tax rate reduction instead of only focusing on a single broad measure, as done in prior research.

The findings in the current study may be potentially useful for independent auditors and creditors when analysing private firms’ financial statements, both in Sweden and internationally. The study also supports the occurrence of incentive-based EM among Swedish private firms although Sweden showed a low score of overall EM in Burgstahler et al. (2006). These findings may also be informative and helpful for legislators in Sweden and elsewhere when structuring future corporate tax reforms and for tax authorities when identifying the firms that are more likely to be tax avoiders. In addition, the specific accrual findings are an important insight that can be used in practice.

The remainder of the study proceeds as follows. Section 2 discusses related literature and develops hypotheses. Section 3 describes the sample selection, research methods and strategy of analysis. Section 4 reports the findings and Section 5 concludes.

2 Background and hypotheses development

2.1 EM and corporate tax reforms

In this article, EM is defined according to Healy and Wahlen (1999) as alterations in firms’ reported economic performance invoked by the firm itself to either mislead stakeholders or influence outcomes of accounting-based contracts. The act of EM has been examined from a large number of different perspectives and several studies have been concerned with the underlying incentives. These incentives depend on the applied perspective and the type of firms investigated. For instance, a great number of studies have focused on capital market motives such as EM around seasoned equity offerings (Cohen and Zarowin, 2010). Contracting motives in the form of debt covenants (DeFond and Jiambalvo, 1994) and executive compensation contracts (Healy, 1985) have also been largely covered. A relatively small number of studies have, however, focused on the association between taxation and EM.

A number of the studies linking taxation with EM have highlighted the incentive to manage earnings when the corporate tax rate is adjusted. The US Tax Reform Act of 1986, which reduced the statutory CIT rate from 46% to 34%, has for instance been a popular research object. The reform created an incentive for firms to manage earnings downwards in 1987, which was the last period with the higher tax rate. Several studies confirm that firms acted according to this incentive (Manzon, 1992; Scholes et al., 1992; Guenther, 1994; Maydew, 1997; Lopez et al., 1998; Calegari, 2000). By so doing, firms shifted income from the period with a higher corporate tax rate to the period with a lower tax rate. Thus, permanent economic gains could be obtained. This is opposite to regular tax-reducing behaviour through downward EM as exemplified by Coppens and Peek
(2005). In such a case, firms are unable to gain positive economic consequences since accruals reverse and cause higher taxes when they do, unless the reversals occur in loss years.

Researchers have also investigated firm behaviour around CIT reforms including tax rate changes outside the USA. For instance, Roubi and Richardson (1998) highlighted the management of discretionary current accruals by firms in Canada, Malaysia and Singapore. A common factor in previous studies is the usage of public firm data.

However, some studies have also analysed private firms, such as Goncharov and Zimmermann (2006) who studied a Russian changing tax law. Likewise, the German CIT rate cut in 2001 was analysed by Watrin et al. (2012) who observed that tax accounting incentives influenced the behaviour of private firms but not that of public firms. Recently, Lin et al. (2014) focused on public versus private firm responses to a Chinese tax rate reduction and found that the latter group reported significantly more downward current accruals than public firms did prior to the reduction. One reason for this is that private firms do not face the same capital market pressures as public firms and are smaller in size which is linked with less publicity. Van Tendeloo and Vanstraelen (2008) additionally pointed out that private firms are more closely held and have greater managerial ownership which makes them more likely to undertake transactions that produce tax savings without regard for financial reporting.

With this background, I expect corporate tax reforms that reduce the CIT rate to be linked with significant EM behaviour of private firms. Additionally, the abnormal reporting behaviour is expected to incorporate accruals rather than real activities manipulation. A reason for this is that accrual-based EM is less costly than the real form of EM, which in turn has direct cash flow consequences (Cohen and Zarowin, 2010). The following hypothesis can thus be formulated:

H1 Private firms engage in significant income-decreasing accrual-based EM prior to a tax rate cut compared with other periods.

Most previous studies have focused on broad-based or aggregated measures to capture EM surrounding a change in the CIT rate. Such a broad measure does not provide much insight into how the earnings are managed since firms have different accrual instruments available to adjust their earnings. Calegari (2000) extended prior research and decomposed a broad measure into discretionary forms of book-only accruals and book-tax accruals. By so doing, he found that firms used accruals with high book-tax conformity to achieve tax planning goals and accruals with low conformity to reach financial reporting objectives. Still, the specific accrual movements were not highlighted. Moreover, Marquardt and Wiedman (2004) called for research that addresses the role of specific accruals in contexts where EM has been documented. They found unexpected AR and depreciation to be accruals managed upward in contexts of equity offerings.

With this background, it is motivated to decompose accrual-based EM into the under-researched area of specific accruals and to analyse them separately around a CIT reform. As such, this study examines both total discretionary accruals as well as unexpected specific accruals such as AR, inventory, AP and depreciation. The studied accrual measures are anticipated to be income-decreasing in the period prior to a tax rate cut in accordance with previous literature on overall EM. Separate hypotheses are formulated for each accrual analysed:
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H2 Private firms engage in significant income-decreasing EM through AR prior to a tax rate cut compared with other periods.

H3 Private firms engage in significant income-decreasing EM through inventory prior to a tax rate cut compared with other periods.

H4 Private firms engage in significant income-decreasing EM through AP prior to a tax rate cut compared with other periods.

H5 Private firms engage in significant income-decreasing EM through depreciation prior to a tax rate cut compared with other periods.

It is, however, not likely that all specific accruals are used simultaneously, as Marquardt and Wiedman (2004) also noticed in their study. Pilcher (2011) additionally found that different political, commercial and social pressures lead different users of specific accruals to manage earnings, in a public sector context.

2.2 The 2009 and 2013 Swedish CIT reforms

For fiscal years starting as of 1 January 2009 or later, the Swedish CIT rate was reduced from 28% to 26.3%.

The 1.7% reduction was mainly made to guarantee the country’s competitiveness and gain an international tax advantage. Based on prior EM literature (e.g., Watrin et al., 2012), especially private firms could be expected to manage earnings downwards for fiscal years just prior to 2009. Deferring 1.00 EUR of taxable income from a year when it would be taxed at the higher rate to a year when it would be taxed at the lowered rate would be equivalent to earning 2.4% [i.e., 1.00 \times (1 - 0.263) = 1.024 \times (1 - 0.28)].

A successive tax rate cut was implemented as of 1 January 2013. Then, the 26.3% rate was further reduced to 22.0% as an adaptation to contemporary international tax levels. The information about the 4.3% tax cut was included in the Swedish Government’s budget proposal for 2013 with a formal bill to the Parliament for enactment.

Again, firms could be expected to manage earnings downwards in the period(s) just prior to 2013. Deferring 1.00 EUR of taxable income from year 2012 to year 2013 would be equivalent to earning 5.8%.

In the Swedish high book-tax conformity setting for private firms, accounting income and taxable income are based on the same underlying transactions and inherently linked. At the same time, the tax authorities represent one of the main users of the financial statements of private firms. The particular tax-induced EM incentive outlined here is thus assumed to be specifically strong in this setting. Other incentives for EM might of course exist as well. However, compared with regular tax reduction incentives, the incentive provided by a reduced CIT rate is a single event that is not regularly available. Firms could therefore be argued to recognise a tax rate cut as a very strong motive to manage their earnings. No other clear and concurrent private firm incentives for EM have been identified.
3 Research design

3.1 Sample and data collection

The Bureau van Dijk’s Orbis database was used to create a sample of Swedish unconsolidated private limited firms with total assets (TA) of more than 500,000 EUR\(^6\) and available financial statement data for the variables compulsory for the analyses. Unconsolidated data was used since the individual entities are liable to tax. Only firms that reported under local GAAP with a fiscal year of 12 months and equal to the calendar year were included in the sample. In line with Roubi and Richardson (1998), the last criterion was added to maintain a homogenous sample and analyse firms with approximately the same effect of the tax rate cuts that were effective from January the following year. Furthermore, companies with accruals above 100% of lagged TA were excluded to minimise outliers.

The main sample comprises a total of 3,254 non-financial private firms registered in Sweden.\(^7\) Private firms were used because they are a suitable item of investigation when it comes to tax rate changes according to prior research (e.g., Watrin et al., 2012) and due to the low number of Swedish public firms. Table 1 reports the industry distribution for the sample, which suggests that most firms are involved in wholesale and retail trade and that there is a large part of manufacturing firms.

<table>
<thead>
<tr>
<th>Industry</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>851</td>
<td>26.2%</td>
</tr>
<tr>
<td>Construction</td>
<td>350</td>
<td>10.8%</td>
</tr>
<tr>
<td>Wholesale and retail trade</td>
<td>1,082</td>
<td>33.3%</td>
</tr>
<tr>
<td>Transportation and storage</td>
<td>224</td>
<td>6.9%</td>
</tr>
<tr>
<td>Accommodation and food service activities</td>
<td>77</td>
<td>2.4%</td>
</tr>
<tr>
<td>Information and communication</td>
<td>115</td>
<td>3.5%</td>
</tr>
<tr>
<td>Real estate activities</td>
<td>350</td>
<td>10.8%</td>
</tr>
<tr>
<td>Professional, scientific and technical activities</td>
<td>169</td>
<td>5.2%</td>
</tr>
<tr>
<td>Arts, entertainment and recreation</td>
<td>36</td>
<td>1.1%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3,254</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

3.2 EM proxies

In this article, discretionary accruals and unexpected specific accruals were used as proxies for EM. The discretionary accruals were estimated by following Callao and Jarne (2010). Initially, total accruals \(TACC\) were estimated according to the balance sheet approach\(^8\) with the following expression:

\[
TACC_{it} = \Delta \text{Receivables}_{it} + \Delta \text{Inventories}_{it} - \Delta \text{Payables}_{it} - \text{DEP}_{it}
\]  (1)

where \(\Delta \text{Receivables}\) is the change in AR; \(\Delta \text{Inventories}\) is the change in stocks; \(\Delta \text{Payables}\) is the change in AP; and \(\text{DEP}\) is the depreciation and amortisation expense. A variation of the Jones (1991) model was then used to regress total accruals on change in...
sales (ΔREV), property, plant and equipment (PPE), and return on assets (ROA) according to the following equation:

\[
\frac{TACC_{it}}{TA_{it-1}} = \beta_0 \left( \frac{1}{TA_{it-1}} \right) + \beta_1 \left( \frac{\DeltaREV_{it}}{TA_{it-1}} \right) + \beta_2 \left( \frac{PPE_{it}}{TA_{it-1}} \right) + \beta_3 \left( \frac{ROA_{it}}{TA_{it-1}} \right) + \epsilon_{it}
\]

(2)

In contrast to Callao and Jarne (2010), but in line with Kothari et al. (2005), and Lópeze and Pitman (2014), the ROA\(^3\) were used as a performance control due to the non-availability of operating cash flows. For the other terms, lagged TA were used as a deflator to avoid problems with heteroscedasticity. Equation (2) was firstly estimated for an estimation period comprising the years 2004 to 2006 and 2010, consisting of three fiscal years before the first event of analysis and one between the two reforms.\(^{10}\) Having estimated the industry-specific parameters for the estimation period, the values obtained were then applied to predict discretionary accruals for the years comprising the analysis period. The prediction error was interpreted as the discretionary part of the total accruals (TDACC), defined in the following equation:

\[
\frac{TDACC_{it}}{TA_{it-1}} = \frac{TACC_{it}}{TA_{it-1}} \left( \beta_0 \left( \frac{1}{TA_{it-1}} \right) + \beta_1 \left( \frac{\DeltaREV_{it}}{TA_{it-1}} \right) + \beta_2 \left( \frac{PPE_{it}}{TA_{it-1}} \right) + \beta_3 \left( \frac{ROA_{it}}{TA_{it-1}} \right) \right)
\]

(3)

The specific accrual measures of Marquardt and Wiedman (2004) investigated are all recurring items and consist of AR, inventory (INV), AP, and depreciation (DEP). Any unexpected changes in these items were interpreted as EM. The unexpected changes were calculated as:

\[
Ux_{it} = \left[ \frac{x_{it} - \bar{x}_{it-1} * y_{it}}{\bar{y}_{it-1}} \right] / TA_{it-1}
\]

(4)

where \(x\) is AR, INV, AP; or DEP. For AR \(y\) is sales; for inventory and AP \(y\) is cost of goods sold; and for depreciation \(y\) is PPE. All variables were deflated by lagged TA. The unexpected accruals of AP and DEP were further multiplied by negative one (so that a negative amount equals downward EM). If broad EM is found by examining TDACC, then it will be possible to distinguish whether some specific accrual drives the aggregate EM in a specific direction or whether the accruals pull together.

For robustness purposes were outliers in the continuous dataset controlled by winsorisation at the 1st and 99th percentile. The calculated proxies of EM were also winsorised in the same manner.

3.3 Regression models

The methodology of DeFond and Subramanyam (1998), and Carver et al. (2011) was followed to examine all hypotheses, after obtaining all proxies of EM. A period of three years around the respective events was analysed through the following two OLS models:

Model 1: \(EM = \beta_0 + \beta_1(DUM1) + \beta_2(DUM2) + \epsilon_i\)

Model 2: \(EM = \beta_0 + \beta_1(DUM1) + \beta_2(DUM2) + \beta_3(SIZE_i) + \beta_4(LEV_i) + \beta_5(ROA_i) + \beta_6(GROWTH_i) + \beta_7(LOSS_i) + \beta_8(BIG4) + \sum_{i} \delta_i(Industry_i) + \epsilon_i\)

(6)
A signed measure of \( EM \) that capture the directional impact of the discretionary behaviour on earnings was mainly used as the dependent variable. \( TDACC \) and unexpected specific accruals (\( UAR, UINV, UAP, \) and \( UDEP \)) were used one by one as this \( EM \) variable. Unsigned dependent variables were additionally used to gain further insight. The test variables of main interest are \( DUM1 \) and \( DUM2 \). \( DUM1 \) is a dummy variable that is equal to one if the observation is from the last year prior to the tax reform or from the first year after the tax reform and \( DUM2 \) is a dummy equal to one if the observation is from the first year after the tax reform. Regarding the 2009 (2013) reform, for example, \( DUM1 \) was set to one for 2008 (2012) and 2009 (2013) and \( DUM2 \) was set to one only for 2009 (2013). Year 2007 to 2009 (2011 to 2013) was then included in the regression dataset\(^{11}\) as periods of analysis. After the regressions were run, the yearly EM proxy levels and changes were calculated by combining parameter estimates from the regression model according to the scheme in Table 2. The value of the unexpected accruals was expected to be income-decreasing in the last period \((P - 1)\) prior to the effective year of the reduced tax rate if the firms on average have managed earnings downwards in order to save taxes. Thus, the expected sign of the \( \beta_0 \) coefficient and the combination of \( \beta_0 \) and \( \beta_1 \) is negative. In addition, the value given by the \( \beta_2 \) coefficient is expected to be positive if the downward EM depreciates after the reform. While it is common to only include one dummy variable to capture the sign of EM one year prior to the tax reform, this setup additionally allows for the analysis of the informative change between periods

Table 2 Regression coefficient interpretation

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
<th>Coefficient/combination</th>
</tr>
</thead>
<tbody>
<tr>
<td>( P - 2 )</td>
<td>Level two periods prior to the cut</td>
<td>( \beta_0 )</td>
</tr>
<tr>
<td>( \Delta P - 2 to P - 1 )</td>
<td>Change from level ( P - 2 ) to ( P - 1 )</td>
<td>( \beta_1 )</td>
</tr>
<tr>
<td>( P - 1 )</td>
<td>Level one period prior to the cut</td>
<td>( \beta_0 + \beta_1 )</td>
</tr>
<tr>
<td>( \Delta P - 1 to P_1 )</td>
<td>Change from level ( P - 1 ) to ( P_1 )</td>
<td>( \beta_2 )</td>
</tr>
<tr>
<td>( P_1 )</td>
<td>Level one period after the cut</td>
<td>( \beta_0 + \beta_1 + \beta_2 )</td>
</tr>
<tr>
<td>( \Delta P - 2 to P_1 )</td>
<td>Change from level ( P - 2 ) to ( P_1 )</td>
<td>( \beta_0 + \beta_2 )</td>
</tr>
</tbody>
</table>

In addition to the time dummy variables of interest, several control variables were included. A variable controlling for firm size (\( SIZE \)) was added to surrogate for various omitted variables. Smaller firms have also been noted to be less opportunistic tax planners (Scholes et al., 1992). Further, a variable controlling for leverage (\( LEV \)) was included due to a proposed debt association with EM (DeFond and Jiambalvo, 1994). Because for instance Kothari et al. (2005) showed that discretionary accruals estimated with the Jones model correlate with firm performance, a control variable for the \( ROA \) was also included together with a sales growth controlling variable (\( GROWTH \)) and a dummy variable indicating a year with negative net income (\( LOSS \)). Moreover, since high quality audit may constrain EM in high tax alignment countries (Van Tendeloo and Vanstraelen, 2008) and due to the general audit link with EM (Zisis and Sorros, 2015), a variable indicating a Big4-auditor\(^{12}\) was included. Finally, industry fixed effects were added to the regression model. The variable definitions are further summarised in Table 3.
Table 3  Definitions of variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIG4</td>
<td>An indicator variable equal to 1 in case of a PwC, E&amp;Y, KPMG, or Deloitte auditor, 0 otherwise</td>
</tr>
<tr>
<td>DUM1</td>
<td>An indicator variable equal to 1 in case of the year prior to or the first year after the tax reform, 0 otherwise</td>
</tr>
<tr>
<td>DUM2</td>
<td>An indicator variable equal to 1 in case of the first year after the tax reform, 0 otherwise</td>
</tr>
<tr>
<td>GROWTH</td>
<td>Sales growth scaled by lagged total assets</td>
</tr>
<tr>
<td>LEV</td>
<td>Total liabilities divided by total assets</td>
</tr>
<tr>
<td>LOSS</td>
<td>An indicator variable equal to 1 in case of negative net income, 0 otherwise</td>
</tr>
<tr>
<td>PPE</td>
<td>Total property, plant, and equipment</td>
</tr>
<tr>
<td>REV</td>
<td>Revenues</td>
</tr>
<tr>
<td>ROA</td>
<td>Return on assets, net income divided by total assets</td>
</tr>
<tr>
<td>SIZE</td>
<td>Natural logarithm of total assets</td>
</tr>
<tr>
<td>TA</td>
<td>Total assets</td>
</tr>
<tr>
<td>TACC</td>
<td>Total accruals estimated with the balance sheet approach</td>
</tr>
<tr>
<td>TDACC</td>
<td>Total discretionary accruals (Jones, 1991; Kothari et al., 2005; Callao and Jarne, 2010)</td>
</tr>
<tr>
<td>UAP</td>
<td>Unexpected accounts payable (Marquardt and Wiedman, 2004)</td>
</tr>
<tr>
<td>UAR</td>
<td>Unexpected accounts receivable (Marquardt and Wiedman, 2004)</td>
</tr>
<tr>
<td>UDEP</td>
<td>Unexpected depreciation (Marquardt and Wiedman, 2004)</td>
</tr>
<tr>
<td>UINV</td>
<td>Unexpected inventory (Marquardt and Wiedman, 2004)</td>
</tr>
</tbody>
</table>

3.4  Descriptive statistics

The regression coefficients for the linear industry regressions regarding the estimation periods for the total accruals [equation (2)] are not of important in drawing any conclusions about EM, but they can confirm the validity of the accrual model in use. The coefficient on change in sales ($\beta_3$) can be expected to be either positive or negative. Here, the coefficient was positive overall, which reflects mostly income-increasing accruals such as account receivables. In terms of the coefficient for PPE ($\beta_3$), the average coefficient had the expected negative sign. The ROA coefficient ($\beta_4$) was noted to be positive on average. The adjusted R square includes low, but quite common values, for aggregated accrual models, averaging at 0.13. These facts allow for the continuation of the study and analysis of discretionary accruals.

The annual averages of estimated TDACC for the period 2007 to 2013 are illustrated in Figure 1. By visual inspection, the discretionary accruals are seen to be negative in the period(s) prior to both of the examined tax rate reductions. However, the level in 2008 is significantly lower than the level in 2012. Furthermore, distinctive reversal of the negative 2007 to 2008 accruals is noted in the peak around the year 2010.
Table 4 provides the overall descriptive statistics for one year before and one year after the studied reforms. Average TA are noted at 14,672 TEUR in 2008. The median and standard deviation indicate the existence of both smaller and larger private firms in the sample. Mean taxable income is 420 TEUR in 2008 and even a smaller amount of income-shifting could thus be interpreted as being economically significant. As the firms were struck by the global financial crisis during this very moment in time, the ROA can be observed to be quite low, below 7%. Both TACC and TDACC are largely income-decreasing in 2008 and 2012, the years before the reduction. This also applies to the average unexpected specific accruals of AR and depreciation while not to the other specific accruals. As a whole, this suggests that the sample firms have engaged in overall EM around the specific tax change event.

Table 5 presents the Pearson correlation coefficients for the 2008 sample year. Expected correlations between specific unexpected accruals and TDACC are noted in the expected directions. Significant correlations can be observed overall, but the correlations are not very strong. This lowers the risk of bias due to strong correlations and the correlations between the specific accruals are not high enough to provide evidence that firms manage all accounts in perfect unison. The strongest correlations are observed between the proxies TDACC and UAR (0.519). Regarding the control variables, there is a strong correlation between ROA and LOSS (~0.560). Multicollinearity could furthermore be ruled out based on the fact that the variance inflation factors (VIFs) of all regressors in the models discussed were less than 2.0, well below the critical value in Shan (2014).
### Panel A – 2009 reform

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Median</th>
<th>St. dev.</th>
<th>Mean</th>
<th>Median</th>
<th>St. dev.</th>
<th>Diff. (2009–2008)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues</td>
<td>3.254</td>
<td>16,671.3</td>
<td>3,636.1</td>
<td>168,496.4</td>
<td>16,481.0</td>
<td>3,475.4</td>
<td>165,520.1</td>
<td>-190.3*** -160.7***</td>
</tr>
<tr>
<td>Total assets</td>
<td>3.254</td>
<td>14,672.0</td>
<td>2,062.0</td>
<td>153,463.7</td>
<td>16,384.8</td>
<td>2,199.2</td>
<td>186,749.4</td>
<td>1,712.8*** 137.2***</td>
</tr>
<tr>
<td>Taxable income</td>
<td>3.254</td>
<td>420.2</td>
<td>151.9</td>
<td>16,453.8</td>
<td>841.1</td>
<td>137.8</td>
<td>21,551.7</td>
<td>420.9 -14.1**</td>
</tr>
<tr>
<td>LEV</td>
<td>3.254</td>
<td>0.587</td>
<td>0.606</td>
<td>0.237</td>
<td>0.575</td>
<td>0.590</td>
<td>0.242</td>
<td>-0.012*** -0.017***</td>
</tr>
<tr>
<td>ROA</td>
<td>3.254</td>
<td>0.069</td>
<td>0.056</td>
<td>0.138</td>
<td>0.049</td>
<td>0.047</td>
<td>0.136</td>
<td>-0.020*** -0.009***</td>
</tr>
<tr>
<td>GROWTH</td>
<td>3.254</td>
<td>-0.077</td>
<td>-0.099</td>
<td>0.232</td>
<td>0.006</td>
<td>0.018</td>
<td>0.267</td>
<td>0.083*** 0.116***</td>
</tr>
<tr>
<td>TACC</td>
<td>3.254</td>
<td>-0.064</td>
<td>-0.057</td>
<td>0.112</td>
<td>-0.033</td>
<td>-0.030</td>
<td>0.119</td>
<td>0.030*** 0.026***</td>
</tr>
<tr>
<td>TDACC</td>
<td>3.254</td>
<td>-0.035</td>
<td>-0.029</td>
<td>0.108</td>
<td>-0.006</td>
<td>-0.002</td>
<td>0.111</td>
<td>0.029*** 0.027***</td>
</tr>
<tr>
<td>UAR</td>
<td>3.254</td>
<td>-0.022</td>
<td>-0.009</td>
<td>0.087</td>
<td>0.009</td>
<td>0.002</td>
<td>0.088</td>
<td>0.031*** 0.012***</td>
</tr>
<tr>
<td>UINV</td>
<td>2.294</td>
<td>0.007</td>
<td>0.002</td>
<td>0.080</td>
<td>0.005</td>
<td>0.004</td>
<td>0.099</td>
<td>-0.003 0.001</td>
</tr>
<tr>
<td>UAP</td>
<td>2.294</td>
<td>0.010</td>
<td>0.012</td>
<td>0.058</td>
<td>-0.003</td>
<td>-0.003</td>
<td>0.073</td>
<td>-0.014*** -0.015***</td>
</tr>
<tr>
<td>UDEP</td>
<td>3.254</td>
<td>-0.029</td>
<td>-0.019</td>
<td>0.105</td>
<td>-0.006</td>
<td>-0.004</td>
<td>0.107</td>
<td>0.023*** 0.015***</td>
</tr>
</tbody>
</table>

### Panel B – 2013 reform

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Median</th>
<th>St. dev.</th>
<th>Mean</th>
<th>Median</th>
<th>St. dev.</th>
<th>Diff. (2012–2013)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues</td>
<td>3.254</td>
<td>23,658.9</td>
<td>4,713.8</td>
<td>248,128.6</td>
<td>22,779.1</td>
<td>4,560.1</td>
<td>236,176.4</td>
<td>-879.8 -153.7***</td>
</tr>
<tr>
<td>Total assets</td>
<td>3.254</td>
<td>21,570.2</td>
<td>3,001.4</td>
<td>231,136.0</td>
<td>20,406.6</td>
<td>2,923.6</td>
<td>202,985.1</td>
<td>-1,163.5 -77.8***</td>
</tr>
<tr>
<td>Taxable income</td>
<td>3.254</td>
<td>991.4</td>
<td>181.6</td>
<td>31,915.2</td>
<td>708.5</td>
<td>193.5</td>
<td>31,908.6</td>
<td>-282.9 11.9***</td>
</tr>
<tr>
<td>LEV</td>
<td>3.254</td>
<td>0.566</td>
<td>0.580</td>
<td>0.243</td>
<td>0.551</td>
<td>0.563</td>
<td>0.247</td>
<td>-0.015*** -0.017***</td>
</tr>
<tr>
<td>ROA</td>
<td>3.254</td>
<td>0.057</td>
<td>0.046</td>
<td>0.134</td>
<td>0.063</td>
<td>0.049</td>
<td>0.144</td>
<td>0.006*** 0.003***</td>
</tr>
<tr>
<td>GROWTH</td>
<td>3.254</td>
<td>0.039</td>
<td>0.037</td>
<td>0.222</td>
<td>-0.014</td>
<td>-0.024</td>
<td>0.249</td>
<td>-0.052*** -0.066***</td>
</tr>
<tr>
<td>TACC</td>
<td>3.254</td>
<td>-0.030</td>
<td>-0.030</td>
<td>0.114</td>
<td>-0.033</td>
<td>-0.036</td>
<td>0.089</td>
<td>-0.003 0.006**</td>
</tr>
<tr>
<td>TDACC</td>
<td>3.254</td>
<td>-0.011</td>
<td>-0.008</td>
<td>0.106</td>
<td>-0.010</td>
<td>-0.012</td>
<td>0.083</td>
<td>0.001 -0.004</td>
</tr>
<tr>
<td>UAR</td>
<td>3.254</td>
<td>-0.005</td>
<td>0.000</td>
<td>0.076</td>
<td>-0.002</td>
<td>0.000</td>
<td>0.080</td>
<td>0.003 0.000</td>
</tr>
<tr>
<td>UINV</td>
<td>2.294</td>
<td>0.006</td>
<td>0.002</td>
<td>0.082</td>
<td>-0.001</td>
<td>0.000</td>
<td>0.083</td>
<td>-0.007** -0.002</td>
</tr>
<tr>
<td>UAP</td>
<td>2.294</td>
<td>0.001</td>
<td>0.000</td>
<td>0.068</td>
<td>0.002</td>
<td>0.002</td>
<td>0.061</td>
<td>0.002 0.001</td>
</tr>
<tr>
<td>UDEP</td>
<td>3.254</td>
<td>-0.007</td>
<td>-0.006</td>
<td>0.099</td>
<td>-0.009</td>
<td>-0.008</td>
<td>0.083</td>
<td>-0.002 -0.003**</td>
</tr>
</tbody>
</table>

Notes: Revenues, total assets, and taxable income are given in TEUR. For variable definitions, see Table 3.

*Paired-samples t-test (Wilcoxon test) of the differences in means (median). ** and *** indicate significance at the 5% and 1% level (two-tailed), respectively.
<table>
<thead>
<tr>
<th></th>
<th>TDACC</th>
<th>UAR</th>
<th>UINV</th>
<th>UAP</th>
<th>UDEP</th>
<th>SIZE</th>
<th>LEV</th>
<th>ROA</th>
<th>GROWTH</th>
<th>LOSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>TDACC</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UAR</td>
<td>0.519***</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UINV</td>
<td>0.350***</td>
<td>0.000</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UAP</td>
<td>-0.199***</td>
<td>0.331***</td>
<td>0.245***</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UDEP</td>
<td>-0.099***</td>
<td>0.007</td>
<td>-0.032</td>
<td>-0.036*</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIZE</td>
<td>0.040***</td>
<td>0.018***</td>
<td>-0.005</td>
<td>0.002</td>
<td>0.054***</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LEV</td>
<td>0.052***</td>
<td>0.027</td>
<td>-0.019</td>
<td>-0.036*</td>
<td>0.063***</td>
<td>0.181***</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROA</td>
<td>0.009</td>
<td>-0.008</td>
<td>-0.028</td>
<td>0.025</td>
<td>-0.034*</td>
<td>-0.027</td>
<td>-0.243***</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GROWTH</td>
<td>0.083***</td>
<td>-0.095***</td>
<td>-0.313***</td>
<td>0.149***</td>
<td>0.078***</td>
<td>0.063***</td>
<td>0.085***</td>
<td>0.144***</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>LOSS</td>
<td>-0.024</td>
<td>-0.001**</td>
<td>0.000</td>
<td>-0.018</td>
<td>0.011</td>
<td>-0.022</td>
<td>0.206***</td>
<td>-0.560***</td>
<td>-0.141***</td>
<td>1.000</td>
</tr>
<tr>
<td>BIG4</td>
<td>-0.008</td>
<td>0.013</td>
<td>-0.016</td>
<td>0.005</td>
<td>0.012</td>
<td>0.321***</td>
<td>0.088***</td>
<td>0.015</td>
<td>-0.005**</td>
<td>0.024</td>
</tr>
</tbody>
</table>

Notes: *, **, and *** indicate significance at the 10, 5, and 1% level (two-tailed), respectively. For variable definitions, see Table 3.
4 Results

The empirical results of the study will be presented in the following. Subsequently, sensitivity analyses and robustness tests are described.

4.1 Evidence of aggregate EM

Table 6 provides the estimation results for equations (5) and (6) with TDACC as the dependent variable. Results are provided with respect to the 2009 and 2013 reform separately and in a combined signed and unsigned specification. Specifically, two versions of the model are presented for each dataset. The first model (Model 1) is a simple model excluding control variables. The Model 1 results for the level in $P - 1$ in Panel B of Table 6 for the 2009 reform correspond to the level in 2008 presented in Table 4. This verifies that the OLS model is appropriately specified and that Model 1 simply presents the univariate levels and changes in the dependent variable. The adjusted R squares can be observed to be low in this stage, consistent with studies applying the same methodology. Regarding the 2009 reform in the first column of Table 6, a negative level may be observed in 2008 ($P - 1$: $-0.035$, $t = -7.35$, and p-value 0.000) as well as a negative change between 2007 and 2008 ($\Delta P - 2$ to $P - 1$: $-0.023$, $t = -8.40$, and p-value 0.000). The sign on the $\beta_2$ coefficient ($\Delta P - 1$ to $P1$) is positive and significant. Taken together, these figures are interpreted as income-decreasing EM prior to the effective year of the 2009 reform and a succeeding reversal effect. TDACC is also significantly negative in the same manner before the 2013 reform, however only in the yearly levels. The positive, but insignificant, change between the period before and the period after is interpreted as a sign of weak immediate accrual reversal and could reasonably be explained by a more lagged reversal effect. When regressing data from both reforms, expected negative levels and changes before the reform years are also noted. With an unsigned dependent variable including both reforms, the yearly levels are highly significant with a decrease in the first period with the lowered CIT rate.

The second model (Model 2) is a full model including control variables. The exploratory power can also be noted to increase when control variables are added but remains low. However, bearing in mind that the model includes several binary variables and that the aim is not to fully explain the determinants of EM around the event, a smaller adjusted R square is acceptable. Additionally, the values are similar to other studies applying the same methodology and the explanatory power increases directly as an unsigned dependent variable is used. All control variables except of BIG4 are significant in the 2009 reform regression while GROWTH is the exception in the 2013 reform. Results presented for Model 2 in Table 6 indicate that the simple model results hold controlling for other factors. For instance, the 2008 yearly level is $-0.053$ ($t = -4.33$, and p-value 0.000). Illustrated in terms of economic significance, a 0.053 negative discretionary accrual shift from 2008 to 2009 roughly translates into about 13 TEUR in tax savings at the sample mean of TA (14,672 TEUR) and with a 1.7% tax rate cut. This amount assumes that all the estimated discretionary accruals are being shifted from a period with a higher tax rate to a period with a lower tax rate. The amount can, anyhow, be considered economically significant for the private sample firms. At the same time, the amount is equal to approximately 9% of the 2008 average firm tax expense. Meanwhile, a 0.050 negative discretionary accrual shift from 2012 to 2013 is interpreted
as about 46 TEUR in tax savings at the sample mean of TA in 2012 (21,570 TEUR). Additionally, this amount is equal to around 21% of the 2012 average firm tax expense. The economic significance around the 2013 reform is naturally larger since the percentage change in the CIT rate is larger in magnitude. Taken together, the results in Table 6 indicate general discretionary accrual behaviour in line with the first hypothesis (H1), especially around the 2009 reform.

4.2 Evidence of specific accrual EM

Table 7 to Table 10 display the estimation results for the four different unexpected specific accruals as respective dependent variables (H2–H5). An examination of Table 7 shows that UAR is significantly negative prior to the 2009 reform. Weaker evidence is provided with the 2013 reform, but the change from $P - 2$ to $P - 1$ ($-0.004, t = -1.92$, and p-value 0.055) and the level in $P - 1$ ($-0.023, t = -2.79$, and p-value 0.005) is significant with Model 2. As in Table 6, the change from $P - 1$ to $P1$ ($\beta_2$) is positively significant in the 2009 case but not in the 2013 regression. When observing both reforms with a signed dependent variable, the $\beta_2$ coefficient is positively significant. Overall and especially regarding the 2009 reform, the second hypothesis (H2) is accepted and the results indicate that the revenue account of receivables is a strong EM vehicle in this context.

Table 8 is involved with inventory EM. Regarding both reforms, Model 1 does not provide evidence consistent with the expectations. Regarding Model 2 and the 2009 reform, negative UINV is noted in $\Delta P - 2$ to $P - 1$ and $P - 1$, but only the former is significant, and the $\Delta P - 1$ to $P1$ is positive and significant. With the 2013 reform and Model 2, the levels one and two years before the reform are significantly negative, but there is no positive reversal effect. In the full regressions with both reforms, the level in $P - 1$ is significantly negative, but the effect does not disappear in $P1$. The unsigned regressions also reveal a large magnitude of UINV after the reform. All in all, these results can not fully support the third hypothesis (H3). At the same time, observing the regression results with control variables, there is weaker evidence that the sample firms engage in inventory EM to lower their tax burden.

$UAP$ is used as the dependent variable in Table 9. Here, no evidence in support of the fourth hypothesis (H4) is found. The sign of the unexpected variable is completely contrary to the predictions and it is positive before the events of investigation. The only indication of income-decreasing behaviour is found in the change from $P - 2$ to $P - 1$ around the 2013 reform with Model 1.

Table 10 reveals that depreciation has been used to manage earnings around the 2009 reform. Both models show significant results with expected signs. For the 2013 reform, however, the results are not reproduced. When both reforms are combined in one regression, the 2009 results drive the total results which indicate that UDEP is significantly employed in the expected manner around a tax reform. These findings provide weaker support for the fifth hypothesis (H5) in total, but strong support regarding the 2009 reform.
### Panel A – Regression results

<table>
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<tr>
<th>Independent variables</th>
<th>2009 reform</th>
<th>2013 reform</th>
<th>Both reforms</th>
<th>Both reforms (unsigned)</th>
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<tbody>
<tr>
<td></td>
<td>Model 1</td>
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<td>Model 1</td>
<td>Model 2</td>
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<td>$-0.009^{***}$</td>
<td>$-0.009^{***}$</td>
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### Panel B – Levels and changes derived from regression coefficients

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<th>Both reforms (unsigned)</th>
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Notes: $^{*}$, $^{**}$, and $^{***}$ indicate significance at the 10, 5, and 1% level (two-tailed), respectively. For variable definitions, see Table 3.

$^a$ $P - 2$ and $P - 1$ represents the fiscal years two and one period prior to the corporate tax rate cut, respectively; $P1$ represents the first year subsequent to the corporate tax rate cut; and $\Delta$ represents the change between successive periods. For regression coefficient interpretation, see Table 2.

Model 1: $TDACC_t = \beta_0 + \beta_1(DUM1) + \beta_2(DUM2) + \epsilon$

Model 2: $TDACC_t = \beta_0 + \beta_1(DUM1) + \beta_2(DUM2) + \beta_3(SIZE_t) + \beta_4(LEV_t) + \beta_5(ROA_t) + \beta_6(GROWTH_t) + \beta_7(LOSS_t) + \beta_8(BIG4_t) + \Sigma \delta(lnd_t) + \epsilon$
### Panel A – Regression results

<table>
<thead>
<tr>
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### Panel B – Levels and changes derived from regression coefficients

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Notes: *, **, and *** indicate significance at the 10, 5, and 1% level (two-tailed), respectively. For variable definitions, see Table 3.

$^a$ $P - 2$ and $P - 1$ represent the years two and one period prior to the corporate tax rate cut, respectively; $P1$ represent the last year subsequent to the corporate tax rate cut; and $\Delta$ represents the change between successive periods. For regression coefficient interpretation, see Table 2.

Model 1: $UAR_t = \beta_0 + \beta_1(DUM1) + \beta_2(DUM2) + \epsilon$

Model 2: $UAR_t = \beta_0 + \beta_1(DUM1) + \beta_2(DUM2) + \beta_3(SIZE_t) + \beta_4(LEV_t) + \beta_5(ROA_t) + \beta_6(GROWTH_t) + \beta_7(LOSS_t) + \beta_8(BIG4_t) + \sum \delta(bnd_t) + \epsilon$
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### Panel B – Levels and changes derived from regression coefficients

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</table>

Notes: *, **, and *** indicate significance at the 10, 5, and 1% level (two-tailed), respectively. For variable definitions, see Table 3.

*p - 2 and P - 1 represents the fiscal years two and one period prior to the corporate tax rate cut, respectively; P1 represents the first year subsequent to the corporate tax rate cut; and $\Delta$ represents the change between successive periods. For regression coefficient interpretation, see Table 2.

Model 1: $UINV_t = \beta_0 + \beta_1(DUM1) + \beta_2(DUM2) + \varepsilon$

Model 2: $UINV_t = \beta_0 + \beta_1(DUM1) + \beta_2(DUM2) + \beta_3(SIZE_t) + \beta_4(LEV_t) + \beta_5(ROA_t) + \beta_6(GROWTH_t) + \beta_7(LOSS_t) + \beta_8(BIG4_t) + \sum \delta(Ind_t) + \varepsilon$
### Panel A – Regression results

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>2009 reform</th>
<th>2013 reform</th>
<th>Both reforms</th>
<th>Both reforms (unsigned)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Model 1</td>
<td>Model 2</td>
<td>Model 1</td>
<td>Model 2</td>
</tr>
<tr>
<td>Intercept</td>
<td>$\beta_0$</td>
<td>0.006***</td>
<td>0.027***</td>
<td>0.007***</td>
</tr>
<tr>
<td>DUM1</td>
<td>$\beta_1$</td>
<td>0.005**</td>
<td>0.013***</td>
<td>-0.006***</td>
</tr>
<tr>
<td>DUM2</td>
<td>$\beta_2$</td>
<td>-0.014***</td>
<td>-0.017***</td>
<td>0.002</td>
</tr>
<tr>
<td>SIZE</td>
<td>$\beta_3$</td>
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<td>-0.001*</td>
<td>-0.002***</td>
</tr>
<tr>
<td>LEV</td>
<td>$\beta_4$</td>
<td>-0.015***</td>
<td>-0.016***</td>
<td>-0.015***</td>
</tr>
<tr>
<td>ROA</td>
<td>$\beta_5$</td>
<td>0.016*</td>
<td>0.002</td>
<td>0.011*</td>
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<tr>
<td>GROWTH</td>
<td>$\beta_6$</td>
<td>0.054***</td>
<td>0.045***</td>
<td>0.046***</td>
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<tr>
<td>LOSS</td>
<td>$\beta_7$</td>
<td>0.004</td>
<td>0.001</td>
<td>0.002</td>
</tr>
<tr>
<td>BIG4</td>
<td>$\beta_8$</td>
<td>0.005</td>
<td>0.003</td>
<td>0.002</td>
</tr>
<tr>
<td>Industry controls</td>
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<td></td>
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<tr>
<td>NO</td>
<td>6,882</td>
<td>6,882</td>
<td>6,882</td>
<td>13,764</td>
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<tr>
<td>YES</td>
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<td>6,882</td>
<td>6,882</td>
<td>13,764</td>
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<tr>
<td>N</td>
<td>6,882</td>
<td>6,882</td>
<td>6,882</td>
<td>13,764</td>
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<tr>
<td>Adj. R²</td>
<td>0.006</td>
<td>0.040</td>
<td>0.002</td>
<td>0.027</td>
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### Panel B – Levels and changes derived from regression coefficients

<table>
<thead>
<tr>
<th>Period relative to tax reform</th>
<th>2009 reform</th>
<th>2013 reform</th>
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<tr>
<td></td>
<td>Model 1</td>
<td>Model 2</td>
<td>Model 1</td>
<td>Model 2</td>
</tr>
<tr>
<td>P – 2</td>
<td>0.006***</td>
<td>0.027***</td>
<td>0.007***</td>
<td>0.027***</td>
</tr>
<tr>
<td>$\Delta$ P – 2 to P – 1</td>
<td>0.005**</td>
<td>0.013***</td>
<td>-0.006***</td>
<td>-0.003</td>
</tr>
<tr>
<td>P – 1</td>
<td>0.010***</td>
<td>0.040***</td>
<td>0.001</td>
<td>0.024**</td>
</tr>
<tr>
<td>$\Delta$ P – 1 to P1</td>
<td>-0.014***</td>
<td>-0.017***</td>
<td>0.002</td>
<td>0.003*</td>
</tr>
<tr>
<td>P1</td>
<td>-0.003</td>
<td>0.023*</td>
<td>0.002</td>
<td>0.027**</td>
</tr>
<tr>
<td>$\Delta$ P – 2 to P1</td>
<td>-0.009**</td>
<td>-0.004</td>
<td>-0.005</td>
<td>0.000</td>
</tr>
</tbody>
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Notes: *, **, and *** indicate significance at the 10, 5, and 1% level (two-tailed), respectively. For variable definitions, see Table 3. 

$P - 2$ represents the fiscal years two and one period prior to the corporate tax rate cut, respectively; $P1$ represent the first year subsequent to the corporate tax rate cut; and $\Delta$ represents the change between successive periods. For regression coefficient interpretation, see Table 2.

Model 1: $UAP_t = \beta_0 + \beta_1 (DUM1) + \beta_2 (DUM2) + \epsilon$ 
Model 2: $UAP_t = \beta_0 + \beta_1 (DUM1) + \beta_2 (DUM2) + \beta_3 (SIZE) + \beta_4 (LEV) + \beta_5 (ROA) + \beta_6 (GROWTH) + \beta_7 (LOSS) + \beta_8 (BIG4) + \sum b (bd_t) + \epsilon$
### Panel A – Regression results

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<td>Model 2</td>
<td>Model 1</td>
<td>Model 2</td>
</tr>
<tr>
<td>Intercept</td>
<td>$\beta_0$</td>
<td>-0.009***</td>
<td>-0.038***</td>
<td>-0.006***</td>
</tr>
<tr>
<td>DUM1</td>
<td>$\beta_1$</td>
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<td>-0.019***</td>
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<tr>
<td>DUM2</td>
<td>$\beta_2$</td>
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<td>0.022***</td>
<td>-0.002</td>
</tr>
<tr>
<td>SIZE</td>
<td>$\beta_3$</td>
<td>0.004***</td>
<td>0.005***</td>
<td>0.005***</td>
</tr>
<tr>
<td>LEV</td>
<td>$\beta_4$</td>
<td>0.015***</td>
<td>0.015***</td>
<td>0.015***</td>
</tr>
<tr>
<td>ROA</td>
<td>$\beta_5$</td>
<td>-0.052***</td>
<td>-0.030***</td>
<td>-0.030***</td>
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<td>GROWTH</td>
<td>$\beta_6$</td>
<td>0.006</td>
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<td>0.005</td>
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<tr>
<td>LOSS</td>
<td>$\beta_7$</td>
<td>-0.007**</td>
<td>-0.005</td>
<td>-0.005</td>
</tr>
<tr>
<td>BIG4</td>
<td>$\beta_8$</td>
<td>0.002</td>
<td>-0.005**</td>
<td>-0.002</td>
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<tr>
<td>Industry controls</td>
<td>NO</td>
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<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>$N$</td>
<td>9,762</td>
<td>9,762</td>
<td>9,762</td>
<td>9,762</td>
</tr>
<tr>
<td>Adj. $R^2$</td>
<td>0.009</td>
<td>0.022</td>
<td>0.000</td>
<td>0.009</td>
</tr>
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### Panel B – Levels and changes derived from regression coefficients

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<td>Model 2</td>
<td>Model 1</td>
<td>Model 2</td>
</tr>
<tr>
<td>$P - 2$</td>
<td>-0.009***</td>
<td>-0.038***</td>
<td>-0.006***</td>
<td>-0.055***</td>
</tr>
<tr>
<td>$\Delta P - 2$ to $P - 1$</td>
<td>-0.020***</td>
<td>-0.019***</td>
<td>-0.001</td>
<td>-0.001</td>
</tr>
<tr>
<td>$P - 1$</td>
<td>-0.029***</td>
<td>-0.057***</td>
<td>-0.007</td>
<td>-0.056***</td>
</tr>
<tr>
<td>$\Delta P - 1$ to P1</td>
<td>0.023***</td>
<td>0.022***</td>
<td>-0.002</td>
<td>-0.001</td>
</tr>
<tr>
<td>P1</td>
<td>-0.006</td>
<td>-0.035**</td>
<td>-0.009</td>
<td>-0.058***</td>
</tr>
<tr>
<td>$\Delta P - 2$ to P1</td>
<td>0.003</td>
<td>0.003</td>
<td>-0.003</td>
<td>-0.002</td>
</tr>
</tbody>
</table>

Notes: *, **, and *** indicate significance at the 10, 5, and 1% level (two-tailed), respectively. For variable definitions, see Table 3.

$P - 2$ and $P - 1$ represent the fiscal years two and one period prior to the corporate tax rate cut, respectively; P1 represents the first year subsequent to the corporate tax rate cut; and $\Delta$ represents the change between successive periods. For regression coefficient interpretation, see Table 2.

Model 1: $\Delta UDEP_t = \beta_0 + \beta_1(DUM1) + \beta_2(DUM2) + \epsilon$

Model 2: $\Delta UDEP_t = \beta_0 + \beta_1(DUM1) + \beta_2(DUM2) + \beta_3(SIZE) + \beta_4(LEV) + \beta_5(ROA) + \beta_6(GROWTH) + \beta_7(LOSS) + \beta_8(BIG4) + \sum_{i}(Ind_i) + \epsilon$
Taken together, the unexpected specific accrual of AR is mainly seen to drive the EM around tax rate cuts documented with a broad EM proxy. Further, only weaker evidence is provided with respect to EM via inventory and depreciation while no evidence is observed with AP. Finally, the results suggest that the reversal effect of EM is much more dominant after 2008 than after 2012.

4.3 Sensitivity analysis and discussion

A national change in the corporate tax rate is understood as a general and strong incentive for firms across all industries to manage earnings in a certain direction. Therefore, such a change offers a natural experiment to identify industries where EM is particularly prevalent because Sun and Rath (2009), and Gu et al. (2005) noted that EM varies between industries. For instance, a natural characteristic of keeping larger stocks of inventories and receivables should drive EM. Based on this, different industries were examined based on the one-digit classification presented in Table 1. Equations (5) and (6) were estimated with signed TDACC for each industry group separately. With emphasis on the level of discretionary accruals in \( P - 1 \) and the change between \( P - 2 \) and \( P - 1 \), income-decreasing behaviour is only noted with significance at conventional levels regarding manufacturing, construction, and wholesale and retail trade industries. In order to test whether the results presented in Table 6 are influenced by industry-related factors, the sample was restricted to firms in other than these three large industries. The estimation of equations (5) and (6) with the remaining 2,913 observations still yield significant income-decreasing TDACC prior to the corporate tax reform with Model 1. With Model 2, the changes and levels prior to the reform are still negative but no longer significant at conventional levels. Ultimately, these results suggest that exclusion of certain industries from the analysis may yield an alternative result.

Next, the robustness of the main results was checked with various robustness tests. First, the likelihood of an endogeneity problem biasing the regression estimates was evaluated. The results in Table 6 for the 2009 reform, where the significantly negative \( \beta_1 \)-coefficient (−0.021) was interpreted as downward EM between 2007 and 2008, could for instance be biased if an omitted variable exists that is correlated with both the EM proxy (TDACC) and the variable of interest (DUM1). To verify the potential impacts of unobserved confounding variables, the approach derived by Frank (2000) and used in the accounting literature by Larcker and Rusticus (2010) was applied. Since it is difficult to control for every possible confounding effect, it can be estimated how strong such an effect would have to be to turn a statistically significant result into an insignificant one. The impact threshold for a confounding variable (ITCV)\(^{12}\) was thus calculated. For the regression model with TDACC as the dependent variable presented in Table 6, the ITCV threshold value is 0.0512. This implies that the correlations between TDACC and DUM1 with the unobserved confounding variable each need to be around 0.0226 (0.0512\(^{1/2}\)) in order for the coefficient on DUM1 to be rendered insignificant. As such, it is difficult to determine whether the ITCV is large enough for the results to be robust to omitted variables. Therefore, the impact for each control variable was also calculated in order to evaluate the threshold. Impact was then defined as the product of the partial correlation between the dependent variable and the control variable and the correlation between the variable of interest and the control variable. However, none of the control variables has
an impact with larger magnitude than the ITCV. The highest product of partial correlations is GROWTH at 0.006 and ROA at 0.004. Thus, any unobserved confounding variable must be more highly correlated with the dependent variable and the independent variable of interest than any of the existing control variables in order to overturn the results. Assuming that there is a good set of control variables, it is not entirely impossible but implausible that there is an omitted variable that would bias the results presented.

Second, current discretionary accruals (CDACC) were used as an alternative broad proxy for EM, estimated by the same process as TDACC.\(^{13}\) With CDACC as the dependent variable, the coefficients on DUM1 and DUM2 in both model variations are not very different from the results reported in Table 6. Altogether these (untabulated) results were in line with the TDACC results, but the level of significance was generally weaker due to the absence of depreciation. This is natural as depreciation is noted as an EM vehicle in Table 10.

Third, as the 2008 global financial crisis struck concurrent with the 2009 tax reform and could have affected the negative accrual level documented in 2008, the effects of the financial crisis around the 2009 reform were analysed. A firm with a negative change in sales between 2007 and 2008 was interpreted as a firm more affected by the financial crisis and the sample was partitioned into two subsamples by separating the firms with a change in sales below the sample median from the firms with a change above the sample median. A dummy variable (CRISIS) was then constructed on the basis of these subsamples and added to equations (5) and (6) together with dummy variable interactions.\(^{16}\) This configuration allows for an analysis of the differences in TDACC between the two firm groups. Based on the analysis, the main results regarding the 2009 reform continued to hold. For example, the difference in TDACC between firm groups for the level in P − 1 (2008) derived from Model 2 was very small and insignificant (−0.008, \(t = 0.79\), and \(p\)-value 0.424). Moreover, the P − 1 level was negative and significant for both subsamples, as in Table 6. Additional subsamples were formed based on whether the change in sales between 2007 and 2008 as well as between 2008 and 2009 was negative or not. The results continued to hold with these specifications as well and the main results were concluded to be invariant to whether a firm was more or less affected by the financial crisis.

Fourth, firms with pre-reform losses were used as a control group to the firms without prior losses to examine the effects of loss carry-forward firms. These firms were not expected to respond to the tax cuts by reducing accruals because of their tax shield. When the Table 6 regressions were replicated with the control group only, the \(\beta_i\) coefficients and \(\beta_0 + \beta_i\) combinations were still negative but insignificant.\(^{17}\) In addition, the \(\beta_2\) coefficients remained positive but insignificant for both reforms. These results indicated that mostly profit firms engaged in the significant tax-induced EM.

Finally, it is acknowledged that the results in this paper are based on financial statement data rather than tax statement data due to data availability. Hence, regular tax EM is not what is directly observed in this article. However, as the level of book-tax conformity is high in the Swedish private firm setting, the results presented can therefore be concluded to be rather close to the actual tax EM. Ultimately, it was not possible to control for the effects that might arise from the unobservable tax EM.
5 Summary and concluding remarks

Prior literature on EM in response to corporate tax rate changes has mostly focused on US public firms around the 1986 Tax Reform Act. This study observed statistically significant income-decreasing EM prior to more recent reductions in the corporate tax rate among Swedish private firms. The behaviour was especially evident when the change between the two periods before and the immediate period before the effective year with the lowered tax rate were analysed. In the year prior to the effective year of the 2013 reform, negative discretionary accruals of 5.0% of lagged TA were observed. These observations were also noted to be significant in economic terms and the results indicated that the firms were able to save approximately 21% of their total book tax expense. Thus, a contribution to the literature is made with broad-sample findings on tax-induced EM from a private firm high book-tax conformity setting within Europe.

Another unique aspect of this study is that it provides evidence from two similar corporate tax reforms with the same ultimate focus of a reduced corporate tax rate. The income-decreasing direction of EM was repeated before both reforms. Thus, this study contributes to the literature by examining two consecutive reforms and by documenting that tax-aggressive behaviour around corporate tax reforms is persistent over time. Industry differences in the EM reaction to the tax reforms could also be determined, consistent with prior literature. Restricting the dataset to certain industries could therefore influence the results in a study comparable to the current one.

Previous studies on changes in the corporate tax rate have principally covered only broad-based measures of EM. As a response, the current study contributes by applying a decomposition approach by exploring unexpected changes in specific accruals as well. Mainly AR were seen to drive the aggregate results. To some extent, however, also inventory and depreciation accruals were managed according to the expectations in this context. Utilisation of the revenue account of AR could be associated with high costs of revenue understatements. Private firms are reasonably not as negatively affected by stagnant or decreasing sales as public firms, though. The use of AR is therefore a plausible finding. In addition, inventory changes and depreciation also provide good camouflage for EM as the firm itself can influence the levels of these accounts to some extent. However, AP is less flexible to adjust in a certain direction owing to the involvement of other parties such as suppliers. With respect to this, it is easier to accept that AP was not at all employed in the expected manner among the sample firms.

Taken as a whole, the findings in this study extend the growing literature on private firm EM by examining a specific context incorporating a clear incentive that is assumed to be particularly strong for these firms. Overall, the findings may be generalised to other jurisdictions with high book-tax conformity and similar changes in the corporate taxation. The practical implications of this study may for instance rise for legislators and policy makers in the structuring of future corporate tax reforms, both in Sweden and elsewhere. Identification of likely tax avoiders through EM may also be simplified with the help of this study. As such, tax authorities and independent auditors could benefit from the specific accrual findings in the current study when analysing financial statements and when allocating their resources.

The results of this investigation are subject to some limitations. First, no perfect measure of tax-induced EM is used. Second, because of data restrictions, additional firm-years could not be included in the sample. Finally, the study does not test for any conflicting incentives to manage earnings as no clear alternative and clear motives could
be recognised in this context. Future studies could, however, incorporate such alternative incentives in the investigation. Future research is also encouraged to consider cross-jurisdictional variations in the private firm response to corporate tax rate changes, for instance by highlighting the level of book-tax conformity.

References


Earnings management around Swedish corporate income tax reforms


Notes
1. Derived from legal classification, Hung (2001) and Burgstahler et al. (2006) recognise Sweden as a jurisdiction with general high book-tax conformity. Meanwhile, Water et al. (2014) classify Sweden as a country with lower conformity when including listed firms in the sample, with a calculated permanent book-tax difference (PermBTD) measure of 0.1028. When this measure is calculated for the purely non-listed firms in the current study over a seven-year period (2007 to 2013), a stable PermBTD measure that averages at 0.0453 is returned which indicates a small difference between financial and tax statements. This is considered as empirical evidence that Sweden is a high book-tax conformity jurisdiction, at least in the context of private firms and this study. Prior literature has also noted that non-listed entities commonly produce only one set of financial statements (Ball and Shivakumar, 2005) and that private firms are likely to have a strong link between tax and financial reporting independent of the legal prescriptions of a jurisdiction (Goncharov and Zimmermann, 2006).
2. Another recent accounting study with Swedish data is Svanberg and Öhman (2015).
3. The tax rate change was officially announced in the 28th of October Government Bill 2008/09:65. Since 1994, the corporate tax rate had been held at 28%.
4. In this study, all figures are discussed in EUR instead of the Swedish Krona (SEK) due to the fact that the empirical data sample is retrieved in EUR format.
5. Government Budget Statement, released 20th of November 2012. In an earlier Government Memorandum dated 13th of September, the tax rate cut was suggested. Further limitation in the right to deduct interest expenses was also included in the final reform.
6. The Euro was used as currency for the Swedish firms, as provided by the Orbis database.
7. A reduced sample of 2,294 firms was used in the analysis of unexpected inventory and AP due to limited data availability.
8. Statements of cash flows are not available for the private firms included in the study so the total accruals could not be measured in accordance with Cormier et al. (2015).
9. ROA was simply calculated as net income divided by current TA with reference to Kothari et al. (2005). Lagged TA was used as an alternative deflator and the results remained virtually unchanged with this specification.
10. Alternative estimation periods were used for robustness purposes, but all yielded similar results and the results are only presented with respect to this estimation specification.
11. An econometrical problem of serial correlation in the error term might arise from having three observations from one company in these regressions. Therefore, White heteroskedasticity-consistent standard errors and covariance matrix were applied.
12. 28% the sample firms engaged a BIG4-auditor in 2013.
13. As a robustness check (described in Section 4.3), the possible effect of the global financial crisis during 2008 to 2009 on the 2008 abnormal level was tested for.
14. The ITCV is defined as the lowest product of the partial correlation between the dependent variable and the confounding variable and the partial correlation between the independent variable of interest and the confounding variable that would lead to a statistically insignificant relation between the dependent variable and the variable of interest. The larger the ITCV, the more robust the regression results are to omitted variable concerns.
Current accruals were firstly calculated as total accruals, excluding the long-term accrual of depreciation and amortisation expense. Then, the industry regressions were run by leaving out the explanatory variable PPE and having current accruals deflated by lagged TA as the dependent variable.

Model 1 configuration for financial crisis check, including interaction terms: \( \text{TDACC} = \beta_0 + \beta_1(\text{CRISIS}) + \beta_2(\text{DUM1}) + \beta_3(\text{DUM2}) + \beta_4(\text{CRISIS} \times \text{DUM1}) + \beta_5(\text{CRISIS} \times \text{DUM2}) + \epsilon \).

For instance, the t-statistics for the \( \beta \) coefficient regarding the 2009 reform (\( N = 1,179 \)) were \( t = -1.51 \) (Model 1) and \( t = -0.80 \) (Model 2). For the 2013 reform (\( N = 1,455 \)), the same t-statistics were \( t = -0.58 \) (Model 1) and \( t = -1.23 \) (Model 2).
Tax-induced fiscal year extension and earnings management

Dennis Sundvik
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Abstract
The aim of this study is to examine three different responses to the Finnish 2005 tax reform that, among other things, reduced the corporate tax rate and hiked dividend taxation. First, firms that decided to postpone their fiscal year-end into another, due to certain tax benefits, are identified. Second, an investigation is made to determine whether downward or upward earnings management is more broadly utilized as a tax-minimization tool when the decision to postpone the fiscal year-end was not taken. The study finds that firms seize the window of opportunity and extend fiscal years depending on the magnitude of the expected tax savings. Firms that do not change their fiscal year-end are, instead, found to engage in tax-induced earnings management, consistent with the expectations. In terms of economic consequences, the earnings management approach is proved to be less economically significant than the decision to change the fiscal year-end. This study is motivated by the negative impact of tax planning on the economy.

Keywords: corporate tax reform, earnings management, Finland, fiscal year-end, private firms, tax planning
1 INTRODUCTION

Over the last decade, the average statutory corporate income tax rate (CIT) has fallen significantly in the countries of the world due to a number of national tax reforms that have introduced changes in the CIT rate (Hemmelgarn and Teichmann, 2014). Since the US Tax Reform Act of 1986, researchers commonly perceive such tax rate changes as strong incentives for earnings management and several studies show that public firms managed their earnings in response to this reform (Dhaliwal and Wang, 1992; Manzon, 1992; Scholes et al., 1992; Guenther, 1994; Lopez et al., 1998; and Calegari, 2000). Furthermore, Roubi and Richardson (1998) provide international evidence from similar events. More recently, Watrin et al. (2012) and Lin et al. (2014) demonstrate that private firms are more eager to manage their earnings than public firms in these contexts. A general finding in these studies is that firms shift income from periods with a higher CIT rate to periods with a lower rate to reduce their overall tax burden. This behavior is also reasonable since permanent economic gains are possible to obtain from such earnings management, in comparison to downward earnings management in the absence of a tax rate change.1 Tax reforms, however, often introduce other changes than a change in the CIT rate. Consequently, not only CIT-induced earnings management may emerge. First, an incentive to change the fiscal year-end may arise, as Blasch and Weichenrieder (2007) exemplify. Examining a German tax reform and specific transitory rules, they provide evidence that public firms were able to reduce their tax burden by aligning the fiscal year with the calendar year. Here, many corporations incurred additional costs to avoid tax costs and the firms that changed their fiscal year-end were noted to act based on the amount of the expected tax savings. Second, incentives to increase dividend payments may emerge if the rules concerning dividend taxation are renewed in a reform. For instance, Kari et al. (2008) and Korkeamäki et al. (2010) show that ahead of an upcoming hike in dividend taxation and a simultaneous decrease in the CIT rate, firms pay out substantially larger amounts to their shareholders. Furthermore, some firms may also need to manage earnings upward, in line with Kasanen et al. (1996), to be able to pay out dividends at all. Such dividend-based earnings management creates a potentially conflicting incentive to the downward earnings management incentive that a CIT rate cut gives rise to.

To date, most accounting studies on tax reforms focus solely on CIT rate changes, for example by examining downward earnings management before tax rate cuts. However, no study explicitly investigates alternative responses to tax reforms such as changes in the fiscal year-ends and dividend-based earnings management, in addition to the conventional study of CIT-induced earnings management or how these separate acts are related. This paper aims to fill this research gap. Moreover, as the greater majority of previous literature concentrates on listed firms in low book-tax conformity settings, this paper focuses on non-listed firms in a high book-tax conformity setting. In such a setting, the accounting earnings management incentive is expected to be

1 Tax-minimization via downward accrual-based earnings management in general situations without CIT rate changes, as exemplified by Coppens and Peek (2005), will only result in future earnings management in the opposite direction and later on, higher taxes. The reason for this fate is the reversal nature of accruals.
stronger as book and tax income are more highly aligned. A motivation for this study also comes from Hanlon and Heitzman (2010), who request more research on reporting behavior of private firms.

This study uses the Finnish setting and the Finnish 2005 tax reform as a natural experiment to explore how a change in tax legislation influences firm decisions. Primarily, this reform reduced the CIT rate and hiked the taxation of dividends. The transition rules also created a special tax incentive for some firms with a fiscal year ending in the latter parts of the 2004 calendar year. Namely, these firms could take advantage of the reduced CIT rate prematurely and save taxes by closing their 2004 books on the 2005 side of the calendar year. Firms not reacting in this manner, however, were taxed according to the old legislation. As such, the Finnish setting and this specific tax reform not only allow for an analysis of CIT-induced earnings management but also for a simultaneous analysis of conflicting incentives in the form of dividend-driven earnings management and adjustments of fiscal years. Previous research shows that firms’ owners and management reacted in the anticipation of this specific event by adjusting their dividend policies (Kari et al., 2008; Korkeamäki et al., 2010). However, these prior studies in economics and finance lack in the sense that they do not analyze alternative reactions and how various reactions are related. For instance, Kari et al. (2008) only focus on the reform announcement effects with respect to dividend distribution. The aim of the current study is to examine firms responding to the tax reform in different ways. First, the study investigates firms that decide to change the end of their 2004 fiscal year and the factors influencing the decision surrounding a corporate tax reform of this kind. Second, this study examines whether earnings management is more broadly utilized as a tax-minimization tool when the decision is not taken. Earnings management is hypothetically used to either shift income from high to low CIT rate periods or to increase the distributable funds. A sample of private Finnish firms with the possibility to benefit from a change in the fiscal year-end is firstly identified. Secondly, firms that change their fiscal year-end and firms that do not are analyzed with financial statement data. The predictions are that the magnitude of the expected tax savings is associated with the decision to extend the fiscal year and that minimal earnings management occurs among year-end changing firms. Consistent with these predictions, the findings suggest that the probability of a change is significantly related to the level of taxable profits and earnings management. Firms not extending their fiscal year engage in more earnings management and the direction depends on the availability of retained earnings that may be distributed before the dividend taxation is hiked. Altogether, the firm-level economic benefits are found to be larger for firms that extend the fiscal year.

This study contributes to the literature in various ways. First, a major contribution is the investigation of the still rather unexplored decision to extend the fiscal year around a corporate tax reform and its connection with the opportunistic management of earnings. Thus, the study adds to the understanding about tax-minimization tools. Second, the current study contributes to previous studies on earnings management in response to changes in the CIT rate by studying less-researched private and non-listed firms in a high book-tax conformity setting. In addition, this study also includes an analysis of the conflicting incentive of dividend-driven earnings management. Third, a contribution is also made to the research area...
examining firm reasons to change the fiscal year-end by recognizing these opportunistic changes in practice. Moreover, the results of this study may also have an impact on legislators in the design of future tax reforms and may potentially be informative for independent auditors and creditors. Based on this study, the identification of likely tax avoiders should also be simplified in future reforms that allow fiscal year-end adjustments and the findings are proposed to help tax authorities allocate their resources in the future.

The following section describes the Finnish context and the tax reform and hypotheses are then developed. In the fourth section, sample collection and research methods are described. The empirical findings will then be reported and the last section concludes.
2 THE FINNISH CONTEXT AND THE 2005 TAX REFORM

This study examines fiscal year extensions and earnings management in Finnish private firms around the 2005 tax reform. In general, this setting is characterized by strong book-tax conformity, which means that events are recorded in a very similar fashion both in the tax returns and the official financial statements. Based on this, Niskanen and Keloharju (2000) recognize that Finnish public firms are known to manage earnings downwards to avoid income taxes and find that firms simultaneously manage earnings cosmetically upwards to make stakeholders perceive profits as larger. Similarly, Coppens and Peek (2006) show that private firms are more likely to manage earnings due to tax reasons when book-tax conformity is strong than when it is weak. Another characteristic of Finland is the bank-dominated environment for private firms, whereby only a small number of banks operate. These banks are able to monitor the performance of firms rather closely, which may result in the fact that firms use trade credit in their short and intermediate term funding (Niskanen and Niskanen, 2006). For the purpose of earnings management, high levels of accounts receivable and payable may potentially provide good camouflage. Finnish tax laws may also provide opportunities for earnings management in the form of depreciation reserves and depreciation adjustments. Furthermore, the Finnish accounting regulation that applies for private firms is less detailed and consequently more flexible than the International Financial Reporting Standards that applies for public firms. For example, the accounting rules allowed research expenditures and start-up costs to be recognized as an asset before 2005. Although this may be a sign of lower quality accounting standards, Finland is nevertheless known to score highly on law enforcement variables (e.g., Laporta et al., 1998).

With respect to fiscal years, very few Finnish public firms have a fiscal year that differs from the calendar year, while the number of private firms with fiscal year-ends other than December is quite high. For instance, new firms usually start their business in non-January months and then stick to uneven fiscal years. Meanwhile, a Finnish firm’s taxation year is equal to the calendar year. If the fiscal year is not equal to the calendar year, the taxation year will be the fiscal year(s) that will end during the calendar year. The Finnish Accounting Act furthermore states that the fiscal year of a firm is to be 12 months. However, the fiscal year may be shorter or longer (maximum 18 months) in certain contexts, such as when the business is started or when the end of the fiscal year is changed. Adjusting the fiscal year-end may come at a high cost for large listed firms (Blasch and Weichenrieder, 2007). Smaller private firms may, however, change their fiscal year-end with significantly lower stakes involved. Moreover, private limited liability firms in Finland may change their fiscal year simply through a notification to the Finnish Patent and Registration Office. Additional costs will, for instance, include administrational and audit costs.

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2 Finland is commonly characterized as a country with high book-tax conformity (e.g., Van Tendeloo and Vanstraelen, 2008).
4 The fiscal year-end change is subject to a small handling fee of 85 EUR, or 380 EUR if the articles of association need to be changed.
As of 1 January 2005, the Finnish CIT rate was reduced from 29 per cent to 26 per cent and a regime with a partial double taxation of dividends (partial relief) gradually replaced the previous system of full dividend imputation. In a nutshell, this meant that when the CIT level was lowered, the taxation of dividends to the owners was hiked by introducing extra taxes on dividends. With regards to the CIT rate cut, the tax reform created a strong incentive for firms to manage their earnings downwards before 2005. With high book-tax conformity, a lower taxable income could be generated while the tax rate was high and the income could then be shifted forward to a lower tax rate period. An alternative view would be to claim that a conflicting incentive existed for firm-owners to manage earnings upwards prior to the reform in order to be able to distribute higher dividends while the dividend tax was lower. The previous system of dividend taxation was repealed gradually with 57 per cent of dividends taxable in the adjustment year of 2005 and as of 2006, 70 per cent of dividends became taxable. Thus, the conflicting incentive to increase earnings should be visible in the 2003 and 2004 financial statements as this would allow for larger dividends paid and taxed in 2004 and 2005. On the contrary, another argument is that prior retained earnings could be used for this purpose and that the superior incentive was an income-decreasing incentive in 2004 associated with the taxation at the firm-level.

The lowered CIT rate became applicable to all fiscal years ending in the 2005 calendar year. Interestingly, the transition rules allowed firms to postpone the end of the 2004 fiscal year into 2005, thereby benefiting from this act by being taxed according to the new tax code for the profits generated within the extended fiscal year as a whole. Such firms were taxed at a lower CIT rate for one period longer than firms that did not extend their fiscal year. Fiscal year-end adjustments could not, however, yield any advantages with respect to dividend taxes, since dividends are taxed according to the regulation when they are distributed. Figure 1 summarizes the incentives around the tax reform. Firm 1 and Firm 2 do not adjust their fiscal year-ends and may minimize taxes by shifting income from high to low CIT rate periods. Additionally, the owners of these firms benefit if larger dividends are paid out before the partial relief system is fully in place. In contrast, Firm 3 postpones the end of the 2004 fiscal year into 2005 and may benefit from a premature use of the lowered tax rate. The tax reform was passed in June 2004 based on a government proposal in November 2003. Hence, managers and owners had time to decide on a response strategy for their firm.

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5 The Finnish institutional environment does not constrain current dividends by current revenue levels. In other words, Finnish private firms are allowed to pay dividends to the owners and cash bonuses to the managers even though the zero or any other earnings benchmark is not met in the current period.
2.1 Research hypotheses

Blasch and Weichenrieder (2007) found the decision to change the course of the fiscal year around a tax reform to be affected by the expected tax savings. In their literature review, Shackelford and Shevlin (2001), note that tax-minimization strategies often involve decisions where the tax incentives to lower taxable income must be weighed against the financial reporting incentives to increase book income. If changing the end of the fiscal year directly results in lower taxes due to certain transition rules, however, such balancing can be avoided. Nonetheless, aligned with the all costs theme of the Scholes and Wolfson (1992) framework, firms must still consider the costs of a fiscal year extension in relation to the benefits in terms of lower taxes. These costs may include both direct and indirect costs. Examples of such costs are decision costs arising from the notification fee to the authorities as well as other administrational and audit costs. However, in a small private firm context, these costs are assumed to remain rather low. While the costs can be small, the tax planning in the form of fiscal year extension will not be effective if the tax savings are even smaller. As a consequence, firms with positive and large expected taxable profits in the last year with the higher CIT rate will benefit more from extending the fiscal year than firms with smaller expected taxable profits. Such reasoning is also in line with Blasch and Weichenrieder (2007) as the tax savings achievable by extending the year are larger if the expected taxable profits also are large. Therefore, the following hypothesis is formulated:

H1: The greater the expected taxable profits are in the last period with the higher tax rate, the more likely the firm is to extend its fiscal year above 12 months.
(e.g., Firm 1 in Figure 1). Firms that decide to extend their fiscal year (e.g., Firm 3 in Figure 1) have an alternative reform response, and they are not expected to engage in earnings management behavior in the same extent. Furthermore, if the all taxes theme of the Scholes and Wolfson (1992) framework is taken into consideration, the simultaneous hike in dividend taxation included in the tax reform also deserves attention. Namely, some firms may be expected to manage earnings upwards according to Kasanen et al. (1996) to be able to pay out dividends before the higher dividend tax is fully implemented. For firms having a large pool of retained earnings (hereafter High RE firms), however, the incentive to manage earnings upwards is naturally weaker because the distributable funds can be used to pay out dividends. Downward earnings management can then be implemented to lower taxable income and to save taxes. Therefore, the following hypothesis is declared:

**H2:** Firms that extend their 2004 fiscal year engage in less downward earnings management in the period(s) prior to the reduction in the tax rate than High RE firms who remain with an unextended fiscal year.

An alternative hypothesis may be formulated regarding firms with a small pool of retained earnings (hereafter Low RE firms). These firms are hypothesized to have an alternative incentive to manage earnings upwards to be able to pay dividends before the hiked dividend taxation rules become effective. This is in line with Kari et al. (2008), who find that firms increased their dividend pay-outs before this reform. In the context of public firms, Korkeamäki et al. (2010) also show that firms adjusted their dividend policies around the specific Finnish 2005 tax reform, as dividends from these firms also became partially double-taxed. Additionally, Kinnunen et al. (2000) provide evidence that Finnish firms issuing new shares engage in earnings management to reinforce the buffer of retained earnings available for future dividends. Similarly, Kasanen et al. (1996) note that retained earnings provide a buffer to managers for the payment of dividends even if annual earnings fluctuate. In their sample, they also note a Finnish tendency to pay out dividends from current earnings. To sum up, they find that listed firms, with unmanaged earnings below the earnings needed to pay out the target dividend, manage earnings upwards to be able to meet the implicit dividend contract. In the context of the 2005 tax reform, firms with dividend payout policies based on a constant percentage of their profits are not assumed to have the incentive to manage earnings upwards. However, it is assumed that firms with a dividend payout policy based on a certain dividend per share or firms that aim for a smooth stream of dividends are likely to manage current earnings upwards if the level of retained earnings is low. Based on this background and with emphasis on the 2005 tax reform, an alternative hypothesis is formulated for private firms with low retained earnings:

**H3:** Firms that extend their 2004 fiscal year engage in less upward earnings management in the period(s) prior to the reduction in the tax rate than Low RE firms who remain with an unextended fiscal year.

As with the second hypothesis (H2), fiscal year-end changing firms are not expected to engage in significant earnings management around the reform.
3 METHODOLOGY

3.1 Sample selection and data collection

For the statistical analyses, the study uses a sample of Finnish private firms and retrieves financial statement data from the Voitto+ database of Suomen Asiakastieto Oy, which is a Finnish firm offering information services for the use of corporate management, risk management, and sales and marketing. With regard to data around the Finnish 2005 tax reform, the database includes information on firm age, industry, auditing, fiscal years, and the yearly financial statements of approximately 100,000 (mainly limited) Finnish firms. First, a sample of unconsolidated Finnish private limited liability firms with a twelve-month fiscal year during 2001-2003 is created to observe firms that change their fiscal year-end due to tax reasons. Only firms with the fiscal year ending month ranging from July to December in 2003 are included, since other fiscal year-ends could not be extended into 2005 based on the 18-month restriction. The minimum value of the total assets of a firm is set to 10 TEUR, to exclude the very smallest of firms.6 Complete financial statement data is furthermore required from 2002 to 2006. A checking procedure is also implemented to ensure that these firms are not linked to mergers and acquisitions or bankruptcy restructurings, in accordance with Du and Zhang (2013) who list general reasons for fiscal year adjustments. Out of the firms with available data subject to the restrictions, a final set of 350 firms is extracted. These firms do not have a fiscal year-end in 2004 at all because they extend the 2004 fiscal year into 2005. In the remainder of the paper, this group of firms is named Changers. Table 1 demonstrates that the industry composition of the Changers is similar to that of the database population.

In addition to the Changers, two matched samples of firms not changing the year-end (Non-Changers) are created. The pool of possible matched firms is equal to all Non-Changers in two sub-pools, one comprising firms with retained earnings close to zero (Low RE) and one with high retained earnings firms (High RE). Low RE firms have retained earnings that amount to less than 10 per cent of total assets while High RE firms have retained earnings above 10 per cent of total assets. The matches are compiled from each sub-pool based on the two-digit industry code, fiscal year-end in 2003 and the shortest Euclidean distance between the Changers’ and Non-Changers’ sales and total assets. More closely, each firm that changes its fiscal year-end is matched with two firms that either have low retained earnings or high retained earnings.7 For industries where it was difficult to find close matches, firms were matched based on the one-digit industry code. With the matching completed, a dummy variable (CHANGE) is introduced, which is set to 1 if the firm extends the 2004 fiscal year into 2005 (Changers) and 0 if the firm continues with an unadjusted fiscal year (High RE and Low RE firms). Specifically, the Changers and High RE firms are analyzed with respect to H2 and the Changers and Low RE firms are analyzed with respect to H3. In terms of descriptive statistics on the fiscal year-end months in the

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6 The Voitto+ database also rounds financial statement numbers to the nearest thousand, which have large percentage impact for the very smallest of firms.

7 According to the descriptive statistics in Table 3, High RE firms indeed have higher retained earnings than Low RE firms.
sample, most firms (79 per cent) have a fiscal year that is aligned with the calendar year in 2003. For the Changers, it is observed that January is the preferred new ending month (48 per cent of the firms).

### 3.2 Measuring earnings management

Total discretionary accruals ($TDACC$) are estimated as the proxy of earnings management. As an initial step, total accruals are calculated according to the balance sheet approach with the following expression:

$$TACC = \Delta \text{Receivables} + \Delta \text{Inventories} - \Delta \text{Payables} - \text{Depreciation}$$ \hspace{1cm} (1)

where $\Delta \text{Receivables}$ is the change in accounts receivable, $\Delta \text{Inventories}$ is the change in stocks, $\Delta \text{Payables}$ is the change in accounts payable; and $\text{Depreciation}$ is the depreciation and amortization expense.\(^8\) The total accruals are then separated into non-discretionary and discretionary accruals based on the methodology of Callao and Jarne (2010) by utilizing an estimation period that includes no comprehensive and strong earnings management incentive such as a corporate tax reform, in this case the years

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\(^8\) The balance sheet approach is used to calculate total accruals since statements of cash flows are not available for the Finnish private sample firms.
2006-2009. Industry specific coefficients are estimated with the cross-sectional Jones model augmented with return on assets:

\[
\frac{TACC}{\text{LagTA}} = \beta_1 \left( \frac{1}{\text{LagTA}} \right) + \beta_2 \left( \frac{\Delta \text{REV}}{\text{LagTA}} \right) + \beta_3 \left( \frac{\text{PPE}}{\text{LagTA}} \right) + \beta_4 (\text{ROA}) + \varepsilon
\]  

(2)

where \(\text{LagTA}\) is lagged total assets; \(\Delta \text{REV}\) is the change in sales; \(\text{PPE}\) is the total property, plant, and equipment; and \(\text{ROA}\) is the return on assets simply calculated as net income divided by total assets. \(\text{LagTA}\) are used as a deflator to avoid problems with heteroscedasticity. \(\text{ROA}\) is added as a performance control (Kothari et al., 2005). The industries are defined according to the two-digit industry codes and a minimum of 20 observations per industry is required. The estimation sample firms are subject to the same size criterion as the firms of analysis. Having estimated the coefficients for the estimation period, the values obtained are then applied on the firm-years of analysis, namely the years around the corporate tax reform (two years before and one year after). \(TDACC\) is finally calculated by separating the total accruals from the non-discretionary accruals.

### 3.3 Strategy of analysis

In order to analyze the decision to extend the fiscal year, the sample of Changers is analyzed and compared with the High RE and Low RE samples. First, the decision to postpone the 2004 fiscal year-end until 2005 is examined by estimating a logistic regression model for the 2004 fiscal period. The dependent binary variable \(\text{CHANGE}\) is employed in the following logistic regression model regarding the probability that a firm is a fiscal year-end changer:

\[
\text{Prob}(\text{CHANGE}_{i,t}) = \frac{1}{1 + e^{-Z}},
\]

where \(Z = \alpha_0 + \alpha_1 (\text{PROFIT}) + \alpha_2 (\text{TDACC}) + \alpha_3 (\text{SIZE}) + \alpha_4 (\text{DEBT}) + \alpha_5 (\text{GROWTH}) + \alpha_6 (\text{LOSS}) + \alpha_7 (\text{AGE}) + \alpha_8 (\text{BIG4}) + \text{Industry} + \varepsilon
\]

The variables \(\text{PROFIT}\) and \(\text{TDACC}\) are the independent variables of prime interest. Here, \(\text{PROFIT}\) is defined as taxable profits scaled by total assets for a firm. A \(\text{PROFIT\_POS}\) variable which equals positive taxable profits is alternatively used since it is posited that firms with larger positive profits are more likely to extend the fiscal year than firms with smaller profits due to the expected tax savings of such an extension. \(\text{TDACC}\) is expected to be negative for High RE firms and positive for Low RE firms.

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9 The 2006-2009 period comprises several years which should provide reliable estimates in line with Callao and Jarne (2010). However, the estimation period 2006-2009 also includes the global financial crisis period which may cause noise to the estimates and potentially induce earnings management among small firms due to constrained loan availability. Therefore, shorter alternative estimation periods (2001-2002 and 2006-2007) are used for robustness purposes. However, usage of these periods does not alter the main results of the study.

10 Here, the main period of analysis for the sample of Changers equals the extended 2004 fiscal period (the fiscal period that ends in 2005). Adjacent periods in time are also tested.
before the effective year of the tax reform. The Changers are not expected to have levels of \( TDACC \) differing from zero in the period immediately prior to the event.

With respect to the control variables, a variable controlling for firm size \( (SIZE) \), measured as the natural logarithm of total assets, is added to surrogate for various omitted variables. For instance, Feng (2013) notes that firms with even and uneven fiscal year firms differ in size. Smaller firms have also been noted to be less opportunistic tax planners (Scholes et al., 1992). Furthermore, a variable controlling for leverage \( (DEBT) \), in the form of total debt divided by total assets, is included due to a proposed debt association with earnings management (DeFond and Jiambalvo, 1994). Since Kothari et al. (2005) show that discretionary accruals estimated with the Jones model correlate with firm performance, a control variable for sales growth \( (GROWTH) \) and a dummy variable indicating a \( BIG4 \)-auditor is also added. Finally, industry fixed effects are included.

An OLS model is also estimated in order to observe the particular earnings management behavior around the corporate tax reform and to examine H2 and H3 deeper. The methodology of DeFond and Subramanyam (1998) and Carver et al. (2011) is followed and the changes in signed \( TDACC \) are measured over three periods (two periods before the tax reform \( (P−2) \), the last period before the tax reform \( (P−1) \), and the first period after the tax reform \( (P1) \)) with the following OLS model:

\[
TDACC = \beta_0 + \beta_1(CHANGE) + \beta_2(DUM\_P - 1, P1) + \beta_3(DUM\_P1) + \beta_4(DUM\_P - 1, P1 \ast CHANGE) + \beta_5(DUM\_P1 \ast CHANGE) + \beta_6(SIZE) + \beta_7(DEBT) + \beta_8(GROWTH) + \beta_9(LOSS) + \beta_{10}(BIG4) + \beta_{11}(AGE) + Industry + \varepsilon \tag{4}
\]

First, a simple model without control variables is run that resembles univariate tests of levels and changes in \( TDACC \). In this model, three dummies are included in the form of \( DUM\_P - 1, P1 \) and \( DUM\_P1 \), and \( CHANGE \). The \( DUM\_P - 1, P1 \) variable is equal to 1 for the last period before and the first period with the new CIT rate, whereas \( DUM\_P1 \) is equal to 1 only for the first period with the new CIT rate. Furthermore, the \( CHANGE \) dummy is included and interacted with the two time dummies to observe the different levels and changes in \( TDACC \) between the two groups of Changers and Non-Changers. The actual accrual levels and changes for the two groups of firms and differences between the groups are calculated by combining parameter estimates according to Table 2. If earnings have been managed downwards before the reduction in the CIT rate, as expected for the High RE firms, the value of \( TDACC \) is expected to decrease from the level two periods before the tax rate change \( (P−2) \) to the last period before \( (P−1) \). Likewise, the level in \( P−1 \) is also expected to be significantly negative. As previous literature commonly only includes one dummy variable to capture the sign of earnings management one year prior to an event, this setup allows for the analysis of the informative change between periods. Second, the full model (Equation 4) is run
where the levels and changes are viewed under the influence of control variables. White heteroskedasticity-consistent standard errors and a covariance matrix are applied for all regressions. Outliers in the continuous sample are controlled by winsorization at the 1st and 99th percentile of all variables. The estimated proxy for earnings management is also winsorized in the same manner.

### 3.4 Descriptive statistics

Table 3 reports the descriptive statistics. Panel A of Table 3 presents the descriptive statistics of the different samples together with tests of differences between the samples. The firms in the Low RE sample have a higher debt ratio, incur more losses and are less profitable than the firms in the other groups. The size variable differs only slightly between Changers and High RE, which is expected as the firms are matched on both revenues and total assets. Meanwhile, the Low RE firms are significantly smaller than the Changers, albeit the difference in monetary terms is relatively low. The taxable profits are noted to be higher for the Changers in comparison to the other groups.\(^{11}\) This suggests that the Changers may have been influenced to postpone the fiscal year-end due to a large expected profit in 2004. Moreover, \(\text{TACC}\) and \(\text{TDACC}\) are significantly negative or income-decreasing regarding the High RE firms. For the Low RE firms on the other hand, \(\text{TDACC}\) is positive. In line with Kari et al. (2008), it is also noted that the Changers paid larger dividends in 2004 (9.9 per cent of total assets) than in 2003 when the mean dividends equaled 8.8 per cent of total assets (untabulated).

Panel B of Table 3 presents the correlation matrix for the variables of importance with respect to the sample of Changers. Although a number of significant correlations can be observed, they are not very strong. This lowers the risk of bias due to strong correlations. The strongest correlations can be observed between \(\text{SIZE}\) and \(\text{AGE}\) (0.364) and \(\text{SIZE}\) and \(\text{BIG4}\) (0.325). Furthermore, multicollinearity is ruled out based on the level of the variance inflation factors (VIFs), which are all below 5.0.

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\(^{11}\)The taxable profits of the Changers have been adjusted to resemble a twelve-month fiscal period.
Table 3 Descriptive statistics

This table reports descriptive statistics (Panel A) and correlations (Panel B) of the variables included in the study. The descriptive statistics are reported regarding the fiscal year ending in 2003 for all variables in order to increase the comparability, except for TACC and TDACC that are presented regarding the last fiscal year with the higher CIT rate (2003 for Changers; 2004 for High/Low RE). In addition, PROFIT is presented regarding the fiscal year ending in 2004 for the High/Low RE firms and regarding the extended fiscal year (2005) for the Changers. Variable definitions are as follows: AGE = natural logarithm of firm age; DEBT = debt ratio measured as total debt divided by total assets; GROWTH = growth in sales; PROFIT = taxable profits divided by total assets; RE = retained earnings divided by total assets; SIZE = natural logarithm of total assets; TACC = total accruals; TDACC = total discretionary accruals; BIG4 = 1 if the firm is audited by a BIG4-auditor (EY, Deloitte, KPMG or PwC) and 0 otherwise; and LOSS = 1 if the firm has negative net income and 0 otherwise. The correlations in Panel B are reported for the sample of Changers. ***, **, and * represents significance at the 0.01, 0.05, and 0.1 levels (two-tailed), respectively.

*For the continuous variables, Paired-samples t-test (Wilcoxon test) of the differences in means (median). For discrete variables, Pearson’s Chi-Square test.
Table 3 Descriptive statistics, continued

Panel A Descriptive statistics

| Continuous variables | Changers (n = 350) | High RE (n = 350) | Low RE (n = 350) | Test of differences
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<tr>
<td>DEBT</td>
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<tr>
<td>GROWTH</td>
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<td>PROFIT</td>
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<tr>
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<td>0.477</td>
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<tr>
<td></td>
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</tr>
<tr>
<td>TACC</td>
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<td>-0.069</td>
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</tr>
<tr>
<td>TDACC</td>
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Discrete variables

<table>
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<th></th>
<th>%</th>
<th>%</th>
<th>%</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIG4 (=1)</td>
<td>28.0 %</td>
<td>31.8 %</td>
<td>36.6 %</td>
<td>-3.8 %</td>
</tr>
<tr>
<td>LOSS (=1)</td>
<td>8.0 %</td>
<td>9.5 %</td>
<td>18.6 %</td>
<td>-1.5 %</td>
</tr>
</tbody>
</table>

Panel B Pearson correlation matrix

<table>
<thead>
<tr>
<th></th>
<th>TDACC</th>
<th>PROFIT</th>
<th>SIZE</th>
<th>DEBT</th>
<th>GROWTH</th>
<th>LOSS</th>
<th>AGE</th>
<th>BIG4</th>
</tr>
</thead>
<tbody>
<tr>
<td>TDACC</td>
<td>1.000</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>PROFIT</td>
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<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIZE</td>
<td>0.030</td>
<td>-0.269</td>
<td>1.000</td>
<td></td>
<td></td>
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<tr>
<td>DEBT</td>
<td>0.049</td>
<td>-0.192</td>
<td>-0.031</td>
<td>1.000</td>
<td></td>
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</tr>
<tr>
<td>GROWTH</td>
<td>0.053</td>
<td>0.103</td>
<td>-0.002</td>
<td>0.092</td>
<td>1.000</td>
<td></td>
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<tr>
<td>LOSS</td>
<td>0.121</td>
<td>0.065</td>
<td>-0.128</td>
<td>0.228</td>
<td>-0.088</td>
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<tr>
<td>AGE</td>
<td>0.033</td>
<td>-0.159</td>
<td>0.364</td>
<td>-0.140</td>
<td>-0.106</td>
<td>-0.073</td>
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<tr>
<td>BIG4</td>
<td>0.081</td>
<td>-0.101</td>
<td>0.325</td>
<td>-0.004</td>
<td>-0.039</td>
<td>0.027</td>
<td>0.157</td>
<td>1.000</td>
</tr>
</tbody>
</table>
4 RESULTS

4.1 Primary results

Table 4 presents the estimation results of the logistic regression model for the pooled group of Changers and High RE firms in Panel A and for the Changers and Low RE firms in Panel B. The coefficient on PROFIT is consistently positive and significant, as expected. This suggests that a higher taxable profit positively affects the likelihood of fiscal year extension. The signs on the PROFIT_POS variable are also positive with larger coefficients, which indicate that the relationship is strengthened when observing the positive profits in isolation. The coefficient of 2.094 on PROFIT_POS in Model 2 in Panel A is interpreted as follows, when the lower and upper quartile values for PROFIT_POS in the sample are 0.05 and 0.28. The interquartile change in the independent variable leads to an increase in the log-odds ratio from -0.24 to 0.23. This change is equivalently expressed as a change in the probability of fiscal year extension from 0.44 to 0.56, which represents a 26 per cent increase in the probability that a firm changes its fiscal year-end, holding other variables fixed. This result is not surprising, since firms who decide to extend the fiscal year into 2005 are expected to have a large positive taxable profit in the extended year. An analysis of the interquartile range for PROFIT_POS in Model 2 in Panel B of Table 4 from the lower to the upper quartile suggests a 31 per cent increase in the probability that a firm belongs to the group of Changers. In other words, a higher expected profit leads to a higher probability of fiscal year extension. Thus, the first hypothesis (H1) is supported in that the expected euro magnitude of the tax savings affects the decision.

The sign of the other variable of prime interest, TDACC, is positive and the coefficient is significant at a level of 1 per cent in all model variations in Panel A of Table 4. With the Model 2 coefficient of 3.577, the interquartile change (-0.082 to 0.013) is interpreted as a 23 per cent increase in the probability that a firm postpones its fiscal year-end to the other side of the calendar year, holding other variables constant. Less downward earnings management is therefore attributed to the firms with CHANGE equal to one (Changers), and more downward earnings management is attributed to the High RE firms. This supports the second hypothesis (H2). In contrast to the High RE firms in Panel A, however, the Low RE firms in Panel B are expected to have positive and income-increasing TDACC before the cut in the CIT rate due to the changes in dividend taxation. A consistently negative and significant sign is shown on the TDACC coefficient, which indicates that the Changers engage in less upward earnings management than the Low RE firms. This is consistent with the third hypothesis (H3). However, the absolute coefficients are lower than in the High RE case.

Out of the control variables in the logistic regression results in Table 4, the coefficient on the debt ratio variable is the only one which is consistently significant at the 1 per cent level. By comparing the models, the results are seen to be robust to the

12 Normal (tabulated) and conditional logistic regressions provide similar results.
13 Results based on unadjusted PROFIT and PROFIT_POS variables also provide the same conclusions.
14 In (untabulated) analyses, a PROFIT_NEG variable is additionally used to observe the negative profits in isolation. The results suggest a negative influence on the likelihood to change the fiscal year-end when profitability is negative and no taxes are due.
exclusion of the control variables. On average, the models correctly predict the decision to change the fiscal year-end in 70 per cent of cases. The logistic regression is also run using 2003 (P−2) data. With this setup, the PROFIT and PROFIT_POS coefficients are no longer significant.

Table 4 Logistic regression results
This table reports the results of the logistic regressions that examine the probability that a firm is a fiscal year-end changer according to the following model: \( \text{Prob}(\text{CHANGE})=1/1+e^{-Z}, \) where \( Z = \alpha_0+\alpha_1(\text{PROFIT or PROFIT\_POS})+\alpha_2(\text{TDACC})+\alpha_3(\text{SIZE})+\alpha_4(\text{DEBT})+\alpha_5(\text{GROWTH})+\alpha_6(\text{LOSS})+\alpha_7(\text{AGE})+\alpha_8(\text{BIG4})+\text{Industry}+\epsilon. \)

Variable definitions are as follows: CHANGE = 1 if the firm belongs to the sample of Changers and 0 otherwise; PROFIT = taxable profits divided by total assets; PROFIT\_POS = positive taxable profits divided by total assets; TDACC = total discretionary accruals; SIZE = natural logarithm of total assets; DEBT = debt ratio measured as total debt divided by total assets; GROWTH = growth in sales; LOSS = 1 if the firm has negative net income and 0 otherwise; AGE = natural logarithm of firm age; and BIG4 = 1 if the firm is audited by a BIG4-auditor (EY, Deloitte, KPMG or PwC) and 0 otherwise. Industry indicates whether industry controls are included. ***, **, and * represents significance at the 0.01, 0.05, 0.1 levels (two-tailed), respectively.

Panel A Changers and High RE

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-0.222 **</td>
<td>-0.352 ***</td>
<td>-0.188</td>
<td>-0.639</td>
</tr>
<tr>
<td>PROFIT</td>
<td>1.535 ***</td>
<td>2.838 ***</td>
<td>3.760 ***</td>
<td></td>
</tr>
<tr>
<td>PROFIT_POS</td>
<td>2.094 ***</td>
<td>4.657 ***</td>
<td>4.673 ***</td>
<td></td>
</tr>
<tr>
<td>TDACC</td>
<td>3.575 ***</td>
<td>4.571</td>
<td>0.071</td>
<td>0.080</td>
</tr>
<tr>
<td>SIZE</td>
<td>0.128 *</td>
<td>0.152 **</td>
<td>0.564 *</td>
<td></td>
</tr>
<tr>
<td>DEBT</td>
<td>3.823 ***</td>
<td>4.015 ***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GROWTH</td>
<td>0.086</td>
<td>0.505</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LOSS</td>
<td>-0.481 *</td>
<td>0.494 *</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGE</td>
<td>-0.588 **</td>
<td>-0.545 **</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIG4</td>
<td>-0.218</td>
<td>-0.217</td>
<td></td>
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<tr>
<td>Industry</td>
<td>NO</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>

| n                     | 700     | 700     | 700     | 700     |
| Pseudo R²             | 0.055   | 0.066   | 0.204   | 0.221   |

Panel B Changers and Low RE

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-0.266 **</td>
<td>-0.376 ***</td>
<td>1.639</td>
<td>1.196</td>
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<tr>
<td>PROFIT</td>
<td>1.681 ***</td>
<td>0.883 **</td>
<td>1.417 ***</td>
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<tr>
<td>PROFIT_POS</td>
<td>2.193 ***</td>
<td>-1.649 ***</td>
<td>-1.711 ***</td>
<td></td>
</tr>
<tr>
<td>TDACC</td>
<td>-1.949 ***</td>
<td>-1.992 ***</td>
<td>0.128 *</td>
<td>0.152 *</td>
</tr>
<tr>
<td>SIZE</td>
<td>-2.941 ***</td>
<td>-2.807 ***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEBT</td>
<td>0.086</td>
<td>0.050</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GROWTH</td>
<td>0.481 *</td>
<td>0.494 *</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LOSS</td>
<td>-0.341</td>
<td>-0.322</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGE</td>
<td>-0.523 ***</td>
<td>-0.529 ***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIG4</td>
<td>NO</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>

| n                     | 700     | 700     | 700     | 700     |
| Pseudo R²             | 0.053   | 0.066   | 0.144   | 0.151   |

Table 5 presents the OLS regression results that highlight the tax-induced earnings management. The parameter combinations of Model 1 in Panel B (see Table 2 for interpretation) indicate that the High RE firms act according to the incentive to engage in downward earnings management in the last periods before the CIT rate reduction.
For example, the $DUM_{P-1}$, $P_1$ coefficient ($-0.040$, $t = -6.42$, and p-value 0.000) in Model 1 is interpreted as the change in $TDACC$ between the periods before the tax reform. In the last period with the higher tax rate ($P-1$), High RE firms engage in significantly downward earnings management ($-0.051$, $t = -4.72$, and p-value 0.000). This figure is also viewable in Table 3, which supports the validity of the model. Although the level is slightly negative in the first period with the lowered tax rate ($P_1$), at the 1 per cent level of significance the change between the two periods is positive (0.050), which is a sign of possible accrual reversals. Meanwhile, the Changers do not engage in statistically significant earnings management between the first two periods or in the last period with the higher rate. These results also hold under the influence of control variables in Model 2. The difference between the group behaviors is also statistically significant for the change $P-2$ to $P-1$, the level $P-1$, and the change $P-1$ to $P_1$. Taken together, these results support the second hypothesis (H2) together with the results presented in Table 4. $PROFIT$ and $LOSS$ are the only statistically significant control variables. The adjusted $R^2$ is noted to increase to 0.048 with Model 2, although it is still rather low. However, since the model includes several binary variables and that the aim is not to fully explain the determinants of earnings management around the event, a smaller figure is acceptable. Additionally, the values are similar to other audit quality studies applying the same methodology (e.g., Carver et al., 2011). Furthermore, the explanatory power increases if an unsigned dependent variable is used. Moreover, the explanatory power also increases with the Changers and Low RE firms.

When considering the sample of Changers and Low RE in Table 5, only weak evidence is provided that Low RE firms engage in upward earnings management before a cut in the CIT rate. However, with respect to the Model 3 combinations in Panel B, the Low RE firms have on average positive $TDACC$ in the two periods prior to the effective period of the tax reform. This is the most evident regarding the level in $P-2$ (0.079, $t = 7.14$, and p-value 0.000), whereas the evidence becomes weaker in $P-1$ (0.055, $t = 2.14$, and p-value 0.032). This level of significance does not hold with control variables. However, the statistically significant difference between the Changers and the Low RE firms in $P-2$ in Model 3 ($-0.103$, $t = -6.99$, and p-value 0.000) holds in Model 4 ($-0.089$, $t = -6.32$, and p-value 0.000). This result also reflects the logistic regression results and is consistent with the third hypothesis (H3) with reference to the period two years prior to the effective year of the tax reform ($P-2$).

In summary, the primary results reveal that the firms that decided to change the end of the 2004 fiscal year have larger taxable profits than the firms that do not extend their fiscal year. The latter group is instead clearly noted to engage in earnings management as a preparation for the CIT reform. On the one hand, firms with high retained earnings from before are found to engage in income-decreasing earnings management before the reform to be able to shift earnings to a period with a lower tax rate. On the other hand, firms with low retained earnings engage in income-increasing earnings management to be able to distribute larger dividends before the upcoming hike in dividend taxation. As the dividend taxation was tightened gradually in 2005 and in 2006, the empirical evidence confirms that most of the income-increasing behavior is attributed to the 2003 financial statements. All in all, these results suggest that the decision of changing the fiscal year-end is taken by some firms when the transition rules allow such behavior and that the expected taxable profit influences the decision.
Second, the results suggest that earnings management is in broader use when the fiscal year is not changed.

Table 5 OLS regression results

This table reports the results from the following OLS regression:

\[ \text{TDACC} = \beta_0 + \beta_1(\text{CHANGE}) + \beta_2(\text{DUM}_{P-1}, P_1) + \beta_3(\text{DUM}_{P-1}, \text{P}^* \text{CHANGE}) + \beta_4(\text{DUM}_{P}, \text{P}^* \text{CHANGE}) + \beta_5(\text{PROFIT}) + \beta_6(\text{SIZE}) + \beta_7(\text{DEBT}) + \beta_8(\text{GROWTH}) + \beta_9(\text{LOSS}) + \beta_{10}(\text{AGE}) + \beta_{11}(\text{BIG}4) + \text{Industry} + \epsilon. \]

The model is first run without control variables (Model 1 and Model 3) and then with control variables (Model 2 and Model 4). Variable definitions are as follows: TDACC = total discretionary accruals; CHANGE = 1 if the firm belongs to the sample of Changers and 0 otherwise; DUM_{P-1}, P_1 = 1 for the last period before and the first period with the new CIT rate and 0 otherwise; DUM_{P} = 1 for the first period with the new CIT rate and 0 otherwise; PROFIT = taxable profits divided by total assets; SIZE = natural logarithm of total assets; DEBT = debt ratio measured as total debt divided by total assets; GROWTH = growth in sales; LOSS = 1 if the firm has negative net income and 0 otherwise; AGE = natural logarithm of firm age; and BIG4 = 1 if the firm is audited by a BIG4-auditor (EY, Deloitte, KPMG or PwC) and 0 otherwise. Industry indicates whether industry controls are included. ***, **, and * represents significance at the 0.01, 0.05, 0.1 levels (two-tailed), respectively.

\* P−2 and P−1 represent the fiscal years two and one period prior to the CIT rate change, respectively; P1 represents the first year subsequent to the CIT rate change event; and Δ represents the change between successive periods. For regression coefficient interpretation in Panel B, see Table 2.

### Panel A Regression results with signed TDACC

<table>
<thead>
<tr>
<th></th>
<th>Changers and High RE</th>
<th></th>
<th>Changers and Low RE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>(\beta_0)</td>
<td>-0.011 **</td>
<td>-0.097 ***</td>
<td>0.079 ***</td>
</tr>
<tr>
<td>CHANGE</td>
<td>(\beta_1)</td>
<td>-0.013</td>
<td>-0.016</td>
<td>-0.103 ***</td>
</tr>
<tr>
<td>DUM_{P-1}, P_1</td>
<td>(\beta_2)</td>
<td>-0.040 ***</td>
<td>-0.040 ***</td>
<td>-0.024 *</td>
</tr>
<tr>
<td>DUM_{P}</td>
<td>(\beta_3)</td>
<td>0.050 ***</td>
<td>0.050 ***</td>
<td>-0.063 ***</td>
</tr>
<tr>
<td>DUM_{P-1}, P_1*CHANGE</td>
<td>(\beta_4)</td>
<td>0.066 ***</td>
<td>0.068 ***</td>
<td>0.051 ***</td>
</tr>
<tr>
<td>DUM_{P}*CHANGE</td>
<td>(\beta_5)</td>
<td>-0.099 ***</td>
<td>-0.099 ***</td>
<td>0.014</td>
</tr>
<tr>
<td>PROFIT</td>
<td>(\beta_6)</td>
<td>0.009 ***</td>
<td>0.010 ***</td>
<td></td>
</tr>
<tr>
<td>SIZE</td>
<td>(\beta_7)</td>
<td>0.004</td>
<td>0.003</td>
<td></td>
</tr>
<tr>
<td>DEBT</td>
<td>(\beta_8)</td>
<td>0.016</td>
<td>0.036 **</td>
<td></td>
</tr>
<tr>
<td>GROWTH</td>
<td>(\beta_9)</td>
<td>0.005</td>
<td>0.044 ***</td>
<td></td>
</tr>
<tr>
<td>LOSS</td>
<td>(\beta_{10})</td>
<td>-0.022 *</td>
<td>-0.018</td>
<td></td>
</tr>
<tr>
<td>AGE</td>
<td>(\beta_{11})</td>
<td>0.009</td>
<td>-0.003</td>
<td></td>
</tr>
<tr>
<td>BIG4</td>
<td>(\beta_{12})</td>
<td>-0.003</td>
<td>-0.006</td>
<td></td>
</tr>
<tr>
<td>Industry</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>n</td>
<td>2,100</td>
<td>2,100</td>
<td>2,100</td>
<td>2,100</td>
</tr>
<tr>
<td>Adj. R²</td>
<td>0.019</td>
<td>0.048</td>
<td>0.052</td>
<td>0.110</td>
</tr>
</tbody>
</table>

### Panel B Signed TDACC levels and changes derived from OLS regression models

| | Changers and High RE | Changers and Low RE | |
|---|---|---|
| Period relative to tax reform * | High RE | Changers | Diff. | Low RE | Changers | Diff. |
| P−2 to P−1 | Model 1 | Model 1 | Model 1 | Model 3 | Model 3 | Model 3 |
| \(\text{ΔP}−2\) to \(\text{P}−1\) | -0.011 ** | -0.024 | -0.013 | -0.024 * | 0.026 | 0.051 *** |
| \(\text{P}−1\) | -0.040 *** | 0.026 | 0.066 *** | -0.024 * | 0.026 | 0.051 *** |
| \(\text{ΔP}−1\) to \(\text{P}1\) | 0.001 | -0.046 | -0.046 | -0.009 | 0.044 *** |
| \(\text{P}1\) | -0.051 *** | 0.003 | 0.054 ** | 0.055 *** | 0.003 | -0.052 |
| \(\text{ΔP}−2\) to \(\text{P}−1\) | Model 2 | Model 2 | Model 2 | Model 4 | Model 4 | Model 4 |
| \(\text{ΔP}−1\) to \(\text{P}1\) | 0.051 *** | -0.049 ** | -0.099 *** | -0.063 *** | -0.049 | 0.014 |
| \(\text{P}1\) | -0.009 | -0.046 | -0.046 | -0.009 | -0.046 | -0.038 |
| \(\text{ΔP}−2\) to \(\text{P}−1\) | \(\text{ΔP}−1\) to \(\text{P}1\) | \(\text{ΔP}−2\) to \(\text{P}−1\) | \(\text{ΔP}−1\) to \(\text{P}1\) |
| In terms of economic significance, the negative TDACC in P−1 are on average 0.136 for the High RE firms in Table 5 (Model 2). Given the sample mean of total assets (2,066 TEUR) and with a three per cent cut in the tax rate, this equals approximately 8.4 TEUR in tax savings. This figure is assuming that all the estimated TDACC are being
shifted from a high- to a low-tax year. Although it may seem very small, the tax savings can, for instance, be translated into 10 per cent of the average tax expense of these firms. These tax savings can be compared with the tax savings of the Changers, that without fiscal year extension would have had their 12-month adjusted taxable profits (on average 392 TEUR) taxed at the old rate of 29 per cent instead of the new rate of 26 per cent. The fiscal year extension resulted in a tax saving of 12.6 TEUR when firms with negative taxable income are discarded. Disregarding the direct and indirect costs associated with a fiscal year-end change other than the small handling fee, the Changers benefit more from their tax planning in comparison to the firms engaging in downward earnings management.

4.2 Robustness analysis

The robustness of the main results is checked with various robustness tests. First, as a firm’s decision to extend its fiscal year can be endogenous, the impact of an omitted variable is checked for. Such a variable would be correlated both with the earnings management proxy and the variable of interest. As it is hard to control for every possible confounding effect, Larcker and Rusticus (2010), based on Frank (2000), suggest that accounting studies, instead, should estimate how strong such an effect would have to be to make a statistically significant result insignificant. In doing so, they calculate the Impact Threshold for a Confounding Variable (ITCV). Although a larger ITCV corresponds to a robust regression result, it is difficult to determine whether an ITCV is large enough in a specific context. Therefore, the impact on each control variable can also be calculated to evaluate the threshold. With $DUM_P-1$, $P1$ and $\beta_2$ (the change from $P-2$ to $P-1$ for High RE firms) in Table 5, the ITCV threshold value is 0.079. This implies that the correlations between $TDACC$ and $DUM_P-1$, $P1$ with the unobserved confounding variable each need to be around 0.281 $(0.079 \cdot 0.5)$ to render the coefficient on $DUM_P-1$, $P1$ insignificant. As it turns out, none of the control variables have an impact with a larger magnitude than the ITCV. The highest product of partial correlations is $LOSS$ at 0.002. According to these calculations, an unobserved confounding variable overturns the regression results only if it is much more highly correlated with the dependent variable and independent variable of interest than any of the existing control variables. Based on the assumption that a good set of control variables are included, it is not entirely impossible, but still implausible, that there is an omitted variable that would bias the results of the study.

Second, current discretionary accruals ($CDACC$) are estimated as an alternative earnings management proxy since some criticism has been directed at aggregated accrual models in general (Kothari et al., 2005). Contrary to $TDACC$, this alternative is a more short-term measure of earnings management since the estimation starts by calculating current accruals where the long-term accrual of depreciation and amortization expense is excluded from the total accruals calculation. The industry-specific coefficients are then also estimated by excluding the $PPE$ variable from the model. With $CDACC$, the results in Table 4 and Table 5 are replicated and the findings remain robust.

Third, the evidence supporting H1 in Panel B of Table 4 could depend on relatively unprofitable firms among the Low RE firms. This reasoning is based on the
assumption that profitability is correlated over time and that firms belonging to the Low RE group do so because they are loss making or weakly profitable. In order to alleviate these concerns, analyses are also performed on a sample composed of Changers and randomly selected firms from a large pool of Non-Changers, excluding High RE and Low RE firms. The firms in this pool belong to the same industries as the Changers do, have the same ending months in 2003, and have total assets that lie within the minimum and maximum levels of the Changers’ total assets. Every firm belonging to the group of Changers is then randomly matched with a Non-Changer ten times, in order to analyze whether Changers exhibit a better profitability than Non-Changers. Table 6 reports the logistic regression results that follow the same structure as those reported in Table 4. It is observable that the coefficient on the \textit{PROFIT} variable is positive in nine cases and statistically significant in three of those. These results provide evidence, although admittedly weak, that the Changers show higher profits than Non-Changers. Furthermore, the results also show a positive coefficient on \textit{TDACC} in all cases, which suggests that the Changers employ less income-decreasing earnings management than the Non-Changers.

Finally, three robustness tests are also performed where various sub-samples are analyzed. Firstly, a sub-sample is created where the minimum size criterion is raised to 100 TEUR to further exclude the smallest of firms. With this setup, only five per cent of the sample firms are left out and neither of the regression results is affected in any notable way. Secondly, a sub-sample composed of Changers with January as the new ending month and matched Non-Changers is created. These Changers have a higher mean of \textit{PROFIT} (0.318) than Changers with other new ending months (0.206). Furthermore, logistic regression results with control variables reveal that the relationship between \textit{CHANGE} and taxable profits is further strengthened within this sub-sample. In other words, the expected euro magnitude of the tax savings more largely affects the decision of these firms and they may be particularly suspected of extending the fiscal year for opportunistic purposes. Thirdly, a robustness test is also performed by excluding all firms with a non-December fiscal year-end in 2003. This is done to obtain a more homogenous sample. The results are also concluded to be robust to this alternative sample.

\footnote{The total number of Non-Changers in this pool is 8,187 firms. Due to data limitations, the variables \textit{AGE} and \textit{BIG4} are not available for these firms.}
Table 6 Robustness analysis

This table reports the results of the logistic regressions that examine the probability that a firm is a fiscal year-end changer according to the following model: \( \text{Prob}(\text{CHANGE}) = \frac{1}{1 + e^{-Z}} \), where \( Z = \beta_0 + \beta_1(\text{PROFIT}) + \beta_2(\text{TDACC}) + \beta_3(\text{SIZE}) + \beta_4(\text{DEBT}) + \beta_5(\text{GROWTH}) + \beta_6(\text{LOSS}) + \text{Industry} + \epsilon \). In contrast to the Table 4 results, this table reports results based on a randomly matched sample of Changers and Non-Changers. The logistic regression is run 10 times, which results in 10 Models. Variable definitions are as follows: CHANGE = 1 if the firm belongs to the sample of Changers and 0 otherwise; PROFIT = taxable profits divided by total assets; TDACC = total discretionary accruals; SIZE = natural logarithm of total assets; DEBT = debt ratio measured as total debt divided by total assets; GROWTH = growth in sales; and LOSS = 1 if the firm has negative net income and 0 otherwise. Industry indicates whether industry controls are included. ***, **, and * represents significance at the 0.01, 0.05, 0.1 levels (two-tailed), respectively.

<table>
<thead>
<tr>
<th>Dependent variable: CHANGE</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
<th>Model 6</th>
<th>Model 7</th>
<th>Model 8</th>
<th>Model 9</th>
<th>Model 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROFIT</td>
<td>0.419 *</td>
<td>0.330 *</td>
<td>0.110</td>
<td>0.267</td>
<td>0.228</td>
<td>0.142</td>
<td>0.404 *</td>
<td>0.043</td>
<td>0.117</td>
<td>-0.001</td>
</tr>
<tr>
<td>TDACC</td>
<td>0.596 *</td>
<td>0.472</td>
<td>1.099 ***</td>
<td>0.725 **</td>
<td>0.603 *</td>
<td>0.229</td>
<td>0.653 *</td>
<td>0.863 **</td>
<td>0.378</td>
<td>0.606 *</td>
</tr>
<tr>
<td>SIZE</td>
<td>0.547 ***</td>
<td>0.478 ***</td>
<td>0.479 ***</td>
<td>0.581 ***</td>
<td>0.566 ***</td>
<td>0.512 ***</td>
<td>0.634 ***</td>
<td>0.569 ***</td>
<td>0.539 ***</td>
<td>0.484 ***</td>
</tr>
<tr>
<td>DEBT</td>
<td>1.089 ***</td>
<td>1.177 ***</td>
<td>1.283 ***</td>
<td>1.251 ***</td>
<td>1.020 ***</td>
<td>1.444 ***</td>
<td>1.732 ***</td>
<td>1.397 ***</td>
<td>1.108 ***</td>
<td>0.993 ***</td>
</tr>
<tr>
<td>GROWTH</td>
<td>0.999 ***</td>
<td>1.001 ***</td>
<td>0.865 ***</td>
<td>0.888 ***</td>
<td>0.691 ***</td>
<td>0.888 ***</td>
<td>1.148 ***</td>
<td>1.244 *</td>
<td>0.974 *</td>
<td>1.042 *</td>
</tr>
<tr>
<td>LOSS</td>
<td>-0.365</td>
<td>-0.301</td>
<td>-0.344</td>
<td>-0.300</td>
<td>-0.468 *</td>
<td>-0.230</td>
<td>-0.299</td>
<td>-0.533</td>
<td>-0.489</td>
<td>-0.471</td>
</tr>
<tr>
<td>Industry</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>

n: 700
Pseudo R²: 0.201, 0.174, 0.187, 0.204, 0.192, 0.176, 0.226, 0.223, 0.186, 0.166
5 CONCLUSIONS

In this study, private firms are noted to extend their fiscal year due to tax saving reasons generated by the Finnish 2005 tax reform where, among other things, the corporate tax rate was cut. These firms took advantage of the lowered tax rate prematurely by adjusting their fiscal year-end. The decision to postpone the fiscal year-end is observed to be influenced by the expected taxable profit in the last period with the higher tax rate. For firms not changing their fiscal year-end, dividend and corporate tax-induced earnings management is found to be an alternative response. This study extends the accounting literature on tax reforms, where prior studies primarily consider downward earnings management in response to tax rate cuts. In terms of economic consequences, the earnings management approach is proved to be less economically significant than the decision to change the fiscal year-end. For instance, deferring earnings to periods with a lower tax rate via earnings management could only be documented to make up two thirds of the monetary benefits that the fiscal year extension generated with respect to theoretical tax savings. The costs involved with the decision to change the fiscal year-end or to engage in earnings management are recognized to be rather low among the small firms in the sample. However, the possibility of tax audits should also be recognized in this context.

In 2014, the Finnish corporate tax rate was further reduced and a number of firms prepared to extend their fiscal years as discussed in this study. However, a restriction was retroactively implemented declaring that firms who decided to extend their fiscal year after the day that the government passed the reduction were to be taxed according to the old and higher tax rate even for the extended fiscal year. Back in 2005, this kind of rule was never implemented. Based on the empirical evidence in this study, the 2014 restriction for fiscal year extending firms was purposeful and support is provided for the restriction from the perspective of the legislator. However, such a restriction should be announced well in advance, to prevent the negative impact of pointless changes in fiscal year-ends. This is something that jurisdictions should consider in the planning of future reforms. Furthermore, the earnings management elements of this study are also worthy of attention when structuring future tax reforms in other jurisdictions with a high level of book-tax conformity and in future research. The study may also have implications beyond tax reforms since it provides evidence of opportunistic changes in the fiscal year-end which can be informative for tax authorities, independent auditors and creditors.

A first contribution of this study is the investigation of the still rather unexplored decision to extend the fiscal year around a tax reform and its connection with tax-induced earnings management. Second, this study examines two different earnings management responses to a tax reform by private non-listed firms in a high book-tax conformity setting and contributes to this under-researched area of the literature. Finally, this study extends the relatively scarce literature on reasons for changes in the fiscal year-end by analyzing this tax reason.

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16 See Höglund and Sundvik (2016) for a study that focuses on the earnings management aspects of this reform.
The results of this investigation are subject to some limitations that need to be recognized. First, because of data restrictions, additional firm-years are not included in the sample. Moreover, in the absence of a perfect measure of tax-induced earnings management, somewhat debated aggregate accrual measures are used. Finally, future research is urged to consider the transition rules on changes in the fiscal year-end or with respect to other tax planning possibilities around tax reforms in other jurisdictions.
REFERENCES


Book-tax conformity and earnings management in response to tax rate cuts

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Abstract
This study explores the link between earnings management and jurisdictional differences in book-tax conformity. A dataset of national reforms where the corporate tax rate is lowered is used to estimate the effect of conformity on private firm’s earnings management behavior when a specific incentive to manage earnings downward exists. Total and discretionary accruals are used to measure earnings management and a continuous measure is used to assess the level of book-tax conformity. The results suggest that changes in the statutory tax rate affect firms within jurisdictions with high book-tax conformity more than firms in jurisdictions where book and taxable income are less conformed. However, more overall earnings management is attributed to firms in the low conformity jurisdictions. With these findings, a contribution based on private firms and signed earnings management is made to the ongoing debate on the appropriate level of book-tax conformity.

Keywords: earnings management, tax incentive, tax reform, private firms, book-tax conformity


1 INTRODUCTION

For some time, the potential benefits and costs associated with conformity between reported earnings and taxable income have been debated in the United States (US). Politicians and academics have asked whether it would be wise to eliminate the book-tax gap and to move to a high conformity system in which book earnings would be more equal to taxable income. The debate includes several pro and con arguments. For instance, Desai (2005) proposes high book-tax conformity since it reduces aggressive financial reporting and improves earnings quality. At the same time, opponents argue that financial statement users and taxation authorities require different kinds of information and that increased conformity will lead to a significant loss of information (Hanlon and Shevlin, 2005). Empirical tax accounting research delivers varying evidence. Leuz et al. (2003) find no earnings management effect of book-tax conformity in a study across countries. More recently, Blaylock et al. (2015) and Watrin et al. (2014) connect strong book-tax conformity with more earnings management. Simultaneously, Tang (2015) provides conflicting evidence that high conformity is associated with lower levels of earnings management and tax avoidance.

The aim of the present study is to further investigate the effect of book-tax conformity on earnings management. This is done by analyzing earnings management in response to a reduction in the corporate tax rate among European private firms and assessing the effect of book-tax conformity in a jurisdiction. Several studies provide evidence that firms manage their earnings around such events to defer income from high to low tax rate periods (e.g., Guenther, 1994; Lopez et al., 1998; and Rouhi and Richardson, 1998). In recent research, private firms in particular are observed to act according to the proposed incentive (Watrin et al., 2012 and Lin et al., 2014). The present study differs from, and extends, previous work in important ways. First, most related work (e.g., Watrin et al., 2014; Blaylock et al., 2015; and Tang, 2015) has a narrow public firm focus, whereas the focus of the present study is private firms. By using private firm data, it is possible to make inferences regarding an economically important and substantial part of the overall firm population. In addition, the private firm setting means that an analysis of a specific incentive can be made in isolation from other strong motivations, such as those arising from capital markets. This incentive is simultaneously attractive for a large part of all private firms. Furthermore, European private firms are of interest from the viewpoint that International Financial Reporting Standards (IFRS) may eventually become relevant for all unconsolidated financial statements, thus forming the basis of future tax accounting. High book-tax conformity under IFRS is believed to lead to faster processes than under local rules and earlier tax payments, which could cause liquidity problems for private firms. The current analysis may inform policymakers regarding the effect of increased conformity. This information may also be useful concerning the disputed introduction of a Common Consolidated Corporate Tax Base (CCCTB) in the European Union, since low book-tax conformity

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1 These private firms make up about two-thirds of the overall employment in the European Union (http://siteresources.worldbank.org/CGCSRLP/Resources/SME_statistics.pdf last accessed: July 1, 2016). Overall, private firms have about four times more employees, three times higher revenues, and double the assets than public firms (Berzins et al., 2008).
conformity would reduce the complexity of implementing such a scheme (Watrin et al., 2012). Second, the focus here is signed earnings management in the light of a clear incentive to manage earnings in a specific direction, whereas previous cross-jurisdictional studies focused on unsigned measures highlighting overall differences in earnings management between conformity levels and ignored explicit incentives that may drive earnings management in any specific direction. Third, while the previous cross-jurisdictional studies on book-tax conformity and earnings management have analyzed several years of data, they have completely overlooked the impact of statutory tax rate changes in their results. Unlike these studies, the present study highlights the impact of these tax rate changes. Fourth, the study of Watrin et al. (2012) also relate to the present study because they observe exceptional accounting items as generators of book-tax differences and identify accounting strategy balancing firms that have a positive book-tax difference and report higher book income than tax income. These firms are then noted to engage in less earnings management in response to a German tax rate cut. In contrast, the present study includes an examination of earnings management with reference to a country measure of book-tax conformity (i.e., book-tax differences at the jurisdictional level) instead of examining firm-level differences. Additionally, the present study analyzes several contemporary reforms instead of a focus on a single historical reform.

A sample of 32,472 private firms from the European region, including Russia, is used in this study. The analyzed period in time incorporates two periods immediately preceding the reductions in the statutory corporate tax rates for the period from 2007 to 2014. Twelve jurisdictions are included in the analysis and the level of book-tax conformity is assessed in a manner that is consistent with the method of Watrin et al. (2014). Earnings management is estimated with different accrual-based measures. The results of this study suggest that firms in higher conformity jurisdictions manage their earnings more in anticipation of a corporate tax rate cut than firms in lower conformity jurisdictions. In other words, firms are more widely noted to act according to the income shifting incentive when book-tax conformity is stronger. When observing the overall magnitude of earnings management in its absolute form, however, evidence is provided that lower conformity is related to more earnings management overall.

This study makes a number of contributions to the literature. First, it contributes to the debate on book-tax conformity by providing evidence from a context incorporating a clear incentive to manage earnings, namely changes in corporate tax rates. These changes are expected to provide an excellent window of opportunity for firms to manage earnings in a specific direction and allow for the analysis of signed measures of earnings management, whereas prior studies mainly focus on unsigned measures. As such, the study answers the call of Hanlon and Heitzman (2010) for more research into the costs and benefits of book-tax conformity by providing evidence that high conformity may be associated with larger losses in tax revenues. The results of the study offer new insights to the puzzle of book-tax conformity and earnings management by supporting Tang (2015) in the general context, and Watrin et al. (2014) as well as Blaylock et al. (2015) in the presence of a strong incentive for earnings management. Second, this study contributes to the literature that investigates the accounting attributes of private firms. Previous studies have primarily focused on earnings management in general (Coppens and Peek, 2005 and Burgstahler et al.
This study examines the relation between tax-induced earnings management and book-tax conformity among private firms, whereas closely related studies have mainly concentrated on large public firms, with the exception of Watrin et al. (2012). As such, this study extends the empirical evidence by studying private firms. And since private firms may be regarded as being the base upon which economies are built globally, they are therefore deserving of attention also in this research area. Hanlon and Heitzman (2010) have also called for more research on the reporting behavior of private firms. Third, this paper also adds to the general understanding about tax-induced earnings management across jurisdictions. Previous studies have largely investigated single national reforms without any element of comparison of the extent of earnings management between jurisdictions. In addition, related studies recurrently focus on a US tax reform in 1986 (e.g., Guenther, 1994), while the reforms under investigation in this paper were introduced more recently and thus, provide findings from a more contemporary setting.

The paper proceeds as follows. The background and theoretical aspects of earnings management, the tax incentive, and book-tax conformity issues are discussed in order to develop a main hypothesis for the study. Then, the data and empirical methods are described. Finally, the results of the study are presented and ultimately discussed.
2 PRIOR LITERATURE AND HYPOTHESIS DEVELOPMENT

2.1 Earnings management in response to corporate tax rate changes

A number of prior studies on earnings management view the phenomenon in the light of different underlying incentives. These incentives are mostly associated with capital market incentives (Cohen and Zarowin, 2010) and contracting motives such as debt covenants (DeFond and Jiambalvo, 1994) and executive compensation contracts (Healy, 1985). A relatively small number of studies observe the incentives that taxation gives rise to. One example is Coppens and Peek (2006), who perform a study on tax-induced earnings management and find that private firms in countries with high book-tax conformity engage in income-decreasing (downward) earnings management in order to reduce taxes. A consequence of this tax-minimization technique is income-increasing (upward) earnings management in the future, which is related to higher taxes. This is due to the reversal nature of accrual-based earnings management. If income is shifted between periods in the event of a change in the national corporate tax rate, however, there is a possibility to obtain permanent positive economic gains of the managed earnings. Studies performed on the US Tax Reform Act in 1986, for instance, provide evidence that firms managed their earnings downward prior to the reduction in the US corporate tax rate (Dhaliwal and Wang, 1992; Manzon, 1992; Scholes et al., 1992; Guenther, 1994; Lopez, et al., 1998; and Calegari, 2000). Other tax reforms that also lowered the corporate tax rate have been studied by Roubi and Richardson (1998), who find that current discretionary accruals were managed by firms in Canada, Malaysia and Singapore. Furthermore, Hemmelgarn and Teichmann (2014) analyze several corporate tax reforms where the tax rate was changed and how this affected bank financing decisions and earnings management.

It has also been concluded that private firms have engaged in earnings management (Coppens and Peek, 2005 and Burgstahler et al., 2006). A typical private firm is generally more closely held with greater managerial ownership with respect to public firms and there are often active capital providers with insider access to corporate information (Van Tendeloo and Vanstraelen, 2008). It is also characteristic that the financial statements are not widely distributed to the public and that these firms are likely to be influenced by tax objectives (Ball and Shivakumar, 2005). Private firms have also been examined in the context of corporate tax reforms in general and corporate instances of tax rate changes in particular by Goncharov and Zimmermann (2006), who provide evidence from a Russian context. Moreover, Watrin et al. (2012) investigate the 2001 German corporate tax rate decrease and find that tax incentives influenced the earnings management behavior of private firms more than public firms. Recently, Lin et al. (2014) provide evidence of material income shifting by private firms as a response to a tax rate reduction in China. Further work on private firms is motivated, and Hanlon and Heitzman (2010), for instance, specifically request more research on the reporting behavior of private firms.

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2 Here, earnings management is defined according to Healy and Wahlen (1999) as alterations in firms' reported economic performance invoked by the firm itself to either mislead stakeholders or influence outcomes of accounting-based contracts.
2.2 Book-tax conformity and earnings management

In general, book-tax conformity is to be understood as the association between financial accounting income and taxable income. High book-tax conformity can be seen as having a common system for both accounting and taxation purposes, where financial accounting is directly used to calculate taxable income. On the other hand, when low book-tax conformity applies, the two systems of financial and tax accounting are separated (Goncharov and Zimmermann, 2006). Presently, the US has a low level of book-tax conformity, as Hung (2001) and Atwood et al. (2010) also note. These levels of conformity vary within the borders of Europe, which has led to studies examining the effects of different conformity levels on various variables. The United Kingdom, the Netherlands, and Denmark are, for instance, commonly regarded as having lower book-tax conformity, whereas the convergence is high in countries such as Finland, France, and Sweden (Hung, 2001). Goncharov and Zimmermann (2006) note that Russia shifted towards a lower conformity in 2002.

For some time, the potential benefits and costs associated with increased levels of book-tax conformity have been debated in the US and the opinions are currently quite polarized. One pro argument is that the simultaneous reporting of both “book profits” and “tax profits” leads firms to report inflated profits to the capital markets and understated profits to the tax authorities. Increased conformity is argued to lead to a considerably simpler tax system that would constrain opportunism by managers. In other words, a result would be improved earnings quality and increased tax compliance (Desai, 2005). Meanwhile, the opponents of increased conformity state that lower earnings quality will be a result because taxing authorities and other stakeholders require different kinds of information. If the information is to be aligned into one measure, the quality of the information for investors and other financial statement users will be reduced (Hanlon and Shevlin, 2005). On the other hand, Desai and Dharmapala (2009) argue that shareholders and policymakers really should question how rational it is to have separate reporting, since they provided evidence of mutual benefits with greater book-tax conformity for investors and tax authorities.

Several empirical studies have also been performed on this topic. Atwood et al. (2010) find that higher conformity is a basis for lower earnings persistence and a lower association between earnings and future cash flows. The empirical measure of book-tax conformity developed by Atwood et al. (2010) has later been applied to study the impact of conformity on earnings management. For instance, Blaylock et al. (2015) conclude that more absolute earnings management is connected with stronger book-tax conformity. Watrin et al. (2014) use an alternative specification of the measure for the European setting and presented the same ultimate conclusion. Conflictingly, Tang (2015) associates higher mandatory conformity with lower levels of earnings management and tax avoidance.

Prior empirical literature has also provided mixed evidence on the topic, using indicator variables for a high or low level of conformity. Less income smoothing, for instance, is concluded to be associated with lower book-tax conformity by Lang et al. (2012). Leuz et al. (2003), on the other hand, do not find any significant relation between the degree of a country’s book-tax conformity and earnings management with a public firm sample. Private firms are also observed in this research area, and Burgstahler et al. (2006) document that higher conformity is associated with more
earnings management for this group of firms. Moreover, Coppens and Peek (2005) present evidence of private firms in high book-tax conformity countries not avoiding the reporting of small losses. Tax incentives are noted as an explanation as to why these firms do not manage their earnings upwards. Private firms often report only to the bank and the taxman. As a consequence, the incentives of earnings management are influenced by the same instances. So, if taxable income and financial statement earnings are highly aligned, it is expected that such private firms respond more greatly to a change in the corporate tax rate and that this response is indirectly visible in the financial statements. On the other hand, if the level of book-tax conformity is lower, firms are expected to engage in less income shifting via earnings management in response to a corporate tax rate change, because such an act would not have an equally strong effect on the taxes payable as in the high conformity setting.

To sum it up, the literature on earnings management and book-tax conformity is somewhat ambiguous. Based on the prior evidence and within the context of corporate tax rate changes, however, it is reasonable to suggest that high conformity jurisdiction firms manage their earnings according to the tax incentive to a larger extent than the firms in jurisdictions with lower conformity. Therefore, the following directional hypothesis is formulated:

**Hypothesis:** Higher (lower) conformity between accounting and tax reporting in a jurisdiction is associated with more (less) income-decreasing earnings management among private firms in response to a tax rate reduction.

Firms who utilize the tax rate reduction to reduce their tax burden are assumed to engage in income-decreasing earnings management in the year(s) prior to a corporate tax rate reduction in order to present lower earnings while the taxation is still high and consequently to defer income forward to lower tax rate periods. In a private firm setting, without the capital market as a main player, firms usually have a small set of owners and use private channels to communicate information. Furthermore, the tax authorities are one of the most important users of their accounting information (Goncharov and Zimmermann, 2006). Moreover, private firms are likely to have a strong link between tax and financial reporting independent of the legal prescriptions in the respective jurisdiction. Private firms commonly also choose to produce only one set of financial statements, due to cost considerations (Ball and Shivakumar, 2005). Measures of book-tax conformity have, however, been developed by several researchers (Hung, 2001; Atwood et al., 2010; Watrin et al., 2014). So forth, the level of conformity can also be evaluated regarding these firms.
3 DATA AND METHODOLOGY

3.1 Tax reforms and sample

The data used in this study is mainly composed of statutory corporate income tax rates and financial statement data of private firms. The sample is restricted to countries within Europe, including Russia, due to geography. This region is associated with an overall decrease in the average corporate tax rate over the last decade and is therefore a suitable region of investigation.

Countries are included in the analysis if their statutory corporate tax rate has been reduced between the years 2006 and 2014. To identify these reductions, information is retrieved and analyzed from different issues of KPMG’s Corporate and Indirect Tax Survey. Ultimately, twelve national tax reforms that incorporate reductions in the national corporate income tax rates are considered. The average decrease in the tax rate is 3.51 percent, with Germany having the largest decrease and Denmark and the Netherlands the smallest. Before the reforms, the average tax rate was 27.05 percent, while the post-reform percentage is 23.53. Most of these changes were mainly made in order to guarantee the countries’ competitiveness. This study examines earnings management before these events. A downward change in the corporate tax rate should create an incentive for the firms to shift earnings from the period prior to the tax reform to the period subsequent to the tax reform. The actual period of analysis consists of two years before the changes. The year immediately prior to the reform year is labeled PRE Year, while the year two years prior to the reform year is labeled PRE Year –1. Because most of the tax rate changes became known within one year in advance from the effective dates, most earnings management is expected to occur in the PRE Year.

Next, a sample of unconsolidated private firms with total assets of more than 500 TEUR and available financial statement data for all the variables compulsory for the analysis is created. All financial statement data is collected from the Orbis database of Bureau van Dijk. If the taxation of corporate earnings in a jurisdiction includes several rates for different limits of income, firms are restricted on the basis of turnover or taxable income to include only such firms that exceed the highest limit. Further, only firms reporting under local GAAP with a fiscal year of twelve months and equal to the calendar year are included, in line with Roubi and Richardson (1998). Firms with accruals above 100 percent of lagged total assets are also excluded, which means that the absolute value of minimum and maximum accruals is below 100 percent of lagged total assets. To further mitigate the influence of outliers, all continuous firm variables are winsorized at the 1st and 99th percentile. The final sample includes a total of 32,472 private firms. When discussing the regression results, primarily industry medians within countries are analyzed. These industries are based on one-digit SIC classifications and the total number of country-industries included per year is 89. This means that the full sample results including two years include 178 country-industries.
3.2 Cross-country earnings management and level of book-tax conformity

The earnings management of private firms and its association with the book-tax conformity are mainly examined by means of multiple linear regression analysis. In this study, earnings management is proxied by total and discretionary accruals and book-tax conformity is measured based on book-tax differences. The measurement and estimation of these variables are described in the following.

In the first step, total accruals ($TACC_{it}$) are estimated according to the balance sheet approach following Callao and Jarne (2010), because the statements of cash flows are not available for the firms included in the study. The following expression is used to calculate the total accruals ($TACC_{it}$):

$$TACC_{it} = \Delta \text{Receivables}_{it} + \Delta \text{Inventories}_{it} - \Delta \text{Payables}_{it} - \text{DEP}_{it}$$

where $\Delta \text{Receivables}$ is the change in accounts receivable; $\Delta \text{Inventories}$ is the change in stocks; $\Delta \text{Payables}$ is the change in accounts payable; and $\text{DEP}$ is the depreciation and amortization expense. In the next step, TACC is regressed on change in sales ($\Delta \text{REV}$), gross property, plant and equipment (PPE), and return on assets (ROA) according to the following equation based on the Jones (1991) model:

$$\frac{TACC_{it}}{TA_{it-1}} = \beta_1 \left( \frac{1}{TA_{it-1}} \right) + \beta_2 \left( \frac{\Delta \text{REV}_{it}}{TA_{it-1}} \right) + \beta_3 \left( \frac{\text{PPE}_{it}}{TA_{it-1}} \right) + \beta_4 \left( \text{ROA}_{it} \right) + \epsilon_{it}$$

Lagged total assets ($TA_{it-1}$) are used as a deflator to avoid problems with heteroscedasticity. With reference to Kothari et al. (2005), the original model is augmented with return on assets as a performance control, due to the non-availability of operating cash flows for the private firms as used in Callao and Jarne (2010). Following Callao and Jarne (2010), an estimation period comprising a number of years before or after the actual period of analysis is used for this estimation. The maximum number of years included in the estimation period is five (Norway, Portugal, and Ukraine). Only two periods are included in the estimation process for Denmark, the Netherlands, and Sweden. The length of the estimation period depends on data availability and the presence of conflicting events such as another corporate tax reform that could bias the estimation procedure. Having estimated the industry-specific parameters for the estimation period, the values obtained are then applied to predict discretionary accruals for the years comprising the analysis period. The prediction error is interpreted as the discretionary part of the total accruals, defined in the following equation:

$$\frac{TDA_{it}}{TA_{it-1}} = \frac{TACC_{it}}{TA_{it-1}} - \left( b_1 \left( \frac{1}{TA_{it-1}} \right) + b_2 \left( \frac{\Delta \text{REV}_{it}}{TA_{it-1}} \right) + b_3 \left( \frac{\text{PPE}_{it}}{TA_{it-1}} \right) + b_4 \left( \text{ROA}_{it} \right) \right)$$

Furthermore, book-tax conformity is estimated by following Watrin et al. (2014), who developed an empirical and continuous measure that correctly reflects European-specific characteristics. This approach allows for quantification of different degrees of conformity and changes in the degree of conformity during the period of analysis. Book-tax conformity is measured at the single-entity level and aggregated at the
country level. Initially, permanent book-tax differences are calculated as the gap between taxable income and book income in single financial statements with the following equation:

\[
PermBTD_{t,t} = PTBI_{t,t} - \left( \frac{Taxation_{t,t}}{Tax Rate_{t,t}} \right)
\]

where \( PermBTD \) is permanent book-tax difference; \( PTBI \) is pre-tax book income; \( Taxation \) is total taxation from income statement; and \( Tax Rate \) is the statutory corporate income tax rate. All variables are scaled by lagged total assets. Absolute values of permanent book-tax differences are calculated for each country for the two years preceding the approaching corporate tax rate change. Higher (lower) book-tax differences indicate lower (higher) book-tax conformity. A final country measure of book-tax conformity is constructed out of these differences by first summing up all absolute values of permanent book-tax differences in one country each year and then dividing by the number of observations. Second, a rank is assigned to each country for each year based on this mean so that countries with higher rankings show higher conformity. Descending rankings are used so that the highest book-tax difference is assigned 0 and the lowest difference is assigned a value of \( n-1 \), where \( n \) is the number of countries included in the study. The year rankings are then scaled so that they range from 0 to 1 by dividing by \( n-1 \). A final country rank is calculated as the average rank over the years. This rank (BTC) and the corresponding book-tax differences (BTD) for the sample countries are presented in Table 1, together with information on the tax reforms and tax rates of each country described earlier. It is observed that Portugal has the highest book-tax conformity, which is in line with Marques et al. (2011). Meanwhile, Ukraine has the lowest conformity level in the sample. Overall, the sample private firms are found to have quite high conformity. This is expected as previously declared. With a few exceptions, these ranks correspond to those in Watrin et al. (2014) that incorporate listed entities. Denmark, Finland, and Sweden are, for instance, clustered together in Watrin et al. (2014) as well as in the present study. Germany is also observed in the lower end on the conformity scale both in this study and in Watrin et al. (2014), whereas Germany is noted among the bottom book-tax conformity countries both in Atwood et al. (2010) and Blaylock et al. (2015). With respect to the national tax rates viewable in Table 1, Italy has the highest tax rate before the reforms and Spain has the top rate after the reforms.

---

3 Book-tax differences can be classified as either permanent or temporary (Hanlon and Shevlin, 2005). Permanent differences are defined as items included in either book income or tax income but never included in both. Depending on the jurisdiction, examples may be internally generated intangible assets that are included in the financial statement but not in the tax statement and tax non-deductible expenses such as fines and penalties. Other examples may include tax exempt dividends received from other firms and provisions for contingent losses. Temporary differences stem from the timing of recognition of income and expense items. For instance, depreciation rules may be different for accounting and tax purposes. The Bureau van Dijk’s Orbis database does, however, not differentiate between current and deferred taxes. Therefore, it is not possible to calculate temporary book-tax differences.
3.3 Tests of the impact of conformity on earnings management

The primary focus of this study is to examine the variation of book-tax conformity (BTC) and how it impacts earnings management (EM) before reductions in national corporate income tax rates. The following OLS regression models are used to test the hypothesis of the study:

\[ EM = \beta_0 + \beta_1 BTC_{i,t} + \sum \beta_k Controls + Fixed\; effects + \epsilon_{i,t} \]  \hspace{1cm} (5)

\[ EM = \beta_0 + \beta_1 PRE_{i,t} \times BTC_{i,t} + \beta_2 PRE_{i,t} + \sum \beta_k Controls + Fixed\; effects + \epsilon_{i,t} \]  \hspace{1cm} (6)

where \( EM \) represents the TACC or TDACC median per industry; \( BTC \) is the rankings of book-tax conformity; and \( PRE \) is an indicator variable for the year immediately before the tax rate change (PRE Year). The control variables include the following variables: \( SIZE \), the industry median size of firms measured as the natural logarithm of firm total assets; \( LEV \), the industry median leverage ratio of firms measured as the sum of liabilities divided by total assets; \( ROA \), the industry median return on assets of firms measured as net income divided by total assets; and \( LOSS \), the fraction of loss years within an industry. Finally, fixed effects for industries, years and countries are added to the regression model. It can be further noted that White heteroskedasticity-consistent standard errors and covariance matrix are applied for all regressions. The regression model is mainly run with country-industry observations, in accordance with Blaylock et al. (2014) because a firm-year analysis could overstate the level of significance (Tang, 2015).

The control variables and fixed effects specifications are used since accounting research has identified a number of factors that influence earnings management. A variable controlling for firm size is added to surrogate for various omitted variables and because smaller firms have been noted to be less opportunistic tax planners (Scholes et al., 1992). A variable controlling for leverage is included due to a proposed debt association with earnings management (DeFond and Jiambalvo, 1994). Furthermore,
since Kothari et al. (2005) showed that discretionary accruals correlate with firm performance, a control variable for the return on assets is added together with a dummy variable indicating a loss year. Finally, controls for years and one-digit SIC industries are added to the regression model.

### 3.4 Descriptive statistics

Table 2 presents descriptive statistics for the PRE Year. The number of firms included in the analysis differs between the countries, with a very low number of firms registered in Denmark and a high number of firms included from Norway. According to the median firm size and leverage, the Netherlands has the largest firms in the sample with a rather average level of leverage. Overall, the level of leverage resembles that noted in Gassen and Fülbier (2015). Based on the number of fiscal years with negative income, Ukraine is the most prominent while firms in Portugal have experienced fewer losses. Many of the other variables also show differences, as expected in a study across jurisdictions. In terms of TDACC, more negative figures are noted among the top row firms (high book-tax conformity) than among the bottom row firms (low book-tax conformity). This may be seen as prima facie evidence of more income-decreasing earnings management among firms with higher conformity between accounting and taxable income. The economic significance of the $-0.022$ median ($-0.030$ mean) TDACC for Portugal in 2013, with a tax rate decrease of two percent and at the country sample mean of total assets (8,000 TEUR), would be translated into 3.5 TEUR (4.8 TEUR) in monetary terms. This amount assumes that all the estimated discretionary accruals are being shifted from a period with a higher tax rate to a period with a lower tax rate. The amount may, however, be interpreted as economically significant in the context of these small private firms.

![Table 2 Descriptive statistics of sample firms](image)

<table>
<thead>
<tr>
<th>Country</th>
<th># Firms</th>
<th>Median SIZE</th>
<th>Median LEV</th>
<th>Median ROA</th>
<th>Fraction of LOSS (=1)</th>
<th>Fraction of Manufacturing Firms</th>
<th>Median TACC</th>
<th>Median TDACC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portugal</td>
<td>1,293</td>
<td>8.051</td>
<td>0.536</td>
<td>0.033</td>
<td>0.10 %</td>
<td>36.50 %</td>
<td>-0.013</td>
<td>-0.022</td>
</tr>
<tr>
<td>Norway</td>
<td>11,134</td>
<td>8.014</td>
<td>0.673</td>
<td>0.046</td>
<td>18.50 %</td>
<td>15.10 %</td>
<td>-0.035</td>
<td>-0.008</td>
</tr>
<tr>
<td>Spain</td>
<td>1,349</td>
<td>9.523</td>
<td>0.676</td>
<td>0.048</td>
<td>6.10 %</td>
<td>25.90 %</td>
<td>-0.010</td>
<td>0.001</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>1,975</td>
<td>7.827</td>
<td>0.518</td>
<td>0.083</td>
<td>8.40 %</td>
<td>44.70 %</td>
<td>-0.013</td>
<td>-0.011</td>
</tr>
<tr>
<td>Denmark</td>
<td>78</td>
<td>8.248</td>
<td>0.660</td>
<td>0.051</td>
<td>19.20 %</td>
<td>0.00 %</td>
<td>0.006</td>
<td>-0.015</td>
</tr>
<tr>
<td>Finland</td>
<td>2,239</td>
<td>8.094</td>
<td>0.470</td>
<td>0.046</td>
<td>15.40 %</td>
<td>31.80 %</td>
<td>-0.043</td>
<td>-0.008</td>
</tr>
<tr>
<td>Sweden</td>
<td>2,352</td>
<td>8.057</td>
<td>0.382</td>
<td>0.047</td>
<td>19.70 %</td>
<td>24.90 %</td>
<td>-0.030</td>
<td>-0.005</td>
</tr>
<tr>
<td>Germany</td>
<td>812</td>
<td>9.784</td>
<td>0.677</td>
<td>0.023</td>
<td>10.00 %</td>
<td>37.40 %</td>
<td>-0.024</td>
<td>0.005</td>
</tr>
<tr>
<td>Netherlands</td>
<td>222</td>
<td>10.845</td>
<td>0.584</td>
<td>0.079</td>
<td>23.40 %</td>
<td>23.40 %</td>
<td>0.033</td>
<td>0.012</td>
</tr>
<tr>
<td>Italy</td>
<td>2,176</td>
<td>8.429</td>
<td>0.816</td>
<td>0.016</td>
<td>14.60 %</td>
<td>47.00 %</td>
<td>-0.004</td>
<td>0.005</td>
</tr>
<tr>
<td>Russia</td>
<td>5,499</td>
<td>8.818</td>
<td>0.679</td>
<td>0.050</td>
<td>14.20 %</td>
<td>39.70 %</td>
<td>0.016</td>
<td>0.002</td>
</tr>
<tr>
<td>Ukraine</td>
<td>2,346</td>
<td>8.338</td>
<td>0.651</td>
<td>0.010</td>
<td>35.50 %</td>
<td>41.80 %</td>
<td>-0.009</td>
<td>0.006</td>
</tr>
</tbody>
</table>

The Pearson correlations among selected firm-level variables are provided in Table 3. It is observed that TACC and TDACC have a significant and negative correlation with
BTC. Although numerous other significant correlations also exist, they are not very strong. This lowers the risk of bias due to strong correlations. Among the control variables, the strongest correlations can be observed between ROA and LOSS (−0.496) as well as between LEV and ROA (−0.301). Furthermore, concerns about multicollinearity are mitigated based on the level of the variance inflation factors (VIFs), which are all below 10.0 in the regression models discussed.

**Table 3 Pearson correlations**

This table reports the Pearson correlations between the variables included in the study for firm observations. The variables are: TACC = total accruals of a firm, TDACC = total discretionary accruals of a firm, BTC = book-tax conformity measured as the scaled descending rank of the absolute values of permanent book-tax differences in each country, SIZE = size of a firm measured as the natural logarithm of firm total assets, LEV = leverage ratio of a firm measured as the sum of liabilities divided by total assets, ROA = return on assets of a firm measured as net income divided by total assets, and LOSS = indicator variable of a firm if net income is negative. ***, **, and * represent significance at the 0.01, 0.05, and 0.1 levels, respectively.

<table>
<thead>
<tr>
<th></th>
<th>TACC</th>
<th>TDACC</th>
<th>BTC</th>
<th>SIZE</th>
<th>LEV</th>
<th>ROA</th>
<th>LOSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>TACC</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TDACC</td>
<td>0.830***</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BTC</td>
<td>0.137***</td>
<td>-0.090***</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIZE</td>
<td>0.065***</td>
<td>0.048***</td>
<td>-0.154***</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LEV</td>
<td>0.001</td>
<td>0.022***</td>
<td>-0.061***</td>
<td>0.101***</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROA</td>
<td>0.191***</td>
<td>0.056***</td>
<td>-0.002</td>
<td>-0.044***</td>
<td>-0.301***</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>LOSS</td>
<td>-0.116***</td>
<td>-0.042***</td>
<td>-0.055***</td>
<td>0.004</td>
<td>0.196***</td>
<td>-0.496***</td>
<td>1.000</td>
</tr>
</tbody>
</table>
4 RESULTS

4.1 Primary regression results

Table 4 presents the country-industry OLS estimation results Equation (5) for the full sample and for the two years of analysis separately. A total number of 178 industry-years are included in the full sample regressions and 89 industry-years in the yearly regressions. On average, there are seven industry-observations per country and year. With respect to Denmark, only three industry-observations are included per year. Germany, Norway, Russia, and Sweden are all well represented with nine industry-observations both years. In the regressions, the association between earnings management and book-tax conformity is assessed based on a signed dependent variable measuring total and discretionary accruals. According to the tax incentive provided by a reduction in the corporate tax rate, earnings are hypothesized as being downward managed while the tax rate is still high to shift income into lower tax periods. Therefore, the accrual measures are expected to be negative in the year immediately prior to the reform year (\(PRE\ Year\)).

In the regression results for the full sample, the sign of the coefficient on \(BTC\) (\(\beta_1\)) is negative and statistically significant in both Models (1) and (4) which indicates that higher conformity is linked with more downward earnings management, consistent with the findings in Watrin et al. (2014). A similar and significant relationship is found in Models (2) and (5) for the \(PRE\ Year\). However, when it comes to the period two years prior to the reform (\(PRE\ Year –1\)) in Models (3) and (6), the coefficient on \(BTC\) is small and statistically insignificant. Taken together, these results suggest that firms in countries with a higher conformity between book and taxable income engage in more income-decreasing earnings management in the year immediately prior to a tax reduction year.\(^4\) Regarding the control variables, firm size and performance are both largely positively associated with the dependent variables in the regressions. While expected to be important, leverage is an insignificant variable which is consistent with the country-year regressions of Tang (2015). Although the adjusted R square is noted to be higher in the \(TACC\) regressions, both specifications are associated with a relatively good explanatory power.

\(^4\) In unreported results, a dummy variable is constructed out of the \(BTC\) measure so that the sample is split into high conformity countries (Country #1-6 in Table 1) and low conformity countries (Country #7-12 in Table 1). This dummy variable is then used instead of \(BTC\) in the Table 4 regressions. With this setup, a significantly negative \(\beta_1\) coefficient is also noted with the full sample and the \(PRE\ Year\) regression, however not in the \(PRE\ Year –1\) regression. In other words, using a dummy \(BTC\) variable yields quantitatively similar results as with a continuous \(BTC\) variable.
Table 4 Regressions of earnings management on book-tax conformity

This table reports the coefficients of the OLS regression Equation (5) with country-industry observations. Models (1) and (4) include data from both the PRE Year and the PRE Year −1. Models (2), (3), (5), and (6) include data from only one year. The dependent variables are total accruals (TACC) or total discretionary accruals (TDACC). The independent variables are book-tax conformity measured as the scaled descending rank of the absolute values of permanent book-tax differences in each country (BTC), industry median size of firms measured as the natural logarithm of firm total assets (SIZE), industry median leverage ratio of firms measured as the sum of liabilities divided by total assets (LEV), industry median return on assets of firms measured as net income divided by total assets (ROA), and industry fraction of negative income firms (LOSS). Industry, Country, and Year indicate whether industry, country, and year controls are included. ***, **, and * represents significance at the 0.01, 0.05, and 0.1 levels, respectively.

<table>
<thead>
<tr>
<th></th>
<th>Total Accruals (TACC)</th>
<th></th>
<th>Total Discretionary Accruals (TDACC)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Model (1)</td>
<td>Model (2)</td>
<td>Model (3)</td>
<td>Model (4)</td>
</tr>
<tr>
<td></td>
<td>Full Sample</td>
<td>PRE Year</td>
<td>PRE Year −1</td>
<td>Full Sample</td>
</tr>
<tr>
<td>Intercept</td>
<td>-0.146 ***</td>
<td>-0.189 ***</td>
<td>-0.135 ***</td>
<td>-0.087 *</td>
</tr>
<tr>
<td>BTC</td>
<td>-0.063 ***</td>
<td>-0.065 ***</td>
<td>-0.007</td>
<td>-0.048 ***</td>
</tr>
<tr>
<td>SIZE</td>
<td>0.018 **</td>
<td>0.030 ***</td>
<td>0.008 *</td>
<td>0.014 **</td>
</tr>
<tr>
<td>LEV</td>
<td>-0.047</td>
<td>-0.131</td>
<td>0.018</td>
<td>-0.031</td>
</tr>
<tr>
<td>ROA</td>
<td>0.257 **</td>
<td>0.331 *</td>
<td>0.151</td>
<td>0.443 ***</td>
</tr>
<tr>
<td>LOSS</td>
<td>-0.004</td>
<td>-0.02</td>
<td>0.017</td>
<td>0.003</td>
</tr>
<tr>
<td>Industry</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Year</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Country</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>N</td>
<td>178</td>
<td>89</td>
<td>89</td>
<td>178</td>
</tr>
<tr>
<td>Adj. R2</td>
<td>0.515</td>
<td>0.497</td>
<td>0.685</td>
<td>0.422</td>
</tr>
</tbody>
</table>

Additional notes:
- Models (1) and (4) use data from both PRE Year and PRE Year −1.
- Models (2), (3), (5), and (6) use data from only one year.
- The dependent variables are total accruals (TACC) or total discretionary accruals (TDACC).
- The independent variables include book-tax conformity, industry median size of firms, industry median leverage ratio, industry median return on assets, and industry fraction of negative income firms.
- The table includes controls for industry, country, and year.
- Significance levels are indicated by ***, **, and * for 0.01, 0.05, and 0.1, respectively.
Table 5 reports the OLS regression results of Equation (6). Here, 178 industry-observations are included in all models because the models include data from both the PRE Year and the PRE Year –1 (Full sample approach in Table 4). The PRE variable indicates observations from the PRE Year. The explanatory power of the regressions is again observed to be lower with TDACC as the dependent variable. In Models (1) and (3), the results are presented with BTC equaling a dummy that indicates high or low book-tax conformity based on the scaled measure as declared in Footnote 4. With this specification, both in terms of TACC and TDACC, the interaction term is negative and statistically significant. This suggests that a higher conformity level, in comparison with lower conformity, is associated with more income-decreasing reporting in the PRE Year. In terms of economic significance, the magnitude of the interaction term in Model (3) at the sample mean of total assets (16,700 TEUR) translates into a difference in earnings management between firms in high conformity and low conformity jurisdictions of 434.2 TEUR. In the context of the private firms in this study, this is considered an economically significant amount. In Models (2) and (4), the BTC variable is the scaled rank measure. Here, a similarly negative coefficient is observed on the interaction term. This coefficient is larger in magnitude and more income-decreasing earnings management is thus continuously attributed to higher conformity jurisdictions.

All in all, based on these regression results, evidence is provided that higher conformity between accounting and tax reporting in a jurisdiction is associated with more earnings management as a response to an upcoming tax reform where the corporate tax rate is to be decreased. These results are consistent with the hypothesis of the study.
4.2 Sensitivity analysis

The sensitivity of the documented relation between book-tax conformity and earnings management is verified along several dimensions. First, Equation (5) is re-estimated as separate OLS regressions after removing each country, one at a time, from the sample. This is done to ensure that the results are not driven by any single country. The results are, however, concluded not to be sensitive to excluding any one country. To some extent, this may also be expected when considering the evenly distributed sample of the country-industry regressions presented above. However, with reference to regressions with country-firm observations, the results also remain robust after excluding one country at a time. Furthermore, the exclusion impact of some countries is naturally stronger in the latter case. For example, the number of Norwegian firm-years is the highest and the exclusion of them clearly affects the estimation results. In any case, the level of significance remains the same.

As a second sensitivity test, a battery of alternative proxies for the variables used in this study is used to assess the relation between earnings management and book-tax conformity. To begin with, current accruals (CACC) and current discretionary accruals (CDACC) are analyzed as more short-run proxies for earnings management instead of TACC and TDACC. As such, CACC is calculated by excluding the long-term accrual of DEP from Equation (1). Then, the estimation technique of TDACC is followed where the explanatory variable PPE is excluded and CACC is used instead of TACC in Equations (2) and (3). With signed CACC and CDACC as the dependent variable in the regressions tabulated in Table 4 and 5, the signs and significance levels remain the same. However, the coefficients in the current models are smaller than the coefficients in the total specifications in all model variations, which is natural since the former measure excludes the large accrual of depreciation. Therefore, it can be concluded that the results are robust to an alternative and more short-term measure of earnings management. In addition to this, the approach in Dechow et al. (2012) is followed since the study setting provides reasonable priors about the timing and direction of the earnings management. For this, an indicator variable for the PRE Year is directly incorporated into Equation (2), together with control variables and fixed effects according to the following Equation (7):

\[
\frac{TACC}{TAX}_{i,t} = \beta_1 \left( \frac{1}{TAX}_{i,t} \right) + \beta_2 \left( \frac{MARKET}{TAX}_{i,t} \right) + \beta_3 \left( \frac{PPE}{TAX}_{i,t} \right) + \beta_4 (ROA_{it}) + \beta_5 (PRE_{it}) + \sum \beta_6 Controls + Fixed effects + \epsilon_{it} \tag{7}
\]

This model is then run separately for high and low book-tax conformity country-groups as declared in Footnote 4. According to the results, the \( \beta_5 \) coefficient is negative and statistically significant for the high conformity sample, whereas it is positive for the low conformity sample. These results add to the previously presented evidence that higher conformity firms employ more income-decreasing earnings management before a tax rate cut.

Furthermore, alternative measures of book-tax conformity are also considered to assess the validity of the measure used in the primary regressions. This is mainly done because it is only possible to calculate permanent and not total book-tax differences, due to pervasive data limitations in the Orbis database regarding the item “taxation”. Therefore, misclassifications of countries can occur due to the missing information on temporary book-tax differences. To alleviate these concerns, the traditional dummy
variable groupings used in Hung (2001) and Burgstahler et al. (2006) are firstly utilized as an alternative classification. This dummy variable resembles the split sample structure (high and low book-tax conformity) used above and described in Footnote 4. There are some countries that are misclassified according to this grouping. For instance, Germany is regarded as a high conformity country in Hung (2001) whereas Germany is ranked as a country with lower conformity in Table 1. The grouping in the current study is, however, in line with more recent studies such as Atwood et al. (2010) and Watrin et al. (2014). Similarly, Denmark is a low conformity country in Hung (2001) but ranked 5/12 in the current study and 17/33 in Atwood et al. (2010). With this in mind and considering the overall classification, the BTC measure is concluded to be aligned with traditional dummy variables used as indicators for the level of book-tax conformity. Next, due to the fact that it is not guaranteed that smaller firms apply accrual accounting appropriately when it comes to the tax expense, and that this could have an effect on the measure of book-tax conformity used in this study, the BTC measure is also re-estimated by eliminating smaller firms from the sample. Overall, the book-tax differences estimated for larger firms only are found to be qualitatively similar to the differences estimated with the full sample, which is a sign that the exclusion of smaller firms already in the data collection phase has mitigated this concern. Furthermore, the correlation between the BTC measures for large firms only and the full sample is highly significant (0.838). The (untabulated) regression results also remain robust to the sub-sample of large firms. Finally, a modification of the measure of Atwood et al. (2010) is also implemented in the context of this study to measure book-tax conformity in yet another way. Atwood et al. (2010) measure conformity using the following model that regresses current tax expenses ($CTE_t$) on pretax book income ($PTBI_t$), foreign income ($ForPTBI_t$), and dividends ($DIV_t$):

$$CTE_t = \theta_0 + \theta_1(PTBI_t) + \theta_2(ForPTBI_t) + \theta_3(DIV_t) + \varepsilon_t$$

(8)

All variables are scaled by average total assets. The actual book-tax conformity measure is estimated using this model where the country-year root mean squared-errors (RMSEs) are ranked in descending order. Due to data limitations, the model is modified so that the tax expense from the profit and loss account is used instead of $CTE$. In addition, $ForPTBI$ is completely left out. Relying on the country-year ranked RMSEs from the modified Equation (8), an alternative book-tax conformity measure is constructed in the form of $BTaxC$.

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5 Here, smaller firms are defined as firms with below median total assets within the respective country.
6 For example, the country with the largest difference between the original BTC measure and the BTC measure estimated for the large firms is the Netherlands, where the difference in book-tax differences is 0.019. This may be expected from the small sample size and the high median firm size in the country. Additionally, the BTC measure estimated for the large firms in the sample is more consistent with the level of book-tax conformity recorded for the Netherlands in Watrin et al. (2014).
Table 6 Regressions of earnings management on book-tax conformity (according to Atwood et al. 2010)

This table reports the coefficients of the OLS regression Equation (5) with country-industry observations. Models (1) and (4) include data from both the PRE Year and the PRE Year −1. Models (2), (3), (5), and (6) include data from only one year. The dependent variables are total accruals (TACC) or total discretionary accruals (TDACC). The independent variables are book-tax conformity measured as the scaled descending rank of the RMSEs of a modified Atwood et al. (2010) book-tax conformity measure in each country (BTaxC), industry median size of firms measured as the natural logarithm of firm total assets (SIZE), industry median leverage ratio of firms measured as the sum of liabilities divided by total assets (LEV), industry median return on assets of firms measured as net income divided by total assets (ROA), and industry fraction of negative income firms (LOSS). Industry, Country, and Year indicate whether industry, country, and year controls are included. ***, **, and * represents significance at the 0.01, 0.05, and 0.1 levels, respectively.

<table>
<thead>
<tr>
<th></th>
<th>Total accruals (TACC)</th>
<th>Total discretionary accruals (TDACC)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Model (1)</td>
<td>Model (2)</td>
</tr>
<tr>
<td></td>
<td>Full sample</td>
<td>PRE Year</td>
</tr>
<tr>
<td>Intercept</td>
<td>-0.140 ***</td>
<td>-0.214 ***</td>
</tr>
<tr>
<td>BTaxC</td>
<td>-0.031 ***</td>
<td>-0.028 **</td>
</tr>
<tr>
<td>SIZE</td>
<td>0.018 ***</td>
<td>0.033 **</td>
</tr>
<tr>
<td>LEV</td>
<td>-0.055 ***</td>
<td>-0.141</td>
</tr>
<tr>
<td>ROA</td>
<td>0.118</td>
<td>0.190</td>
</tr>
<tr>
<td>LOSS</td>
<td>-0.005</td>
<td>-0.026</td>
</tr>
<tr>
<td>Industry</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Year</td>
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<td>YES</td>
</tr>
<tr>
<td>Country</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>N</td>
<td>178</td>
<td>89</td>
</tr>
<tr>
<td>Adj. R2</td>
<td>0.514</td>
<td>0.500</td>
</tr>
</tbody>
</table>
The new measure, $BTaxC$, is significantly positively correlated with $BTC$ ($0.574$). The regression results presented in Table 4 are also replicated with $BTaxC$ and the results are concluded to be quantitatively similar. These results are tabulated in Table 6. However, the coefficients on $BTaxC$ are smaller than on $BTC$ with $TACC$ as the dependent variable and vice versa with $TDACC$ as the dependent variable. Based on these results, the primary regression results are not found to be very sensitive to alternative measures of book-tax conformity. As such, the current study is supportive of Watrin et al. (2014) in their conviction that their measure represents European book-tax conformity in a precise way. The results also suggest that a country’s level of permanent book-tax differences is reflected in the level of temporary book-tax difference.

Third, unsigned, positive and negative discretionary accruals are analyzed to measure the extent of overall, income-increasing, as well as income-decreasing earnings management. This is mainly done in order to compare the results of the current study with those of prior studies (Watrin et al., 2014; Blaylock et al., 2015; and Tang, 2015) in the same research area that have a public firm sample and do not focus on a specific incentive for earnings management. These prior studies measure the extent of earnings management overall and Table 7 provides the estimation results of a regression similar to Equation (5), modified in the way that the dependent variable consists of unsigned, positive and negative $TDACC$. The regressions are run with the full sample data (both the $PRE Year$ and the $PRE Year -1$). The results in Table 7 are based on country-firm observations which yield a large number of observations. According to the results, less earnings management overall, in the unsigned form of $TDACC$, is ascribed to higher conformity firms based on the negative coefficient on the $BTC$ variable (t-statistic = $-8.48$). This result is aligned with Tang (2015) but stand in contrast to studies attributing more earnings management to public firms in countries with a higher degree of book-tax conformity (Watrin et al., 2014; Blaylock et al., 2015). With regard to the positive accruals, Table 7 suggests that less income-increasing earnings management is linked with higher conformity. These findings are reasonable, based on the fact that private firms in higher book-tax conformity jurisdictions are less prone to manage earnings upwards due to tax consequences. Finally, Table 7 does not show that higher conformity is associated with more downward earnings management in the analysis period as a whole. The coefficient on $BTC$ is small and positive (t-statistic = $1.09$). So, the income-decreasing behavior is mostly located in the $PRE Year$, in terms of firm-level observations and negative accruals in isolation.

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7 The coefficient remains negative and significant at the 1 percent level if the regression is run yearly with 32,472 observations (untabulated).
As a fourth sensitivity test, the Table 4 and Table 5 results are reproduced with country-firm observations, similarly as in Table 7. Such a setup leads to models with a lower explanatory power, although the quintessence of the previous results is replicated. More downward earnings management is attributed to firms in higher conformity jurisdictions in the PRE Year, than to their opposites, which is consistent with the hypothesis of the study.

Fifth, there is also the risk that country-specific effects, that the fixed effects specification is not able to control for, impact the findings on the effects of conformity on earnings management. For instance, Leuz et al. (2003) find that strong investor protection in a country has a negative influence on the magnitude of earnings management. Furthermore, Burgstahler et al. (2006) show that less earnings management is associated with strong legal enforcement. Motivated by these studies, an aggregate index composed of three country controls is included in the regression models as a robustness check. The specific variables range from 0 to 7 and grade the judicial independence, investor protection, and ethical behavior of firms within a country. This country-specific data is retrieved from the World Economic Forum, in accordance with Watrin et al. (2014).8 Inclusion of controls for these effects does, however, not influence any of the previously presented results.

Finally, and sixth, correlated omitted variables that might bias the regression estimates are analyzed. All the identified and measured variables that could be correlated to country book-tax conformity are included as control variables in the

model specifications. However, it is not fair to conclude that all such variables have been included that could also be correlated with earnings management. Therefore, such concerns are addressed by investigating unobserved confounding variables. To verify the potential impacts of such unobserved confounding variables, the approach in Frank (2000) is applied. Prior accounting literature has also utilized this method (e.g., Larcker and Rusticus, 2010; Blaylock et al., 2015). As it is difficult to control for every possible confounding effect, Larcker and Rusticus instead estimated how strong such an effect would have to be to turn a statistically significant result into insignificance. The Impact Threshold for a Confounding Variable (ITCV) is thus defined as the lowest product of the partial correlation between the dependent variable and the confounding variable, and the partial correlation between the independent variable of interest and the confounding variable that would lead to a statistically insignificant relation between the dependent variable and the variable of interest. The larger the ITCV, the more robust the regression results are to omitted variable concerns. For the Table 4 results regarding Model (5), for instance, the ITCV threshold value is 0.0228. The correlation between TDACC and BTC with the unobserved confounding variable would thus each need to be around 0.150 (0.02280.5) to render the coefficient on BTC insignificant. As such, it is difficult to determine whether the ITCV is large enough for the results to be robust to omitted variables. Therefore, the impact for each control variable is also calculated in order to evaluate the threshold. Impact is then defined as the product of the partial correlation between the dependent variable and the control variable, and the correlation between the variable of interest and the control variable (partialling out the effect of the other control variables). However, none of the control variables have an impact close to the ITCV. Any unobserved confounding variable must thus be much more highly correlated with the dependent variable and the independent variable of interest than any of the existing control variables in order to overturn the results. Assuming that there is a good set of control variables, it is unlikely that there is an omitted variable that would overrun the results of this study. A conclusion therefore is that the main results are reasonably robust to potential correlated omitted variables.
The purpose of the study was to further investigate the effect of book-tax conformity on earnings management. An international sample of firms with a European emphasis across twelve countries with corporate tax cuts in the period from 2007 to 2014 was analyzed. Earnings management was mainly proxied by total and discretionary accruals and the level of book-tax conformity was determined by calculating permanent book-tax differences at the single-entity level and aggregating them to the country-level. As such, the study may be regarded as a contribution to the debate on the costs and benefits of increasing book-tax conformity. The opinions in this debate have become rather polarized and prior literature has provided mixed evidence on the impact of the conformity between book and tax income on accounting quality. Recent evidence has pointed in the direction that more earnings management is occurring in jurisdictions with high book-tax conformity (Watrin et al., 2014; Blaylock et al., 2015). Meanwhile, Tang (2015) provided evidence to the contrary. This paper investigates private firms and supports the findings that higher conformity is associated with less earnings management overall. At the same time, this paper argues that higher conformity is linked with more downward earnings management when there is a strong incentive to manage earnings, as exemplified by a situation where the corporate tax rate is to be lowered. As such, this study demonstrates a benefit of decreased conformity in the specific case of tax-induced earnings management.

This study provides a contribution to the research arena in various ways. First, the simultaneous examination of a clear earnings management incentive and the association between earnings management and book-tax conformity delivers a major contribution. Previous studies on book-tax conformity have mainly focused on earnings management overall and in the absence of any incentive. Therefore, this study contributes by analyzing signed incentive-based earnings management instead of only observing unsigned and overall earnings management. Second, this study provides a contribution to the literature that investigates accounting attributes of private firms. Previous studies with the same focus as the present one primarily highlight public firms. Since jurisdictions also have different levels of book-tax conformity when it comes to private firms, it is therefore of interest to investigate this group of firms in this context. Watrin et al. (2014) also highlighted that the importance of single financial statements has been underestimated in analyses of book-tax conformity, and this study extends prior literature by examining private firms with a specific incentive to manage earnings. Third, previous research on the private firm responses to corporate tax rate adjustments have merely been performed on the national level. This study contributes by exploring recent reforms across several jurisdictions and is thus able to add to the understanding about private firm tax-induced earnings management in different countries.

This study may also generate practical implications concerning reporting and tax reforms. The results may for instance be useful for regulatory bodies in evaluating corporate tax reforms and in the planning of the structure of future reforms where the corporate tax rate is to be adjusted. This study is also important for countries considering switching from low to high conformity. In addition, the findings may also...
be beneficial for tax authorities, creditors and independent auditors in the analysis of the financial statements of private firms.

One main limitation of this study is that it has been conducted by using data from a limited number of countries. By using additional countries with different levels of conformity between tax and accounting rules from other parts of the world, the results of the study could be strengthened and validated in a broader sense. At the same time, another limitation may arise from the present multinational examination of the effects of book-tax conformity, which does not ensure constant institutional characteristics. Data restrictions also add a limitation regarding the measure of book-tax conformity used in this study. It would be appropriate to include a separate measure of temporary book-tax differences in future research. Yet another limitation of the study is that alternative explanations to some of the earnings management evidence documented in this paper could exist. As such, this study does not consider any conflicting incentives to manage earnings before a corporate tax rate reduction. For instance, the tax on dividends is often hiked when the tax on corporate profits is lowered. This could result in an alternative incentive to increase earnings to be able to pay out larger dividends before a hiked taxation is effective. Future research could incorporate such alternative incentives in the analysis. In this study, however, the incentive to decrease earnings prior to a corporate tax rate cut is seen as the strongest incentive that is present at the time of the investigation. To further deepen the analysis, future research could utilize different measures of earnings management such as the observation of other specific accruals. Another extension would be to measure other aspects of earnings quality which has not been the focus here.
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Outsourcing of accounting tasks and tax management: evidence from a corporate tax rate change

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ABSTRACT
The aim of this article is to investigate if small firms react to a national corporate tax rate reduction by managing their taxable income. In contrast to previous studies, we also analyse whether outsourcing of accounting tasks affects the magnitude of the reaction. Based on a sample of Finnish firms and measures of earnings management, evidence is provided that firms with an internalized accounting function are more active tax planners in this context. This study suggests that outsourcing of accounting tasks increases the corporate tax reporting quality.

KEYWORDS
Tax management; small firms; Finland; corporate tax rate

JEL CLASSIFICATION
M10; M41; M42

I. Introduction
Accrual-based earnings management has been observed as a tax management tool that may minimize the tax burden of a firm in the short run. However, in the long run, the lowered taxes will normally revert to an unadjusted level due to the reversal nature of accruals. Meanwhile, tax reforms that include a change in the corporate tax rate are noted to create an excellent window of opportunity to obtain permanent economic gains. For instance, when the tax rate is decreased, income may be shifted from the higher tax rate period to the lower rate period. Thereby, the shifted income will be taxed according to a lower tax rate which results in lower taxes overall.

Laguir, Elbaz, and Laguir (2015) showed that small- and medium-sized companies consider taxation as a decisional component of their overall strategy. Meanwhile, research on tax reforms has mostly addressed the behaviour of large public firms. Such firms have, for instance, been found to shift income between periods via earnings management for tax-saving purposes (Guenther 1994). Recent research has also highlighted that smaller private firms engage in more tax management than public firms around these reforms (Lin, Mills, and Zhang 2014). This is reasonable since contrary to public firms, private firms do not have any market-based incentives to present high earnings. Private firms are also subject to less monitoring than their public counterparts. Ball and Shivakumar (2005) additionally noted that the financial reporting objectives of private firms are largely influenced by taxation. Earlier studies on tax cuts and tax management have, however, completely overlooked the role of the financial statement preparer in this context. An important characteristic in smaller firms namely is that many small firms do not have the know-how or resources needed to produce the financial statements internally. A consequence of this is that these firms often outsource accounting tasks to an external service provider (Everaert, Sarens, and Rommel 2007; Niemi et al. 2012). The impact of this decision on tax management has not been investigated in prior research.

The purpose of this article is to assess whether firms with an internal accounting function react more strongly to a decrease in the corporate tax rate than firms with an outsourced accounting function. The expectation is that the first group of firms should be able to influence their financial reporting in a more opportunistic manner than in the case where an external accountant is involved. A multi-variate linear regression-based approach is utilized in the analysis and tax management is measured as accrual-based earnings management.

The study contributes to the existing literature in three major ways. Firstly, extending prior work on
tax management around tax rate cuts, evidence is provided from the Finnish high book-tax conformity setting. Secondly, the study shows that firms with an outsourced accounting function do not react to adjustments in the corporate tax rate as strongly as firms with an internalized way of working. Finally, the study contributes to the literature on small firm financial reporting practices.

This article is organized as follows. Section II describes the data and method. Section III covers the findings while Section IV concludes.

II. Data and method

As of January 2014, the Finnish corporate tax rate was lowered from 24.5% to 20%. In this study, the tax management of small Finnish firms is analysed before this event. As the information on the outsourcing decision is not publicly available, a survey was directed to small private Finnish firms with questions on their sourcing strategy. With an effective response rate of 20%, our final sample size is 1386 firms. Table 1 presents the formation of the sample.

Unconsolidated financial statement data of the sample firms was gathered for the years 2011–2013 from the Voitto+ register of Suomen Asiakastieto Oy. Actual taxable income data were also collected from the tax returns provided by the Finnish Tax Administration. In Finland, taxable income is largely based on the financial statements of a firm. Therefore, it is applicable to examine tax management around tax reforms by examining accrual-based earnings management based on financial statement data in this context. Firms are expected to defer earnings forward from the year(s) before the new tax rate is effective to the year(s) with the lowered tax rate, so downward earnings management is expected before the corporate tax rate cut. As a proxy for earnings management, we estimate discretionary accruals according to Kothari, Leone, and Wasley (2005) as follows:

$$TACC_{it} = \beta_0 + \beta_1(TAX_{it}) + \beta_2(\Delta REV_{it}) + \beta_3(gPPE_{it}) + \beta_4(ROA_{it}) + \beta_5(SIZE_{it}) + \beta_6(AGE_{it}) + \beta_7(OUTS_{it} \times TAX_{it}) + \beta_8(LEV_{it}) + \beta_9(CEO_{it}) + Industry\ Fixed\ Effects + \epsilon_{it}$$

where $TA$ is total assets in time $t - 1$, $\Delta REV$ is the change in revenues between year $t$ and $t - 1$; $gPPE$ is the gross property, plant and equipment and $ROA$ is the return on assets. The residual term is defined as the discretionary accruals ($DACC$) and a positive value increases earnings and vice versa with a negative value. We then estimate the following regression model for each year:

$$DACC_{it} = \beta_0 + \beta_1(TAX_{it}) + \beta_2(gPPE_{it}) + \beta_3(ROA_{it}) + \beta_4(LEV_{it}) + \beta_5(AGE_{it}) + \beta_6(_PREVREV_{it}) + \beta_7(CEO_{it}) + Industry\ Fixed\ Effects + \epsilon_{it}$$

where $TAX$ indicates taxable income; $OUTS$ indicates whether the accounting function is outsourced or not; $SIZE$ is the natural logarithm of total assets; $LEV$ is the firm leverage; $AGE$ is the natural logarithm of firm age; $BSIZE$ is the number of board members and $CEO$ indicates whether the CEO is a member of the board. Ultimately, industry effects are also controlled for. We first use the absolute magnitude of $DACC$ to measure the extent of earnings management, and subsequently, we use positive and the absolute magnitude of negative $DACC$ to assess the income-increasing and income-decreasing magnitudes of earnings management, respectively.

Income-decreasing earnings management is expected in 2013 based on the incentive that the 2014 corporate tax rate cut gave rise to because the reform information became public in 2013. Therefore, we interpret negative $DACC$ in 2013 to be a sign of tax management. We expect the coefficient on the $TAX$ variable to be negative since a higher taxable income should lead to more tax management. The coefficient on the interaction variable...
makes it possible to observe the difference in tax management between outsourcing firms and non-outsourcing firms.

III. Findings

Table 2 reports the descriptive statistics for the different groups. From these statistics, \( |\text{DACC}| \) is observed to be rather similar in the two groups. However, the absolute magnitude of negative \( \text{DACC} \) in the year 2013 is on average higher for nonoutsourcing firms than for outsourcing firms. The outsourcing firms are clearly smaller than their counterparts, which is natural since smaller firms have more limited resources to employ an internal accountant. Overall, the strongest correlation is between \( \text{BSIZE} \) and \( \text{CEO} \) (0.471) and \( \text{ROA} \) and \( \text{LEV} \) (0.439). However, the correlations are not strong enough to infer any serious bias due to strong correlations. Finally, none of the variables of interest or continuous control variables has variance inflation factors above 4.0 for any of the models. Based on this, multicollinearity problems are ruled out.

Table 3 reports the regression results. In the 2012 regression, absolute, positive and negative earnings
management is significantly associated with higher taxable income. On the other hand, the outsource variable does not affect DACC in any significant manner. The same is noted with absolute DACC in 2013 but not when DACC is positive. However, when DACC is negative, a significant coefficient is observed on both the TAX variable and the interaction variable TAX × OUTS. The positive sign of the TAX coefficient implies that earnings are managed downwards as taxable income increases, which is expected when the corporate tax rate is to be lowered in the following year. The negative sign on the interaction coefficient (−0.178) implies that firms outsourcing accounting tasks to an external service provider engage in significantly (t = −2.52) less tax management than firms performing the accounting tasks internally.

In terms of the control variables, we observe expected signs and levels of significance. For instance, SIZE is seen to be strongly and consistently negatively associated with earnings management. The association is positive with LEV, except for the result in the rightmost column which could be affected by the tax reform. The adjusted R² is around 13%, which is similar to other studies with a dependent variable of DACC. Based on these results, outsourcing of accounting tasks is negatively related to the extent of tax management before a corporate tax rate cut.

For robustness purposes, we used alternative measures of DACC. We also assessed whether our results could be overturned by an omitted correlated variable with the approach of Larcker and Rusticus (2010). Finally, we also checked whether the results hold in a subsample excluding firms that are part of a larger corporation, firms that are not audited and firms with a short outsourcing experience. In all of these tests, our results remained robust.

IV. Conclusion

This study investigated how the preparer of the financial statements impacts the magnitude of tax management around a corporate tax rate cut. Contradictory to most of the previous studies on tax reforms, we include indicators for outsourcing of accounting tasks as well as actual taxable income in our model. According to the results, firms performing accounting tasks internally engage in more tax management in the form of downward earnings management prior to a cut in the tax rate. We link this finding with the fact that these firms may influence their own reporting in a more opportunistic manner than in the case where an external accountant is involved. In addition without an external party performing the accounting tasks, there is no additional outsider other than the auditor who restricts the tax management. All in all, we conclude that an external service provider may reduce small firm tax management.

Disclosure statement

No potential conflict of interest was reported by the authors.

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The opportunistic aspects of financial reporting have largely been investigated under the umbrella term of earnings management. However, most research is devoted to capital market settings and listed firms in large economies, including the United States in particular. As a contrast, this dissertation examines earnings management based on tax incentives among private firms in European settings. In particular, the four interrelated essays analyze situations where the statutory corporate tax rate in a country is changed and firms are expected to report lower (higher) earnings while the tax rate is higher (lower) to reduce their total tax burden. While these tax changes are introduced to enhance international tax competitiveness, they also give rise to strong incentives for earnings management. For example, when the tax rate is to be decreased, firms may employ various accruals to defer earnings from high to low tax periods.

The first essay of the dissertation contributes to the literature by investigating decomposed measures of earnings management instead of relying on a broad measure that does not provide much insight. Based on Swedish private firms, the analyses clearly show income-decreasing earnings management on the aggregate level before two tax rate cuts. The aggregate results are later observed to be largely driven by unexpected changes in accounts receivable.

The second essay uses Finnish data and provides evidence that private firms, under certain circumstances, also change the end of the fiscal year to achieve benefits around tax reforms. Further, the analyses demonstrate that a reform that simultaneously lowers corporate tax and hikes dividend tax creates conflicting incentives to manage earnings. The motivation behind the third essay stems from the debate on the appropriate level of book-tax conformity. The essay documents that higher conformity between accounting and tax reporting is associated with more earnings management in response to an upcoming change in the tax rate. A contribution of this study is the analysis of a clear incentive for earnings management instead of a sole focus on absolute measures.

In the fourth and final essay, private firms that use external help in the financial reporting process are separated from firms that do not. The hypothesis is that firms, that handle their accounting function internally, have greater possibilities to influence their reporting opportunistically. The results also suggest that the minority of smaller private firms who perform the tasks in-house, and have the knowledge and resources needed, are able to manage taxes to a larger extent.