Book-tax differences as a proxy for tax-induced earnings management - Evidence from Finnish private firms

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The purpose of this thesis is to examine whether book-tax differences (BTDs) are a reasonable proxy for tax-induced earnings management in Finland. BTDs have been previously studied mostly in lower book-tax conformity countries by using estimates of taxable income. This thesis thus extends existing literature to a country with higher book-tax conformity and makes use of Finland’s unique public tax records that allow deriving BTDs from actual taxable income.

To determine the strength of BTDs as a proxy, BTDs are compared against a popular discretionary accrual proxy around a corporate event that is considered a strong incentive to manage earnings. The 2014 tax reform in Finland reduced the corporate income tax (CIT) rate from 24.5 to 20 percent and prior studies present strong evidence that firms engage in income-decreasing earnings management in the year immediately before the CIT rate cut to achieve tax savings. This study therefore also extends previous studies that have mainly relied on accrual measures to observe tax-induced earnings management around CIT rate cuts.

Based on prior research, three hypotheses are formulated with the emphasis on discretionary accruals, BTDs, and their interaction in 2013. The data for the empirical study comprise 35,135 firm-year observations of profitable Finnish private firms in 2011–2015. Discretionary accruals are estimated following Jones (1991), Kothari et al. (2005) and Francis et al. (2013), and total BTDs are applied as a BTD measure. Three OLS regression models are developed to provide evidence for the hypotheses.

The results suggest that BTDs reflect well opportunistic earnings management even in a higher book-tax conformity context when there is a strong tax incentive. In addition, earnings management in response to the CIT rate cut is significant with both proxies, and BTDs and discretionary accruals have a negative relation in 2013. Besides, all results are statistically significant at the one percent level and are verified with a series of robustness checks. As BTDs have not been previously studied in higher book-tax conformity countries, the results are of particular interest for the academic community and provide fruitful avenues for future research. The findings also provide economically important information for legislators and policymakers when planning future tax reforms.

**Keywords:** earnings management, book-tax differences, discretionary accruals, book-tax conformity, tax incentives, tax reform, private firms, Finland
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<tr>
<td>EU</td>
<td>European Union</td>
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<tr>
<td>BTD</td>
<td>Book-Tax Difference</td>
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<td>CIT</td>
<td>Corporate Income Tax</td>
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<td>DACC</td>
<td>Discretionary accruals</td>
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<td>FASB</td>
<td>Financial Accounting Standards Board</td>
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<td>GAAP</td>
<td>Generally Accepted Accounting Principles</td>
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<td>IFRS</td>
<td>International Financial Reporting Standards</td>
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<td>IRC</td>
<td>Internal Revenue Code (in the U.S.)</td>
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<td>NACE</td>
<td>Classification of economic activities in the European Union</td>
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<td>NOL</td>
<td>Net Operating Loss</td>
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<td>OECD</td>
<td>Organization for Economic Co-Operation and Development</td>
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<td>OLS</td>
<td>Ordinary Least Squares</td>
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<td>PPE</td>
<td>Property, Plant and Equipment</td>
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<td>PTBI</td>
<td>Pre-Tax Book Income</td>
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<td>ROA</td>
<td>Return on Assets</td>
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<tr>
<td>R&amp;D</td>
<td>Research and Development</td>
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<tr>
<td>SEC</td>
<td>Securities and Exchange Commission (in the U.S.)</td>
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<td>SME</td>
<td>Small and Medium Enterprise</td>
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<tr>
<td>TEUR</td>
<td>Thousand Euros</td>
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<td>TRA86</td>
<td>Tax Reform Act of 1986 (in the U.S.)</td>
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<tr>
<td>UK</td>
<td>United Kingdom</td>
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<td>U.S.</td>
<td>United States (of America)</td>
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1 INTRODUCTION

1.1 Background and problem area

The main objective of financial reporting is to provide information that is useful to its users for making economic decisions (FASB 2010 paragraph OB2). In order for the information to be useful, accounting standards must allow managers to use judgement in financial reporting to convey their inside knowledge about the firms’ underlying economics. Ideally, this increases the value of accounting both in terms of improved resource allocation and stewardship decisions, and on a more general level improves the financial reporting quality (Healy & Wahlen 1999). However, the amount of discretion opens a window of opportunity for managers to engage in opportunistic earnings management in order to achieve some specific earnings objective. Hence, the users of the financial statements need to be aware of this flexibility in financial reporting in order to evaluate the companies’ financial statements correctly, but detecting any type of earnings management is challenging due to its propensity to be invisible.

Most of the earnings management detecting methods are concentrated on studying aggregate accruals, discretionary accruals in particular. Recently, several studies have examined whether book-tax differences (hereafter BTDs) could be used as a proxy for earnings management (e.g. Hanlon 2005; Seidman 2010; Tang & Firth 2011; Blaylock et al. 2012). BTDs arise from the income and expense items that are recorded differently for financial accounting and taxation purposes. Compared to tax laws, managers have considerably more discretion within financial accounting standards so as to convey their inside information. Besides, accounting accruals that are less subject to managerial discretion, do not create BTDs. BTDs are hence considered to reflect well the managerial discretion allowed under accounting standards.

The prior research on BTDs has mainly taken place in lower book-tax alignment\(^1\) countries, such as in the U.S and China. Moreover, the vast majority of these prior studies have been done in public companies. This is due to the fact that companies’ tax records are currently publicly disclosed only in Finland, Sweden, Denmark and Norway; and also recently in Australia but only for very large companies.

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\(^1\) Book-tax alignment, or book-tax conformity, describes the extent to which accounting earnings differ from taxable income (Atwood et al. 2010:114).
(PricewaterhouseCoopers 2016). Studies have therefore had to rely on estimates of taxable income in order to calculate the BTD, but only public companies’ financial statement disclosures offer enough information for the researchers to estimate the taxable income.

Furthermore, earnings management in public firms has been studied extensively and most of the incentives are generally associated with capital markets. Still, several studies have documented the presence of earnings management in private firms (e.g. Coppens & Peek 2005; Goncharov & Zimmermann 2006) and some studies even claim earnings management to be more pervasive in private firms than in public firms (Ball & Shivakumar 2005; Spohr 2005a; Burghstahler et al. 2006). Given the private companies’ economic importance in Finland\(^2\) and the lack of prior research on BTDs in higher book-tax alignment context, it is of particular interest to add understanding to this rather unexplored setting.

In order to determine whether BTDs can be used as a reasonable proxy for earnings management in the aforementioned setting, the study makes use of the 2014 tax reform in Finland when the firms had a strong incentive to manage earnings. The Finnish corporate income tax (CIT) rate was reduced as of 2014 from 24.5 percent to 20.0 percent, making it the largest reduction in Finland in the past few decades, and becoming the lowest in the Nordic countries\(^3\). Prior research presents ample evidence that firms engage in income-decreasing earnings management prior a CIT rate cut (e.g. Guenther 1994; Roubi & Richardson 1998; Lin et al. 2012) and recently several studies have shown that especially private firms (Watrin et al. 2012; Lin et al. 2014) in stronger book-tax conformity regimes (Sundvik 2017a) manage earnings to obtain tax savings from a CIT rate cut. This corporate event therefore gives a sound base to compare BTDs against a popular aggregate accrual method.

### 1.2 Purpose and contribution

The main purpose of this study is to examine whether BTDs are a reasonable proxy for earnings management in a higher book-tax conformity setting. The proxy is compared

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\(^2\) As of 31.12.2016 the amount of private limited liability companies in Finland was 268 093 and the number of public limited companies was 242 (Finnish Patent and Registration Office (PRH) 2016). Besides, the Finnish SMEs account for 63 percent of employment and 59.6 percent of gross value added in a study period of 2008–2012 (Eurostat 2017). This thesis, however, incorporates all private firms that meet the sample criteria and not only SMEs (employees fewer than 250).

\(^3\) As of 2016, the CIT rates in the Nordic countries were: Denmark 22, Sweden 22 and Norway 25 (European Commission 2017).
against a popular aggregate accrual measure, and prior research is utilized regarding earnings management around CIT rate cuts when the incentive for earnings management is particularly strong. Consequently, evidence of the extent of earnings management in response to the 2014 tax reform is also provided.

This study makes three important contributions to the literature, which will benefit the academic community, legislators and policymakers. First, it shows that BTDs are a powerful proxy for tax-induced earnings management. It thus also extends previous studies that have mainly relied on accrual measures and financial statement data to observe tax-induced earnings management. Second, this study utilizes the unique Finnish dataset that provides the public tax records as open data in a computer-readable format on an entity level. This allows for calculating BTDs based on actual taxable income in a large sample, which is a major contribution in contrast to prior BTD studies that are based on estimates of taxable income. Third, this study examines private firms in Finland, where the taxable income is tied closely to the book income. This is also a major contribution in contrast to prior BTD research that is based on evidence from low book-tax conformity settings and that examines mainly public firms. This study therefore also adds to the understanding of tax management in private firms, which is important given their economic importance.

1.3 Structure of the study

The remainder of this study is organised as follows. Chapter two presents the relevant earnings management theories and discusses the detecting methods. Chapter three focuses on BTDs, where also the Finnish corporate tax legislation and book-tax conformity are covered. Subsequently, chapter four provides an overview of prior studies examining both earnings management in private firms and in response to CIT rate cuts, as well as studies linking BTDs to earnings management.

The empirical part of the study begins in chapter five, where the research design is described. This includes hypothesis development, methodology and description of the data and sample selection. Chapter six presents descriptive statistics of the sample, analyses the results of the empirical tests and verifies the results with a sensitivity analysis. The last chapter summarizes and concludes the study as well as discusses study limitations and suggestions for future research.
2  EARNINGS MANAGEMENT

2.1  Importance of earnings

To begin with, it is crucial to understand why earnings are important because it lays the foundation for studying earnings management. Ronen and Yaari (2008:6) review both the traditional and scholarly explanations for the importance of earnings. The traditional view is based on the dual role of accounting and consists of informativeness (also decision usefulness) and stewardship. The first aims to provide information that is useful to investors, creditors and other users in making rational investment (FASB 2010 paragraph OB2), and the second aims to “constrain management to act in the shareholders’ interest” (Watts & Zimmerman 1978:113).

In turn, all the three scholarly explanations stress the value relevance of earnings. These are the costly-contracting approach, the decision-making approach and the legal-political approach. The first assumes that all participants in an economic exchange have full knowledge, whereas the latter two are based on information asymmetry. The costly-contracting approach sees firms as a nexus of contracts and reflects management’s opportunistic behaviour in pursuing a certain target number, for example in the case of debt covenants or bonus plans. The decision-making approach emphasizes the usefulness of earnings for making decisions, such as when estimating future earnings or assessing risks. The legal-political approach stems from the conflict of interest between managers and shareholders, where earnings offer valuable information to control managerial performance and information asymmetry. (Ronen & Yaari 2008)

2.2  Definitions

There are numerous different definitions for earnings management and the definition is often dependent on the approach to earnings as discussed above. Probably the most popular definition is the one formulated by Healy and Wahlen (1999:368) which reflects both the costly-contracting approach and the decision-making approach:

Earnings management occurs when managers use judgement in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on the reported accounting numbers.

Ronen and Yaari (2008:25) classify different earnings management definitions into three categories: white, grey and black, and place the definition above by Healy and Wahlen (1999) in the black category which regards all earnings management as
misleading. An earlier popular definition by Schipper (1989:92) also falls into this category which states that earnings management is “... a purposeful intervention [...] with the intent of obtaining some private gain”. The grey area in the middle involves activities that are either opportunistic or improving economic efficiency, and the white represents the positive view, where managers use the flexibility in reporting to reveal information about future cash flows (Ronen & Yaari 2008:26).

Beneish (2001:5) views earnings management from two perspectives: opportunistic ("to mislead") and information ("to inform"). The opportunistic perspective follows the definitions by Schipper (1989) and Healy and Wahlen (1999), whereas the information perspective represents the “good” earnings management, where managers use their discretion to convey inside information to investors. Beneish notes that most prior studies concentrate on the opportunistic perspective which might explain why the definitions on the misleading earnings management are more popular.

The definition by Scott (2009:403) states that “earnings management is the choice by a manager of accounting policies, or actions affecting earnings, so as to achieve some specific reporting earnings objective”. Walker (2013:446) improves this definition as follows:

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.

This definition by Walker (2013) is a more neutral definition and defines more specifically how earnings are managed: either through accounting or earnings reporting choices or real activities manipulation. It also acknowledges that a combination of these may be used.

Perhaps the key element to the differing definitions is which activities can be considered as earnings management. Dechow and Skinner (2000) therefore approach earnings management by viewing activities that academic literature and SEC regard as earnings management. Academic literature usually focuses on activities that fall within GAAP and choices that affect real cash flows, whereas SEC perceives fraudulent activities that violate GAAP as earnings management. Dechow and Skinner group the different earnings management activities into conservative, neutral, aggressive and fraudulent accounting. Neutral accounting does not represent earnings management, whereas the conservative and the aggressive accounting reflect the acceptable choices in which managers can exercise their discretion within GAAP. Examples of such
activities are understating provisions for bad debts, overstating reserves and asset write-offs, postponing expenses and accelerating sales. In turn, examples of fraudulent activities that violate GAAP are recording fictitious sales and backdating sales invoices. (Dechow & Skinner 2000)

To conclude, earnings management typically requires some managerial intent to be considered as earnings management. This intent can be either misleading or informing. The more recent definition by Walker (2013:446) provides a neutral and comprehensive explanation and the approach to earnings management by Dechow and Skinner (2000) is probably best suited for this study since the discretion allowed under GAAP is the key element later in the BTDs chapter.

2.3 Types and patterns

As stated by Scott (2009:403) in the definition of earnings management, earnings can be managed either through accounting policy choice or through real activities manipulation. Scott further divides accounting policy choice into two categories: 1) choice of actual accounting policy, such as amortization method, inventory valuation and revenue recognition, and 2) discretionary accruals, such as provisions for bad debts and timing of asset write-offs. The discretionary accruals are of particular interest in the earnings management studies. A more general concept in the literature is known as accrual manipulation and it is characterized by not having a direct impact on cash flows (Roychowdhury 2006).

On the contrary, real activities manipulation affects both cash flows and earnings (Scott 2009:404). Roychowdhury (2006) lists three methods of real activities manipulation: sales manipulation, reducing discretionary expenses and overproduction to lower the cost of goods sold. Examples of discretionary expenses are R&D, advertising and maintenance. Roychowdhury notes that earnings are usually managed with the combination of accruals and real activities even if the latter may be costly for the firm’s long-run performance. Nevertheless, Graham et al. (2005) find in a survey that the financial executives would rather manage earnings by real activities than accruals despite the negative long-term consequences.

Earnings management typically follows a certain pattern. Scott (2009:405) summarizes the different earnings management patterns into four categories: 1) taking a bath, 2) income minimization, 3) income maximization, and 4) income smoothing. First, if a
firm is in a loss position, it might as well report a large loss ("take a bath") for the benefit of future profits. Second, income minimization (or income-decreasing) involves for instance accelerated amortizations and increasing discretionary expenses, and may be used for political purposes in order to hide high profitability. Third, income maximization (or income-increasing) is especially tempting for bonus purposes and to avoid contracting violations. Fourth, income smoothing is used to reduce volatility in earnings to ensure constant compensation and to prevent covenant violation. Besides, smoothing can be used to convey inside information of persistent earnings to the markets. (Scott 2009:405) Finally, it is important to note that these different earnings management patterns can be in conflict when the incentives for earnings management change.

2.4 Incentives

As earlier stated, earnings management is characterized by having some managerial intent. This intent is typically driven by a certain incentive. Healy and Wahlen (1999) group these incentives into three motivations: 1) capital market, 2) contracting, and 3) regulatory. To start with, numerous studies document that earnings management is motivated by various capital market incentives. Teoh et al. (1998) study earnings management surrounding initial public offerings and find that firms have unusually high income-increasing discretionary accruals preceding the listing, and subsequently demonstrate poor performance in terms of stock returns. Bartov et al. (2002) examine earnings management related to meeting or beating analysts’ earnings forecasts and find that investors reward firms who manage expectations with higher returns. Further, they find that this relation holds regardless whether the reported earnings are real or a result of earnings management. Kasznik and McNichols (2002) document similar findings than Bartov et al. (2002) but note that market rewards firms who consistently meet earnings forecasts. Other examples of earnings management induced by capital market motivations are management buyouts (Perry & Williams 1994; Mao & Renneboog 2015), seasoned equity offerings (Rangan 1998; Cohen & Zarowin 2010) and stock-financed acquisitions (Louis 2004).

Debt covenants and compensation agreements are among the most studied earnings management incentives under contracting motivations. According to the debt covenant hypothesis, managers make accounting choices that reduce the risk of a debt covenant violation because a violation is costly for the borrower. Based on this hypothesis,
Dichev and Skinner (2002) study a large sample of private lending agreements and find strong evidence of earnings management to avoid debt covenant violation, and this holds especially for the initial violations since the cost is higher than with the subsequent violations. Several studies make similar findings, such as Franz et al. (2014), who find that firms close to violation engage in earnings management activities and that this is especially pronounced for firms with poor ratings and who fail to meet analysts’ forecasts.

Healy’s (1985) popular study on bonus plans and earnings thresholds lays in turn the foundation for studying compensation agreement motives. Healy’s bonus plan hypothesis suggests that managers engage in different earnings management patterns based on whether the reported income is below the lower bound (take a bath or income-decreasing), between the lower and upper bound (income-increasing) or over the upper bound (income-decreasing). However, later studies have questioned some of the findings by Healy. Holthausen et al. (1995) find evidence for the income-decreasing earnings management when the maximum bonus is reached (upper bound) but not for the income-decreasing earnings management when earnings are below the minimum to receive a bonus. Gaver et al. (1995) use discretionary accruals instead of total accruals that Healy (1985) used, and find that earnings are managed upwards when the reported income before discretionary accruals falls below the lower bound and vice versa. Further, their findings support income smoothing instead of Healy’s (1985) bonus maximization hypothesis in regards to compensation agreements.

Healy and Wahlen (1999) divide the third category, regulatory motivations, further into two: industry and anti-trust regulations. In regards to industry motivations, they point out that certain industries (especially banking, insurance and utility) face industry-specific regulation which gives them strong incentive to manage earnings. Several studies provide evidence that for example banks close to minimum capital engage in income-increasing earnings management (Collins et al. 1995; Cheng et al. 2011). However, it should be noted that banks and other financial institutions are usually excluded from earnings management studies because of their different reporting requirements. Regarding anti-trust regulations, Jones (1991) finds that firms under investigation for import relief engage in income-decreasing earnings management during the investigation period, and Cahan (1992) documents that firms investigated for monopoly violations use income-decreasing discretionary accruals while being investigated. Another approach to the regulatory motivations is the political cost
hypothesis, first presented by Watts and Zimmerman (1978) as a part of the positive accounting theory. The political cost hypothesis suggests that firm size, import protection or visibility induce earnings management in the form of deferring reported income from current to future periods (Scott 2009:288).

Three important hypotheses arise from the earnings management incentives discussed above. These are bonus plan hypothesis, debt covenant hypothesis and political cost hypothesis and they all represent the opportunistic perspective of positive accounting theory. Debt covenant hypothesis is generally associated with income-increasing earnings management, whereas political cost hypothesis is associated with income-decreasing earnings management. Leverage and firm size are therefore important determinants of earnings management. Finally, although the studies discussed in this section revolve mostly around public firms with incentives related to capital markets, several studies have documented the presence of earnings management in private firms. These will be reviewed in more detail in section 4.1.

2.5 Detecting methods

The challenge in detecting any type of earnings management is that it tends to be invisible and cannot be detected directly from the financial statements (Spohr 2005b:14). Various methods have therefore evolved to detect unusual earnings patterns or to separate the discretionary component of earnings. The most popular research design in the earnings management literature is the aggregate accrual approach. Other common research designs are specific accruals and distribution of earnings. (McNichols 2000) In the following, the emphasis will be on the aggregate accrual approach as it is also applied in the empirical section. The other methods will be briefly discussed later.

2.5.1 Total accruals in aggregate accrual models

To begin with, accruals are needed to measure firm performance over finite intervals and to solve timing discrepancy between cash flows and accounting recognition of revenue (Dechow 1994). However, given the discretion allowed under GAAP discussed earlier, certain accruals are easy to manipulate. Aggregate accrual models therefore seek to identify these accruals. Determining total accruals is the first step in all aggregate accrual models. Total accruals consist of three components: 1) non-discretionary (normal) accruals that result from normal operations in a given period, 2)
discretionary (abnormal) accruals, and 3) reversals of accruals from previous periods (Ronen & Yaari 2008:373). The aggregate accrual models focus on the first two, whereas the reversals are usually left out. Regarding reversals, Scott (2009:403) refers to the “iron law” of accruals: they always reverse. As Jones (1991) points out, the sum of earnings over all years must equal the sum of cash flows, and any excessive accruals have to eventually be reversed.

Total accruals can be estimated either through the balance sheet or the cash flow approach. Most aggregate accrual models use the balance sheet approach in which total accruals are calculated as the change in non-cash working capital accounts minus depreciation and amortization. However, Hribar and Collins (2002) find this approach to cause errors in accrual estimates. As Hribar and Collins further elaborate, certain non-operating events, such as mergers and acquisitions, divestitures, and foreign currency translations, impact the current asset and liability accounts with no earnings impact. Thus, they erroneously show as working capital accruals under the balance sheet approach and distort the estimation of accruals. To prevent this, Hribar and Collins present a model of total accruals that are not affected by the non-operating events. Following this model, Callao and Jarne (2010:167) present a more simplified version of total accruals with the balance sheet approach, where the variations are calculated with respect to the prior year:

\[ TACC_t = \Delta Receivables_t + \Delta Inventories_t - \Delta Payables_t - DEP_t \]

where \( TACC \) is total accruals; \( \Delta Receivables \) is change in accounts receivable; \( \Delta Inventories \) is change in stocks; \( \Delta Payables \) is change in accounts payable; \( DEP \) is depreciation and amortization expense; \( i \) is firm index; and \( t \) is period index.

In turn, the cash flow approach takes its values directly from the statement of cash flows and the recommended model looks as follows (Hribar & Collins 2002:109):

\[ TACC_{cf} = EBXI - CFO_{cf} \]

where \( TACC_{cf} \) is the total accrual adjustments provided on the cash flow statement under the indirect method; \( EBXI \) is earnings before extraordinary items and discontinued operations; and \( CFO_{cf} \) is operating cash flows from continuing operations. This approach is a comprehensive measure of total accruals and takes into account also accruals such as deferred taxes, restructuring charges and special items that are important for certain types of earnings management. Even if Hribar and Collins prefer
the cash flow approach, it may often limit the sample, as for instance in Finland only public and large private firms\(^4\) have to file a cash flow statement. \((\text{Hribar & Collins 2002})\)

### 2.5.2 Discretionary accruals with aggregate accrual models

After the total accruals have been estimated, the next step is to estimate the discretionary accruals. By construction, discretionary accruals \((DACC)\) are what are left when normal accruals \((NACC)\) are deducted from total accruals: \(DACC = TACC - NACC\) \((\text{Walker 2013})\). Thus, several studies attempt to estimate discretionary accruals by first identifying normal accruals, such as the popular model by Jones \((1991)\). Other approach is to estimate total accruals \((TACC)\) which for instance Healy \((1985)\) equates to discretionary accruals \((TACC = DACC)\). Healy’s \((1985)\) model is one of the earliest methodologies to estimate discretionary accruals. The cross-sectional model by Healy is based on the idea that in the long-run, total accruals hover around an average. Consequently, discretionary accruals are those that differ from this long-run average of total accruals \((DACC = TACC - NACC)\). The model also predicts that earnings are managed in all periods.

Where Healy \((1985)\) uses total accruals to measure discretionary accruals, DeAngelo \((1986)\) use the change in total accruals. More specifically, DeAngelo’s model estimates discretionary accruals by calculating current period’s normal accruals as last period’s total accruals deflated by lagged assets. Thus, all changes in accruals are interpreted as discretionary. DeAngelo’s model is better suited for small samples and when there is not enough data for a time-series study, or when the cross-sectional approach is not appropriate \((\text{Sundgren 2007:44})\).

The models by Healy \((1985)\) and DeAngelo \((1986)\) preceded the Jones \((1991)\) model, also known as the standard Jones model, which Ronen and Yaari \((2008:389)\) name as the milestone of all detecting methods. Jones’s model is a two-stage time-series study, where the first stage is the estimation period and the second is the test (event) period. Normal accruals are defined in the estimation period \(t\) as follows \((\text{Jones 1991:211})\):

\[^{4}\text{According to \text{c.3 s.1 in the Finnish Accounting Act (1336/1997)}, large companies must file cash flow statements. Large company is defined in \text{c.1 s.4c as exceeding at least two of the following three thresholds at the balance sheet date of the previous financial year and the one immediately preceding it: 1) total assets 20 million euros; 2) net turnover 40 million euros; 3) average number of employees during the financial year 250. In turn, all public companies have to apply IFRS which requires a cash flow statement.}\]
\[
\frac{NACC_{it}}{TA_{it-1}} = \alpha_i \frac{1}{TA_{it-1}} + \beta_{1i} \frac{\Delta REV_{it}}{TA_{it-1}} + \beta_{2i} \frac{PPE_{it}}{TA_{it-1}} + \epsilon_{it}
\]

where \( NACC \) is normal accruals; \( TA_{it-1} \) is lagged total assets; \( \Delta REV \) is change in sales; \( PPE \) is gross property, plant and equipment; \( \epsilon \) is error term; \( i \) is firm index; and \( t \) is period index. The right-hand variables above are also expected to explain total accruals.

In the second stage of the study, the estimates of coefficients \( \alpha_i, \beta_i \) and \( \beta_2 \) from the first equation are plugged into the equation above, and the residual (total accruals minus normal accruals) equals discretionary accruals (Jones 1991). Thus, unlike Healy (1985) and DeAngelo (1986), Jones’s model does not assume non-discretionary accruals to be constant from period to period. However, Ronen and Yaari (2008:411) mention two shortcomings in the standard Jones’s model: it requires long time-series of data and a large sample, which are not always available. Besides, the model assumes that firms do not manage earnings during the estimation period, which may contaminate the tests.

After the Jones’s (1991) model, several improvements have been presented. Probably the most popular is the model by Dechow et al. (1995), known as the modified Jones model. The standard Jones model assumes that revenues are non-discretionary, thus the only adjustment in the modified Jones model is in the test period regarding sales: the estimated parameter \( \beta_i \) is multiplied with change in revenue minus change in accounts receivable \( \left( \frac{\Delta REV_{it} - \Delta AR_{it}}{TA_{it-1}} \right) \) (Dechow et al. 1995:199). However, for instance Seidman (2010) uses the standard Jones model to estimate discretionary accruals since according to her, the modified Jones model causes errors in accrual estimates in times of earnings growth or decline. Secondly, Ronen and Yaari (2008:434) point out the inconsistency in the model due to the normal accruals being applied differently in the two stages. Also Stubben (2010) notes that the standard Jones model exhibits better specification than the modified Jones model.

Other improvements to the Jones model include forward-looking discretionary accruals by Dechow et al. (2003), Jones model on cross-sectional data by DeFond and Jiambalvo (1994) and performance matching by industry and return on assets (ROA) by Kothari et al. (2005). The forward-looking model improves the modified Jones model in three ways: 1) it separates normal accruals from discretionary accruals in credit sales also in the test period, 2) controls for lagged accruals, and 3) controls for growth in sales (Dechow et al. 2003). The cross-sectional model (DeFond & Jiambalvo 1994) uses industry- and year-specific data in the estimation period and matched data
from all firms in the test period. The performance matching model by Kothari et al. (2005) involves matching each firm-year with another firm-year with same two-digit industry code and closest ROA, and then compares the discretionary accruals of these matched firms without the need to use linear regression. Alternatively, Kothari et al. add an intercept and ROA as an additional control for the Jones’ models, which improves the test of discretionary accruals. Since this model provides stronger results than the Jones (1991) model, it has become popular (Ronen & Yaari 2008:446).

Another modification of the standard Jones model is the one-stage model by Dechow et al. (2012), where total accruals are directly regressed on controls for non-discretionary accruals and on a dummy variable for the period(s) in which the hypothesized earnings management is present. The discretionary accruals are thus not computed separately as in the other aggregate accrual models. The model is particularly suited when the period(s) in which earnings management occurs can be correctly identified.

2.5.3 Alternative models and problems with the aggregated accruals

Although the aggregate accruals have long been the most popular approach, they have received plenty of criticism. For instance McNichols (2000) questions the extensive use of aggregate accruals in earnings management studies. According to McNichols, the specific accrual approach allows for better understanding of the non-discretionary component because GAAP provides knowledge about the account’s fundamentals with no earnings management and an improved understanding of how accruals are managed. Besides, the specific accruals, such as write-offs and bad debts, are usually ones that allow managerial discretion within GAAP and have a significant impact on earnings (Ronen & Yaari 2008:450). Regarding the distributional approach, McNichols notes that it, among other things, offers more accurate predictions of earnings caused by discretionary actions. The distributional approach assumes a Gaussian distribution of unmanaged earnings, where deviation from this distribution proxies for earnings management (Ronen & Yaari 2008:454).

Lopez et al. (1998) also note that the single discretionary accrual or account approach usually detects earnings management with less noise. However, the authors note that the effect of single items on total earnings is usually very small and managers tend to make decisions on wide range of accruals. Still, they conclude that the aggregate approach may be too inclusive. Thus, the authors select a portfolio of discretionary current accruals which have a direct impact on their research object (taxable income).
In addition to McNichols (2000) and Lopez et al. (1998), numerous other studies discuss the problems with the aggregate accrual models. Bernard and Skinner (1996) question the standard Jones model’s ability to separate between discretionary and non-discretionary accruals. They conclude that the model systematically misclassifies some non-discretionary accruals as discretionary, and that this applies especially to all working-capital accruals which are not linear to changes in sales. Bernard and Skinner use the study by Subramanyan (1996) as an example, where the misclassification not only causes noise to the results but significantly alters the conclusions. They find this to be even more pronounced when Subramanyan uses the Jones model with firm-specific time-series data instead of the cross-sectional model. As a solution, Bernard and Skinner suggest modeling industry-specific accruals or single account accruals, as suggested by McNichols too. Alternatively, they suggest using tools from financial statement analysis to improve accrual modeling.

Guay et al. (1996) examine five popular discretionary accrual models (Healy 1985, DeAngelo 1986, standard Jones 1991, modified Jones 1995 and industry model by Dechow & Sloan 1991). First they test whether the simple regression of returns on discretionary accruals are consistent with firm performance, opportunism and noise hypothesis. The authors find that only the standard Jones and modified Jones identify discretionary accruals resulting from performance-improving or management opportunism. However, the multivariate regression results show that all five models estimate discretionary accruals with considerable imprecision and/or misspecification. The imprecision is even more pronounced regarding the models by Healy (1985) and DeAngelo (1986) and the industry model, when the authors compare the models against a model that randomly decomposes accruals into discretionary and non-discretionary. To overcome these problems, Guay et al. suggest that models should take into account managers’ incentives and recognize reversals of discretionary accruals when identifying discretionary accruals.

To conclude, it is evident that better specified proxies are needed to detect earnings management. Thus, to overcome the problems with the aggregate accrual models, several studies have also explored BTDs as an alternative proxy. In fact, these studies find that BTDs outperform aggregate accrual models in detecting earnings management. The next chapter will therefore focus on this rather new approach in earnings management literature.
3 BOOK-TAX DIFFERENCES

BTDs arise from the economic events that are recorded differently for financial accounting ("book") and tax income purposes. These differences arise because book income is determined according to a given standard, such as GAAP, but tax income is computed using the applicable tax laws and rules. The fundamental difference between these two is that GAAP, with its principle of prudence, aims to prevent overstatement of income and assets to protect creditors, whereas tax accounting has a fiscal objective and seeks to prevent understatement of income (Moore 2012:256; Myrsky & Malmgrén 2014:64).

Another difference between GAAP and tax laws is that GAAP allows considerably more discretion in the choice of accounting procedure than tax laws (Watts & Zimmerman 1986:215). Managers may for example use the flexibility in GAAP to determine the amount of revenue and expense to be recognized in a given period, select the accounting method for cost amortization and asset valuation, and use judgement over reserve allowances (Mills & Newberry 2001:3; Manzon & Plesko 2002:179). Hence, when managers opportunistically use this discretion under GAAP, it often creates BTDs which in turn can be used to proxy for earnings management.

3.1 Temporary and permanent differences

BTDs are either temporary or permanent. Temporary differences, or timing differences, are differences between book and tax income that subsequently reverse. They arise from differences in recognition rules regarding timing of income and expense items between GAAP and tax law, but also from the greater flexibility GAAP allows. Under GAAP, revenue is recognised when earned (revenue recognition principle), whereas tax law generally follows cash basis. Consequently, a firm may have deferred revenue accrued in its books which is not shown in its taxable income. In regards to expense items, under GAAP expenses are recognised in the accounting period in which they are incurred or matched against related revenue (matching principle). In turn, recording expenses for tax purposes has stricter terms, which gives less room for managerial discretion. (Hanlon 2005:141)

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5 The principle of prudence requires that expenses and liabilities are recorded when they are probable, whereas revenue is recorded only when it is certain. Conservatism is to be applied in recording the amount of assets, and liabilities should not be underestimated. (Fourth Council Directive 78/660/EEC art. 31)
Depreciations are a common cause for temporary differences. A firm may choose to use straight-line-method for book purposes which spreads the amortization cost evenly over the assets life, whereas for tax purposes another method, such as the accelerated method, may be applied (Sonnier et al. 2012:60). Thus, in the early years of the life of an asset, the expense recorded for tax purposes exceeds that recorded for book purposes which creates a negative temporary difference. This is later offset by a positive temporary difference when the book amortization exceeds the tax amortization.

Other examples causing temporary differences are warranty expenses and bad debts. Warranty expenses are accrued in the accounting period of a sale and are based on an estimate of the history of actual warranty costs. This follows the matching principle under GAAP. For tax purposes the cost can be deducted only when the warranty cost is actually paid. In turn, bad debt expense accrual is usually estimated based on the amount of accounts receivable that will not be collected, but for tax purposes the expense is deductible once they actually become uncollectible. (Sonnier et al. 2012:60-61) In Finland, the Business Tax Act allows some exceptions to these main rules. For instance, construction, shipbuilding and metal industries may deduct warranty accruals already when recorded within limits specified in section 47 in the Business Tax Act (360/1968). Furthermore, deposit banks and credit institutions may deduct a bad debt expense accrual up to 0,6 percent of total receivables (Business Tax Act 360/1968 s.46).

In the financial statements, temporary differences are recorded as deferred tax assets and/or liabilities. Deferred tax expense, on the other hand, reflects temporary differences associated with the income statement. Deferred tax expense usually equals the change in the deferred tax liabilities but differences are common due to items that only affect the tax accounts on the balance sheet (Phillips et al. 2003:496). Several U.S.-based studies use deferred tax expense as either proxy for earnings management or as a basis for estimating taxable income. However, in Finland deferred tax assets and liabilities can be reported either in the income statement and the balance sheet on a prudent basis (Accounting Act 1336/1997 c.5 s.18) or in the notes for income taxes provided that they are material (Accounting Ordinance 1339/1997 c.2 s.6.1). Thus, they cannot be utilized in the same manner as in the studies using U.S. data.

Unlike temporary differences, permanent differences never reverse. Permanent differences arise from economic events that are recorded in the financial statements but have no tax consequences, or vice versa. Examples of permanent differences are fines
or penalties, life insurance profits and 50 percent of meals and entertainment expenses\textsuperscript{6} under IRC. (Sonnier et al. 2012:60) Although permanent differences are generally associated with tax planning rather than pre-tax accrual management (Frank et al. 2009), certain accruals can be also managed causing permanent differences. Lev and Nissim (2004) review such studies and list three examples where goodwill amortization expense may cause a permanent difference: through the assets initial valuation, by the amortization period and by write-offs or impairment charges. As goodwill amortization expense often constitutes an economically significant amount, permanent differences resulting from these examples may be large.

Although earnings management can create both temporary and permanent differences, studies usually focus only on one of them. For example Hanlon (2005) concentrates only on the temporary BTDs and leaves the permanent differences out of her analysis since they are very difficult to measure. According to her, excluding the permanent differences is also the preferred treatment in the financial accounting textbooks.

### 3.2 Measuring earnings management with BTDs

It is important to note that BTDs can reflect several aspects, of which only part is related to earnings management. According to Badertscher et al. (2009), such other aspects are tax planning, non-discretionary book-tax rule differences and other information about firms’ economic activities. Thus, the authors note that measuring non-conforming earnings management with BTDs may contain measurement errors, like do all earnings management proxies as well. Non-conforming earnings management relates to transactions that have no current taxable income consequence and are fundamentally equivalent to total BTDs. In contrast, conforming earnings management does not create BTDs. (Badertscher et al. 2009)

Accordingly, Hanlon and Heitzman (2010) emphasize the importance of selecting the appropriate measure of BTD. As an example, they propose temporary differences to be the most appropriate measure in studying pre-tax accrual quality. Hanlon and Heitzman further note that total BTDs tend to be a noisy proxy and can easily lead to overinterpretation. In addition to these, prior literature shows a wide variety of different BTD measures which will be reviewed next. Subsequently, the different methods to infer taxable income are discussed.

\textsuperscript{6} In Finland, 50% of representation expenses (Business Tax Act 360/1968 s.8.8). However, representation expenses were in 2014 temporarily 100 percent non-deductible (Helsinki Chamber 2015).
3.2.1 Different BTD measures

Total BTDs consists of temporary and permanent differences and tax accruals. Only few studies use total BTDs without either disaggregating it or studying other components alongside with it. According to Hanlon & Heitzman (2010:132), the reasoning for this is that total BTDs usually contain temporary differences that are not really BTDs and/or permanent differences not related to any accounting accrual. However, they note that total BTDs may be useful in certain research settings, for example how market participants use the information contained in BTDs. For instance, Lev and Nissim (2004) find that total BTDs predict earnings growth for up to five years ahead, whereas Hanlon’s (2005) model based on temporary differences predicts only one-year-ahead earnings. Also Badertscher et al. (2009) apply total BTDs in their study to predict earnings restatements and to detect upward earnings management.

Temporary BTDs reveal information about the discretionary accruals which are commonly used to manage earnings. Popular studies by Hanlon (2005) and Blaylock et al. (2012) use temporary differences as a measure. Phillips et al. (2003) point out that the type of accruals (accounts receivable, wages payable, accounts payable) that are less subject to managerial discretion, do not create BTDs, which further advocates the usefulness of temporary BTDs. Hence, they argue that temporary differences allow the researcher to separate discretion from non-discretion. In many U.S.-based studies, deferred tax expense is used as equivalent for temporary BTDs. Deferred tax expense reflects the temporary differences that arise mainly from accruals for revenue and expense items recognised in different periods between book and taxable income and thus, excludes earnings management resulting in permanent differences (Phillips et al. 2003).

As noted earlier, permanent differences are usually not studied separately since they are not related to pre-tax accrual management but rather to tax planning. Still, permanent differences are a useful measure when distinguishing between aggressive tax reporting (permanent differences) and aggressive financial reporting (temporary differences), as in the study by Frank et al. (2009). However, the literature does not seem to be in agreement when it comes to permanent differences as they are also used to measure aggressive financial reporting (Wahab & Holland 2015).

Disaggregated BTDs are used as a measure to increase the informative value of temporary or total BTDs. Some researchers have hand-collected data from the tax
footnotes to better understand the individual BTDs (Guenther 2011; Raedy et al. 2011; Wahab & Holland 2015). Raedy et al. (2011) disaggregate total BTDs into 41 individual differences as specified in the financial statements, but in comparison with total BTDs, they do not find any specific incremental information content in them that would be reflected in current stock returns. Some studies disaggregate total BTDs more broadly into temporary and permanent differences. Jackson (2015) finds that temporary differences, identified by deferred tax expense, predict declines in future pre-tax earnings while permanent differences predict increases in future tax expense.

Tang and Firth (2011) develop a model where they distinguish between normal and abnormal BTDs. According to the authors, normal BTDs arise from differences in GAAP and local tax law, and abnormal BTDs are explained by earnings management (on book income) and tax management (on taxable income). They call normal differences as regulatory and abnormal differences as opportunistic component of BTD. The authors conclude that only abnormal BTDs can be used to study earnings management and tax management; using total BTDs as a proxy may exaggerate them.

On the other hand, Desai and Dharmapala (2006) use abnormal BTDs to examine tax sheltering decisions. They create a model of abnormal BTDs to measure corporate tax avoidance, where total BTDs are regressed on total accruals. Total accruals control for earnings management activity and the residual is identified as tax sheltering. However, Desai and Dharmapala assume that total BTDs are simply a result of earnings management and tax management and unlike Tang and Firth, do not take into account other factors.

Seidman (2010) uses a more detailed approach to measure BTDs by discerning between adjusted and unadjusted BTD. Her aim is to find out whether extraneous factors – GAAP changes, tax law changes and macroeconomic conditions – weaken the (temporary) BTD as a proxy for either earnings management or tax sheltering and if so, adjusting for these improves the proxy. By replicating the previous study by Hanlon (2005), Seidman finds that unadjusted BTD works as a reasonable proxy for earnings management. In other words, adjusting it for the extraneous factors does not improve the proxy. The author finds, however, that the BTD is even better proxy for tax sheltering, than that of earnings management, when adjusted for GAAP changes.

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7 Broadly speaking, tax sheltering, tax planning and tax management are used interchangeable to depict managements' reporting discretion in determining taxable income.
Ayers et al. (2010) note that the appeal to study earnings quality with BTDs is in its simplicity: it’s a firm- and period-specific measure and does not require time-series data. Nonetheless, some more recent studies have begun to use time-series variability in BTDs alongside levels of BTDs to examine various earnings quality subjects (cost of capital: Dhaliwal et al. 2008; firm’s credit risk: Ayers et al. 2010; institutional ownership: Moore 2012; persistence of BTDs: Wahab & Holland 2015). This approach aims to more fully capture all the information that is contained in BTDs. Dhaliwal et al. (2008) even find that the variability in BTDs over five or six years is significantly related to cost of equity capital, whereas current year’s level and absolute value of BTD are not. When they use data for less than five years, then the absolute value of BTD is a better measure for cost of capital.

It can be concluded that a wide range of more specified measures of BTDs have emerged and the most appropriate measure is often context-dependent. Nevertheless, temporary differences are the most commonly used measure and there is mixed evidence whether more specified measures of BTDs improve the proxy.

### 3.2.2 Income-effect and tax-effect BTD

To infer BTD, studies use either income-effect or tax-effect BTDs. Income-effect BTD is computed either by subtracting taxable income from book income or by summing temporary and permanent differences. Tax-effect BTD is calculated as prima facie income tax expense (book income multiplied by the statutory tax rate) minus current tax expense. (Tang & Firth 2011:181-182)

Most of the studies discussed in chapters three and four are U.S-based and use the income-effect BTD. In order to apply the income-effect BTD, taxable income is estimated based on financial statement data because the tax return data is not publicly available. To estimate the taxable income, the current tax expense is grossed up by the statutory tax rate (Manzon & Plesko 2002) and in the refined model by Hanlon et al. (2005), the changes in NOL carryforwards are also taken into account. However, Hanlon (2003) and Wahab and Holland (2015) point out the deficiencies contained in these estimates of taxable income. Hanlon (2003) identifies three following main problem areas. The first is related to the current tax expense which can be distorted for example by stock option accounting and thus, does not represent the actual tax liability of a firm. Secondly, even if the current tax expense correctly represents the actual tax liability, the grossing up may cause the estimated taxable income to be incorrect due to
for example tax credits. Third, the BTDs due to differing consolidation rules between book and taxable income are usually not disclosed and can thus not be accounted for.

Wahab and Holland (2015) also define three sources of errors which may exist in the estimates of taxable income in the U.S. studies. These are: 1) conforming differences (transactions that do not create BTDs), 2) R&D tax credits, and 3) different tax rates between domestic and foreign operations. The first is assumed to be higher for private companies because they do not face the same market expectations than public companies. The second is only possible to detect for public companies using their IAS 12 tax reconciliation data, and the third can be reduced with specific calculations.

Not surprisingly, Tang and Firth (2011) find tax-effect BTDs to be significantly better proxy for both earnings management and tax management. However, the measurement errors contained in the income-effect BTDs are mostly due to the fact that the taxable income is estimated based on financial statement data, not on actual taxable income retrieved from tax filings. Thus, the income-effect BTDs may still be a better proxy when the actual tax return data is available.

3.3 Finnish context on BTDs

This section focuses on BTDs in the Finnish context. BTDs are generally country-specific because especially the tax laws vary greatly from country to country. However, as the aim of this study is more on the conceptual level of the BTDs as a proxy, the Finnish regulation will be reviewed on a general level only.

3.3.1 Legislation on determining taxable income

A special feature in the taxation of Finnish limited companies is the division of income sources into business, agricultural and other operations. Respectively, these sources are regulated under separate laws: Business Tax Act (360/1968), Income Tax Act of Agriculture and Forestry (543/1967) and Income Tax Act (1535/1992). This separation matters especially in the treatment of losses: a loss can only be offset within the same income source. There are also some minor differences in computing the taxable net income within each source. In principle, a limited company may have income from all of these sources but the vast majority only have business income. (Myrsky & Malmgren 2014:41-42) Thus, the emphasis in this section will be on the business income taxation.
The Finnish Business Tax Act (360/1968) and the Accounting Act (1336/1997) are both based on the expense and revenue theory which consists of two main principles: realization principle and matching principle. Under the realization principle, revenue is accrued to the accounting period in which it is realized, whereas matching principle means that expenses are recognized either when incurred or accrued to match against related revenue. A typical example of matching principle is depreciation of fixed assets: amortization expense is accrued over the economic life of an asset in which it generates revenue. (Myrsky & Malmgrén 2014:50)

Although the link between accounting and taxation is strong in Finland, the four problems of financial accounting—scope, periodicity, valuation and allocation—need to be addressed separately when determining taxable income. The problem of scope refers to determining which items are subject to tax and which not, and which items are deductible for tax purposes. The problem of periodicity is usually solved with realization and matching principles: how revenue subject to tax and deductible expenses are accrued to the tax year\(^8\). The problem of valuation is to be considered for example with fair values, and the allocation problem relates to defining the income source for revenue and expenses. (Myrsky & Malmgrén 2014:51-55)

### 3.3.2 From book income to taxable income

In contrast to most of the BTD studies that have been made in U.S. setting\(^9\), the starting point for determining taxable income in Finland is book income. Hence, there are no separate reports for book and tax purposes. Book income is computed according to the Accounting Act (1336/1997) with the aim of giving a true and fair view of the company’s operations and financial positions (c.3 s.2), whereas the tax laws aim at defining the taxable income. Nonetheless, section 54 in the Business Tax Act (360/1968) ties taxable income closely to book income: 1) income can be distributed over several years, and 2) acquisition cost and reserves of inventories and investment assets may be deducted only if the corresponding entries have been made in financial accounting. Thus, the accounting treatment has a great influence on accruals in taxation. The purpose of the regulation is to limit the discretionary scope of defining the annual profit for tax

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\(^8\) Tax year in Finland is the calendar year in which there is an end date of an accounting period (Tax Procedure Act 1558/1995 s.3.2).

\(^9\) In the U.S., firms prepare two separate reports of firm performance: one according to GAAP for financial purposes and one according to IRC for tax purposes (Manzon & Plesko 2002).
purposes. In other words, it aims to limit the possibility of not showing taxable income but still reporting and distributing book profit. (Myrsky & Malmgrén 2014)

Consequently, computing the taxable income is more of an adjustment calculation of book income, where the aforementioned problems are to be solved from taxation point of view. The calculation can be presented as follows (Myrsky & Malmgrén 2014:64-65):

\[
\text{Book income} \\
\text{+ Income subject to tax not included in the book income (1)} \\
\text{- Income exempt from taxation included in the book income (2)} \\
\text{+ Non-deductible expenses included in the book income (3)} \\
\text{- Deductible expenses not included in the book income (4)} \\
\text{=} \text{ Tax-year’s earnings} \\
\text{=} \text{ Losses from previous tax-years} \\
\text{=} \text{ Taxable Income}
\]

In regards to the losses from previous tax-years, the Income Tax Act (1535/1992 s.119-120) states that a tax loss can be carried forward for 10 subsequent years and claimed from income during those years. For (1) – (4), Table 1 on the next page presents a non-exhaustive list of the BTDs according to the above categories and the type of BTD (temporary or permanent). Many of the differences shown in Table 1 are more mechanical rather than actual means for earnings management, as for instance permanent differences in the third category. The most likely category to be used in tax management is the temporary differences in the second and third category.

In Finland, depreciations are the leading cause of BTDs and the depreciation system allows a significant amount of flexibility for managing the taxable income. Section 54.2 in the Business Tax Act (360/1968) only sets boundaries for maximum depreciation: it is not allowed to record expenses greater than what has been recorded prior and during the tax-year in the financial accounting. Thus, a firm may choose to defer the depreciation made in its books either partially or entirely for tax purposes, which increases taxable income relative to book income. Later, the deferred depreciation, or unused tax depreciation, can be deducted for tax purposes within the maximum limits for depreciation which are set according to asset category in the Business Tax Act (360/1968). (Myrsky & Malmgrén 2014:69-70) Consequently, unused tax depreciation is an efficient way to manage taxable income downwards non-conformingly by reversing the maximum amount of unused tax depreciation. The unused tax depreciation is, however, not visible in the financial accounting but is a separate and undisclosed tax item (Tax Administration 2017).
Table 1  Permanent and temporary differences in Finland

<table>
<thead>
<tr>
<th>PERMANENT DIFFERENCES</th>
<th>TEMPORARY DIFFERENCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income subject to tax not included in the book income (1)</td>
<td>- Foreign currency translation gains not included in the book income</td>
</tr>
<tr>
<td>- Share of taxable income from general or limited partnership firm</td>
<td>- Option premium in the year of issuing option</td>
</tr>
<tr>
<td>- Hidden distribution of dividends</td>
<td></td>
</tr>
<tr>
<td>- Controlled foreign corporation (CFC) income</td>
<td></td>
</tr>
<tr>
<td>Income exempt from taxation included in the book income (2)</td>
<td>- Option premium in the expiration year of the option</td>
</tr>
<tr>
<td>- Profit from assignment of tax-exempt shares</td>
<td>- Sales profit of movable fixed assets (Business Tax Act 360/1968 s.6 b)</td>
</tr>
<tr>
<td>- Tax-exempt dividends</td>
<td>- Deducting unused tax depreciation previously deducted in financial accounting</td>
</tr>
<tr>
<td>- Tax refund and related interest, and other interests from the Tax Administration</td>
<td></td>
</tr>
<tr>
<td>- Dividends from foreign direct investment</td>
<td></td>
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<tr>
<td>- Merger profit</td>
<td></td>
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<tr>
<td>- Share of profits from general or limited partnership firm</td>
<td></td>
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<tr>
<td>- 25% tax-exempt part of hidden distribution of dividends</td>
<td></td>
</tr>
<tr>
<td>Non-deductible expenses included in the book income (3)</td>
<td></td>
</tr>
<tr>
<td>- Direct taxes</td>
<td>- Unused tax depreciation in financial accounting</td>
</tr>
<tr>
<td>- Late penalty charges on taxes</td>
<td>- Sales loss of movable fixed assets</td>
</tr>
<tr>
<td>- Expenses relating to tax-exempt income</td>
<td>- Obligatory provisions and preliminary expenses deducted in financial accounting not deducted for tax purposes in the same year</td>
</tr>
<tr>
<td>- Loss from assignment of tax-exempt shares</td>
<td>- Expenses recorded as annual cost in financial accounting but accrued over several tax years</td>
</tr>
<tr>
<td>- Non-deductible obligatory provisions</td>
<td>- R&amp;D expenses according to section 25 in the Business Tax Act (360/1968) deducted in financial accounting but not deducted for tax purposes in the same year</td>
</tr>
<tr>
<td>- Non-deductible value adjustments of shares</td>
<td></td>
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<tr>
<td>- Non-deductible donations and dues</td>
<td></td>
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<tr>
<td>- Depreciation of capital lease assets in financial accounting (leasing rents for capital lease are deductible for tax purposes)</td>
<td></td>
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<tr>
<td>- Merger loss</td>
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<td>- 50% of representation expenses</td>
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<tr>
<td>- Fines and penalties</td>
<td></td>
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<tr>
<td>Deductible expenses not included in the book income (4)</td>
<td></td>
</tr>
<tr>
<td>- Additional deduction on R&amp;D activities in 2013–2015 (Act 992/2012)</td>
<td></td>
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<tr>
<td>- Education deduction as of 2014 (Business Tax Act 360/1968 s.56)</td>
<td></td>
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<tr>
<td>- Leasing rent for capital lease</td>
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</tbody>
</table>


To conclude, there are number of sources for BTDs also in Finland and at least some of them allow for managerial discretion. However, due to the stronger link between accounting and taxation, it can be assumed that BTDs are generally smaller in Finland.

3.4 Book-tax conformity

It is essential to understand how the book-tax conformity setting affects this study, although it is not applied in the empirical tests. Book-tax conformity, or book-tax
alignment, represents the legal link between financial reporting and corporate taxation. Atwood et al. (2010:114) define it as follows: “the extent to which managers are allowed to report accounting earnings that differ from taxable income”. In practice, high book-tax conformity means that book earnings are used as a basis when computing taxable income, as earlier noted in the Finnish context on BTDs. In contrast, low book-tax conformity means that there is a dual reporting system and large differences between book earnings and taxable income are allowed. In general, the continental Europe-Japan accounting cluster is associated with high book-tax conformity, whereas the low book-tax conformity countries are typically from the British-American accounting cluster, such as U.S., UK, Australia and Canada (Ali & Hwang 2000). The level of book-tax conformity, however, differs depending on the applied conformity measure.

Worldwide, but especially in the U.S., there is an on-going debate of the optimal level of book-tax conformity. The current alignment level in the U.S. is low as opposed to Finland, where the book-tax alignment is high. Opponents in the U.S. debate present evidence of information loss (Hanlon et al. 2005) and lower earnings quality (Atwood et al. 2010) with increased levels of book-tax conformity, whereas proponents argue that higher alignment would improve earnings quality by reducing aggressive financial reporting and thus decrease earnings management (Desai 2005; Whitaker 2005).

In international setting, there are several studies examining the link between earnings management and book-tax conformity, but there are significant differences in the findings. All of the studies discussed next include also Finland as one of the countries. Tang (2015) studies firms across 32 countries and develops a country-specific conformity measure, where she divides BTDs into rule differences and opportunistic book and tax reporting. Earnings management (opportunistic book reporting), both upwards and downwards, is measured using several measures. The author finds that high conformity is associated with less earnings management even after controlling for various factors, and that it is even more pronounced in code law countries. The findings are thus in line with the propositions by Desai (2005) and Whitaker (2005).

In contrast to Tang’s (2015) findings, several studies present evidence on high conformity being related to more earnings management. Blaylock et al. (2015) study firms across 34 countries and use continuous conformity measure developed by

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10 Legal systems are divided into common (case) law and code (civil) law. U.S., UK, Canada and Australia are examples of common law countries, and Central Europe including Finland and Japan are code law countries. The legal system is often parallel to the level of book-tax conformity. (Troberg 2013:16-17)
Atwood et al. (2010), which is a powerful test on the relation between earnings management and book-tax conformity. They find that higher conformity is related to significantly more earnings management, not less. The authors also find a similar link between earnings management and legal enforcement than Leuz et al. (2003), who examine systematic earnings management differences across 31 countries. Leuz et al. find that firms in countries with more concentrated ownership, weak investor protection and less developed stock markets exhibit higher levels of earnings management. However, they find no significant relation between the level of book-tax conformity and earnings management.

Burghstahler et al. (2006) study private and public firms in 13 EU countries and present also evidence that stronger book-tax conformity is associated with higher levels of earnings management, but less so for public firms due to market pressure. To measure earnings management, they use the earnings management index by Leuz et al. (2003) described in section 4.1.1. Further, alike Leuz et al. (2003) and Blaylock et al. (2015), Burghstahler et al. find weaker legal system and enforcement to correlate with more earnings management and this association holds for both private and public firms.

Watrin et al. (2014) study explicitly the effect of book-tax conformity on earnings management in 27 EU countries. They emphasize the importance of studying single financial statements for consolidated statements when measuring book-tax conformity, which they calculate using a similar measure as Atwood et al. (2010) but compute book-tax conformity as permanent differences on a single entity level. The results show that companies in high book-tax conformity exhibit significantly more earnings management in their consolidated statements in terms of absolute discretionary accruals.

In conclusion, there is conflicting evidence on whether increased book-tax conformity is related to less earnings management. However, Blaylock et al. (2015) note that this relation is seldom questioned among academics even if the empirical evidence seems to favour the opposite including both studies in the U.S. and internationally. Tang’s (2015) and Sundvik’s (2017a) (see section 4.2) studies are one of the few empirical studies supporting it. Goncharov and Werner (2009) point out two possible reasons for the mixed evidence: 1) sample selection if single and group accounts are mixed, and 2) omitted variable problem, such as failing to control for differing reporting incentives. Thus, it seems as though the research design plays a key role in the results.


4 PRIOR RESEARCH

This chapter reviews and discusses prior research that is relevant for the research design and that builds upon the theoretical framework laid in the previous chapters. First, prior studies on earnings management in private firms both in Europe and in Finland are discussed because the empirical study focuses on private firms. Next, studies on tax-induced earnings management in regards to responses to CIT rate cuts are reviewed. Finally, prior research on the link between BTDs and earnings management, and the determinants of BTDs, are discussed.

4.1 Earnings management in private firms

Private firm, or private limited company, is the predominant form of company both worldwide (Ball & Shivakumar 2005:84) and in Finland (PRH 2016). Private firms face fairly similar regulation as public firms in regards to filing annual financial statements, auditing and tax laws. This applies especially in the EU, where accounting regulation is based on the legal form and not on listing status. However, the use of accounting information between private and public firms differs considerably. Private firms are less likely to use public financial statements for contracting purposes with outsiders and are more influenced by taxation, retention and dividend policies. Thus, reported earnings as a measure of firm’s performance does not have the same importance for private firms. Consequently, the loss of earnings informativeness when earnings are managed, for example to minimize taxes, is less costly. Further, private firms differ from public firms on being on average smaller, having more concentrated ownership, and having different financing, governance and compensation structures. (Ball & Shivakumar 2005; Burghstahler et al. 2006) It is therefore likely that earnings management differs between public and private firms, which in turn emphasizes the importance of studying earnings management in private firms separately.

4.1.1 In Europe

Most studies on earnings management have focused on public firms. However, since the 2000s, earnings management in private firms have been studied more extensively especially in Europe. In general, many of these studies are focused on comparing private and public firms, and earnings management is usually found to be more pervasive in private firms. For instance Burghstahler et al. (2006) study earnings
management in public and private firms across 13 EU countries. The sample consists of 378,122 firm-year observations between 1997 and 2003. When most previous studies are either country- or industry-specific, or limited to a specific corporate event, Burghstahler et al. extend their study to cover several countries and industries outside any corporate event. They study earnings management by using four different proxies as suggested by Leuz et al. (2003): 1) small loss avoidance, 2) total accruals, 3) earnings smoothing and 4) correlation between accruals and cash flows. The results show that earnings management is more widespread in private firms than in public firms, which supports the idea that capital markets curb earnings management.

Ball and Shivakumar (2005) make rather similar findings as Burghstahler et al. (2006) by studying timely loss recognition as an attribute of financial reporting quality in a large sample of UK public and private firms. The authors use two time-series measures: earnings- and accrual-based. They find that in both measures private firms exhibit lower earnings quality. The results remain robust even after controlling for several variables such as size, leverage and Big Five auditor. Thus, even if private firms are subject to the same accounting and auditing regulation than public firms, the authors conclude that the results reflect the difference in market demand for financial statements.

Coppens and Peek (2005) study eight European countries in non-regulated industries. The countries included in the study are all such were tax rules have a strong influence on accounting, like Finland. They analyse the distributional properties of private firms’ earnings and use public firms’ distributions as a benchmark. Their results show that private firms in six out of eight countries avoid reporting a loss and in two out of eight smooth earnings. Further, they argue that private firms’ earnings smoothing is primarily tax-driven. However, in contrast to public firms, private firms do not manage earnings to avoid earnings decreases in any of the eight countries. Coppens and Peek link this finding to capital market incentives driving earnings decrease avoidance due to the higher importance of earnings as a measure of firm’s performance. Consequently, the authors suggest that private firms’ earnings are less informative of firm’s performance.

Goncharov and Zimmermann (2006) study explicitly tax management in Russian public and private firms in 2001 and 2002. The book-tax alignment was changed in Russia from high to low in 2002. Interestingly, the authors find that private firms’ tax management behaviour is not altered by this tax law change. Besides, they find that
private firms manage earnings downwards to reduce taxes more than public firms, and that it is even more pronounced as the marginal tax rate increases. In accordance with Coppens and Peek (2005), they also find earnings management to be generally lower in public firms due to market pressure driving higher earnings quality. Secondly, public firms’ levels of tax management showed a decrease in 2002 as a result of the lower book-tax alignment, whereas private firms’ did not. Hence, the level of book-tax conformity appears to have lesser impact on private firms’ earnings management.

4.1.2 In Finland

Private firms’ earnings management has also been studied in Finland by several authors. Especially tax-induced earnings management have been examined comprehensively, but this will be covered in the next section. This section focuses on earnings management in Finnish private firms outside any corporate event.

Sundgren (2007) examines whether there is any difference in earnings management behaviour between Finnish private and public firms. The sample consists of 545 firm-year observations of 99 matched public and private firms between 1997 and 2001. Earnings management is measured extensively using three approaches which cover all earnings management types. With the aggregate measure, the author aims to capture the overall impact of earnings management even if a single measure is insignificant. Thus, it may be more efficient in detecting earnings management.

Surprisingly, Sundgren (2007) does not find any significant differences between Finnish public and private firms’ earnings management activities in any of the measures. In regards to accounting policy measure, the results indicate that high-leverage firms, regardless of their listing status, are more likely to engage in income-increasing earnings management. This finding supports the debt covenant hypothesis discussed earlier in section 2.4. However, the sample size in the study is relatively small. Since the amount of public firms in Finland is only 242 (as of Dec 31, 2016), it limits the possibilities to conduct a comprehensive study of matched private and public firms. Nonetheless, Sundgren’s findings are somewhat in line with Burghstahler et al. (2006), whose more detailed results show that out of the 13 EU countries, both the Finnish public and private firms show the lowest level of earnings management among their peer groups. Nonetheless, the aggregate index in the study of Burghstahler et al. shows that private Finnish firms exhibit slightly more earnings management than the Finnish public firms.
Based on the study by Burghstahler et al. (2006)\textsuperscript{11}, Spohr (2005a) examines the effect of information asymmetry on income smoothing in Finnish public and private firms in 1996–2001. Both the modified DeAngelo model and cross-sectional Jones model are used to estimate discretionary accruals. Overall, the author finds that private firms engage more in income smoothing than public firms, but the results question whether income smoothing occurs in Finnish public firms at all. Moreover, the results show that larger firm size decreases earnings smoothing. Thus, smaller private firms are most likely to smooth earnings. These results are in line with Burghstahler et al. (2006) suggesting that the higher information asymmetry and larger firm size of public firms explain the level of earnings smoothing also in Finland.

4.2 Earnings management in response to CIT rate cuts

Most earnings management studies focus on studying a particular corporate event as these provide a strong inventive to manage earnings. Such event is a reduction in CIT rate. CIT rate reductions usually stem from the desire to make a country more attractive to foreign investments and to succeed in the global competition. At the domestic level, the reductions aim at encouraging firms to grow their businesses and thereby to improve employment. These reductions do, however, offer an excellent window of opportunity for firms to save taxes by engaging in intertemporal income shifting: income-decreasing accruals are recognised before the event, followed by income-increasing accruals due to the natural reversal process. (Sundvik 2016a:18, 22)

4.2.1 In the U.S.

The most studied CIT rate cut event is the U.S. Tax Reform Act of 1986 (TRA86), where the tax rate was reduced from 46 percent to 34 percent over a two year transition period, thus providing a strong incentive for firms to accelerate expenses and to defer recognition of revenue prior the tax rate cut. As Guenther (1994:231) demonstrates, deferring one dollar of taxable income to after TRA86 period would equal to earning 22 percent \[1,00 \times (1-0,34) = 1,22 \times (1-0,46)\]. Nonetheless, Guenther (1994) notes that not all managers opted to engage in earnings decreasing actions if the non-tax costs\textsuperscript{12}

\textsuperscript{11} The study by Burghstahler et al. (2006) was published already in 2004 as a working paper by Wharton Financial Institutions Center.

\textsuperscript{12} Non-tax costs due to deferral of income comprise two types: 1) direct costs such as costs of dissatisfied customers due to delayed shipments, costs related to accelerated R&D projects, and possible tax scrutiny and examination costs, and 2) costs related to the reduction in financial statement income, such as debt covenant violations, compensations costs and political costs (Guenther 1994:235).
exceeded tax savings. Since taxable income is not directly available in the U.S., the author studies financial statement income to detect tax-motivated earnings management. Instead of using discretionary accruals, he studies current accruals based on the Jones (1991) model as they are expected to affect taxable income. In accordance with the political cost and debt covenant hypotheses discussed in section 2.4, the author reports that larger firm size and lower levels of long-term debt are significantly related to lower current accruals in the year prior the TRA86. In turn, manager ownership associated with compensation costs did not correlate with current accruals.

In addition to Guenther (1994), several other studies have examined the intertemporal income shifting taking place during TRA86. Lopez et al. (1998) extend the study by Guenther by improving the measure of discretionary current accruals and by studying tax-aggressive firms in particular. They construct a measure of tax-aggressiveness and find a significant negative correlation with discretionary current accruals. Scholes et al. (1992) in turn focus on the non-tax costs of shifting income and assume that these costs differ across income and expense items. Their results are consistent with this assumption, since firms deferred sales by one quarter immediately before the decrease in tax rates but did not correspondingly accelerate selling, general and administrative expenses. When extending the model to cover the whole event period, the authors find significant evidence of income shifting but do not distinguish between income and expense items. In line with Guenther’s (1994) findings regarding firm size, Scholes et al. (1992) find that smaller firms tend to be less opportunistic tax planners.

Maydew (1997) approach the TRA86 tax-induced earnings management by studying firms with net operating loss (NOL) carrybacks and extends the research by Guenther (1994) and Scholes et al. (1994) to profit firms’ intertemporal income shifting. Maydew motivates studying the NOL firms based on their strong incentive to increase their carrybacks by exploiting the tax rate spread before and after the TRA86 years. Instead of using aggregated measures of income, Maydew disaggregates income into recurring and non-recurring revenue and expense items. This is motivated by the differing non-tax costs; shifting non-recurring items usually results in lower non-tax costs. The results show that NOL firms deferred operating income and recorded more non-recurring expense items to increase the tax refunds. However, high-leverage firms showed less income shifting than others, whereas firm size did not affect the results.

Yin and Cheng (2004) distinguish financial positions of the sample firms and focus on profit and loss firms’ different responses to the TRA86 tax rate reductions. They
hypothesize that profit firms are more likely to exploit tax advantages due to generally lower non-tax costs, whereas loss firms are constrained by contractual obligations and higher financial reporting costs. The results confirm these assumptions: the tax rate cut have little impact on tax-minimizing behaviour of loss firms and in turn, profit firms are more likely to use negative current accruals prior a tax rate cut. The authors note that loss firms’ discretionary current accruals are more affected by non-tax incentives such as earnings pressure, earnings bath and management ownership.

4.2.2 In other countries

The studies discussed above revolve around TRA86 which took place in the U.S. over three decades ago. During the past decade, with a growing trend of CIT rate cuts worldwide, research has extended to other countries as well. Lin et al. (2012) study earnings management in China, where the CIT rate was decreased from 33 percent to 25 percent in 2008. They use simulated marginal tax rate to proxy for incentive to manage earnings and discretionary accruals according to the modified Jones model to measure earnings management. The results show significant downward earnings management in the year prior the tax rate cut. However, this effect is mitigated in state-owned enterprises which are common among listed firms in China. Besides, firms with an audit committee on the board and firms who voluntarily disclosed internal control reports showed less downward earnings management.

Roubi and Richarson (1998) examine tax-induced earnings management in three countries – Canada, Malaysia and Singapore – with significant CIT rate cuts in the late 1980s and early 1990s. The sample consists of 377 non-manufacturing firms’, which is a relatively small sample. They apply three different models to determine discretionary current accruals and the empirical evidence shows that firms in Canada and Singapore engaged in earnings management in anticipation of the CIT rate cut. On the other hand, the results for Malaysia are fairly weak which is explained by the strong statutory controls and uniformity built into the accounting system.

All of the studies discussed above have focused on public firms, but a few more recent studies have extended the research to private firms as well. Watrin et al. (2012) study German public and private companies’ responses to CIT rate reduction in 2001. They report that tax accounting incentives influenced only private firms’ earnings management behaviour, whereas public firms’ managers were more encouraged to focus on financial accounting incentives due to the diverse ownership structure and
higher agency costs. Lin et al. (2014), in turn, present evidence that Chinese private firms exhibit significantly larger negative accruals than public firms in the year prior the 2008 tax reform in China. The underlying reason for the results is also similar to that reported by Watrin et al. (2012): public firms’ non-tax financial reporting costs outweigh the tax savings, whereas private firms do not face the same market pressure and have lower non-tax costs when reporting a decline in accounting earnings.

Sundvik (2016b) extends prior research by studying private firms’ responses to two consecutive CIT rate reductions in 2009 and 2013 in Sweden, and by using both the specific accrual approach and the aggregate accruals as measures. In line with prior studies, the results show significant income-decreasing earnings management in the year prior the tax rate cuts and subsequently a positive reversal effect. For the specific accruals approach, the author finds that earnings management through accounts receivables is especially strong and significant.

In Finland, both Karjalainen (2015) and Sundvik (2017b) study the tax reform of 2005 as a setting to examine Finnish private firms’ earnings management incentives to minimize taxes. The 2005 tax reform partly shifted the taxation from firms to owners as the CIT rate was decreased from 29 to 26 as of 2005 and tax on owners’ dividend payments was increased. Thus, the managers faced competing incentives. Karjalainen (2015) focuses on these competing incentives and finds that in contrast to several international studies where firms have engaged in income-decreasing earnings management in the year prior a CIT rate cut, the Finnish private firms increased their income prior the tax reform to benefit from the more favourable dividend taxation for owners. This finding is even more pronounced with smaller firms, which the author explains by managerial self-interest combined with more concentrated ownership.

On the other hand, Sundvik (2017b) shows that Finnish private firms extended their 2004 fiscal year-ends in order to obtain tax benefits from the 2005 tax reform, and this response had more significant economic impact than the tax-induced earnings management by firms with unextended fiscal year. However, in contrast to the findings by Karjalainen (2015), the results show that firms with unextended fiscal year engaged in both upward and downward earnings management depending on their retained earnings: firms either opted to distribute larger dividends in 2004 or shifted income to 2005 with lower tax rate. Interestingly, the size coefficients for both the Swedish private firms (Sundvik 2016b) and for the Finnish private firms (Sundvik 2017b) show
a positive relation. Hence, the firm size effect associated with the political cost hypothesis documented by prior studies in public firms is the opposite in private firms.

Sundvik (2017a) further extends his prior studies to private firms in 12 European countries, including Finland, and studies the responses to CIT rate cuts between 2007 and 2014. The particular interest in his study is to determine how the level of book-tax conformity affects these responses. The results based on the aggregate accruals suggest that firms in stronger book-tax conformity countries are more likely to engage in downward earnings management to benefit from the tax rate reductions. However, with the absence of such strong incentive to manage earnings, the results show that the overall earnings management is lower in stronger book-conformity countries.

In conclusion, prior research shows strong evidence that firms engage in income-decreasing earnings management in response to CIT rate cuts and that it is especially pronounced with private firms in higher book-tax conformity countries. Besides, as discussed in the previous section, earnings management in general tends to be more pervasive in private firms due to lower non-tax costs, and is primarily tax-driven.

4.3 BTDs and earnings management

A growing body of literature has examined the link between BTDs and earnings management. These studies have mostly taken place in the U.S. and China, where BTDs are generally large due to lower book-tax conformity. As noted earlier, BTDs reflect the greater discretion under GAAP and may thus be useful in detecting opportunistic earnings management behaviour.

Hanlon’s (2005) study is among the most cited studies on the subject of BTDs and earnings management. Hanlon studies temporary BTDs specifically from earnings persistence point of view and examines the association between large BTDs and less persistent accruals or cash flows. Her study ties closely to the popular literature on accruals and cash flows’ persistence (Sloan 1996; Dechow 1994). Using a sample of 14,106 firm-year observations of U.S. public firms in 1994–2000, the author provides robust results that firm-years with large BTDs, in either direction, are associated with book income, discretionary accruals and cash flows being less persistent for one-year-ahead earnings compared to firm years with smaller BTDs. Hanlon concludes that large BTDs mean lower earnings persistence and also proxy for discretion. By studying the deferred tax assets in more detail, Hanlon (2005) further finds that for firm-years with
large positive BTDs, the largest part of the change in deferred tax assets comes from
depreciation or differences that affect property, plant and equipment. For the firm-years with large negative BTD, the corresponding item is reserves and accruals. As Hanlon points out, both of the largest items are among the accruals that are easily managed, thus suggesting earnings management behaviour.

Blaylock et al. (2012) approach BTDs, more specifically positive temporary differences, also from earnings persistence point of view. And like Hanlon (2005), they find that large BTDs provide incremental information over accruals in regards to earnings and accrual persistence. Their aim is to find the sources for the large BTDs and they define three potential sources for BTDs: 1) earnings management measured by discretionary accruals following the Jones model with lagged return on assets (Kothari et al. 2005), 2) tax planning measured with long-run cash effective tax rate, and 3) normal differences that arise from the different regulatory treatment of revenue and expense items for book and tax purposes. They study a sample of public U.S. firms in 1993–2005 and divide the 21,043 firm-year observations into large positive, large negative and small BTD groups in a similar manner as Hanlon (2005).

The results show that large negative BTD firms are smaller in size when measured by median assets and higher in growth when measured by sales and net operating assets growth, as documented by Hanlon (2005) too. Large positive BTD firms show the largest discretionary accruals by the Jones model with lagged return on assets, thus signalling upward earnings management. Blaylock et al. (2012) further find that in the large positive BTD group there are significantly more upward earnings management and tax planning, consistent with large BTDs proxying for earnings management and tax sheltering. Interestingly, among the firms classified as large BTD, they find no earnings management in terms of discretionary accruals neither in the tax planning nor the normal differences group. (Blaylock et al. 2012)

Phillips et al. (2003) use deferred tax expense as a proxy for earnings management and find in a study of U.S. public firms in 1994–2000 that deferred tax expense is associated with earnings management. Their study is based on the assumption that managers exploit the greater discretion under GAAP vs. tax laws to make accounting choices that increase book income but not taxable income. In comparison with total accruals and abnormal accruals from the two Jones models discussed earlier in section 2.5.2, they find increase in deferred tax expense to be a better proxy in identifying earnings management to either avoid reporting an earnings decline or a loss. Only in regards to
meeting analysts’ forecast, total accruals appear to be better than deferred tax expense in detecting earnings management. However, they find total accruals to be incrementally useful in all of the three settings.

Furthermore, Phillips et al. (2003) find that when it comes to classifying firm-years as earnings management or non-earnings management, deferred tax expense is incrementally useful to accrual measures for firms that avoid reporting a loss. Interestingly, the authors find low correlation between deferred tax expense and accrual measures which suggests that they proxy for different aspects of managerial discretion when it comes to selecting between different accounting choices under GAAP. However, they note that deferred tax expense does not detect such earnings management where the actions affect both book and taxable income.

Mills and Newberry (2001) study the effect of tax vs. non-tax costs on BTDs in public and private U.S. manufacturing firms with a sample of 5,776 firm-year observations in 1981–1996. Their study is probably the only prior study using confidential tax return data to infer BTDs and incorporating private firms. The authors also discern between profit and loss firms and state that profitable firms may either have a tax incentive to report relatively lower taxable income in order to pay less current tax, or a financial reporting incentive to report relatively higher book income, which both can lead to a larger BTD. The BTDs are therefore more complex for profit firms than for loss firms, who have less tax-related incentives. For the loss firms, the authors focus on the “big bath” accounting practice and find that public firms in loss position report significantly larger book losses in relation to tax losses than private firms.

Mills and Newberry (2001) further find that public firms in income position report higher book earnings in relation to taxable income than private firms. This finding suggests that private firms may have fewer incentives to report a non-conforming book income. Mills and Newberry also study the impact of debt levels on BTDs for profit firms, and find that private firms’ income reporting decisions are more affected by debt levels than those of public firms’. Interestingly, as their study period covered also the TRA86 years, the authors find evidence of negative BTDs in the post-TRA86 years. This supports the intertemporal income shifting as firms reported generally higher taxable income in the post-TRA86 years with lower CIT rates.

Badertscher et al. (2009) study earnings management through restatements in U.S. public firms during 1997–2002 and distinguish between conforming and non-norming
earnings management. The authors define income-increasing non-conforming earnings management as restating the taxable income downwards. They find non-conforming earnings management to be more common, but less so for firms with NOL carryforwards, high-quality auditor or accounting fraud behavior due to strong incentive to avoid detection. Furthermore, the results indicate that the proportion of non-conforming earnings management increases with firm size. Overall, these findings are in line with the study by Mills and Newberry (2001) regarding tax and non-tax costs: firms trade off the tax benefits against the detection costs associated with non-conforming earnings management. Also compared to abnormal accruals, Badertscher et al. find that total BTDs are significantly better in predicting earnings restatements and detecting upward earnings management.

Tang and Firth (2011) extend prior U.S.-based studies to Chinese listed firms. Their sample consists of 664 firm-year observations in a study period of 1999–2004. The authors apply the tax-effect BTD instead of the commonly used income-effect BTD. Moreover, they construct a measure of normal and abnormal BTDs in a similar manner as non-discretionary and discretionary accruals, where the residual from the normal BTD regression represents abnormal BTDs. To explain normal BTDs, the authors use change in PPE, change in sales, amount of NOLs and utilized tax losses, and tax rate differences. They posit that only the abnormal BTDs can be used to proxy for opportunistic earnings and tax management. To the abnormal BTD regression they add controls, such as industry, firm size and applicable tax rate. The authors conclude that firms with stronger incentives for earnings and tax management exhibit larger abnormal BTDs and thus, BTDs can detect the unobservable opportunistic reporting behavior when controlled for regulatory effects.

Wong et al. (2015) also study BTDs in China, and examine whether and how Chinese public firms manage earnings in response to tax rate increases. Chinese companies are subject to different applicable CIT rates depending on the preferential policies they are entitled to, and the CIT rates may change from year to year. Their study is one of the few combining CIT rate changes and the two types of earnings management: conforming and non-conforming. Even if these two types are not mutually exclusive, the authors note that firms often have to select between the financial reporting costs associated with conforming earnings management and the detection costs from the increased risk for tax audit and regulatory scrutiny associated with non-conforming earnings management. When the studies discussed in section 4.2 concentrate mainly
on conforming earnings management using discretionary accruals as a measure, Wong et al. add BTDs as a measure for non-conforming earnings management. The authors find that firms generally manage earnings in a non-conforming manner and tax incentives outweigh the financial reporting incentives before a tax rate increment. However, the results imply that book-tax conforming discretionary accruals and BTDs reflect different tax planning activities, consistent with Phillips et al. (2003).

To conclude, several studies show that BTDs outperform the popular aggregate accruals in various research settings, and reflect well managerial discretion. However, as BTDs do not detect conforming earnings management, BTDs may be especially useful in detecting tax-induced earnings management and in distinguishing between financial and tax reporting incentives. Moreover, even though the vast majority of the existing studies are made in capital market context, it appears that BTDs are generally lower in private firms than in public firms. On the other hand, private firms’ BTDs are more affected by leverage than that of public firms. Finally, earnings management surrounding CIT rate changes have been linked to larger BTDs but in general, BTDs have been mainly studied outside any particular corporate event.

4.4 Determinants of BTDs

Several studies attempt to identify the determinants of BTDs in order to better understand the causes for BTDs. This understanding is needed to determine the amount of variation in BTDs that may be attributed to earnings and tax management, but also to improve the BTD models. Lee et al. (2015) review studies that identify factors affecting the level of BTDs and note that almost 50 percent of BTDs arise from unidentified sources. In the U.S. context, Desai (2003) documents that employee stock options, depreciations methods and foreign income attribute to less than 50 percent of BTDs and the remaining amount may be associated with earnings management, whereas Seidman (2010) finds that GAAP changes, macroeconomic conditions and discretionary accruals explain approximately 55 percent of BTDs. Also Wilson (2009) finds that discretionary accruals explain partly BTDs in tax shelter firms, and that tax management is positively related to firm size and foreign income.

Manzon and Plesko (2002) examine explicitly the financial statement variables affecting the level of BTDs. The authors study U.S. public firms’ financial statements from 1988 to 1999 and find that a relative small set of accounting-based variables explain most of the variation in BTD. More specifically, change in net sales, gross PPE
and goodwill are positively related to BTD, and other intangible assets and the change in unused NOLs are negatively related to BTD. These findings are consistent with Hanlon (2005) who links large positive BTDs to changes in PPE. Manzon and Plesko further find that firms with positive pre-tax profit have significantly larger positive BTDs as a result of actions that reduce taxable income. Unlike NOL firms, they can make efficient use of tax deductions and tax credits and benefit from tax exemptions. Consequently, they find that firms with NOLs are likely to avoid actively reducing taxable income. In line with Manzon and Plesko regarding profitable firms, Guenther (2011) analyses the 113 unusual observations with large BTDs in Hanlon’s (2005) sample and finds that they exhibit higher levels of pre-tax return on assets compared to the whole sample. Guenther also documents that these observations are younger, smaller in terms of total assets and have larger transitory items.

As an important determinant, several studies examine the industry effect on BTDs. For example Hanlon (2005) and Mills and Newberry (2001) use industries as control variables due to the industry-specific differences. Hanlon et al. (2012) note that for example industries wholesale and retail have fewer opportunities to create BTDs because of high proportion of inventory and receivables. Mills et al. (2002) partition their sample into five industries and study the growth of BTDs in the 1990s. Their results show that the differences in these growth patterns between the industries are significant. Wahab and Holland (2015) study UK public firms’ BTDs in seven different industries during 2005–2010 and find that the persistence of BTDs varies across industry groups. Tran and Yu (2008) examine Australian public firms and find that the size of temporary and permanent differences varies extensively across industries. On the other hand, Raedy et al. (2011) find low significance on industry level find for the 41 individual BTDs in their study of 250 Fortune firms.

Based on the studies discussed in sections 4.3 and 4.4, it can be concluded that profit and loss status, listing status, leverage, firm size, industry, sales growth, discretionary accruals and return on assets are among the factors that prior research has found to affect the level of BTDs. In addition, certain financial statement variables can be used to explain the variation in BTDs. Numerous studies made in the U.S. and China further suggest that the unidentified part of BTDs is associated with earnings and tax management.
5 RESEARCH DESIGN

This chapter discusses the research assignment and describes the empirical research process. First the hypotheses are formulated and then the applied research methodology is described in detail and the hypotheses are operationalized. Finally the data sources and sample selection are presented.

The aim of this study is to examine whether BTDs can be used as a proxy for earnings management in higher book-tax conformity context, Finland. To test this, the BTDs are compared against discretionary accruals when firms have a strong incentive to manage earnings to benefit from the CIT rate cut.

Figure 1  CIT rates in Finland and in the EU and euro countries 1995–2016

![CIT rates graph]

*Arithmetic mean of the 28 EU member countries. **Arithmetic mean of the 19 euro area countries. Source: European Commission (2017).

During the past decade, the CIT rate has been reduced several times in Finland, as shown in Figure 1. Several other European countries have followed the same trend. In terms of percentage, the largest reduction took place in Finland when the Finnish Government announced in March 2013 that the CIT rate will be reduced from 24.5 percent to 20.0 percent as of January 1, 2014 (Ministry of Finance 2013). Thus, deferring one euro of taxable income from 2013 to 2014 would equal to earning six percent \[1.00 \times (1-0.20) = 1.06 \times (1-0.245)\]. This provided a strong incentive for profitable firms to minimize taxes through the management of taxable income. As
private firms are both the most common business entity type and the backbone of Finland’s economy, studying their responses to this CIT rate reduction allows making inferences of a significant part of the overall firm population.

The main motivation for the additional reduction of the CIT rate in 2014 was to boost economic growth and to create more jobs. Further, this action was intended to improve firms’ profitability, promote investments in Finnish companies and attract foreign investors. (Prime Minister’s Office 2013) However, concurrently the taxation on owners’ dividend payments was significantly increased when for instance the tax-exempt dividend from non-listed firms was completely removed (Ministry of Finance 2013). The latter might have mitigated the extent of downward earnings management in 2013 but less than suggested by Karjalainen (2015) because the tax reform of 2005 in his study had considerably larger impact on dividend taxation.

Finally, given that the CIT rate was reduced already twice during the past decade (2005 and 2012), the additional reduction in 2014 was less anticipated. Hence, the tax management actions should be apparent only in 2013 when the cut was announced.

5.1 Hypothesis development

As discussed in section 4.2, prior studies show that firms engage in income-decreasing earnings management in the year prior a CIT rate cut (Scholes et al. 1992; Maydew 1997) and do this by managing their discretionary accruals in particular (Guenther 1994; Lopez et al. 1998; Roubi & Richardson 1998; Yin and Cheng 2004; Lin et al. 2012). Further, profit firms (Yin & Cheng 2004) and private firms in stronger book-tax conformity setting (Watrin et al. 2012; Sundvik 2017a) are more likely to exploit the CIT rate reductions to achieve tax savings. In general, several studies document that earnings management is more pervasive in private firms (Burghstahler et al. 2006) and that tax motives are the main reason for earnings management for private firms (Coppens & Peek 2005; Goncharov & Zimmermann 2006). These lead to the following hypothesis:

**H1: Profitable private firms have more negative discretionary accruals in 2013 than in other years.**

---

13 See footnote 2 on page 2.
14 In 2012-2013, receipts of dividends up to the amount that equals the arithmetical nine-percent annual return on the value of the share were tax exempt up to 60 000 euros (90 000 euros in 2005-2011) from non-listed companies (Tax Administration 2013).
To take advantage of the anticipated CIT rate reduction, firms may engage in book-tax conforming and/or non-conforming earnings management. In the former, firms shift their taxable income to the future period(s) and at the same time report lower book income. In the latter, firms exploit the differences between accounting standards and tax regulations, and manipulate taxable income without managing their current book income\textsuperscript{15}, which in turn creates BTDs. Hence, when taxable income is managed downwards in a non-conforming manner, it creates a positive BTD. However, as these two earnings management strategies are not mutually exclusive, it can be expected that firms use a combination of these two to decrease their taxable income. But it is beyond the scope of this study to discern between these two types of earnings management.

Several studies document that BTDs provide incremental information over accruals in detecting earnings management (Phillips et al. 2003; Badertscher et al. 2009; Blaylock et al. 2012), and that BTDs are strongly associated with earnings management (Hanlon 2005; Tang & Firth 2011; Blaylock et al. 2012) which is further supported by the fact that the type of accruals that are less subject to managerial discretion, do not create BTDs (Phillips et al. 2003). Besides, some studies find non-conforming earnings management to be more common than conforming earnings management (Badertscher et al. 2009) and tax planning to partly explain the large positive BTDs (Hanlon 2005). A prior study shows that non-conforming earnings management is more likely to take place before a tax rate increase (Wong et al. 2015), and that BTDs are generally negative in the years after a CIT rate cut due to the decline in tax incentives (Mills & Newberry 2001). There is also a significant positive relation between profitable firms and BTDs (Manzon & Plesko 2002). These inferences alongside H1 yield the following:

\textit{H2: Profitable private firms have more positive BTDs in 2013 than in other years.}

The first two hypothesis combined suggest that firms who manage earnings downwards in the event of a CIT rate cut, do it in the manner where they minimize their taxable income relative to book income, which creates a positive BTD. Besides, prior research shows that aggressive financial reporting and aggressive tax reporting are strongly correlated (Frank et al. 2009). Hence, the following hypothesis can be formulated:

\textit{H3: Profitable private firms' discretionary accruals and BTDs have a negative relation in 2013.}

\textsuperscript{15}Both temporary and permanent differences represent non-conforming earnings management but as temporary differences reverse, they affect book income in the subsequent period(s).
5.2 Methodology

The empirical analysis is conducted as a quantitative study using OLS regressions to obtain the results. This section first describes the development of the discretionary accrual model and then the regression models are presented and variables discussed. Finally the analysis process is briefly described.

5.2.1 Discretionary accruals

As mentioned in section 2.5, aggregate accrual models are commonly used to detect earnings management because earnings management cannot be detected directly from the financial statements but rather through the estimation of non-discretionary and discretionary accruals. The first step in identifying discretionary accruals is to calculate total accruals. Total accruals can be calculated using either the balance sheet approach or the cash flow approach. However, the cash flow approach cannot be considered since in Finland only public and large private firms have to file a separate cash flow statement. Besides, as discussed in section 2.5.1, certain non-operating events might distort the estimation of total accruals if the most typical calculation of total accruals is used. Therefore, total accruals (TACC) are computed according to the model by Hribar and Collins (2002), as presented by Callao and Jarne (2010):

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

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 $DEP$ is depreciation and amortization expense. Total accruals are calculated separately for each year from 2011 to 2015 and financial statement data for years 2010-2015 is used as a basis because the calculation of changes requires previous years’ data.

Jones (1991) standard model is the most widely used aggregate accrual model to estimate discretionary accruals and later several modifications of the model have gained popularity. The discretionary accrual proxy selected for this study is based on a modified Jones model of non-discretionary accruals, which controls for firm performance (Jones 1991; Kothari et al. 2005) and yields stronger results than the standard Jones model alone (Ronen & Yaari 2008:446). Following Francis et al. (2013), industry fixed controls are also added to control for the industry-wide effect on

16 See footnote 4 on page 11.
accruals. Consequently, the OLS regression model to estimate the discretionary accruals is following:

\[
\frac{TACC_{it}}{TA_{it-1}} = \beta_1 \frac{1_{it}}{TA_{it-1}} + \beta_2 \frac{\Delta REV_{it}}{TA_{it-1}} + \beta_3 \frac{PPE_{it}}{TA_{it-1}} + \beta_4 \frac{ROA_{it-1}}{TA_{it-1}} + \text{Industry Fixed Effects} + \epsilon_{it}
\]

(2)

where \(TACC\) is total accruals as calculated previously; \(\Delta REV\) is change in sales; \(PPE\) is gross property, plant and equipment; \(ROA\) is pre-tax book income divided by lagged total assets\(^{17}\); \(\text{Industry Fixed Effects}\) are industry controls; and \(\epsilon\) is error term. All variables are scaled by lagged total assets (\(TA_{t-1}\)) to avoid problems with heteroscedasticity in residuals. As noted in section 2.5.2, the residual from the regression, expressed as the error term, represents the discretionary component of total accruals. That is, the independent variables in the equation explain the non-discretionary accruals and the residual the discretionary accruals (\(DACC\)). To minimize the effects of outliers and to increase the robustness of the statistical inferences, all continuous variables are winsorized at the 1 percent tails within each year. This also applies to all continuous variables in the OLS regression models presented in the next section.

Prior research uses both cross-sectional observations for each year and panel data combining cross-sectional and time-series dimensions to estimate the discretionary accruals. Consistent with Guenther (1994) and Yin and Cheng (2004), the panel data approach is selected to this study, where discretionary accruals are estimated with one regression\(^{18}\) for years 2011–2015. Besides, it is the most intuitive approach as it gives more in-depth information about the year effects over time which is of interest in the subsequent tests. Financial statement data for years 2010–2015 is used as a basis because the change in sales and lagged assets require previous years’ data.

5.2.2 Regression models

In this section the OLS regression models to test the hypotheses are presented. First the discretionary accruals are analysed to test whether they are more negative in 2013

\(^{17}\) Kothari et al. (2005) use both the lagged ROA and the contemporaneous ROA (assets in year \(t\) as denominator) but later studies use only the lagged ROA (Ronen & Yaari 2008:445). Pre-tax book income is used as nominator instead of net income because the taxes reported on financial statements do not often represent the final taxes and hence the net income does not portray the true net income for a period.

\(^{18}\) Most of the studies on CIT rate cut and earnings management discussed in section 4.2 estimate discretionary accruals based on the Jones (1991) two-stage model, where time-series panel data is used in the estimation period to retrieve the coefficients for the event period (see section 2.5.2).
compared to the two years before (2011-2012) and after (2014-2015) the event period. The OLS regression model to test hypothesis H1 takes the following form:

\[
DACC_{it} = \alpha + \beta_1 Y2013_i + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 ROA_{it-1} + Industry \ Fixed \ Effects + \epsilon_{it} \quad (3)
\]

where \( DACC \) is winsorized discretionary accruals as calculated above; \( Y2013 \) is a dummy variable for year 2013; \( SIZE \) is natural logarithm of total assets; \( LEV \) is total liabilities divided by total assets in year \( t \); \( ROA \) is pre-tax book income in year \( t \) divided by total assets in year \( t-1 \); and \( Industry \ Fixed \ Effects \) are industry controls.

Similarly, to test whether the earnings management in 2013 in response to the tax rate cut results in larger positive BTDs, the following OLS regression model for hypothesis H2 is formed:

\[
BTD_{it} = \alpha + \beta_1 Y2013_i + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 ROA_{it-1} + \beta_5 PPE_{it-1} + \beta_6 \Delta REV_{it-1} + \beta_7 ATR_{it} + Industry \ Fixed \ Effects + \epsilon_{it} \quad (4)
\]

where \( BTD \) is pre-tax book income minus taxable income (i.e. income-effect BTD) scaled by total assets in year \( t \) and \( ATR \) is the applicable CIT rate for each year in the study period which is added following Tang and Firth (2011) to control for the different tax rates in the study period. All other variables are as defined in the previous OLS regression models. In regards to the dependent variable \( BTD \), prior studies often use temporary differences or other more specified measure of BTDs. However, the data for Finnish private companies does not differentiate between current and deferred taxes and thus, it is not possible to calculate the temporary differences. Therefore, total BTDs (pre-tax book income minus taxable income) are used as a measure of BTDs even if it tends to cause noise and can lead to over interpretation, as discussed in section 3.2.

Following prior studies (Mills & Newberry 2001; Hanlon 2005), industry fixed effects are also controlled for in Equation (4) due to the industry-specific differences on BTDs. Furthermore, depreciations and transactions related to property, plant and equipment are one of the main causes of temporary differences in Finland, as discussed in section 3.3.2 and shown in Table 1. Besides, Mills and Newberry (2001) posit that firms’ capital intensity is translated into more opportunities to use differing methods and estimates for depreciation, and Tang and Firth (2011) note that higher levels of PPE will also

\[^{19}\text{In line with Tang and Firth (2011) and Wong et al. (2015), BTDs are scaled by contemporaneous assets.}\]
naturally lead to impairments of fixed asset securities. As these impairments are often non-deductible from the firms’ business tax income in Finland, greater PPE investments will lead to more negative BTDs. Thus, in line with Mills and Newberry (2001) and Tang and Firth (2011), gross property, plant and equipment (PPE) is controlled for in Equation (4) and represents both non-discretionary and discretionary BTDs. Consistent with prior studies, change in sales (ΔREV) is also added to control for non-discretionary BTDs in Equation (4) (Hanlon 2005; Tang & Firth 2011). GAAP rules generally aim to prevent the overstatement of revenue, whereas tax laws tend to constrain the understatement of revenue. Hence, due to the less conservative terms for revenue recognition in tax laws vs. GAAP, growth in revenue is expected to be negatively related to BTDs.

After it has been determined whether the discretionary accruals and BTDs in 2013 are significantly different from the other years (dummy variables Y2013), the relation between discretionary accruals and BTDs in 2013 is tested to provide evidence for hypothesis H3. The following OLS regression model is formed:

\[
DACC_{i,2013} = \alpha + \beta_1 BTD_{i,2013} + \beta_2 SIZE_{i,2013} + \beta_3 LEV_{i,2013} + \beta_4 ROA_{i,2013-1} + Industry\ Fixed\ Effects + \epsilon_{i,2013}
\]  

(5)

where the dummy variable Y2013 from Equation (3) is replaced with the dependent variable BTD from Equation (4) and all other variables are as defined in Equation (3) above.

5.2.3 Independent variables

Apart from the control variables for BTDs already discussed above, the independent variables are mostly the same in the regression models, although they have different implications. The dummy variable for year 2013 (Y2013) is the test variable in both Equations (3) and (4) as it tells the direction of the dependent variable relative to the years immediately before and after the year when firms have a strong incentive to manage earnings. According to the hypotheses H1 and H2, the sign of the dummy variable Y2013 is expected to be negative when the dependent variable is discretionary accruals (Equation 3) indicating more negative discretionary accruals in 2013, and correspondingly positive when the dependent variable is BTD (Equation 4) indicating more positive BTDs in 2013. In Equation (5), the independent variable BTD is the test
variable and in support of the hypothesis H3, the expected sign of the coefficient is negative indicating a negative relation between DACC and BTD in 2013.

Following prior research, several control variables are added to all OLS regression models to control for firm characteristics. Besides, they also provide additional insights into the determinants affecting earnings management. These control variables are firm size (SIZE), leverage (LEV) and firm profitability (ROA). Firm size is indicated as the natural logarithm of total assets, which is a common way to measure firm size in similar studies. According to the political cost hypothesis discussed in section 2.4, larger firms are more likely to have income-decreasing discretionary accruals. Moreover, several studies report a negative relation between firm size and discretionary accruals prior a tax rate cut (Guenther’s 1994; Scholes et al. 1994). On the other hand, prior studies in Finnish and Swedish private firms show the opposite (Spohr 2005a; Karjalainen 2015; Sundvik 2017b). Consequently, the expected sign of the relation between discretionary accruals and firm size is not defined. In turn, BTDs are shown to be positively associated with firm size in profitable firms (Mills & Newberry 2001; Wong et al. 2015).

According to the debt covenant hypothesis discussed in section 2.4, prior studies show that high-leverage firms are more likely to engage in upward earnings management (Dichev & Skinner 2002; Sundgren 2007; Franz et al. 2014) and that lower leverage is significantly related to greater income-decreasing accruals in the year prior a CIT rate cut (Guenther 1994). Leverage is therefore expected to be positively related to discretionary accruals, and a more positive relation is expected in 2013. Likewise, higher debt levels are also positively related to BTDs (Mills & Newberry 2001).

Firm performance, or profitability, is controlled with ROA, since Kothari et al. (2005) show that discretionary accruals are positively correlated with return on assets. Besides, profitable firms are more likely to engage in income-decreasing earnings management prior a CIT rate cut (Yin & Cheng 2004). Some prior studies also find significant positive association between levels of BTDs and firm performance (Manzon & Plesko 2002; Frank et al. 2009; Guenther 2011). Consequently, the coefficient for ROA is expected to have a positive sign for Equations (3) and (4), and a more positive value for the 2013 sample in Equation (5).

All variables used in the OLS regressions are summarized in Table 2 on the next page. The data source is also indicated in the table and these data sources will be presented in a subsequent chapter.
Table 2  Description of variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Type</th>
<th>Definition</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATR</td>
<td>Control</td>
<td>The applicable CIT rate which takes the following values: 0.26 in 2011; 0.245 in 2012–2013; and 0.20 in 2014–2015</td>
<td></td>
</tr>
<tr>
<td>BTD</td>
<td>Dependent / Test</td>
<td>Book-tax differences (income-effect BTD): pre-tax book income (Orbis) minus taxable income (Tax Administration) scaled by total assets in year t (Orbis)</td>
<td>Orbis and Tax Administration</td>
</tr>
<tr>
<td>DACC</td>
<td>Dependent</td>
<td>Signed discretionary accruals: total accruals minus non-discretionary accruals computed following Jones (1991), Kothari et al. (2005) and Francis et al. (2013)</td>
<td>Computed using data from Orbis</td>
</tr>
<tr>
<td>Industry</td>
<td>Control</td>
<td>Industry controls for the 18 industries included in the study: 17 industry dummies and one reference group</td>
<td>Orbis</td>
</tr>
<tr>
<td>Fixed Effects</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LEV</td>
<td>Control</td>
<td>Debt ratio: total liabilities in year t divided by total assets in year t</td>
<td>Orbis</td>
</tr>
<tr>
<td>PPE</td>
<td>Control</td>
<td>Gross property, plant and equipment: property, plant and equipment plus depreciation expense in year t divided by total assets in year t-1</td>
<td>Orbis</td>
</tr>
<tr>
<td>ΔREV</td>
<td>Control</td>
<td>Change in sales: sales in year t minus sales in year t-1 divided by total assets in year t-1</td>
<td>Orbis</td>
</tr>
<tr>
<td>ROA</td>
<td>Control</td>
<td>Firm profitability: return on assets as pre-tax book income in year t divided by total assets in year t-1</td>
<td>Orbis</td>
</tr>
<tr>
<td>SIZE</td>
<td>Control</td>
<td>Natural logarithm of total assets in year t</td>
<td>Orbis</td>
</tr>
<tr>
<td>TA</td>
<td>Deflator</td>
<td>Total assets</td>
<td>Orbis</td>
</tr>
<tr>
<td>TACC</td>
<td>Dependent</td>
<td>Total accruals estimated with the balance sheet approach (Callao &amp; Jarne 2010) scaled by total assets in year t-1</td>
<td>Computed using data from Orbis</td>
</tr>
<tr>
<td>Y2013</td>
<td>Test</td>
<td>Dummy variable 1 for year 2013, and 0 otherwise</td>
<td></td>
</tr>
</tbody>
</table>

5.2.4 Analysis process

To test the hypotheses, a three-step analysis is performed. First, the descriptive statistics are presented to provide basic features of the sample and the variables. Also the mean and median values of discretionary accruals and BTDs are presented in more detail to provide preliminary assessment of the overall trend. Second, a bivariate analysis is performed, where the correlation between dependent, independent and control variables are analysed to rule out any problems with multicollinearity. Besides,
the correlations between the dependent and the test variables are of particular interest in regards to the hypothesized relation of these variables. Third, a multivariate testing is applied, where several control variables are added to the three regression models as these are important in providing evidence for the hypotheses. Finally, a series of robustness checks are performed to assess the sensitivity of the regression results. SPSS Statistics software is used throughout the empirical study.

5.3 Data and sample selection

The data for this study is obtained from two secondary sources: the financial statement data from Orbis Bureau van Dijk database and the public tax records are provided as open data by the Finnish Tax Administration. Orbis database publishes comprehensive financial statement data of private and listed companies worldwide including all Finnish limited liability companies.

Unlike most other countries, certain tax records are public in Finland\(^\text{20}\). The Finnish Tax Administration has published companies’ public tax records as open data in file format as of 2011, following the EU directive (European Parliament and Council Directive 2003/98/EC) encouraging member states to make as much of the governmental data as possible available for re-use. Consequently, data availability defines the study period since the tax records are only available in file format starting from year 2011. Thus, the study period covers years 2011–2015 to get as much and as recent data as possible. The public tax records set also additional constraints for the study; the data does neither report negative taxable income nor the amount of tax loss carryforwards. The data therefore limits the study to profitable firms and prevents from adjusting the BTDs with the utilized tax losses.

Sample selection for the financial statement data from Orbis was made in two stages. The initial sample contains all profitable private Finnish firms with complete unconsolidated\(^\text{21}\) financial statement data for every year 2011–2015 resulting in 30,134 firms. In the second stage, the following eliminations were done. Financial and

\(^{20}\) According to section 5 in the Act on the public disclosure and confidentiality of tax information (1346/1999), the following tax records in annual taxation are public: name, municipality of domicile, corporate code, taxable income and property, total amount of taxes imposed, total amount of withholding tax, and amount to be levied or refunded in the course of tax collection.

\(^{21}\) Unconsolidated financial statement data is used because the taxation in Finland is based on individual entities (Myrsky & Malmgrén 2014:34).
insurance firms (NACE Rev. 2 main section K\textsuperscript{22}) were excluded as these firms face different reporting requirements and discretionary accruals are problematic for these firms (DeFond & Subramanyam 1998). This is also a common practice in earnings management studies. To ensure comparability and consistency, firms reporting under IFRS were excluded. IFRS is voluntary for private firms but financial statements prepared according to IFRS differ from those prepared according to local GAAP.

Also very small firms that are exempt from auditing were excluded to increase the value and credibility of the financial statement data used, and to avoid distortions resulting from very small firms’ figures and key ratios. Auditing is mandatory if two of the following three criteria are met: 1) ending balance of total assets exceeds 100 000 euros, 2) turnover exceeds 200 000 euros, and 3) average number of employees exceeds three (Auditing Act 1141/2015 c.2 s.2). Since the number of employees was not available for a large part of the firms, the first two criteria were used. Also instead of turnover, sales was used to include only active companies\textsuperscript{23} and to avoid problems with missing data for the sales variable in the OLS regression.

Following Roubi and Richardson (1998), only firms with fiscal year-end of December 31 were selected to ensure that all firms had the same amount of time to respond to the CIT rate reduction which was announced in March 2013. To ensure comparability of the years, only firms with fiscal year of 12 months for all years 2010–2015 were included. Hence, in line with prior studies, also firms that had changed their fiscal year end\textsuperscript{24,25} during the study period were excluded. Also firms with missing data for the variables needed in the OLS regression models were excluded. Finally, following prior studies (DeFond & Subramanyam 1998; Dechow et al. 2003; Phillips et al. 2003), all firms with total accruals greater than 100 percent in absolute value of total lagged assets were excluded to mitigate the effect of extreme observations.

After all the eliminations the final sample for the study consists of 7,027 firms, equivalent to 35,135 firm-year observations. Appendix 1 displays the distribution of the

\textsuperscript{22} The NACE Rev. 2 is the statistical classification of economic activities in the EU which the Finnish Standard Industrial Classification TOL 2008 is based on. Main section K – Financial and insurance activities is equivalent to the SIC codes 6000-6999 excluded by DeFond and Subramanyam (1998).

\textsuperscript{23} Turnover consists of sales and other returns on business operations. A firm may be inactive but still have turnover from for example rental income.

\textsuperscript{24} The fiscal year can be anything between 1 and 18 months when the fiscal year end is changed or when business operations are commenced or terminated (Accounting Act 1336/1997 s.4).

\textsuperscript{25} See Sundvik (2017b) for earnings management associated with extending fiscal year in the 2005 tax reform. In the 2014 tax reform, however, tax benefits from extended fiscal year end were restricted.
sample firms across the 18 industries represented in the sample, where industry is defined on the NACE Rev. 2 industry classification. In terms of number of firms, firms in wholesale and retail trade industry (21.8%) represent the largest part of firms in the sample. The three next most common industries are manufacturing (14.7%), construction (12.2%) and professional, scientific and technical activities (12.0%). Thus, the remaining 14 industries represent 39.3% of the firms in the sample. To conclude, the sample is largely dominated by the firms in the four largest industries.
6 RESULTS

In this chapter the results of the empirical tests are presented and discussed. First, the descriptive statistics are reported. Subsequently, correlation matrices are analysed and multivariate regression analysis is conducted as described in the previous chapter. Finally, a sensitivity analysis is performed to test the robustness of the results.

6.1 Descriptive statistics

Table 3 on the next page reports the descriptive statistics for the sample, OLS regression results for Equation (2), and the descriptive statistics for the OLS regression variables used in Equations (2) – (5). First, Panel A presents the descriptive statistics for the sample comprising total assets, turnover, pre-tax book income and taxable income for each year of the study period as well as total accruals scaled by lagged total assets ($TACC/TA_{t-1}$) from Equation (1). Overall, all the non-scaled median values are lower than the mean values which indicates that the observations are skewed to the right. This is explained by the relative large amount of SMEs among Finnish private firms, while the higher mean values are explained by the sample selection with no upper bound in terms of turnover and assets. The large standard deviations for all items also reflect the amount of variation in the sample firms.

As shown in Panel A, both the mean and median values of total assets and turnover show a constant growth during the whole study period. Pre-tax book income (PTBI), on the other hand, does not follow the same trend which suggests that firm growth in terms of asset and sales growth is not translated into greater profits. However, the most interesting finding is in the taxable income: both the mean and median values are at their lowest in 2013: 553 and 109 TEUR, respectively. In turn, there is not a similar pattern in the pre-tax book income values in 2013: the lowest mean value is in 2012 (1 030 TEUR), whereas the lowest median value is in 2011 (139 TEUR). This suggests that firms generally managed their taxable income downwards in 2013 in a non-conforming manner because as also shown in Figure 2 on page 54, the mean PTBI does not decrease together with taxable income in 2013. The lower taxable income can be further interpreted as a sign that the tax incentive outweighed the financial reporting incentive in anticipation of the CIT rate cut. Figure 2 also illustrates a trend line for the mean taxable income and mean PTBI, and shows that the PTBI fluctuation from year to year is generally larger than that of taxable income.
Table 3  Descriptive statistics

Panel A: Descriptive statistics of the sample

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Assets</td>
<td>Mean</td>
<td>10 190</td>
<td>10 465</td>
<td>10 897</td>
<td>11 398</td>
<td>11 858</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>827</td>
<td>890</td>
<td>944</td>
<td>1 001</td>
<td>1 072</td>
</tr>
<tr>
<td></td>
<td>Stdev</td>
<td>70 218</td>
<td>70 372</td>
<td>73 027</td>
<td>76 947</td>
<td>78 924</td>
</tr>
<tr>
<td>Turnover</td>
<td>Mean</td>
<td>12 270</td>
<td>12 707</td>
<td>12 793</td>
<td>12 877</td>
<td>12 982</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>1 262</td>
<td>1 344</td>
<td>1 386</td>
<td>1 410</td>
<td>1 452</td>
</tr>
<tr>
<td></td>
<td>Stdev</td>
<td>95 635</td>
<td>98 853</td>
<td>97 555</td>
<td>94 451</td>
<td>90 975</td>
</tr>
<tr>
<td>PTBI</td>
<td>Mean</td>
<td>1 085</td>
<td>1 030</td>
<td>1 047</td>
<td>1 097</td>
<td>1 081</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>139</td>
<td>144</td>
<td>140</td>
<td>140</td>
<td>144</td>
</tr>
<tr>
<td></td>
<td>Stdev</td>
<td>11 834</td>
<td>9 673</td>
<td>10 052</td>
<td>11 813</td>
<td>8 402</td>
</tr>
<tr>
<td>Taxable income</td>
<td>Mean</td>
<td>588</td>
<td>560</td>
<td>553</td>
<td>570</td>
<td>590</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>112</td>
<td>113</td>
<td>109</td>
<td>110</td>
<td>111</td>
</tr>
<tr>
<td></td>
<td>Stdev</td>
<td>5 859</td>
<td>4 729</td>
<td>5 398</td>
<td>5 409</td>
<td>5 733</td>
</tr>
</tbody>
</table>

\[ \frac{TACC}{TA_{-1}} \]

\( \bar{\beta}_1 \) /TA       35 135  -3937,462  -10,528***
\( \bar{\beta}_2 \) ∆REV       35 135  0,037   24,037***
\( \bar{\beta}_3 \) PPE        35 135  -0,128   -55,472***
\( \bar{\beta}_4 \) ROA        35 135  0,056   13,969***

Industry Fixed Effects \ YES Model F-statistics / Adj. \( R^2 \) 463,577*** / 21.70 %

Panel C: Descriptive statistics of the OLS regression variables

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>DACC</td>
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<td>0,0071</td>
<td>0,0007</td>
<td>-0,0071</td>
<td>-0,0013</td>
<td>0,0004</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>0,0023</td>
<td>-0,0039</td>
<td>-0,0062</td>
<td>-0,0008</td>
<td>-0,0008</td>
</tr>
<tr>
<td></td>
<td>Stdev</td>
<td>0,1230</td>
<td>0,1149</td>
<td>0,1073</td>
<td>0,1094</td>
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<tr>
<td>BTD</td>
<td>Mean</td>
<td>0,0169</td>
<td>0,0169</td>
<td>0,0180</td>
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</tr>
<tr>
<td></td>
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<td>-0,0002</td>
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<tr>
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<td>Stdev</td>
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</tr>
<tr>
<td>SIZE</td>
<td>Mean</td>
<td>13,97</td>
<td>14,04</td>
<td>14,09</td>
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<td>13,70</td>
<td>13,76</td>
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</tr>
<tr>
<td></td>
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<td>1,52</td>
<td>1,52</td>
<td>1,52</td>
<td>1,52</td>
</tr>
<tr>
<td>LEV</td>
<td>Mean</td>
<td>0,46</td>
<td>0,44</td>
<td>0,43</td>
<td>0,42</td>
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</tr>
<tr>
<td></td>
<td>Median</td>
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<td>0,43</td>
<td>0,41</td>
<td>0,39</td>
<td>0,38</td>
</tr>
<tr>
<td></td>
<td>Stdev</td>
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<td>0,26</td>
<td>0,25</td>
<td>0,25</td>
<td>0,25</td>
</tr>
<tr>
<td>ROA</td>
<td>Mean</td>
<td>0,23</td>
<td>0,21</td>
<td>0,19</td>
<td>0,18</td>
<td>0,17</td>
</tr>
<tr>
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<td>0,16</td>
<td>0,14</td>
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<td>0,13</td>
</tr>
<tr>
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<td>0,18</td>
<td>0,17</td>
<td>0,16</td>
<td>0,16</td>
</tr>
<tr>
<td>PPE</td>
<td>Mean</td>
<td>0,35</td>
<td>0,33</td>
<td>0,33</td>
<td>0,32</td>
<td>0,31</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>0,22</td>
<td>0,21</td>
<td>0,20</td>
<td>0,19</td>
<td>0,18</td>
</tr>
<tr>
<td></td>
<td>Stdev</td>
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<td>0,32</td>
<td>0,32</td>
<td>0,31</td>
<td>0,31</td>
</tr>
<tr>
<td>∆REV</td>
<td>Mean</td>
<td>0,27</td>
<td>0,13</td>
<td>0,07</td>
<td>0,06</td>
<td>0,06</td>
</tr>
<tr>
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<td>0,01</td>
<td>0,01</td>
</tr>
<tr>
<td></td>
<td>Stdev</td>
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<td>0,44</td>
<td>0,39</td>
<td>0,37</td>
<td>0,37</td>
</tr>
</tbody>
</table>

Notes: total assets, turnover, PTBI and taxable income in panel A are given in TEUR. ** and *** indicate the significance at the 5 and 1 % level (two-tailed), respectively, in panel B. For variable definitions, see Table 2.
As also shown in Figure 2, the difference in the mean averages between pre-tax book income and taxable income is noteworthy. This might be partly explained by non-conforming earnings management and permanent differences, but more importantly by tax loss carryforwards. Hence, even if a firm has reported a book profit during the whole five-year study period, it may have old tax losses that are deducted from the taxable income. However, as the public tax records do not include the tax losses, the data on taxable income cannot be adjusted with the tax loss carryforwards. Besides, data for the tax losses is neither available from the financial statements because a tax loss can be recorded as a deferred tax asset only if it is probable that the company will generate income (Government Bill 173/1997). Consequently, the lacking data on the utilized tax losses will presumably impact the model fit later in the OLS regression with BTD as dependent variable. On the other hand, a firm may not choose when to deduct the loss from tax profit but it is automatically deducted from the future tax profits. As a result, tax loss carryforwards cannot be used as a tool for tax management and taxable income can be considered to be free from such bias.

Panel A also reports the calculated total accruals scaled by lagged total assets (Equation 1). Based on the differences between the mean and median values, the observations are fairly normally distributed in 2012–2015, whereas in 2011 the observations are slightly skewed to the right. As also illustrated in Figure 3 on the next page, total accruals are negative during the whole study period. Negative total accruals are common due to depreciations, and do not necessarily indicate the presence of earnings management.
(DeAngelo 1986). However, as seen in Figure 3, the total accruals are more negative both by the mean and median values in 2013 which can be interpreted as prima facie evidence of more downward earnings management in 2013.

**Figure 3  Total accruals scaled by lagged total assets in 2011–2015**

<table>
<thead>
<tr>
<th>Year</th>
<th>Mean</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Next, Panel B presents the coefficient estimates for the non-discretionary accrual variables and the model fit. As described in section 5.2.1, the discretionary accruals are estimated with an OLS regression (Equation 2) using panel data over years 2011–2015, where total accruals is the dependent variable and the non-discretionary accruals (NACC) are calculated following Jones (1991), Kothari et al. (2005) and Francis et al. (2013). The residual from the regression represents the discretionary component of total accruals (TACC – NACC). The discretionary accruals (DACC) obtained from this regression are presented in Panel C. To control for extreme observations, all the continuous variables used in the OLS regression are winsorized at the 1 percent tails within each year.

It can be noted that all coefficient estimates reported in Panel B are statistically significant at the one percent level. The coefficient estimates further suggest that, on average, the PPE have the largest explanatory power on non-discretionary accruals. The coefficient $\beta_3$ for PPE is negative (−0.128) which is explained by the income-decreasing

---

26 Firstly, Kothari et al. (2005) add an intercept to the Jones (1991) model. Therefore, the discretionary accruals are also estimated with an intercept, but the differences are minimal: the unwinsorized mean and median for discretionary accrual estimates without an intercept are only 0.0001 lower than with an intercept. Secondly, Kothari et al. (2005) use net income ROA, whilst pre-tax income ROA is used in the calculations. The discretionary accruals are hence also estimated with net income ROA, but the mean remains unchanged for the unwinsorized discretionary accruals and only the median is −0.00004 lower compared to estimates with pre-tax ROA. These alternative results are not reported.
depreciation accruals. The positive coefficient $\beta_2$ for change in sales (0.037) indicates income-increasing accruals in working capital accounts, such as accounts receivable. The ROA coefficient $\beta_4$ is added to improve the test specification, as suggested by Kothari et al. (2005), and it shows that profitability is related to income-increasing accruals (0.056). The industry fixed effects are not reported for brevity but they improve the overall model fit in terms of adjusted $R^2$ by two percent. Besides, a majority of the coefficient estimates for the industry dummy variables are statistically significant which reflects the industry variation in accruals. Finally, the model fit in terms of adjusted $R^2$ of 21.7 percent is relatively similar to the average adjusted $R^2$ in Jones's (1991) estimation period of non-discretionary accruals (23.2 percent).

Panel C reports the summary statistics for the variables to be used in the three regression models (Equations 3-5), where all reported values for each variable are winsorized at the 1 percent tails within each year. The descriptive statistics show that the average values for the control variables LEV, ROA, PPE and $\Delta$REV show a decline during the whole study period, whilst SIZE shows a steady increase. In other words, the increase in the sample firms’ total assets is neither directly associated with increases in property, plant and equipment, nor is it a result of increased leverage. Meanwhile, the declining ROA values can be linked to the economic downturn in Finland ever since the 2008 financial crisis (OECD 2016). The mean and median averages for sales growth ($\Delta$REV) are also in line with the impacts of the economic downturn, as the sales growth does not only decline but completely stall in 2013.

Panel C also shows that the differences between the mean and median values are generally low among all the control variables. Hence, the values of the control variables are approximately symmetrically distributed. In contrast, the mean and median averages for DACC and BTD are less normally distributed, except of the DACC values in 2013–2015. The DACC observations show a right-skewed distribution in 2011–2012 since the mean values are greater than the median values. The same applies to the BTD observations throughout the study period: all the mean values for BTD are positive, while the median values are negative but close to zero. The low median values for BTD are mainly driven by the large proportion of firms with relatively insignificant difference between pre-tax book income and taxable income. These firms’ small negative BTDs are more a result of mechanical permanent differences, such as fines and penalties and 50 percent of representation costs, rather than any actual non-conforming earnings management activity.
The mean and median values for the main variables \textit{DACC} and \textit{BTD} are portrayed in more detail in Figure 4 below. Although the discretionary accruals are obtained as residual values from Equation (2) and the \textit{BTDs} are actual differences scaled by total assets, these are viewed in the same figure. Overall, it can be noted that the variation in \textit{BTDs} is generally lower in comparison with discretionary accruals, which will likely have an impact on the correlation coefficients and the OLS regression results.

\textbf{Figure 4  Average discretionary accruals and BTDs in 2011–2015}

As shown in Figure 4, the discretionary accruals are significantly more negative in 2013 both in terms of mean and median averages: −0.071 and −0.062, respectively. In contrast, the mean values of discretionary accruals are positive, or very close to positive (year 2014), in all the other years. The mean value is particularly positive in 2011 (0.0071), which is a rather surprising finding considering the previous CIT rate cut in 2012 (see Figure 1 on page 40). The income-increasing discretionary accruals in 2011 can be explained by owner-manager opportunism consistent with the findings by Karjalainen (2015) regarding the 2005 tax reform: the concurrent dividend tax reform

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|c|c|c|c|}
\hline
Year & DACC Mean & DACC Median & BTD Mean & BTD Median \\
\hline
2011 & 0.0071 & 0.0023 & 0.0169 & -0.0004 \\
2012 & 0.0007 & -0.0039 & 0.0169 & -0.0003 \\
2013 & -0.0071 & -0.0062 & 0.0180 & -0.0002 \\
2014 & -0.0013 & -0.0008 & 0.0170 & -0.0004 \\
2015 & 0.0004 & -0.0008 & 0.0170 & -0.0004 \\
\hline
\end{tabular}
\end{table}

\textsuperscript{27} Capital income tax rate was increased from 28 to 30 percent as of 2012; and the tax-exempt dividends up to the amount that equals the arithmetical nine-percent annual return on the value of the share were reduced from 90 000 to 60 000 euros (from non-listed companies) (Government Bill 130/2011).
in 2012 provided a stronger incentive than the CIT rate cut incentive. Hence, instead of managing earnings downwards in 2011 to benefit from the relatively small CIT rate cut in 2012, earnings were managed upwards to benefit from the more favourable dividend taxation for owners in 2011. Consequently, the negative median for discretionary accruals in 2012 (−0.0039) reflects the natural reversal process of the income-increasing accruals in 2011.

Figure 4 also displays the mean and median BTD averages. As seen, the mean values of BTD are very steady in all the other years and range between 0.0169 and 0.0170, whereas the mean value in 2013 shows a significant positive peak being 0.0180. Similarly, the median values for BTD in 2011–2012 and 2014–2015 are fairly constant between −0.0003 and −0.0004, whereas in 2013 the value is slightly more positive (−0.0002). The variation in the BTD averages indicates that without a strong incentive for tax-induced earnings management, the levels remain on a steady level. Consequently, any deviation from this level can be interpreted as a prima facie sign of earnings and/or tax management.

The BTD averages reported in Panel C and shown in Figure 4 also provide a preliminary understanding of the level of BTDs in Finland. Compared to previous studies made in the U.S. and Chinese context, the mean BTDs in the sample firms are significantly larger. Mills and Newberry (2001) report in a sample of U.S. private and public firms a mean (median) BTD of 0.006 (0.007) and Tang and Firth (2011) in a sample of Chinese public firms a mean (median) BTD of −0.008 (−0.001). Furthermore, the BTDs in the Finnish sample firms seem to be more heterogeneous than in U.S. and China: the mean is strongly positive whereas the median is negative. The sample does, however, not allow making generalizations on the overall level of BTDs in Finland due to the sample being limited to profitable firms and due to the lack of data on the utilized tax losses.

In conclusion, the descriptive statistics provide preliminary support for the hypotheses H1 and H2: both the mean and median discretionary accruals are more negative in 2013, and especially the mean BTDs are more positive in 2013. Consequently, a negative relation between DACC and BTD in 2013 can be expected, as stated in hypothesis H3.
### 6.2 Correlation analysis

The correlation analysis is performed to rule out multicollinearity and also to assess the linear relationship between the dependent and the independent variables. Table 4 presents the correlation matrices for the variables used in Equations (3), (4) and (5). First, Panel A reports the correlation matrix for Equations (3) and (4) and incorporates the full sample (2011–2015). As seen, the correlation coefficients between the independent variables are mostly significant but weak. The risk of bias caused by multicollinearity can hence be ruled out. As a second measure to rule out multicollinearity, the variance inflation factors (VIFs) are assessed. Although not tabulated, it can be noted that they are all below 1.5, which is well below the cut-off of 10.

#### Table 4  Pearson correlation matrices

Panel A: Pearson correlation matrix for Equations (3) and (4)

<table>
<thead>
<tr>
<th></th>
<th>DACC</th>
<th>BTD</th>
<th>Y2013</th>
<th>SIZE</th>
<th>LEV</th>
<th>ROA</th>
<th>PPE</th>
<th>ΔREV</th>
<th>ATR</th>
</tr>
</thead>
<tbody>
<tr>
<td>DACC</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BTD</td>
<td>-0.035***</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y2013</td>
<td>-0.031***</td>
<td>0.006</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>SIZE</td>
<td>0.031***</td>
<td>0.158***</td>
<td>0.000</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LEV</td>
<td>0.033***</td>
<td>0.223***</td>
<td>-0.004</td>
<td>0.190***</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROA</td>
<td>0.003</td>
<td>0.249***</td>
<td>-0.020***</td>
<td>-0.210***</td>
<td>-0.187***</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PPE</td>
<td>-0.076***</td>
<td>-0.001</td>
<td>0.127***</td>
<td>0.258***</td>
<td>-0.223***</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ΔREV</td>
<td>-0.040***</td>
<td>-0.057***</td>
<td>-0.037***</td>
<td>0.143***</td>
<td>0.348***</td>
<td>0.014***</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATR</td>
<td>0.001</td>
<td>0.299***</td>
<td>-0.050***</td>
<td>0.075***</td>
<td>0.094***</td>
<td>0.040***</td>
<td>0.137***</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Panel B: Pearson correlation matrix for Equation (5) for the 2013 sample

<table>
<thead>
<tr>
<th></th>
<th>DACC</th>
<th>BTD</th>
<th>SIZE</th>
<th>LEV</th>
<th>ROA</th>
</tr>
</thead>
<tbody>
<tr>
<td>DACC</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BTD</td>
<td>-0.017</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIZE</td>
<td>0.053***</td>
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<tr>
<td>LEV</td>
<td>0.042***</td>
<td>0.207***</td>
<td>0.192***</td>
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</tr>
<tr>
<td>ROA</td>
<td>-0.026**</td>
<td>0.259***</td>
<td>-0.203***</td>
<td>-0.208***</td>
<td>1</td>
</tr>
</tbody>
</table>

Notes: ** and **** indicate the significance at the 5 and 1 percent level (two-tailed), respectively. For variable definitions, see Table 2.

*a* Only used in Equation (4)

The correlation between the dependent variables DACC and BTD and the test variable Y2013 is also of particular interest in the correlation matrix in Panel A. The correlation between DACC and Y2013 is negative and significant (−0.031) which supports
hypothesis H1. In regards to the correlation between $BTD$ and $Y_{2013}$, the Pearson correlation coefficient is positive (0.006) but insignificant. Hence, there is slightly weaker support for hypothesis H2. This might be explained by the lower variation in the $BTD$ values, as also shown in Figure 4. However, the Pearson correlation assumes a normal distribution and as earlier noted, the $BTD$ values do not fully satisfy this assumption. Thus, the Spearman rank correlation can be used as an alternative measure for data that is not normally distributed. The untabulated Spearman correlation results show a positive (0.028) and statistically significant ($p$-value < 0.001) coefficient between $BTD$ and $Y_{2013}$, which in turn supports H2. It should be noted, however, that a correlation coefficient only measures linear relationship between two variables and other variables might be involved in the relationship as well. Multivariate linear regression analysis, where several control variables are added, is thus needed to determine the relation between the dependent variables and the test variable.

Panel B displays the correlation matrix for the variables used in Equation (5). Although the correlation coefficients for all independent variables are significant, they are not very strong. Consequently, multicollinearity in the OLS regression should not be a problem. Similarly, all the variance inflation factors for the independent variables are below 1.3 (not reported) and thus, multicollinearity is ruled out.

Regarding the relationship between the dependent variable ($DACC$) and the test variable $BTD$ in the 2013 sample, the correlation coefficient is consistent with the hypothesized direction (−0.017) but not significant at conventional levels (untabulated $p$-value 0.145). But again, the multivariate linear regression analysis is needed to determine the direction and significance. However, the lack of statistically significant linear relationship between $DACC$ and $BTD$ in 2013 can also be a sign that they proxy for different types of earnings management, consistent with Phillips et al. (2003) and Wong et al. (2015). As this linear relationship becomes insignificant in the 2013 sample compared to the full sample in Panel A, it suggests that both conforming and non-conforming earnings management increased in 2013. In other words, firms used both types of earnings management to manage their taxable income downwards in 2013.

Panel B also shows, that the correlation between discretionary accruals and all control variables ($SIZE$, $LEV$ and $ROA$) become stronger in 2013 compared to the correlation coefficients in Panel A for the whole study period 2011–2015. The most notable
difference is in the correlation for ROA, which is negative (−0.026) and significant in 2013, whereas in 2011–2015 it is slightly positive (0.003) and insignificant. Thus, consistent with prior research, this suggests that as the firm profitability increases, the more income-decreasing discretionary accruals are used to benefit from the CIT rate cut. Similarly, the linear relationship between BTD and ROA becomes more positive in 2013 (0.259) which indicates that more profitable firms manage, to an increasing extent, their taxable income downwards in a non-conforming manner because they have more to gain from the tax cut.

6.3 Multivariate regression analysis

In this section the main results are reported and discussed to provide evidence for the hypotheses H1-H3. Table 5 presents the OLS estimation results for the three regression models with respective dependent variables. Equations (3) and (4) comprise the full sample over years 2011–2015, equivalent to 35,135 firm-year observations, whereas Equation (5) comprises year 2013 with a sample of 7,027 firm-year observations. Overall, the p-value for all models is less than 0.001 and hence, the models are statistically significant. In turn, the explanatory power in terms of adjusted $R^2$ is very low for Equations (3) and (5). This is, however, often the case when using signed residual values as dependent variable. Moreover, the model fit for Equation (4) with

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>$DACC$ (Equation 3)</th>
<th>$BTD$ (Equation 4)</th>
<th>$DACC_{2013}$ (Equation 5)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>$t$-stats</td>
<td>Coefficient</td>
</tr>
<tr>
<td>Intercept</td>
<td>0.049</td>
<td>-5.657***</td>
<td>0.134</td>
</tr>
<tr>
<td>Test variables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y2013</td>
<td>-0.009</td>
<td>-5.625***</td>
<td>0.003</td>
</tr>
<tr>
<td>BTD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control variables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIZE</td>
<td>0.002</td>
<td>5.650***</td>
<td>0.008</td>
</tr>
<tr>
<td>LEV</td>
<td>0.014</td>
<td>5.655***</td>
<td>0.081</td>
</tr>
<tr>
<td>ROA</td>
<td>0.008</td>
<td>2.135**</td>
<td>0.139</td>
</tr>
<tr>
<td>PPE</td>
<td></td>
<td></td>
<td>-0.025</td>
</tr>
<tr>
<td>∆REV</td>
<td></td>
<td></td>
<td>-0.018</td>
</tr>
<tr>
<td>ATR</td>
<td></td>
<td></td>
<td>-0.085</td>
</tr>
<tr>
<td>Industry Fixed Effects</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>N</td>
<td>35,135</td>
<td>35,135</td>
<td>7,027</td>
</tr>
<tr>
<td>$F$-statistics</td>
<td>5,304</td>
<td>366,688</td>
<td>3,363</td>
</tr>
<tr>
<td>Model $p$-value</td>
<td>&lt; 0.001</td>
<td>&lt; 0.001</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.3 %</td>
<td>20.0 %</td>
<td>0.7 %</td>
</tr>
</tbody>
</table>

Notes: ** and *** indicate the significance at the 5 and 1 percent level (two-tailed), respectively. For variable definitions, see Table 2.
BTD as dependent variable is relatively low presumably due to the missing data on utilized tax losses, as earlier noted. Nevertheless, the adjusted $R^2$ values for all three equations are in line with those of Wong et al. (2015) who also use signed discretionary accruals and BTDs, without controlling for tax losses, as dependent variables. In the following, results for each model are analysed both individually and together.

In the regression results for the full sample with DACC as dependent variable (Equation 3), the intercept is negative ($-0.049$) and statistically significant at the one percent level which indicates that the discretionary accruals are generally negative in the study period. The sign of the coefficient estimate for $Y_{2013}$ is also negative ($-0.009$) and statistically significant ($p$-value $< 0.001$) which suggest that the discretionary accruals are more negative in 2013, and is thus in support of H1 and consistent with prior studies. In other words, firms took advantage of the tax rate cut by engaging in income-decreasing earnings management in the year immediately before the CIT rate reduction year. In terms of economic significance, a $0.058$ (intercept + $Y_{2013}$) negative discretionary accrual shift from 2013 to 2014 translates into about 28 TEUR in tax savings at the sample mean of total assets (10 897 TEUR in 2013) and with the 4.5 percent CIT rate cut. Meanwhile, the amount of tax savings is equal to approximately 21 percent of the 2013 mean tax expense of the sample firms (135 TEUR; obtained from the public tax record data). Consequently, even though the amount assumes that all the estimated discretionary accruals are shifted from 2013 to 2014 with a lower tax rate, it can be considered economically significant for the sample private firms – especially given the large amount of owner-manager private firms in Finland.

Regarding the control variables in Equation (3), the coefficient estimate for SIZE is positive and statistically significant. This is in contrast with the political cost hypothesis because the positive coefficient indicates that smaller firms have generally more income-decreasing accruals. On the other hand, it is line with the study by Spohr (2005a) regarding earnings smoothing in Finnish private firms: smaller firms are most likely to smooth earnings. The other two control variables, LEV and ROA, are also both positive and statistically significant. The positive association between leverage and discretionary accruals is consistent with the debt covenant hypothesis; high-leverage firms are associated with more income-increasing discretionary accruals. The positive coefficient for firm profitability in terms of ROA is in line with the findings by Kothari et al. (2005) and suggests that more profitable firms have more income-increasing discretionary accruals.
The regression results for the full sample with $BTD$ as dependent variable (Equation 4) show that the intercept is negative ($-0.134$) and statistically significant at the one percent level ($p$-value $< 0.001$). This indicates that the Finnish private firms’ BTDs are generally negative in the study period. In turn, the test variable $Y_{2013}$ is positive ($0.003$) and statistically significant ($p$-value $0.001$), as hypothesized. Thus, firms took advantage of the greater discretion under GAAP and of the timing differences between GAAP and tax laws, and managed their taxable income downwards in a non-conforming manner in 2013.

All the control variables for Equation (4) are also statistically significant at the one percent level. The variables $SIZE$, $LEV$ and $ROA$ are positively associated with $BTD$, whereas $PPE$, $∆REV$ and $ATR$ have a negative relation with $BTD$. The directions of the coefficient signs are largely consistent with prior studies. The direction of the coefficient for $PPE$ is, however, inconsistent with the findings in the U.S. context (Mills & Newberry 2001) but consistent with Tang and Firth (2011), who use change in PPE instead of PPE in Chinese companies. In the Finnish context, the negative association between $PPE$ and $BTD$ can be interpreted as reflecting the unused tax depreciations and the non-deductible impairments on fixed asset securities, as well as the larger depreciations in the early years of an asset, when the straight-line method is used in financial accounting but for tax purposes only the accelerated method is allowed.

Consistent with a number of prior studies, the coefficient $ROA$ for firm profitability in Equation (4) is particularly strong and positive ($0.139$) and also statistically highly significant ($p$-value $< 0.001$). However, as the sample only incorporates profitable firms (pre-tax book income $≥ 0$), all the values for $ROA$ are positive (winsorized values between $0.001$ and $1.050$). Nevertheless, loss firms have fewer opportunities to exploit tax benefits and therefore the positive coefficient for $ROA$ is a strong indication that as the firm profitability increases, the more likely it is that the firm manages its taxable income downwards relative to book income. In fact, the untabulated results for the 2013 sample with $BTD$ as dependent variable show that the coefficient for $ROA$ becomes more positive ($0.147$) in 2013 and is statistically significant ($p$-value $< 0.001$).

The industry fixed effects are not reported for brevity for any of the equations but the coefficient estimates for the industry dummy variables for Equation (4) suggest that industry variation in BTDs is also strong. The results show that the vast majority of the 18 industries in the sample have statistically significant BTDs different from the other industries, which is in line with the findings noted earlier regarding total accruals.
The first two regressions clearly demonstrate that the $DACC$ ($BTD$) are more negative (positive) in 2013 compared to the other years. It is therefore justified to assume a negative relationship between these two variables in 2013, as hypothesized in H3. Table 5 reports the results for the 2013 sample with $DACC$ as dependent variable and as expected, the coefficient for $BTD$ is negative ($-0.063$) and statistically significant ($p$-value $0.002$). Also the coefficient for the intercept becomes more negative in the 2013 sample ($-0.079$) compared to the full sample ($-0.049$), which indicates that the discretionary accruals are more negative in 2013. Thus, the more negative intercept for the 2013 sample can be attributed to the 2014 tax rate reduction.

In regards to the control variables, the coefficient estimates for $SIZE$ and $LEV$ become slightly more positive in the 2013 sample and are statistically significant at the one percent level. Interestingly, the coefficient for $ROA$ is smaller but becomes insignificant in 2013. Firm profitability seems to no longer be a significant factor when determining the propensity to manage earnings downwards with discretionary accruals in the event of a CIT rate cut. However, using absolute values of discretionary accruals in Equation (5) results both in improved model fit and in a statistical significant coefficient estimate for $ROA$, but as absolute values of discretionary accruals do not provide any meaningful information for the purpose of the analysis, and tend to contain a lot of noise, these results are not reported.

Meanwhile, the more positive coefficient for firm size ($SIZE$) in the 2013 sample indicates that smaller firms are generally more opportunistic tax planners, which is opposite to the majority of prior research regarding public firms’ responses to a CIT rate cut (e.g. Guenther 1994; Wong et al. 2015) but in line with the studies made in the Finnish context with private firms (Karjalainen 2015; Sundvik 2017b). Consequently, the prior research regarding public firms cannot be fully applied for the size effect as the incentives for earnings management in private firms are different. Firstly, private firms seldom face the political costs that public firms may face associated with earnings management. Secondly, private firms are free from the market pressure and can act more opportunistically. In turn, the more positive coefficient estimate for leverage ($LEV$) in 2013 is consistent with prior studies made in public firms (e.g. Guenther 1994) and with the debt covenant hypothesis, and indicates that lower leverage is related to greater income-decreasing accruals in the year prior a CIT rate cut.
Based on the OLS regression results, it can be concluded that all three hypotheses H1-H3 are accepted and the results for the test variables are significant at the one percent level. Besides, all control variables, except of ROA in the 2013 sample, prove statistically significant and the signs of the coefficient estimates are largely consistent with prior studies.

### 6.4 Sensitivity analysis

The sensitivity of the main results was tested with a series of robustness checks. First, prior research shows that accruals (e.g. Gu et al. 2005) and BTDs (discussed in section 4.4) vary across industries due to industry-specific characteristics on inventory and receivables, among other things. Based on this, the main results were tested by excluding the largest industry from the sample to see whether the results are driven by that industry. As noted earlier in section 5.2.4, the largest industry in the sample is wholesale and retail trade which represents 21.8% of the sample firms. Consequently, Equations (3) and (4) were estimated with the remaining 27,485 firm-year observations with emphasis on the level of discretionary accruals and BTDs in 2013, respectively. The untabulated results for Equation (3) show that income-decreasing discretionary accruals are still noted: the dummy variable for year 2013 (Y2013) is negative (−0.008) and statistically significant (p-value < 0.001). The coefficient estimate is thus only slightly less negative than in the main results for Y2013 (−0.009). The results for Equation (4) with BTD as dependent variable remain also robust, and more positive BTDs in 2013 are observed: the coefficient estimate for the test variable Y2013 is still positive (0.003) and significant (p-value 0.009). Thus, excluding wholesale and retail trade industry does not affect the coefficient estimate for Y2013, although wholesale and retail firms typically have large inventories and receivables which limit their opportunities to create BTDs (Hanlon et al. 2012). Likewise, the estimation of Equation (5) with the remaining 5,497 firm-year observations yields significant and negative relation between DACC and BTD in 2013 (−0.069; p-value 0.002). It can thus be concluded that the results reported in Table 5 are not sensitive to excluding the largest industry.

Second, as earlier shown in Figure 4, the average values of discretionary accruals show a significant positive peak in 2011. These income-increasing discretionary accruals in 2011 can be linked to the previous CIT rate cut in 2012, as discussed in section 6.1. To test the robustness of the discretionary accruals used in Equations (3) and (5),
Equation (3) was first estimated separately with each remaining year dummy variable (\(Y_{2011}, Y_{2012}, Y_{2014}\) and \(Y_{2015}\)). Consistent with the Figure 4, the untabulated results show that the coefficient for the 2011 year dummy variable is the only statistical significant estimate and it shows a positive value of 0.009 (\(p\)-value < 0.001) which is the straight opposite to the coefficient estimate for the 2013 year dummy variable \(Y_{2013}\) (−0.009) presented in Table 5. Thus, including year 2011 in the study period for discretionary accruals might bias the regression results. Discretionary accruals were therefore first estimated with Equation (2) using panel data over years 2012–2015. The winsorized discretionary accruals estimated on the panel data excluding year 2011 are not qualitatively different from those estimated with the original panel data 2011–2015, although the mean and median averages are slightly less negative in 2013 than in the original panel data. The average values of discretionary accruals are still significantly more negative in 2013.

Next, Equation (3) was estimated with a sample of 28,108 firm-year observations in 2012–2015 and with the corresponding discretionary accruals. The untabulated results show that the coefficient estimate for year 2013 (\(Y_{2013}\)) is still statistical significant (\(p\)-value < 0.001) and negative (−0.007). Hence, it only becomes slightly smaller than in the full sample (−0.009). In like manner, Equation (5) was estimated by using the alternative discretionary accruals and the coefficient estimate for the test variable \(BTD\) remains fairly similar: −0.061 (\(p\)-value 0.003) when the corresponding coefficient estimate in the full sample is −0.063. The main results for the discretionary accrual models were thus concluded not to be sensitive to the effects of the previous CIT rate cut.

The BTDs were also tested for the year effects, even though the average BTDs do not show a similar peak as the discretionary accruals in 2011 (Figure 4). Equation (4) was first estimated separately with each remaining year dummy variable (\(Y_{2011}, Y_{2012}, Y_{2014}\) and \(Y_{2015}\)) and the only statistical significant coefficient estimate is for the 2011 year dummy variable, which shows a negative value of −0.002 (\(p\)-value 0.058). Thus, it is also almost the opposite of the coefficient estimate for the 2013 year dummy variable \(Y_{2013}\) (0.003) presented in Table 5. Taken together with the findings above for year 2011 with \(DACC\) as dependent variable, this can be interpreted as a strong indication that BTDs reflect well earnings management behaviour when the incentive to manage earnings is strong, and that BTDs reflect well discretionary accruals. In other words, discretionary accruals and BTDs are substitutes for each other.
Next, Equation (4) was estimated by excluding year 2011 from the study period with a sample of 28,108 firm-year observations. Although not tabulated, the results of this sensitivity test are qualitatively similar to the main results reported in Table 5. In fact, the coefficient estimate for the year 2013 dummy variable is identical (0.003) with the main results and still statistically significant (p-value 0.003). Consequently, the results for the BTDs are also not sensitive to the effects of the previous CIT rate cut.

Third, to address the low model fit in the OLS regression results for Equations (3) and (5), discretionary accruals were also estimated with the one-stage model by Dechow et al. (2012) described in section 2.5.2, where total accruals is the dependent variable and control variables for both non-discretionary and discretionary accruals are incorporated in the same OLS regression. The one-stage model also includes a dummy for the period(s) in which the hypothesized earnings management is present and is thus especially suited when the period(s) can be correctly identified, as in the case of a CIT rate cut. The one-stage model yields the following Equations (6) and (7):

\[
\frac{TACC_{it}}{TA_{it-1}} = \alpha + \beta_1 Y_{2013, it} + \left(\beta_2 \frac{\Delta REV_{it}}{TA_{it-1}} + \beta_3 \frac{PPE_{it}}{TA_{it-1}} + \beta_4 ROA_{it-1} \right) \cdot \text{Industry Fixed Effects} + \beta_5 SIZE_{it} + \beta_6 LEV_{it} + \epsilon_{it}
\]

\[
\frac{TACC_{2013, it}}{TA_{2012, it}} = \alpha + \beta_1 BTD_{2013, it} + \left(\beta_2 \frac{\Delta REV_{2013, it}}{TA_{2012, it}} + \beta_3 \frac{PPE_{2013, it}}{TA_{2012, it}} + \beta_4 ROA_{2013, it} \right) \cdot \text{Industry Fixed Effects} + \beta_5 SIZE_{2013, it} + \beta_6 LEV_{2013, it} + \epsilon_{2013}
\]

where the variables are as defined in Table 2. The results for the one-stage model are reported in Panel A of Table 6 on the next page and the results show that this model yields a satisfactory model fit in terms of adjusted $R^2$: 15.8 percent for the full sample and 14.3 percent for the 2013 sample. The coefficient estimates for the test variables are also statistically significant and in line with the main results reported for Equations (3) and (5) in Table 5. In fact, the coefficient estimates for both $Y_{2013}$ in the full sample, and for the $BTD$ in the 2013 sample, are identical with the respective coefficient estimates in the results with $DACC$ as dependent variable: −0.009 and −0.063, respectively. These results thus strengthen the previously presented evidence on income-decreasing earnings management in 2013 and the negative relation between $DACC$ and $BTD$ in 2013.

Fourth, another alternative accrual proxy was also used to assess earnings management behaviour in 2013 and its relation to BTDs. A number of prior studies discussed in
Table 6  Sensitivity analysis results

Panel A: OLS regression results for Equations (6) and (7)

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>TACC (6)</th>
<th>TACC2013 (7)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>t-stats</td>
</tr>
<tr>
<td>Intercept</td>
<td>-0.106</td>
<td>-11.817***</td>
</tr>
<tr>
<td>Test variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y2013</td>
<td>-0.009</td>
<td>-5.786***</td>
</tr>
<tr>
<td>BTD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control variables for NACC/DACC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>∆REV</td>
<td>0.033</td>
<td>21.118***</td>
</tr>
<tr>
<td>PPE</td>
<td>-0.131</td>
<td>-55.744***</td>
</tr>
<tr>
<td>ROA</td>
<td>0.062</td>
<td>15.133***</td>
</tr>
<tr>
<td>SIZE</td>
<td>0.006</td>
<td>13.407***</td>
</tr>
<tr>
<td>LEV</td>
<td>0.014</td>
<td>5.311***</td>
</tr>
<tr>
<td>Industry Fixed Effects</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>N</td>
<td>35 135</td>
<td>7 027</td>
</tr>
<tr>
<td>F-statistics / Adj. R²</td>
<td>286,578*** / 15.8 %</td>
<td>52,145*** / 14.3 %</td>
</tr>
</tbody>
</table>

Panel B: OLS regression results for Equations (3) and (5) with signed DCACC as dependent variable

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>DCACC (3)</th>
<th>DCACC2013 (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>t-stats</td>
</tr>
<tr>
<td>Intercept</td>
<td>-0.029</td>
<td>-3.467***</td>
</tr>
<tr>
<td>Test variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y2013</td>
<td>-0.008</td>
<td>-5.603***</td>
</tr>
<tr>
<td>BTD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIZE</td>
<td>0.001</td>
<td>2.739***</td>
</tr>
<tr>
<td>LEV</td>
<td>0.020</td>
<td>8.546***</td>
</tr>
<tr>
<td>ROA</td>
<td>0.008</td>
<td>2.349**</td>
</tr>
<tr>
<td>PPE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industry Fixed Effects</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>N</td>
<td>35 135</td>
<td>7 027</td>
</tr>
<tr>
<td>F-statistics / Adj. R²</td>
<td>5,792*** / 0.3 %</td>
<td>3,529*** / 0.8 %</td>
</tr>
</tbody>
</table>

Panel C: OLS regression results for Equations (3) - (5) with unwinsorized data

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>DACC (3)</th>
<th>BTD (4)</th>
<th>DACC2013 (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>t-stats</td>
<td>Coefficient</td>
</tr>
<tr>
<td>Intercept</td>
<td>-0.055</td>
<td>-5.698***</td>
<td>-0.150</td>
</tr>
<tr>
<td>Test variables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y2013</td>
<td>-0.009</td>
<td>-5.450***</td>
<td>0.005</td>
</tr>
<tr>
<td>BTD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control variables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIZE</td>
<td>0.003</td>
<td>5.953***</td>
<td>0.009</td>
</tr>
<tr>
<td>LEV</td>
<td>0.016</td>
<td>6.084***</td>
<td>0.098</td>
</tr>
<tr>
<td>ROA</td>
<td>0.006</td>
<td>1.570</td>
<td>0.201</td>
</tr>
<tr>
<td>PPE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>∆REV</td>
<td></td>
<td></td>
<td>-0.016</td>
</tr>
<tr>
<td>ATR</td>
<td></td>
<td></td>
<td>-0.147</td>
</tr>
<tr>
<td>Industry Fixed Effects</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>N</td>
<td>35 135</td>
<td>35 135</td>
<td>7 027</td>
</tr>
<tr>
<td>F-statistics / Adj. R²</td>
<td>5,520*** / 0.3 %</td>
<td>411,767*** / 21.9 %</td>
<td>3,139*** / 0.6 %</td>
</tr>
</tbody>
</table>

Notes: ** and *** indicate the significance at the 5 and 1 percent level (two-tailed), respectively. The dependent variables are signed winsorized total accruals (TACC) and signed winsorized discretionary current accruals (DCACC) in Panel A and B, respectively. For other variable definitions, see Table 2.
section 4.2 use current accruals instead of total accruals to proxy for tax-induced earnings management. Current accruals (\(CACC\)) and current discretionary accruals (\(CDACC\)) are considered as more short-term proxies for earnings management than total accruals (\(TACC\)) and total discretionary accruals (\(DACC\)), and are expected to affect taxable income. Current accruals were calculated by following a similar technique when calculating \(TACC\) but the long-term accrual \(DEP\) was removed from Equation (1). The untabulated results show that all average values for current accruals are positive. This is explained by the removal of depreciations which commonly cause total accruals to be negative. Similar as the total accruals, also the current accruals are more negative in 2013 by both mean and median averages.

Next, in order to obtain current discretionary accruals (\(CDACC\)), Equation (2) was estimated by removing the explanatory variable \(PPE\) from the equation and replacing the dependent variable \(TACC\) with \(CACC\). As shown in Figure 5 below, the winsorized mean averages of \(CDACC\) and \(DACC\) show fairly similar values, but the median averages of \(CDACC\) are generally more negative than \(DACC\). Still, the accruals are significantly more negative in 2013 by both proxies.

**Figure 5 Current discretionary accruals (CDACC) and total discretionary accruals (DACC)**

![Figure 5](image)

After the \(CDACC\) were estimated, Equations (3) and (5) were estimated with \(CDACC\) as dependent variable. The results reported in Panel B of Table 6 show that the signs and significance levels of the test variables remain the same but the coefficient estimates for the intercept and for the test variables become slightly less negative. For Equation (3)
the coefficient estimate for $Y_{2013}$ is $-0.008$, whereas in the main results it is $-0.009$. For Equation (5) the coefficient estimate for $BTD$ is $-0.057$ with $CDACC$ as dependent variable, when the corresponding estimate with $DACC$ as dependent variable is $-0.063$. Also, all the coefficient estimates for the control variables become smaller in both Equations (3) and (5), except of $LEV$. The smaller coefficient estimates with $CDACC$ as dependent variable can be explained by the exclusion of the generally large depreciation accrual. Overall, it can be concluded that the main results are not sensitive to an alternative and a more short-term proxy for accruals. Moreover, the results of the robustness check are in line with prior research using $CDACC$ as a measure of tax-induced earnings management. The statistically significant negative relationship between $CDACC$ and $BTD$ also suggests that BTDs are not only driven by depreciations or transactions related to property, plant and equipment but reflect well also other financial accounting accruals.

As a final robustness check, the three Equations (3) – (5) were estimated with unwinsorized data, as all results reported in Table 5 are based on winsorized data. The discretionary accruals were also first estimated with Equation (2) based on unwinsorized data. The untabulated results show that when the discretionary accruals are estimated with unwinsorized data, the model fit decreases by $2.4$ percent. The mean and median averages of discretionary accruals are still significantly more negative in 2013 and identical ($-0.0076$) which indicates that the unwinsorized observations in 2013 are perfectly normally distributed. Panel C of Table 6 reports the results for the robustness check for Equations (3) – (5). Results for Equation (3) with unwinsorized $DACC$ as dependent variable show that the main results remain robust except for the control variable $ROA$, which becomes insignificant in the unwinsorized data. Extreme $ROA$ values are common in smaller companies due to their relatively low total assets and thus, distort the mean average. The model statistics remain also qualitatively similar, whereas for Equation (4) the model statistics in terms of $F$-statistics and adjusted $R^2$ is a bit higher with the unwinsorized data.

The main results for Equation (4) with $BTD$ as dependent variable remain also robust and all coefficient estimates shown in Panel C of Table 6 are still significant at the one percent level, although the coefficient estimate for the test variable $Y_{2013}$ becomes slightly more positive ($0.005$) in the unwinsorized data. Besides, the coefficient estimates for the control variables $ROA$ and $LEV$ become more positive, and for the control variable $ATR$ and for the intercept more negative. Results for Equation (5), with
unwinsorized $DACC_{2013}$ as dependent variable remain also robust, although the coefficient estimate for the test variable $BTD_{2013}$ becomes slightly more positive ($-0.047$) but is still negative and statistically significant. Meanwhile, the intercept becomes more negative in 2013. Overall, it appears that the BTDs in 2013 are more affected by extreme observations and that the extreme values of ROA only affect discretionary accruals. Nevertheless, it can be concluded that the main results are not sensitive to unwinsorized data.
7 DISCUSSION AND CONCLUSION

This study examines whether BTDs can be used as a reasonable proxy for earnings management in a higher book-tax conformity setting. The study makes use of Finland’s unique public tax records that allow deriving BTDs from actual taxable income. In order to determine the strength of the BTDs as a proxy, a popular aggregate accrual method is used as a basis for comparison. As earnings management is often driven by a certain incentive to obtain some economic benefit, the Finnish tax reform of 2014 is used as a natural experiment to observe tax-induced earnings management behaviour among Finnish private firms. The 2014 tax reform reduced the CIT rate from 24.5 percent to 20.0 percent which made it one of the lowest CIT rates in the EU. A reduction in CIT rate is generally considered a strong incentive to manage earnings in order to achieve tax savings, and this applies especially to private firms because of their propensity for tax-induced earnings management. Private firms are the most common business entity type in Finland, thus studying their responses to this CIT rate cut does not only allow examining BTDs with a large sample, but also making inferences regarding a significant part of the overall firm population.

Earnings management has drawn a lot of attention both from researchers and various users of financial statements. As earnings management is unobservable from the financial statements, various detecting methods have evolved. Aggregate accruals have long been the most popular proxy, but they have received criticism for misspecification of discretionary accruals. More recently, evidence from the U.S. and China have shown that BTDs can detect earnings management and reflect well managerial discretion inherent in financial and tax reporting decisions. As U.S. and China represent lower book-tax conformity, this study extends the current literature to Finland with higher book-tax conformity. Besides, it extends prior research by using actual taxable income instead of estimated taxable income to derive BTDs for a large sample of private firms. Finally, earnings management in response to CIT rate cuts have not been previously studied with BTDs as a proxy. This study thus extends previous studies that have mainly relied on accrual measures and financial statement data to observe tax-induced earnings management.

Based on previous studies, three hypotheses are formulated with the emphasis on discretionary accruals, BTDs and their interaction in the year immediately before the CIT rate reduction year of 2014. The sample consists of profitable Finnish private firms
and comprises 35,135 firm-year observations in a study period of 2011–2015. The empirical results are twofold. Firstly, the level of BTDs and discretionary accruals in 2013 are assessed separately. Secondly, the interaction between these two in 2013 is demonstrated. On a more general level, the results also provide evidence of BTDs as a proxy in a higher book-tax conformity setting, as well as of the extent of earnings management in response to the 2014 CIT rate cut and the determinants of this earnings management.

According to the first hypothesis, discretionary accruals are expected to be more negative in 2013. The results show strong support for this hypothesis and are consistent with all previous studies using financial statement income to examine earnings management in response to CIT rate cuts. The results are also robust to industry-related factors, to the effects of the previous CIT rate cut in 2012, to different accrual measures, and to un Winsorized data. The sensitivity analysis further proved that during the study period, discretionary accruals were significantly negative only in 2013. In terms of economic significance, the negative discretionary accruals in 2013 roughly translate into about 28 TEUR in tax savings for the average firm. Thus, the results provide economically important information for legislators and policymakers both in Finland and elsewhere when planning future tax reforms.

According to the second hypothesis, BTDs are expected to be more positive in 2013 than in the other years of the study period. Positive BTDs are a result of both temporary differences and non-conforming earnings management, when taxable income is managed downwards to a greater extent than book income. Minimizing taxable income in such manner in the year prior a CIT rate cut can be considered a strong indication of opportunistic tax planning, where tax incentive outweighs the financial reporting incentive. The empirical results provide statistically significant evidence that BTDs are de facto more positive in 2013. In comparison with the coefficient estimate for the discretionary accruals in 2013, the lower coefficient estimate for BTDs in 2013 can be attributed to the generally lower variation in BTDs, but also to the occurrence of a combination of conforming and non-conforming earnings management activities in 2013. This in turn reflects the lower importance of earnings in private firms: both the tax and non-tax costs are lower when reporting a decline in taxable income and in earnings, respectively.

The BTD results are further strengthened with the robustness checks which show that they are not sensitive to excluding the largest industry, to extreme observations in the
unwinsorized data, or to the effects of the previous CIT rate cut. The sensitivity analysis also revealed that BTDs detected earnings management associated with the previous CIT rate cut as well, and that BTDs and discretionary accruals act as substitutes for each other. Overall, the results show that BTDs are a powerful measure for earnings management even in a higher book-tax conformity context, when there is a strong tax incentive. Consequently, the results are of particular interest for the academic community and can be informative for tax authorities and regulators. The results also corroborate a number of previous studies made in lower book-tax conformity context which provide evidence that BTDs reflect well managerial discretion (e.g. Phillips et al. 2003; Hanlon 2005) and show that the tax incentive outweighs the financial reporting incentive before a CIT rate change (Mills & Newberry 2001; Wong et al. 2015).

The BTD results also reveal that in the Finnish context, BTDs are in general negative and that firm profitability and leverage have a particularly strong positive relation with BTDs. These findings are thus in line with Mills and Newberry (2001) regarding the effect of leverage on profitable private firms’ BTDs. Besides, the findings also corroborate several studies that have documented a significant positive association between levels of BTDs and firm performance (Manzon & Plesko 2002; Frank et al. 2009; Guenther 2011). Consistent with prior studies made in lower book-tax conformity context, industry variation in BTDs is also strong in Finnish private firms. In turn, sales growth and property, plant and equipment explain less of the BTDs. These findings thus extend prior research regarding determinants affecting BTDs in a high book-tax conformity setting.

Based on the initial findings, the third hypothesis expects a negative relation between discretionary accruals and BTDs in 2013. The results show strong support for this hypothesis and the results are robust to various robustness checks. BTDs thus serve as an important explanatory variable for discretionary accruals and vice versa, and future models of discretionary accruals could benefit from incorporating BTDs as an explanatory variable. The results also reveal that smaller private firms are more opportunistic tax planners, which is line with prior studies made in private firms in the Finnish context (Karjalainen 2015 and Sundvik 2017b) but in contrast with prior studies made in public firms (e.g. Guenther 1994; Wong et al. 2015). This result thus also reflects private firms’ lower non-tax financial reporting costs when reporting a decline in earnings, and suggests that the political cost hypothesis by Watts and Zimmerman (1978) cannot be applied to private firms. In turn, the debt covenant
hypothesis is relevant for private firms as well since the results show that lower-leverage Finnish private firms are more likely to manage earnings downwards in response to a CIT rate cut.

In addition to the multivariate regression results, other analyses also show support to the main findings regarding BTDs as a proxy. First, the taxable income exhibit the lowest average values in 2013. Second, the average BTDs demonstrate a positive peak in 2013, while the average BTDs are fairly steady in the other years. Third, the rank correlation shows a significant positive linear relationship between BTDs and the year 2013. Consequently, the fluctuation of taxable income and BTDs can be used as a strong prima facie evidence of tax-induced earnings management. The findings also advocate using taxable income to detect tax-induced earnings management instead of financial statement income, although taxable income is not directly observable by researchers in many countries.

Taken as a whole, the findings of this study prove that BTDs reflect well tax-induced earnings management and that BTDs are not only a reasonable, but a powerful proxy also in a higher book-tax conformity context. Besides, the empirical results show strong evidence of opportunistic earnings management behaviour in anticipation of the 2014 CIT rate cut.

7.1 Limitations

The results of this study are subject to certain limitations. First, the stringent sample selection criteria reduced the original sample by a notable large amount. For instance, allowing for other fiscal year-ends than the calendar year-end would have increased the sample size significantly. Secondly, the lack of prior research on BTDs in higher book-tax conformity context limited the possibilities to control for factors different from those made in lower book-tax conformity context. Third, aggregate accruals have received a great deal of criticism and thus, comparing BTDs against discretionary accruals might be considered a limitation. Notwithstanding, the results for the BTDs alone are not dependent on the discretionary accrual proxy and the novelty of the results for BTDs in higher book-tax conformity remain strong.

The most significant limitation is, however, related to the limited public tax records, and more specifically to the lack of data on tax loss carryforwards. The BTDs used in the study are thus not adjusted with utilized tax losses and this might have an impact
on the results. On the other hand, the timing of utilizing a tax loss is not optional but a
tax loss carryforward is automatically deducted from taxable income whenever a firm
reports a tax profit. As a result, the unadjusted taxable income used in the study can be
considered to be free from any bias caused by opportunistic tax loss management.

The public tax records also prevented studying BTDs for loss firms because the public
tax records do not report negative taxable income. However, loss firms generally have
lower BTDs and have fewer tax-related incentives in comparison with profitable firms.
Another limitation brought by both the public tax records and the Finnish accounting
regulation is that only total BTDs could be used as a measure. Although total BTDs
have been used by certain researchers, most prior research regards total BTDs as a
noisy proxy and therefore prefers temporary differences. However, temporary
differences are only possible to obtain for Finnish companies by hand-collecting the
data from the financial statements or from the notes for income taxes, which would in
turn limit the sample size considerably.

Finally, in contrast to the harmonized accounting standards that allow for cross-
country comparison, the corporate tax legislation varies greatly from country to
country. As a result, the findings of this study may not be generalizable to other
jurisdictions, and further research is warranted.

7.2 Future research

The findings of this study provide plenty of ideas for future research especially in a high
book-tax conformity context. First, to address the main limitation of this study, future
studies could incorporate tax loss carryforwards by hand-collecting the required data.
Even though this would decrease the sample size, it would provide more insight into
the BTDs in higher book-tax alignment countries. In like manner, studying temporary
differences instead of total BTDs could be a fruitful research area. Considering that a
large part of Finnish firms do not have other than small mechanical BTDs, identifying
the firms with large BTDs would also allow for better specified BTD models.

As the main findings of this study demonstrate that BTDs are a powerful proxy for tax-
induced earnings management in a higher book-tax conformity setting, future studies
could explore whether BTDs also reflect other types of earnings management in this
setting. To further deepen the understanding of the determinants affecting BTDs in this
setting, BTDs could also be studied outside any corporate event. Alternatively, a
financial statements analysis could be performed to determine which accounting-based variables explain the BTDs. Moreover, the study by Mills and Newberry (2001) regarding differences in BTDs in public and private firms could be extended to a high book-tax conformity context, such as to Finland. Future studies could also be extended to cross-country level to determine whether BTDs reflect tax-induced earnings management irrespective of the book-tax alignment level, and to determine how country-specific factors affect the level of BTDs.

The extent of non-conforming and conforming earnings management surrounding tax reforms provides also an avenue for future research in higher book-tax conformity countries, as Wong et al. (2015) show that different earnings management strategies were used in China in response to a CIT rate change. Finally, following a number of prior studies demonstrating industry differences in BTDs in lower book-tax conformity countries, future studies could examine whether such differences exist also in other countries.
SVENSK SAMMANFATTNING

Introduktion


Den tidigare forskningen om BTDs har emellertid huvudsakligen ägt rum i länder med svagare koppling mellan redovisning och beskattning (eng. book-tax conformity) och i börsnoterade bolag. Dessutom har dessa studier varit beroende av uppskattningar av det skattemässiga resultatet för att kunna beräkna skillnaden mellan det bokföringsmässiga och skattemässiga resultatet. Detta på grund av att det skattemässiga resultatet inte är offentlig information i de flesta länder. Med tanke på de privata företagens ekonomiska betydelse i Finland och bristen på tidigare forskning om BTDs iländer med starkare samband mellan redovisning och beskattning, syftar denna studie till att öka förståelsen i detta relativt outforskade område.

Huvudsytet med denna avhandling är således att undersöka om BTDs är ett lämpligt mått för resultatmanipulering i ett land med starkare samband mellan redovisning och beskattning. Måttet jämförs med ett populärt aggregerat periodiseringsmått kring skattereformen 2014 i Finland, när samfundsskattesatsen sänktes från 24,5 procent till
20,0 procent. En minskning av samfundsskatten anses generellt som ett starkt incitament för resultatmanipulering och tidigare forskning ger gott om bevis på att särskilt privata företag i länder med starkare koppling mellan redovisning och beskattning, utövar resultatmanipulering för att minska skattekostnaden. Följaktligen presenteras det också bevis på omfattningen av resultatmanipulering relaterad till skatteregleringar i 2014. Huvudbidraget från denna avhandling är dock användningen av det unika offentliga finska datasetet, som möjliggör att det reella skattemässiga resultatet kan användas som grunnlag för att beräkna BTDs. Således kan man observera BTDs i privata bolag med ett stort datamaterial och samtidigt utvidga tidigare studier, som för det mesta har förlitats sig på bokföringsmässiga mått för att identifiera resultatmanipulering på grund av skatteincitament.

**Tidigare forskning**


I följande avsnitt kommer de mest centrala tidigare studierna inom området att presenteras och diskuteras. Dessa fördelas i tre grupper: 1) resultatmanipulering i privata företag, 2) resultatmanipulering i samband med sänkning av samfundsskattesats och 3) BTDs som ett mått för resultatmanipulering. För det första finns det flera studier som har undersökt huruvida resultatmanipulering förekommer i privata företag. Dessa studier är oftast fokuserade på att jämföra privata och publiska företag och resultaten visar att privata företag manipulerar resultatet i större utsträckning än publiska företag. Bland annat Burghstahler et al. (2006) undersöker privata och publika företag i 13 EU-länder och hittar bevis på att privata företag i länder med starkare koppling mellan redovisning och beskattning uppvisar högre grad av


De tidigare studierna ovan har för det mesta förlitit sig på de aggregerade periodiseringsmodellerna, fastän synnerligen de diskretionära periodiseringsmodellerna har blivit kritiserade för att felspecificera icke-diskretionära periodiseringar som diskretionära. BTDs har således uppstått som en relativt ny identifieringsmetod och flera studier har följaktligen visat att BTDs presterar bättre än de aggregerade periodiseringsmodellerna i att upptäcka resultatmanipulering (Phillips et al. 2003; Badertscher et al. 2009; Blaylock et al. 2012). Denna tidigare forskning har för det
mesta ägt rum i USA och China som båda representerar länder med svagare koppling mellan redovisning och beskattning. Dessa studier har också kommit med flera olika BTD-mått i tillägg till de temporära och permanenta skillnaderna, som bland annat onormala BTDs (Tang & Firth 2011) och justerade BTDs (Seidman 2010) och använder för det mesta den så kallade ”income-effect BTD”, där det beskattningsbara resultatet uppskattas genom att multiplicera den bokföringsmässiga skattekostnaden med samfundsskattesatsen.

Användbarheten av BTDs som ett mått för resultatmanipulering motiveras av bland annat Phillips et al. (2003), som påpekar att periodiseringar som tillåtar mindre bedömningsutrymme inom GAAP, inte orsakar BTDs. Således anses BTDs återspeglar de diskretionära periodiseringarna väl. Dessutom visar Hanlon (2005) i sin studie att större temporära BTDs, både positiva och negativa, associeras med mindre stabila vinster och indikerar därmed diskretionära aktiviteter. Hanlon studerar vidare vad som förklarar de stora BTDs och kommer fram till att de är relaterade till periodiseringar som är enkla att manipulera och förstärker således beviset på resultatmanipuleringens beteendet bakom stora BTDs.


**Forskningsuppgift**

Den empiriska delen av denna avhandling bygger på tre hypoteser. Den bakomliggande tanken för hypotesutvecklingen är att skattesänkningen påverkade skatteplaneringen endast i 2013. Detta på grund av att skattesänkningen är 2014 meddelades först i mars 2013 och denna sänkning var mindre förväntad på grund av att samfundsskatten redan hade sänkts två gånger tidigare i 2005 och 2012. Följaktligen är den första hypotesen,


Själva testvariabeln i regressionsmodellerna för H1 och H2 är dummyvariabeln för år 2013 (Y2013) och denna antas vara negativ (positiv) för H1 (H2). För H3 är
testvariablen totala BTDs och denna regressionsmodell omfattar endast observationer från året 2013. Dessutom läggs flera kontrollvariabler till alla tre regressionsmodellerna som också ger ytterligare information om resultatmanipuleringsbeteende i samband med skattesänkning och faktorer som påverkar BTDs i finska bolag. Dessa kontrollvariabler är storlek på företaget (SIZE), skuldsättningssgrad (LEV), lönsamhet i form av ROA (ROA) och branscher. I tillägg till dessa läggs förändring i försäljning (ΔREV), materiella tillgångars bruttovärde (PPE) och gällande skattesats (ATR) som kontrollvariabler till regressionen med totala BTDs som beroende variabel.


**Resultat**

Den deskriptiva statistiken för datamaterialet ger preliminärt stöd för hypotesen. För det första kan man notera att medelvärdena för det skattemässiga resultatet är de lägsta i 2013, medan medelvärdena för det bokföringsmässiga resultatet inte följer samma riktning. Detta indikerar att de finska företagen manipulerade först och främst det skattemässiga resultatet nedåt året innan skattesänkningen för att minska skattekostnaden. För det andra visar det sig att medelvärdena för de diskretionära periodiseringarna är betydligt mer negativa i 2013 och för BTDs mer positiva i 2013. Medelvärdena för BTDs är särskilt intressanta eftersom värdena är väldigt jämn i alla andra år i undersökningsperioden. Följaktligen kan en avvikelse från den normala nivån av BTDs användas som prima facie-bevis om manipulering av det skattemässiga resultatet.

Resultaten för den första regressionen beträffande H1 visar att de diskretionära periodiseringarna är betydligt mer negativa i 2013 jämfört med andra år i undersökningsperioden: koefficienten för Y_{2013} är −0,009 och den är statistiskt

Regressionsresultaten för H2 visar för det första att BTDs tenderar vara generellt negativa i de privata finska bolagen (intercept −0,134, p-värde < 0,001). Testvariabeln Y2013 är i sin tur positiv 0,003, som förväntat, och statistiskt signifikant (p-värde 0,001). Detta indikerar att BTDs är de facto mer positiva i 2013, vilket därmed kan kopplas till att företagen manipulerade det skattemässiga resultatet nedåt mer än det bokföringsmässiga resultatet i 2013 på grund av det starka skatteincitamentet. Den mindre koefficienten för BTDs kan vidare förklaras med att företagen utövade båda typer av skattemässig resultatmanipulering: den som samtidigt också minskar det bokföringsmässiga resultatet och den som inte.

Vidare kan det konstateras att SIZE, LEV och ROA har ett positivt samband med BTDs, medan ∆REV, PPE och ROA har ett negativt samband med BTDs. Sambandet är speciellt stark för ROA och LEV och är sålunda i linje med Mills and Newberry (2001) beträffande påverkan av skuldsättningsnivån på lönsamma privata bolagens BTDs samt i linje med flera studier som visar en betydlig positiv relation mellan BTDs och företagens prestationsförmåga (Manzon & Plesko 2002; Frank et al. 2009; Guenther 2011). Alla kontrollvariabler för BTDs är statistiskt signifikanta på en procents nivå och ger därmed viktigt information om faktorer som påverkar BTDs i privata finska bolag, och mer allmänt i länder med starkare koppling mellan redovisning och beskattning. Resultaten indikerar också att det finns stora branschskillnader i BTDs.

Resultaten för de två första regressionerna visar tydligt att de diskretionära periodiseringarna (BTDs) är mer negativa (positiva) i 2013. Regressionsmodellen för H3 testar därmed om det finns en negativ koppling mellan dessa två i 2013, och resultaten visar en statistisk signifikant koefficient för BTDs med diskretionära periodiseringar som beroende variabel. Vidare blir också interceptet mer negativt i 2013 samplet och är statistiskt signifikant (p-värde 0,002). Detta indikerar att de
diskretionära periodiseringarna är mer negativa i 2013, vilket i sin tur bekräftar resultaten för H1. Resultaten för denna regression tyder också på att mindre företag och mindre skuldsatta företag är mer opportunistiska skatteplanerare. Dessa fynd stödjer tidigare studier bland finska privata bolag angående påverkan av företagets storlek (Karjalainen 2015; Sundvik 2017b) och tidigare studier bland amerikanska publika företag angående skuldsättningsgradens påverkan (Guenther 1994) vad gäller resultatmanipulering i samband med en skattesänkning.


Avslutning

Resultaten från denna avhandling ger starkt bevis på att BTDs reflekterar opportunistisk resultatmanipulering väl när det finns ett starkt skatteincitament. Dessutom visar resultaten att resultatmanipulering i samband med samfundsskattesänkningen i 2014 är signifikant enligt båda mätten: de diskretionära
periodiseringarna är mer negativa och BTDs mer positiva året innan skattesänkningen, och dessa har en negativ relation. Det kan också konstateras att alla tre hypoteser accepteras med en procents signifikansnivå och att resultaten inte förändras efter en rad robusthetstester. Följaktligen utvidgar resultaten från denna avhandling tidigare studier på flera sätt. För det första visar resultaten att BTDs är ett lämpligt mått för.resultatmanipulering också i ett land med starkare koppling mellan redovisning och beskattning. För det andra använder denna studie det reella skattemässiga resultatet istället för uppskattningar av det skattemässiga resultatet för att beräkna BTDs, vilket inte har gjorts tidigare i ett stort sampel. Slutligen introducerar denna avhandling ett nytt mått för att mäta resultatmanipulering på grund av skatteincitament genom att använda BTDs istället för de bokföringsmässiga måtten.

Resultaten från denna studie har dock vissa begränsningar. Det viktigaste är relaterat till det begränsat offentliga skattedatamaterialet som inte inkluderar data om förluster som fastställts vid beskattningen, och som inte rapporterar de negativa skattemässiga resultaten. BTDs som använts i studien har således inte justerats med de utnyttjade skatteförlusterna och samplet omfattar endast lönsamma företag. Å andra sidan kan företagen inte bestämma tidspunkten för användandet av förluster utan de dras automatiskt från ett positivt resultat, och olönsamma företag kan inte dra nytta av en samfundsskattesänkning på samma sätt som lönsamma företag.

Eftersom de viktigaste resultaten från denna studie visar att BTDs är ett starkt mått för skatteinducerad resultatmanipulering också i en omgivning med starkare koppling mellan redovisning och beskattning, kunde framtida studier undersöka hur olika nivåer av denna koppling påverkar BTDs, hur stort inflytande bransch- och landsspecifika faktorer har på BTDs och vilka bokföringsmässiga variabler som förklarar BTDs i den ovannämnda omgivningen. Vidare kunde framtida studier undersöka huruvida BTDs återspeglar resultatmanipulering på grund av andra incitament i en dylik omgivning och huruvida det finns skillnader i BTDs mellan privata och publika företag. Slutligen kunde också de temporära skillnaderna studeras separat genom att handplocka det nödvändiga datamaterialet eftersom tidigare studier i länder med svagare koppling mellan redovisning och beskattning föredrar detta mått av BTDs.
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Act on the public disclosure and confidentiality of tax information (1346/1999).

Auditing Act (1141/2015).


Tax Procedure Act (1558/1995).
### APPENDIX 1  SAMPLE FIRMS BY INDUSTRY

<table>
<thead>
<tr>
<th>Industry category</th>
<th>Number of firms</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A - Agriculture, forestry and fishing</td>
<td>181</td>
<td>2,6 %</td>
</tr>
<tr>
<td>B - Mining and quarrying</td>
<td>16</td>
<td>0,2 %</td>
</tr>
<tr>
<td>C - Manufacturing</td>
<td>1 036</td>
<td>14,7 %</td>
</tr>
<tr>
<td>D - Electricity, gas, steam and air conditioning supply</td>
<td>124</td>
<td>1,8 %</td>
</tr>
<tr>
<td>E - Water supply; sewerage, waste management and remediation activities</td>
<td>81</td>
<td>1,2 %</td>
</tr>
<tr>
<td>F - Construction</td>
<td>855</td>
<td>12,2 %</td>
</tr>
<tr>
<td>G - Wholesale and retail trade; repair of motor vehicles and motorcycles</td>
<td>1 530</td>
<td>21,8 %</td>
</tr>
<tr>
<td>H - Transportation and storage</td>
<td>491</td>
<td>7,0 %</td>
</tr>
<tr>
<td>I - Accommodation and food service activities</td>
<td>226</td>
<td>3,2 %</td>
</tr>
<tr>
<td>J - Information and communication</td>
<td>360</td>
<td>5,1 %</td>
</tr>
<tr>
<td>L - Real estate activities</td>
<td>390</td>
<td>5,6 %</td>
</tr>
<tr>
<td>M - Professional, scientific and technical activities</td>
<td>842</td>
<td>12,0 %</td>
</tr>
<tr>
<td>N - Administrative and support service activities</td>
<td>305</td>
<td>4,3 %</td>
</tr>
<tr>
<td>O - Public administration and defence; compulsory social security</td>
<td>4</td>
<td>0,1 %</td>
</tr>
<tr>
<td>P - Education</td>
<td>44</td>
<td>0,6 %</td>
</tr>
<tr>
<td>Q - Human health and social work activities</td>
<td>418</td>
<td>5,9 %</td>
</tr>
<tr>
<td>R - Arts, entertainment and recreation</td>
<td>61</td>
<td>0,9 %</td>
</tr>
<tr>
<td>S - Other service activities</td>
<td>63</td>
<td>0,9 %</td>
</tr>
</tbody>
</table>

| Total | 7 027 | 100,0 % |