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Jussi Karjalainen

Essays on Earnings Management in Private Firms

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ABSTRACT

The importance of private firms in the economy has been established, especially in Europe. The financial statements of private firms are the subject of interest for many stakeholders, such as owners, creditors, suppliers, employees, and governments. However, the extant research explaining earnings management is mostly limited to the environment of public firms, in which the role of financial reporting is more about communication with outside investors compared to private firms.

This dissertation takes advantage of the multiple institutional environments within the European Union, with a focus on Finland, for the purpose of enhancing our understanding of earnings management in private firms. The dissertation provides evidence regarding high versus low tax alignments and auditor gender as factors restricting the earnings management of private firms on a wide scale. In addition, the dissertation provides evidence regarding the resource allocation effects of dividend tax rate changes in Finland via earnings management.

The results may be beneficial for stakeholders in private firms and regulators. The results suggest that a lower, i.e., fixed, dividend tax rate would better serve the owners' and financial statement users' interests in Finland, in which a dual tax system is now partially applied. In addition, the results can be applied to the recent regulative debate in the US concerning book-tax conformities by suggesting that tax alignment, as an institutional factor, shapes the reporting demands of shareholders regarding tax-induced reporting conservatism. In addition, the results may have practical relevance regarding the differences in earnings quality between female- and male-audited private firms.

Keywords: earnings management, private firms

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ABSTRAKTI

Yksityisten yritysten rooli taloudessa, erityisesti Euroopassa, on merkittävä. Yksityisten yritysten tilinpäätöksistä ovat kiinnostuneita eri sidosryhmät kuten omistajat, velkojat, tavarantoimittajat, työntekijät ja valtiovalta. Olemassa oleva tuloksenohjausta käsittelevä tutkimuskirjallisuus on keskittynyt pääosin pörssilistattuihin yrityksiin Yhdysvalloissa, mikä tutkimusympäristönä poikkeaa merkittävästi yksityisten yritysten tutkimusympäristöstä.

Käyttämällä tutkimusaineistona Euroopan Unionin jäsenmaissa, erityisesti Suomessa toimivia yksityisiä yrityksiä, tämän väitöskirjan tavoitteena on lisätä ymmärrystä tuloksenohjauksesta sitä laaja-alaisesti rajoittavien tekijöiden kuten alhainen ja korkea tilinpäätösraportoinnin verosidonnaisuus sekä tilintarkastajan sukupuoli yksilönäkökulmasta, osalta. Lisäksi väitöskirja tarjoaa evidenssiä osinkoveromuutoksen resurssiallokaatiovaikutuksesta Suomessa tuloksenohjauksen kautta.

Väitöstutkimuksen tuloksista on hyötyä sidosryhmille ja lainsäätäjille. Väitöstutkimuksen tulokset ehdottavat, että alhaisempi, esim. kiinteä, osinkoveroaste palvelisi paremmin omistajien ja tilinpäätöksen käyttäjien intressejä Suomessa, missä kahdenkertainen verojärjestelmä on nykyisin käytössä. Tulokset ottavat kantaa myös viimeaikaiseen tutkimuskeskusteluun Yhdysvalloissa ehdottamalla, että korkea tilinpäätösraportoinnin verosidonnaisuus lisää omistajien vero-ohjautuvan konservatiivisuuden kysyntää. Lisäksi väitöstutkimuksen tuloksilla saattaisi olla käytännön relevanssia arvioitaessa tilinpäätöksen osoittaman tuloksen laadukkuutta mies- ja naistilintarkastettujen yksityisten yritysten välillä.

Asiasanat: tuloksenohjaus, yksityiset yritykset

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Kuopio, July 2015

Jussi Karjalainen

Content

1 Introduction

1.1 BACKGROUND AND RESEARCH ENVIRONMENT

Private firms play an important role in the global economy, i.e., contributing to employment, innovation, and entrepreneurship. The majority of firms operating in the European Union are privately held. In addition, about 99% of companies that operate in Europe are small or medium-sized. The extant empirical literature on earnings management over the last four decades has focused on large public corporations in the United States. Thus, the research is limited to an environment in which information asymmetry between insiders (such as managers) and outside investors in firms is mitigated through the provision of more timely accounting information and financial disclosure than that seen in private firms. (Note an earlier research project by Ball and Brown (1968) in connection with this subject). Less is known about earnings management in private firms. According to Healy and Wahlen's (1999, 368) definition, "earnings management occurs when managers use judgment 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 reported accounting numbers." Thus, in its wider meaning, earnings management refers to accrual-based accounting policy choices, as well as non-accrual-based earnings management via real activities, such as timing and amount of costs and revenues (Roychowdhury, 2006; Scott, 2009).

Information asymmetry, namely 'adverse selection,' arises because the firm manager, as an insider, knows more about the firm's financial performance than its outsiders. As investors perceive current earnings as better predictors of future cash flows than current cash flows (Dechow, 1994), managers may also use accounting judgment to make accounting information more useful to investors. These arguments are based on the assumption that investors partially 'see through' earnings management, especially in public firms. However, using accounting judgment to provide more credible information to outside stakeholders does not fall within Healy and Wahlen's (1999) definition of earnings management.

Auditors have a special role in convincing the investors of a firm, the state and municipal authorities, and other audiences that financial statements are free of managerial misstatements (i.e., fraud). Thus, auditing, although incomplete, mitigates information asymmetries and agency costs in firms (Jensen & Meckling, 1976).

This dissertation takes advantage of the research context of private firms, particularly in 13 European Union member states, with a focus on Finland. In private firms, ownership is more concentrated among insiders, such as managers and directors, than in public firms. Therefore, the incentives of owners and managers are more aligned in this context. In private firms, non-managing owners, who are typically insiders such as members of the board of directors and relatives, presumably demand less timely information regarding economic losses when communicating with firm managers (Ball & Shivakumar, 2005). On the other hand, lenders, such as banks, may be important outside investors in private firms, which most often rely on bank-based debt financing sources. Investors, such as lenders, may face greater information asymmetries in private firms because these firms disclose less non-accounting information, and the accounting information they disclose is less timely than that disclosed by public firms (i.e., annual versus interim reports). In contrast to this view, the prior literature suggests that investors in private firms rely less on earnings-based heuristics when evaluating private firm performance than when evaluating public firm performance (Mills & Newberry, 2001; Beatty, Ke, & Petroni, 2002). These arguments are based on the idea that private firm stakeholders have 'insider access' to information, much like stakeholders in code-law environments (Ball & Shivakumar, 2005; Ball, Kothari, & Robin, 2000). The prior literature also suggests that the accounting policy choices of private firms may be more affected by internal incentives, such as contracts, because investors in these firms demand less timely information than investors in public companies (Beatty & Harris, 1999; Ball & Shivakumar, 2005; Burgstahler, Hail, & Leuz, 2006). Nevertheless, some studies suggest that external reporting demands may explain earnings management in private firms as well (Coppens & Peek, 2005; Peek, Cuijpers, & Buijink, 2010). In contrast to prior studies, Sundgren (2007) shows that there are no differences in accounting choices/earnings management between private and public Finnish firms. The mixed findings on the role of earnings management in private firms warrant further research.

1.2 PURPOSE OF THE DISSERTATION

Using the research context of private firms, with a focus on the Finnish institutional environment, the objective of this dissertation is to enhance our understanding of earnings management in private firms. To achieve this objective, the dissertation is comprised of four related essays. The research questions posed in the individual essays are as follows:

(1) Are the earnings of private firms managed more for tax reasons in high tax alignment environments than in low tax alignment environments based on conditional conservatism?

(2) Are earnings managed to avoid corporate tax or owners' tax when incentives compete in private firms?
(3) Does the auditor's gender affect the ability of private firms to manage their earnings? Are there differences in earnings management between male- and female-audited firms?
(4) Does the auditor's gender affect the ability of private firms to manage their earnings on a cosmetic level? Are there differences in cosmetic earnings management between male- and female-audited firms?

The first, third, and fourth research questions enhance our understanding of factors that limit the scope of earnings management. The second research question enhances our understanding of the resource allocation effects of dividend tax rate changes via earnings management. Focusing on conditional conservatism (first) and earnings cosmetics (fourth), the first and fourth essays also engage in the discussion regarding income smoothing and signaling in private firms.

The rest of the dissertation follows the following structure: Section 1.3 reviews the theoretical background related to the essays in the dissertation. Section 2 summarizes the individual essays, which are presented in their original form at the end of the dissertation. This section also presents the contributions of the results of the individual essays. Finally, Section 3 discusses the results of the individual essays, presents the joint contribution of these results, and introduces the practical implications arising from them.

1.3 EARNINGS MANAGEMENT AND PRIVATE FIRMS

Healy and Wahlen (1999) emphasize two distinct roles of earnings management: signaling- and contractual-based. From a signaling perspective, the early empirical literature concentrates on the income smoothing type of earnings management, by which firms attempt to give stakeholders the impression that they are low-risk firms (Beidleman, 1973; Ronen & Sadan, 1981). The concept of accounting conservatism becomes important in differentiating the income smoothing opportunities of firms. Conditional conservatism, as one dimension of overall accounting conservatism, generates earnings that reflect 'bad news' in a timelier manner than 'good news' due to the existence of greater verification requirements for the recognition of economic gains than the recognition of economic losses (Basu, 1997). This US-style income statement conservatism increases the volatility of the reported income because it recognizes economic losses in a timelier manner than gains. As stated in literature:

> The primary accounting tool available to reduce earnings volatility is to fail to recognize economic gains and losses in a timely fashion; that is, to base earnings more

> on current-period realizations of cash flows, and less on accounting accruals that capitalize changes in present values of future cash flows. Reported earnings then is a smoothed moving average of past economic income, and thus is less timely in incorporating information about the economic value of the firm. (Ball 2004, 125)

Balance sheet conservatism, or unconditional conservatism (Beaver & Ryan, 2005), which is in contrast to income statement conservatism, allows firms to undervalue the book value of equity, i.e., through hidden reserves, and overwrite the book value of liabilities, including the understatement of earnings in favourable circumstances. Therefore, it enables companies to report smoother earnings, i.e., for stable dividend, bonus or tax payments, or hide losses to signal better performance to the stakeholders (Ball, 2004). Since unconditional conservatism produces a persistent understatement of net assets, García Lara, García Osma, and Penalva (2009) suggest that unconditional conservatism as a long run accounting policy is less flexible in shifting income across periods from an earnings management perspective than conditional conservatism. Unlike unconditional conservatism, conditional conservatism allows large temporary negative shocks on earnings either through timelier recognition of current economic losses or delays of current economic gains, and is therefore more efficient in altering current earnings numbers. The discretionary accruals refers to earnings management in a 'hard-to-detect' manner, and may take the form of increases in amortization charges, excessive liabilities for product guarantees, contingencies, and rebates, or generous provisions for doubtful accounts, and obsolescence of inventories (Scott, 2009). DeFond and Park (2001) pointed out that especially discretionary accruals are subject to reversal. This means that current earnings management based on discretionary accruals will take an opposite effect on income in the subsequent periods.

Burgstahler and Dichev (1997) examined the cross-sectional distributions of net earnings and net earnings changes and found that corporate loss avoidance in income smoothing is a relatively common phenomenon in public firms. Specifically, they perceived the discontinuity at zero in the distribution of both indicators. Coppens and Peek (2005) extended the research of Burgstahler and Dichev (1997) on European private and public firms, and found that certain private firms avoid losses in a similar manner to public firms. Moreira (2006) showed that loss avoidance is more important for private firms with high financing needs. A growing body of research focuses on capital market pressures and institutional differences related to investor protection as factors inducing more credible accounting-based signaling (i.e., conditional conservatism) among firms (Ball, Kothari, & Robin, 2000; Leuz, Dhananjay, & Wysocki, 2003; Ball & Shivakumar, 2005; Bushman & Piotroski, 2006; Peek, Cuijpers, & Buijink, 2010). Recently, Peek et al. (2010) showed that more conditional conservatism is induced by creditors with strong national creditor protection, but not by well-protected shareholders in private firms. These results

suggest that the shareholders and creditors have differential accounting information needs regarding the timely recognition of economic gains and losses.

A more direct measure used to identify signaling directed at outside stakeholders of firms is cosmetic earnings management, by which firms attempt to give stakeholders an impression about better underlying economic performance using a small upward rounding of the net income number. Later studies based on Carslaw's (1988) theory show that cosmetic earnings management is a common phenomenon among public corporations worldwide (Thomas, 1989; Van Caneghen, 2002; Niskanen & Keloharju, 2000; Kinnunen & Koskela, 2003). Less is known about earnings cosmetics among private firms.

Contracts that are explicitly or implicitly connected to the accounting numbers of firms provide another incentive to manage (i.e., smooth) the earnings of firms. Typical explicit contracts include managerial bonuses (DeFond & Jiambalvo, 1994), debt covenants (Healy, 1985; Dichev & Skinner, 2002), and taxation (Guenther, 1994). Typical implicit contracts include management buyouts (DeAngelo, 1986) and labour union contract negotiations (Liberty & Zimmerman, 1986). From a contracting perspective, positive accounting theory states that a manager may act either in his or her own self-interest (i.e., increasing his/her job security or smooth compensation) or on behalf of owners during accounting policy choices (Watts & Zimmermann, 1986). Positive accounting theory is based on the existence of agency costs that arise from the conflict of interests between the principal and the agent that has been engaged to act on behalf of the principal (Jensen & Meckling, 1976). As the principal is unable to observe the agent's efforts, the agent may have some incentive to shirk. This kind of behavior is referred to as a 'moral hazard.' Another typical principal-agent relationship, in which creditors are the principal and owners are the agent, arises when a firm finances its operations with debt capital.

Accounting information serves as a monitoring and regulating tool for many of a firm's contracts, which are tied up with the accounting numbers. Based on the agreement between the owners (as the principal) and the manager (as the agent), one solution for the moral hazard problem is to tie the manager's compensation to the firm's net income. DeFond and Jiambalvo (1994) and Healy (1985) provide evidence of earnings management based on bonus schemes. Dividend policy decisions, which are especially relevant for shareholders, are based on cumulated net earnings; therefore, they are considered to be dependent on the accounting policy choices of a firm. As owners and lenders have asymmetric pay-offs, lenders may want to restrict the borrower's actions, i.e., excessive risk-taking or dividends, via debt covenants that are linked to the accounting numbers of the borrower. Accounting conservatism may benefit the debt contracts because it increases the likelihood of technical default and restricts excessive dividends on the part of the borrower (Ahmed, Billings,

Morton, & Stanford-Harris, 2002; Watts, 2003a). If technical default occurs, the lender has an opportunity to change the terms of a loan or even cancel it. Ahmed et al. (2002) suggest that if a firm is simultaneously subject to dividends, operational risk, and leverage, the agency costs of debt are mitigated through more conservative accounting. A growing body of research focuses on the role of accounting conservatism in strengthening corporate governance structures, such as board monitoring in public firms (Watts, 2003b; Beekes, Pope, & Young, 2004; Ahmed & Duellman, 2007; Lafond & Roychowdhury, 2008). Accounting policy choices that minimize costs, such as taxes, are considered to be contract-efficient from a shareholder point of view.

Corporate and dividend tax-induced earnings management

Taxation, as an explicit contract between owners and the government, may become relevant for earnings management because accounting policy choices affect the taxable income of firms. Tax incentives for earnings management have been widely studied among public corporations in the US, i.e., in terms of corporate tax rate changes (Scholes, Wilson, & Wolfson, 1992; Guenther, 1994; Lopez, Regier, & Lee, 1998), net operating losses (Maydew, 1997), depreciation policies (Keating & Zimmerman, 1999), deferred tax expenses (Phillips, Pincus, & Rego, 2003), and permanently reinvested foreign earnings (Krull, 2004). In addition, a growing body of research focuses on the connection between financial reporting and tax accounting in these firms (Guenther, Maydew, & Nutter, 1997; Hanlon, 2005; Badertscher, Phillips, Pincus, & Rego, 2009; Frank, Lynch, & Rego, 2009; Blaylock, Shevlin, & Wilson, 2012). Mills and Newberry (2001) suggest that book-tax differences become less relevant indicators of aggressive tax positions for private firms because investors in these firms rely less on earnings-based heuristics in evaluating firm performance than in public firms. However, the empirical literature on tax incentives at the corporate and dividend levels and earnings management in private firms remains scarce.

The degree of alignment between firms' financial and tax accounting provides an institutional perspective on tax-induced earnings management. The link between a firm's taxes and its reported net earnings is strong in most European countries, including Finland (high tax alignment countries). In low tax alignment countries, such as the US and the UK, firms have more opportunities to use financial accounting for reporting purposes, i.e., signaling or contracts other than tax, irrespective of corporate tax accounting. This is because firms in these countries typically operate in common law and use two parallel systems for calculating income for financial reporting (e.g., US GAAP) and taxable income under public sector rules (e.g., the US Tax Code and IRS regulations) (Shackelford & Shevlin, 2001; Ball, 2004; Desai & Dharmapala, 2009). This is in contrast to high tax alignment countries, in which accounting regarding the net income of firms is almost identical to accounting regarding income used for tax reporting. Prior studies show that strong versus weak tax alignment makes a

difference in the earnings management of private firms (Coppens & Peek, 2005; Burgstahler et al., 2006; Goncharov & Zimmermann, 2006; Van Tendeloo & Vanstraelen, 2008). These studies implicitly provide a tax-reporting-based explanation for these observations. Kasanen, Kinnunen, and Niskanen (1996) show that public firms in Finland (a high tax alignment country) manage to have more earnings meet target dividend levels simultaneously because they minimize corporate tax. Watts (2003a) pointed out that accounting conservatism reduces the present value of corporate tax, and therefore, it may be valuable to owners. Since conditional conservatism allows temporary significant earnings decreases and shifting income across periods, García Lara et al. (2009) suggest that conditional conservatism is a more effective accounting policy than unconditional conservatism regarding accounting responses to the differences in marginal tax rates, which may affect the tax-induced reporting of firms. Less is known about the conditional conservatism and tax-induced reporting of private firms in high tax alignment environments.

From an explicit contracting perspective, the dividend taxation may become relevant if the firm operates in an environment with a dual taxation system. Under this system, owners are obligated to pay taxes from their dividends in addition to corporate tax. A dual taxation system is commonly used in many countries, including Finland.

Tax rate changes may provide firms with an incentive to temporarily defer earnings for tax reporting purposes. Scholes et al. (1992) and Guenther (1994) show that prior to the effective date of the US Tax Reform Act of 1986, public firms deferred income in response to reductions in the corporate tax rate. The Finnish tax reform of 2005 reduced the corporate tax rate from 28% to 26% at the beginning of 2005. Concurrently, the owners' taxation was tightened because the full imputation system of corporate tax was gradually abandoned during the period 2005–2006. Prior studies of the Finnish tax reform of 2005 show that private firms adjusted their dividend policies in response to the tax reform with the aim of benefiting from the lower dividend tax rate (Kari, Karikallio, & Pirttilä, 2008, 2009; Harju & Matikka, 2013). Harju and Matikka (2013) showed that owners of private firms shifted their personal income from dividends to salaries after the tax reform. These results imply that private firm owners are less dependent on smooth dividend-based income. Such income-shifting behavior is less frequently available to shareholders in public firms.

Gender, auditors, and earnings management

Prior literature brings out the differences between females and males regarding risk attitudes, overconfidence (Byrnes, Miller, & Schafer, 1999; Jianakoplos & Bernasek, 1998; Schubert, 2006; Olsen & Cox, 2001), ethical behavior, and moral reasoning abilities (Betz, O'Connell, & Shepard, 1989; Ruegger & King, 1992; Ford & Richardson, 1994; Khazanchi, 1995; Eynon, Hill, & Stevens, 1997; Bernardi & Arnold, 1997). These studies are mostly based on experimental

behavioral studies conducted for students and professionals, as well as real business decision-making. Collectively, the prior studies suggest that females are more risk-averse and capable of thinking more ethically than males. However, these results may not apply to top executives (Johnson & Powell, 1994) or in certain cultural environments (Roxas & Stoneback, 2004).

With respect to prior evidence on gender and behavior, it is possible that gender affects the earnings management of firms. Based on this rationale, some studies have investigated the connection between managers' and directors' gender and earnings management in public corporations (Gul, Srinidri, & Tsui, 2007; Krishnan & Parsons, 2008; Peni & Vähämaa, 2010). Gul et al. (2007) show that female representation in a board of directors restricts earnings management more than male representation in a board of directors. Peni and Vähämaa (2010) documented that female chief financial officers choose more income-decreasing accounting policies than their male counterparts. However, they did not find a connection between a top executive officer's gender and earnings management. Collectively, the evidence on gender and earnings management suggests that females in certain positions, particularly in highly regulated accounting professions (board members and accountants) in public firms, are more conservative in their accounting policy choices than males.

In the context of auditors in US public corporations, Ittonen, Miettinen, and Vähämaa (2010) show that male auditors charge higher audit fees than female auditors. Their findings also suggest that male auditors are more dependent on their clients than female auditors. Gold, Hunton, and Gomaa (2009) show that females are more willing to provide judgments such as going-concern opinions in their audit reports. Recently, Hardies, Breesch, and Branson (2014) found a similar behavioral pattern regarding female and male auditors in private firms.

Especially in small firms, which most often lack internal accounting expertise, auditors are strongly involved in accounting as independent professionals. Some studies suggest that the presence of high-quality auditors makes a difference in the accounting choices of private firms (Van Tendeloo & Vanstraelen, 2008; Cano-Rodríquez, 2010). These results imply that some auditors use accounting judgment for the purpose of providing more or less credible information to outside investors. Less is known about auditors' gender and earnings management in private firms.

2 Summary and contributions of the essays

2.1 ESSAY 1

The first essay investigates whether the earnings of private firms are managed more for tax reasons in high than in low tax alignment countries based on conditional conservatism. The sample was obtained from AMADEUS, maintained by Bureau van Dijk, which contains financial information regarding public and private European firms. The sample contains medium-sized and large private firms from 13 member states of the European Union for the period 2005–2011. In the sample, Ireland, the Netherlands, and the United Kingdom are classified as low tax alignment countries, and the rest of the sample countries (namely Austria, Belgium, Finland, France, Germany, Greece, Italy, Portugal, Spain, and Sweden) are classified as high tax alignment countries. Following prior studies (see Burgstahler et al., 2006; Peek et al., 2010), this dichotomy is used to classify European countries into high and low tax alignment regimes. Two piece-wise linear regression models of conditional conservatism were estimated: Basu's (1997) time-series persistence of transitory loss components of earnings and Ball and Shivakumar's (2005) model of differential accruals processes of gains and losses based on cash flow from operations. Both models are based on the assumption that a more timely recognition of economic losses than gains imposes more variation in reported earnings, and hence, restricts aggressive income smoothing. Conditional conservatism may be more valuable for owners in high tax alignment countries from an earnings management perspective because this accounting policy allows more flexibility in shifting income across periods allowing large negative shocks in current earnings for tax-related reasons. This is because owners presumably demand less credible signals regarding the timely accounting recognition of economic losses in the context of private firms.

We find that more tax-induced reporting conservatism occurs in high tax alignment countries than in low tax alignment countries after controlling for tax incentive and firm-specific determinants for conditional conservatism. Specifically, we show that the result only holds for firm-years with positive cash flow from operations/pretax accounting earnings. When it comes to negative cash flow, we observe no differences between high and low tax alignment countries in the conditional conservatism of private firms. Thus, the study

provides a taxation-based explanation for conditional conservatism, which is attributable to the differential degrees in tax alignment between countries in private firms.

Contribution of Essay 1

The prior literature provides several alternative explanations for conditional conservatism such as contracts, litigation, taxation, and regulation (Watts, 2003a). While tax incentives' effects on earnings management have been widely studied among public corporations in the US, we still do not know much about the impacts of tax incentives on conditional conservatism. The prior literature provides mixed views on whether unconditional, conditional, or both are induced by taxation (Qiang, 2007; García Lara et al., 2009). In addition, prior studies of conditional conservatism in specific institutions have focused on investor protection in public and private firms (see Ball et al., 2000; Leuz et al., 2003; Ball & Shivakumar, 2005; Peek et al., 2010). However, empirical literature on conditional conservatism and tax alignment is scarce. Focusing on conditional conservatism, the first essay extends prior studies on strong versus weak tax alignment and earnings management limited to distinguish between timeliness of economic gains and losses reported for taxation purposes (Coppens & Peek, 2005; Burgstahler et al., 2006; Goncharov & Zimmermann, 2006; Van Tendeloo & Vanstraelen, 2008). Taken from the perspective of owners through taxation for private-firm reporting, the results of the first essay also contribute to the literature on reporting demands by investors in private firms (Ball & Shivakumar, 2005; Peek et al., 2010).

2.2 ESSAY 2

The second essay takes advantage of the Finnish tax reform of 2005 as a natural experiment for the purpose of addressing the question of whether earnings are managed to avoid corporate or owners' tax when incentives compete in private firms. The Finnish tax reform of 2005 provides an excellent setting for this type of investigation because the tax laws were changed so that corporate tax rates were decreased and tax rates for dividends were increased simultaneously. Due to Finland's high tax alignment accounting, managers of private firms with strong owner opportunism have less discretion in terms of minimizing both corporate and personal tax through dividend payments simultaneously because they manage earnings in response to the tax reform. The essay uses two measures for earnings management: the modified Jones (1991) model based on discretionary accruals and the DeFond and Park (2001) model based on unexpected working capital accruals. Dechow, Sloan, and Sweeney (1995) suggest that the cross-sectional modified Jones (1991) model is the best indicator of the upward type of earnings management. The panel data for both models

were obtained from AMADEUS. The experiment year for both models was 2004, which was the year prior to the effective date of the tax reform.

The results suggest that owners' tax minimization through dividends dominated over corporate income tax minimization in terms of earnings management. Specifically, private firms did not manage earnings downwards in 2004 to shift income to a later period, but they opportunistically managed earnings upwards in 2004 in order to receive the tax benefits from the more favorable dividend taxation system (the lower dividend tax rate). This study further showed that the results became stronger with decreasing private firm size as a proxy for the strength of managerial self-interest through implicit ownership concentration. Thus, the study sheds light on how owner opportunism manifested in the form of tax avoidance, which dominated the resource allocations of small private firms.

Contribution of Essay 2

The second essay contributes to the prior literature on tax-induced earnings management regarding corporate taxation (Scholes et al., 1992; Guenther, 1994; Watrin, Pott, & Ullmann, 2012). The second essay also contributes to the prior literature on the Finnish tax reform of 2005 regarding the dividend policy decisions of private firms (Kari et al., 2008; Kari et al., 2009; Harju & Matikka, 2013). By taking advantage of the research setting of private firms, the second essay provides evidence for strong owner opportunism involved in earnings management. In addition, utilizing the Finnish tax reform of 2005 as a natural experiment, the second essay is able to conduct a powerful test and draw strong conclusions about causal inferences between incentives to minimize corporate or owners' tax and earnings management. The Finnish tax reform provides an excellent setting for this type of investigation because the tax laws were changed so that corporate tax rates were decreased and tax rates for dividends were increased simultaneously.

2.3 ESSAY 3

The third essay investigates whether there are differences in earnings management between male- and female-audited private firms. The Jones (1991) model is used to estimate discretionary accruals for Finnish, small and medium-sized, private firms. The final test sample, obtained from VOITTO, maintained by Suomen Asiakastieto Oy, consisted of 3,900 individual firms and 13,908 observations for the period 1999–2006.

Our results concerning the differences in earnings management practices between firms audited by males and females are twofold. First, when we regress the absolute (unsigned) earnings management on a gender dummy and a set of control variables, we find that female auditors were associated with more

earnings management. When the analysis is conducted separately for sub-samples of income-increasing and income-decreasing discretionary accruals, we find that females were associated with more income-decreasing discretionary accruals than males. These results imply that female auditors are more restrictive regarding their subjective accounting judgments concerning positive (income-increasing) discretionary accruals than male auditors.

2.4 ESSAY 4

The fourth essay also takes advantage of the research setting of Finnish private firms for the purpose of investigating whether there are differences in cosmetic earnings management between male- and female-audited private firms. In total, our final sample obtained from VOITTO consists of 12,357 observations with a positive net income for the period 1999–2006. Our findings suggest that cosmetic earnings management, that is, the small upward rounding of the first digit of the net income number based on Carslaw's (1988) theory, is more evident among male auditors than female auditors in private firms. Thus, the results of the fourth essay suggest that cosmetic earnings management is a common phenomenon that is attributable to the auditor's gender in private firms.

Contributions of essays 3 and 4

Focusing on the research context of auditors, the third and fourth essays extend the literature on gender and earnings management regarding the managers and directors of public firms (Gul et al., 2007; Krishnan & Parsons, 2008; Peni & Vähämaa, 2010). These essays also contribute to the prior earnings management literature regarding big auditors in private firms (Van Tendeloo & Vanstraelen, 2008; Cano-Rodríques, 2010). The Finnish private firm setting is useful from the perspective of the third and fourth essays because auditors were obligated to individually sign the audit reports, even in the smallest companies, during the research period. This is in contrast to the dominant institutional settings, such as those in the US, in which the audit reports of large public companies are typically signed by the audit firm. In addition, the Finnish private firm setting is unique because the financial statements are typically audited by a single independent auditor, and more than one chosen auditor was a volunteer in a small firm during the research period. This is in contrast to large public corporations, which are typically audited by teams of auditors. Hence, the Finnish private firm setting makes it possible to identify the auditor's gender and other auditor characteristics. Thus, it provides a new context in which to investigate the relationship between gender and earnings management.

The third essay adopts the earnings management perspective based on signed discretionary accruals. The fourth essay adopts a signaling perspective regarding the earnings management of client firms based on earnings cosmetics.

Thus, the fourth essay also contributes to the prior literature on earnings cosmetics regarding public corporations.

3 Conclusions and contributions of the dissertation

The first essay investigates whether the earnings of private firms are managed more for tax reasons in high than in low tax alignment countries based on conditional conservatism. The results of the first essay support prior studies, which suggest that conditional conservatism is induced by taxation in listed US firms (García Lara et al., 2009), by showing that conditional conservatism is induced by taxation in private firms and that this is especially true in high tax alignment environments (Burgstahler et al., 2006). Since tax-induced reporting can be directed to the owners' reporting demands, the results of the first essay imply that it is not only creditors and shareholders who have differential reporting demands in private firms as suggested by prior studies (Peek et al., 2010). In addition, the reporting demands regarding timely recognition of economic gains and losses between shareholders differ depending on the degree of country-specific tax alignment. Institutional factors, including omitted ones, overlap in practice (see La Porta, Lopez-de-Silanes, & Shleifer, 1998); therefore, the results of the first essay must be interpreted with caution. However, evidence regarding negative and positive cash flows/pretax earnings, which differentiate tax incentives from other earnings management incentives in private firms, adds robustness to the first essay's results.

Focusing on the Finnish tax reform of 2005 as a natural experiment, the second essay examines whether earnings are managed more to minimize corporate tax or owners' tax when incentives compete in private firms. The results of the second essay suggest that owners' tax minimization dominated over firm tax minimization and affected earnings management. Given that under a dual taxation system, owners personally bear the accumulated costs from firm income and dividend tax, the results of the second essay suggest that tax-induced earnings management in private firms is determined by owners' personal tax avoidance. Such behavior affected resource allocation in the economy through excessive dividends. Collectively, the results of the first and second essays imply that subjecting net earnings to managerial judgment seems to be the trade-off between the owners' (and managers') contractual benefits

related to dividends and taxation, as well as income smoothing in case of losses, in private firms.

The third and fourth essays investigate whether there are differences in (cosmetic) earnings management between male- and female-audited private firms. Collectively, the results of the third and fourth essays suggest that female-audited firms overstate reported earnings less than male-audited firms, and that this is also true on a cosmetic level. The results of the third essay support prior studies – which suggest that firms' female accounting professionals are more conservative in accounting than their male counterparts – by showing that this is also true at the auditor level. As suggested in prior studies, female auditors are more likely to intervene in accounting misstatements or errors based on evidence on audit reports than male auditors. The results of the fourth essay suggest that male auditors are less likely to intervene in accounting misstatements or errors than female auditors since earnings cosmetics is more likely to occur in male-audited than in female-audited private firms. Prior studies also suggest that male auditors may be more dependent on their clients than female auditors. Thus, differences in professional ethics (audit quality) between female and male auditors cannot be ruled out as an alternative explanation for the observed differences in earnings management between male- and female-audited private firms in the third and fourth essays. Thus, the results of the fourth essay suggest that gender-based differences in auditing affect the earnings quality of private firms.

Collectively, the results of the dissertation enhance our understanding of earnings management in private firms. The first, third, and fourth essays take a wider view of earnings management when examining factors that limit earnings management in private firms, such as high versus low tax alignments and the auditor's gender. The second essay examines whether tax incentives at the owner level arising from dividend tax rate changes, in isolation from other reporting incentives, affect resource allocation in the economy through earnings management. In addition, the first and fourth essays enhance our understanding of income smoothing and signaling in private firms.

The Finnish private firm setting used in the second, third, and fourth essays provides a methodological advantage when investigating earnings management from various perspectives. This is because local Finnish accounting rules, much like local accounting rules in many other European code-law countries, provide more opportunities to manage earnings, i.e., income smoothing. This is in contrast to dominant institutional settings, such as those in the US, which operate under Generally Accepted Accounting Principles that are primarily designed to ensure the usefulness of accounting information for investors.

The results of this doctoral dissertation may have practical relevance for the stakeholders of private firms and legislators. Contractual-based earnings management on behalf of owners may become costly to governments because tax-induced earnings management lowers the tax receipts, and thus, runs

counter to the needs of taxing authorities and other stakeholders. If dividends have become excessively paid by private firms, as suggested in the second essay, this may not be in accordance with the best interests of lenders, which are typically important investors in private firms. Although the observed differences in the earnings management of male- and female-audited firms in the third and fourth essays are indeed marginal, the signaling may have a considerable effect on the decisions of interest groups.

The dual taxation of owners' income is now partially applied in Finland, where corporate and dividend tax rates have been subject to continual change in recent years. From a regulative perspective, the results of the second essay imply that tightening the owners' taxation through dividends may have a larger impact on the economy as a whole if the ownership of private limited liability companies becomes less attractive in Finland. In addition, if tax-free dividends under a dual taxation system, which provides 'dividend tax carrots,' becomes more subject to earnings management, this may not serve the financial statement users' interests in terms of reducing the information asymmetries and agency costs in Finnish private firms either.

Recently, there have been calls for greater conformity between financial and tax accounting in the US (a move toward the European system) because this reduces the compliance costs and adds monitoring opportunities (Freedman, 2008). The results of the first essay suggest that tax alignment, as an institutional factor, shapes the reporting demands of shareholders regarding timely recognition of economic gains and losses reported for tax reasons in private firms. In particular, high tax alignment limits income smoothing (especially boosting earnings up) more dramatically than low tax alignment. This may increase information asymmetries, especially in public firms, and it certainly works against the reporting needs of those firms that once smoothed their earnings. However, the results of the first essay may not hold for public firms since their reporting environment and governance structure differ from those privately held.

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Essays

I TAX ALIGNMENT AND CONDITIONAL CONSERVATISM: AN EMPIRICAL ANALYSIS OF EUROPEAN PRIVATE FIRMS

Karjalainen, Jussi, Niskanen, Jyrki & Niskanen, Mervi. 2015. Tax alignment and conditional conservatism: An empirical analysis of European private firms. Working Paper, University of Eastern Finland.[1]

II THE EFFECTS OF CORPORATE VERSUS OWNERS' TAX MINIMIZATION ON EARNINGS MANAGEMENT WHEN INCENTIVES COMPETE: EVIDENCE FROM PRIVATE FINNISH FIRMS

Karjalainen, Jussi. 2015. The effects of corporate versus owners' tax minimization on earnings management when incentives compete: Evidence from private Finnish firms. Working Paper, University of Eastern Finland.[2]

III AUDITOR GENDER AND CORPORATE EARNINGS MANAGEMENT BEHAVIOUR IN PRIVATE FINNISH FIRMS

Niskanen, Jyrki, Karjalainen, Jukka, Niskanen, Mervi & Karjalainen, Jussi. 2011. Auditor gender and corporate earnings management behavior in private Finnish firms. Managerial Auditing Journal 26(9), 778–793. http://dx.doi.org/10.1108/02686901111171448

VI EARNINGS COSMETICS AND AUDITOR GENDER: EVIDENCE FROM FINNISH PRIVATE FIRMS

Niskanen, Jyrki, Karjalainen, Jukka, Karjalainen, Jussi & Niskanen, Mervi. 2012. Earnings cosmetics and auditor gender: Evidence from Finnish Private Firms. International Journal of Behavioural Accounting and Finance 3(3/4), 188–201.

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[2] An earlier version of this paper was presented at the European Accounting Association 37th Annual Congress, Tallinn, Estonia, from 17 to 20 May of 2014.

Tax Alignment and Conditional Conservatism: An Empirical Analysis of European Private Firms

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ABSTRACT

The aim of this study is to investigate whether tax-induced conditional conservatism differs in high versus low tax alignment countries in a sample of medium- and large-sized private firms in 13 European countries. The results suggest that conservatism in tax-induced reporting is more likely to occur in high tax alignment countries after controlling for tax incentive and firm-specific determinants of conditional conservatism. Specifically, we show that the result only holds for firm years with positive cash flow from operations/pretax accounting earnings. When it comes to negative cash flow, we observe no differences between high and low tax alignment countries in the conditional conservatism of private firms. Thus, the study sheds light on how tax alignment, as an institutional factor, shapes the reporting demands regarding timely recognition of economic gains and losses reported for tax reasons by private-firm shareholders.

JEL classifications: K22, K34, M41, M48

Keywords: conditional conservatism; tax alignment; reporting incentives; private firms

1 Introduction

Conditional conservatism, as one dimension of overall accounting conservatism, generates earnings that reflect 'bad news' in a timelier manner than 'good news' due to the existence of greater verification requirements for the recognition of economic gains than the recognition of economic losses (Basu, 1997). Unconditional conservatism is 'news independent' and generates a persistent 'unrecorded goodwill' (Beaver & Ryan, 2005). Carcía Lara, Carcía Osma, and Penalva (2009) suggest that conditional conservatism is a valuable accounting strategy to minimize the tax bill for firms since it provides more flexibility in income shifts across periods either through timelier recognition of losses or delays of current economic gains than unconditional conservatism.

The aim of this study is to investigate whether tax-induced conditional conservatism differs in high versus low tax alignment countries in a sample of medium- and large-sized private firms from 13 European countries. Austria, Belgium, Finland, France, Germany, Greece, Italy, Portugal, Spain, and Sweden represent the countries with a high tax alignment, in which taxable income is almost identical to accounting net income. The rest of the countries, i.e., the UK, Ireland, and the Netherlands, represent low tax alignment countries. Many of those countries, such as the UK, use two parallel (common law) systems for calculating taxable income under public sector rules and accounting income for financial reporting. Consequently, the tax-saving issues for financial reporting become more important for firms operating in high tax alignment countries compared to those in low tax alignment countries.

The prior literature provides contracting, litigation, regulation, and taxation explanations for accounting conservatism (Watts, 2003a); and empirically provides mixed views on the role of taxation inducing conservatism regarding its two dimensions (Basu, 2005; Qiang, 2007; Carcía Lara et al., 2009). This literature is limited to US public corporations (which represent a low tax alignment country), and we argue that these results cannot be applied to high tax alignment environments. Since capital market forces are weaker with respect to private firms, and since tax issues are relatively more important in private firms (Beatty & Harris, 1999; Mills & Newberry, 2001; Beatty, Ke, & Petroni, 2002; Ball & Shivakumar, 2005; Peek, Cuijpers, & Buijink, 2010), it is possible that these results do not hold for private firms.

Another body of research focuses on high versus low tax alignment and financial reporting (Coppens & Peek, 2005; Burgstahler, Hail, & Leuz, 2006; Goncharov & Zimmermann, 2006; Van Tendeloo & Vanstraelen, 2008). These studies document that the earnings of private firms are more managed (at the

aggregate level) in high tax alignment countries than in low tax alignment countries. These studies provide a taxation-based explanation for the observations. However, they are mostly limited to summary measures of earnings management, which may signal a number of reporting incentives (also other than tax). Furthermore, these studies are limited in their assessment of whether the earnings management of private firms regarding timeliness of economic gains and losses induced by taxation differs between the two country categories. We contribute to this literature by using conditional conservatism. As suggested by García Lara et al. (2009), conditional conservatism allows firms to report earnings in a less smooth manner by providing flexibility using temporary, significant, current earnings decreases and income shifts from periods for tax reporting purposes. In addition, by focusing on high versus low tax alignment as an important institutional factor, our study contributes to the discussion about institutional factors that determine the conditional conservatism of public and private firms worldwide (see Ball, Kothari, & Robin, 2000; Leuz, Dhananjay, & Wysocki, 2003; Bushman & Piotroski, 2006; Peek et al., 2010).

Our findings show that tax-induced reporting conservatism is more likely to occur in high tax alignment countries than in low tax alignment countries after controlling for tax incentive and firm-specific determinants of conditional conservatism.

The remainder of the paper is organized as follows. Section 2 offers the theoretical background and develops the hypotheses. Section 3 describes the research design and data. Section 4 presents the main results and the sensitivity analyses. Section 5 features a discussion and concludes the paper.

2 Theoretical background and hypotheses development

The literature provides several explanations for reporting conservatism, including contracting, shareholder litigation, accounting regulation, and taxation explanations (Watts, 2003a, 2003b). Prior studies, which were mostly conducted in common law countries such as the US and the UK, suggest that conservatism enhances the contracting efficiency of the various stakeholders of a firm (Ahmed, Billings, Morton, & Stanford-Harris, 2002; Beekes, Pope, & Young, 2004; Ahmed & Duellman, 2007; Qiang, 2007; Lafond & Roychowdhury, 2008). Support for this argument is also provided by cross-country studies, such as Ball, Kothari, and Robin (2000) as well as Leuz, Dhananjay, and Wysocki (2003), which suggest that conditional conservatism is induced by investor protection in public firms. Bushman and Piotroski (2006) identified several institutional factors that determine the conditional conservatism of public-firm accounting. Qiang (2007) draws a distinction between conditional and unconditional conservatism, and shows that "news independent" unconditional conservatism, which can be considered as less valuable for stakeholders, is induced by taxation, whereas conditional conservatism is induced by contracts and litigation according to data from US public firms. Recently, Carcía Lara et al. (2009) have extended Qiang's (2007) research and provided contradictory results regarding conditional conservatism and taxation using data from US public firms.

The effects of taxes on earnings management has been studied extensively in the context of US public firms (see Scholes, Wilson, & Wolfson, 1992; Guenther, 1994; Guenther, Maydew, & Nutter, 1997; Maydew, 1997; Lopez, Regier, & Lee, 1998; Beatty & Harris, 1999; Keating & Zimmerman, 1999; Phillips, Pincus, & Rego, 2003; Krull, 2004; Badertscher, Phillips, Pincus, & Rego, 2009). A growing body of research attempts to assess the relationship between firm-level book-tax differences and earnings quality based on the extent of earnings management, earnings persistence, and stock market reactions in US public firms (Hanlon, 2005; Frank et al., 2009; Blaylock, Shevlin, & Wilson, 2012) and in other countries (Tang & Firth, 2011, 2012; Blaylock, Gaertner, & Shevlin, 2012). This empirical literature shows that large book-tax differences signal low-quality earnings. However, in their cross-country study, Blaylock et al. (2012) presented contradictory results based on earnings management.

The effects of taxes on earnings management has also been studied in public and private firms worldwide (Beatty & Harris, 1999; Mills & Newberry, 2001; Beatty, Ke, & Petroni, 2002; Burgstahler et al., 2006; Goncharov & Zimmermann, 2006; Noronha, Zeng, & Vinten, 2008). These studies document that private firms engage more in earnings management (i.e., for tax reporting purposes) than public firms. Ball and Shivakumar (2005) demonstrated that conditional conservatism is lower in private firms than in public firms in the UK. They interpreted this difference in earnings quality between private and public firms as being due to a difference in market demand; private firms are able to communicate with stakeholders through channels other than general public financial statements. Peek et al. (2010) documented that while country-specific creditor protection makes a difference in conditional conservatism between private and public firms, a country's degree of investor protection does not. Their interpretation of the findings is that private-firm creditors in countries with strong creditor protections demand greater conditional conservatism but that well-protected investors do not.

The previous literature suggests that tax-induced earnings management of private firms is especially apparent in high tax alignment countries (Coppens & Peek, 2005; Burgstahler et al., 2006; Goncharov & Zimmermann, 2006; Moreira, 2006; Garrod, Ratej, & Valentincic, 2007; Marques, Rodrigues, & Craig, 2011; Watrin, Pott, & Ullmann, 2012). In their recent study, Peek et al. (2010) controlled for tax alignment on conditional conservatism but did not find a significant relationship. However, they did not control for cash/accounting losses as a proxy for tax incentive as we do.

Private firms in low tax alignment countries may choose to follow two distinct reporting strategies: one for investors and another for tax authorities. However, for private firms in high tax alignment countries, only one of these strategies is more or less available at one time. From a taxation point of view, conditional conservatism is useful since it allows firms to temporarily reduce their current income; therefore, it provides flexibility to shift income from periods for tax reasons. García Lara et al. (2009) suggest that conditional conservatism is a more effective accounting policy than unconditional conservatism regarding accounting responses to the differences in marginal tax rates, which may affect the tax-induced reporting of firms. Therefore, for private firms in high tax alignment countries, we predict the following:

H1: *The economic losses of private firms are recognized as more transitory and in a timelier manner than economic gains (conditional conservatism) in high tax alignment countries when the tax incentive for financial reporting is high.*

It can be supposed that private firms in high tax alignment countries face more temporary income-decreasing tax incentives for financial reporting than private firms in low tax alignment countries. In particular, since the tax savings

arguments for private firms' financial reporting become stronger when the book-tax alignment is high, we predict the following:

H2: *Greater conditional conservatism (asymmetry in economic gain and loss recognition) is observed for private firms in high tax alignment countries than in low tax alignment countries when the tax incentive for financial reporting is high.*

3 Research design

3.1 EMPIRICAL MODELS

As a measure for conditional conservatism, we use a modified version of Basu's (1997) serial dependence model for the reversal of the pretax earnings changes of private firms. More specifically, we estimate the following equation to allow for differences in the reversal of positive and negative pretax earnings changes between private firms in countries with high and low tax alignments (1):

$$\begin{aligned}\Delta NI_{jt} = {} & \beta_0 + \beta_1 D\Delta NI_{jt-1} + \beta_2 \Delta NI_{jt-1} + \beta_3 D\Delta NI_{jt-1} \times \Delta NI_{jt-1} \\ & + \beta_4 TAXALIGN_{jt} + \beta_5 TAXALIGN_{jt} \times D\Delta NI_{jt-1} \\ & + \beta_6 TAXALIGN_{jt} \times \Delta NI_{jt-1} \\ & + \beta_7 TAXALIGN_{jt} \times D\Delta NI_{jt-1} \times \Delta NI_{jt-1} \\ & + CONTROLS_{jt} + \varepsilon_{jt} \qquad (1)\end{aligned}$$

where $TAXALIGN_{jt}$ equals 1 for private firm j if it has its domicile in Ireland, the UK, or the Netherlands (low tax alignment countries) at t, and 0 otherwise; ΔNI_{jt} equals the change in pretax earnings from $t-1$ to t, standardized by total assets at the end of $t-1$ for private firm j; ΔNI_{jt-1} equals the change in pretax earnings from $t-2$ to $t-1$, standardized by total assets at the end of $t-1$ for private firm j; and $D\Delta NI_{jt-1}$ equals 1 if ΔNI_{jt-1} is negative, and 0 otherwise. We use the changes in pretax earnings instead of changes in net earnings as in Basu's (1997) original model to better assess the tax-motivated conditional conservatism of private firms. In addition, we control for high and low tax incentives for financial reporting by estimating equation (1) for a sub-sample of observations with positive and negative cash flow from operations.

Our prediction concerning private firms in high tax alignment countries is that negative earnings changes are more likely to reverse than positive earnings changes, indicating that the expected signs for β_2 and β_3 are negative. We also predict that conditional conservatism (asymmetry of economic gain and loss recognition) is greater for private firms in high tax alignment countries than in low tax alignment countries, indicating that the expected sign for β_7 is positive, when the tax incentive for financial reporting is high.

Our $CONTROLS_{jt}$ includes $Size_{jt}$, $Leverage_{jt}$, $Growth_{jt}$, and $Cycle_{jt}$ with interactions. $Size_{jt}$ equals the natural log of year-end total assets at t for private firm j. $Leverage_{jt}$ equals total non-current liabilities divided by total assets at the

end of t for private firm j. $Growth_{jt}$ equals the percentage of change in turnover from $t-1$ to t for private firm j. $Cycle_{jt}$ equals operating cycle length (expressed in years), which is computed as average receivables from $t-1$ to t scaled by turnover at t plus average inventories from $t-1$ to t scaled by operating expenses at t for private firm j. Sales were unavailable for some observations. Therefore, we replace sales with turnover to compute $Growth_{jt}$ and $Cycle_{jt}$. Prior studies controlled these firm-specific characteristics of earnings timeliness (see Peek et al., 2010). As in Peek et al.'s (2010) study, these control variables are firm averages centered on the sample mean to address multicollinearity.

Some studies suggest that the presence of high-quality auditors makes a difference in private firms' conditional conservatism and earnings management, and this is especially true in high tax alignment environments (Van Tendeloo & Vanstraelen, 2008; Cano-Rodríquez, 2010). In line with these results, it is reasonable to control for audit quality measured by audit firm size in our analysis of differential tax-induced conditional conservatism of private firms between high and low tax alignment European countries. However, AMADAUS only provides the data for audit firm size from last fiscal year, and therefore, it is limited for the purpose of controlling for audit quality in time-series analysis. Nonetheless, we believe that our analysis regarding negative and positive cash flows as well as pretax earnings differentiating tax incentives from other earnings management incentives in private firms adds robustness to the analysis regardless of controlling for audit firm size.

Ball and Shivakumar (2005) suggested that Basu's (1997) serial dependence model cannot distinguish between transitory gain and loss components in earnings caused by random accrual errors, and that it does not take into account the timeliness of transitory components in earnings through the accrual process. To address these limitations, we use an alternative model to better assess earnings timeliness through the accrual process of private firms. Specifically, we estimate the following modification of Ball and Shivakumar's (2005) model to allow differences in accrual-based conditional conservatism between private firms in countries with high and low tax alignments (2):

$$\begin{aligned} ACC_{jt} = {} & \delta_0 + \delta_1 D\Delta CFO_{jt} + \delta_2 \Delta CFO_{jt} + \delta_3 D\Delta CFO_{jt} \times \Delta CFO_{jt} \\ & + \delta_4 TAXALIGN_{jt} + \delta_5 TAXALIGN_{jt} \times D\Delta CFO_{jt} \\ & + \delta_6 TAXALIGN_{jt} \times \Delta CFO_{jt} \\ & + \delta_7 TAXALIGN_{jt} \times D\Delta CFO_{jt} \times \Delta CFO_{jt} \\ & + CONTROLS_{jt} + \varepsilon_{jt} \end{aligned} \quad (2)$$

where ACC_{jt} equals accruals for private firm j at t, which are computed as the change in non-cash working capital (Δinventory + Δdebtors + Δother current assets − Δcreditors − Δother current liabilities) minus depreciation, standardized

by total assets at the end of $t-1$; ΔCFO_{jt} equals the change in cash flow from operations from $t-1$ to t, standardized by total assets at the end of $t-1$ for private firm j, where cash flow from operations equals net income before extraordinary items minus accruals at t; and $D\Delta CFO_{jt}$ equals 1 if ΔCFO_{jt} is negative, and 0 otherwise. We use the changes instead of levels in cash flow from operations to eliminate potential survivor bias. As Ball and Shivakumar (2005) noted, firms with negative cash flow changes are less likely to be non-survivors than firms with negative cash flow levels. Therefore, firms with negative cash flows may have lower incentives to manage earnings downwards for tax reporting purposes. We control for high and low tax incentives for financial reporting by estimating equation (2) for a sub-sample of observations with positive and negative cash flow from operations.

Following the prior literature (Ball & Shivakumar, 2005), we predict that accruals and cash flow changes are negatively interrelated. We also predict that unrealized losses are more likely to be reported than gains, and that they are less likely to be offset by accruals. Our primary prediction is that we are more likely to observe conditional conservatism of private firms in high tax alignment countries than in low tax alignment countries. $CONTROLS_{jt}$ are defined above with model (1).

3.2 DATA

Data were collected from the AMADEUS database (March 2013 version) supplied by Bureau van Dijk. AMADEUS provides financial statement information on public and private firms across Europe. We focus on the fiscal years between 2003 and 2011. Our sample selection procedures mainly follow the guidelines established by Peek et al. (2010) and Burgstahler et al. (2006).

We concentrate on private firms domiciled in one of the following 15 EU countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the UK. During the sample period, many other European countries (such as Bulgaria, Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, and Slovenia) joined the EU. However, accounting rules were not yet stabilized in some of these countries during the sample period; therefore, these countries are excluded from the analysis. Due to missing data, we also exclude Denmark and Luxembourg. Financial and tax accounting are expected to be more aligned in Ireland, the Netherlands, and the UK than in the other sample countries.

We focus on medium- or large-sized private firms to ensure that the sample firms meet similar reporting requirements based on the Fourth EU Directive. The Fourth EU Directive states that smaller companies are allowed to draw up abridged income statements and balance sheets; Articles 11 and 27 also

distinguish between the different-sized private firms in more detail. In addition, small limited companies are not obligated to audit their financial statements. Following Burgstahler et al. (2006), a medium- or large-sized private firm should exceed two or more of the following lower bounds in every fiscal year: a balance sheet total of €2.5 million, a turnover of €5 million, and at least 50 employees. We further exclude banks and insurance firms (a Standard Industrial Classification [SIC] in the range 6,000–6,799), public institutions (a SIC above 9,000), and privately held subsidiaries of quoted firms, because subsidiaries are likely to be dependent on their parent firms' financial decisions. Next, we screen out legal forms other than limited firms, because legal forms, like proprietorships and partnerships, do not pay taxes individually. In proprietorships and partnerships, firm income taxation is bound to individual taxation; therefore, taxation is not readily available on financial reports. Moreover, these firms may not fully apply the same reporting principles that limited firms do (Burgstahler et al., 2006). Consequently, we further exclude observations with unknown taxation values.

Ball and Shivakumar (2005) noted that over 30% of yearly changes in the book value of total assets (increases or decreases) can be caused by occasional transactions like mergers, restructurings, or disinvestments. Therefore, we exclude observations with a yearly change of over 30% in total assets.

Finally, after eliminating anomalies in financial statement items (such as unexpected signs in these items), and after excluding 1% on minimum and maximum values for ΔNI_{jt}, ΔNI_{jt-1}, ACC_{jt}, and ΔCFO_{jt}, our final sample excluding $CONTROLS_{jt}$ consists of the following: 179,162 firm-year observations (52,383 individual firms) for (1) and 151,821 firm-year observations (46,029 individual firms) for (2). Our final sample adding $CONTROLS_{jt}$ consists of the following: 153,926 firm-year observations (46,902 individual firms) for (1) and 138,225 firm-year observations (43,171 individual firms) for (2).

[Insert Table A.1 from about here]

Table 1 presents the country-based frequencies and percentages of observations for the total sample employed in models (1)–(2). Based on sample size by country, the UK, Germany, Italy, and Spain dominate, whereas Greece, Belgium, and Ireland have the smallest number of observations in models (1)–(2).

[Insert tables A.2 and A.3 about here]

Tables 2 and 3 present the descriptive statistics and univariate mean comparisons of accounting variables of private firms in high and low tax alignment countries and the descriptive statistics for a total sample for models (1)–(2).

Table 2 shows that pretax accounting earnings scaled by lagged total assets, NI_{jt}, are 0.063 (0.073) for the average private firm in high (low) tax alignment countries. Table 3 shows that total accruals standardized by total assets, ACC_{jt}, are −0.036 (−0.029) for the average private firm in high (low) tax alignment countries. These results suggest that private firms in high tax alignment countries report greater losses and more conservative earnings based on overall accruals than private firms in low tax alignment countries. In addition, Table 3 shows that cash flow from operations standardized by total assets, CFO_{jt}, are 0.075 (0.081) for the average private firm in high (low) tax alignment countries.
Based on a total sample of (1), the average private firm in a high (low) tax alignment country has total assets ($Size_{jt}$) of €44,573.2 (€68,387.6); a leverage ($Leverage_{jt}$) of 0.291 (0.277); a growth ($Growth_{jt}$) of 0.035 (0.022); and a cycle ($Cycle_{jt}$) of 0.302 (0.240), and the differences are statistically significant. Based on a total sample of (2), the average private firm in a high (low) tax alignment country has total assets ($Size_{jt}$) of €44,099.0 (€64,294.4); a leverage ($Leverage_{jt}$) of 0.288 (0.277); a growth ($Growth_{jt}$) of 0.035 (0.022); and a cycle ($Cycle_{jt}$) of 0.308 (0.236), and the differences are statistically significant. This is further evidence of the need to control the size, leverage, growth, and cycle in the multivariate regression analysis presented in the next section.

[Insert tables A.4 and A.5 about here]

Table 4 presents the Pearson (Spearman) correlation coefficients below (above) the diagonal for variables employed in (1); and Table 5 presents the Pearson (Spearman) correlation coefficients below (above) the diagonal for variables employed in (2). Multicollinearity may produce biased regression coefficients if the correlation coefficients between two or more independent variables in a multiple regression model are greater than 0.8. We conclude that multicollinearity is not a concern in the regression analysis presented in the next section since none of the correlation coefficients between the independent variables exceeded 0.8, as shown in Table 4 and Table 5.he sample was collected from the AMADEUS database, which is maintained by Bureau van Dijk. I focused on the financial statements of Finnish private limited firms available for the period from 2002 to 2009. Several additional filters were applied; for example, only firms with available information on financial statements including taxation were selected for further sample selection.[1] This criterion yielded 105,001 firm-year observations (13,482 individual firms). I further excluded private firms that were operating in financial or insurance sectors because their financial statements would likely differ from those operating in

[1] In the sample period, most limited private Finnish firms were obligated to audit their financial statements with the exception that only very small firms (total assets less than €100 thousand) were not obligated to audit their financial statements in the later sample years (since the change in audit requirement criteria in June 2007). Therefore, I did not set any size criteria for Finnish private firms.

other sectors. Finally, after eliminating anomalies in financial statement items, and after excluding one percent of extreme values for all continuous variables employed in (1), (2), (3), and (4), the final sample consisted of 70,128 firm-year observations (13,164 individual firms) for (2); and 78,127 firm-year observations (12,841 individual firms) for (4).

4 Results

[Insert Table A.6 about here]

Table 6 presents the results for model (1) estimated for a total sample and for a sub-sample of observations with positive (i) and negative (iii) contemporaneous cash flow from operations. Table 6 shows that negative earnings changes are more likely to reverse than positive earnings changes in high tax alignment countries, which implies that conditionally conservative earnings are reported in these private firms, as predicted (H1). The total sample analysis presented in Table 7 shows that about 26.5% of negative pretax earnings changes are likely to reverse in high tax alignment countries; and 26.4% of negative pretax earnings changes are likely to reverse in low tax alignment countries; and the differences are marginally significant (as with all regressions presented in Table 6 except the regression presented in column (i), which is insignificant), as predicted (H2). Contrary to predictions, it seems that the results presented in Table 7 are insensitive with the sign of contemporaneous cash flow from operations controlled.

[Insert Table A.7 about here]

Table 7 presents the results for model (2) estimated for a total sample and for a sub-sample of observations with positive (i) and negative (iii) contemporaneous cash flow from operations. Economic losses are recognized in a timelier manner than gains for private firms in high tax alignment countries with negative contemporaneous cash flow (i), as predicted (H1). Also as predicted (H2), column (i) in Table 7 shows that conditional conservatism is greater for private firms in high tax alignment countries than in low tax alignment countries. As can be seen in column (i) in Table 7, when cash flows are positive about 15.6% of negative cash flow changes are offset by accruals for high tax alignment countries, whereas about 17.4% of negative cash flow changes are offset by accruals for low tax alignment countries. These differences are statistically significant, as predicted (H2). The results presented in Table 7 suggest that when the tax incentive for financial reporting is high (cash flow is positive), more conditional conservatism is observed in high tax alignment countries than in low tax alignment countries.

[Insert Table A.8 about here]

Table 8 presents the results for model (1) estimated for a total sample and for a sub-sample of positive (i) and negative (iii) pretax earnings as an alternative proxy for high and low tax incentives. Column (i) and column (iii) in Table 8 show that negative earnings changes are more likely to reverse than positive earnings changes in high tax alignment countries when pretax earnings are positive (35.7%) than when they are negative (27.6%). Column (i) and column (iii) in Table 8 also show that the differences in conditional conservatism between private firms in high tax alignment countries and low tax alignment countries are statistically significant only for a sub-sample of positive pretax earnings. These results suggest that more conditional conservatism occurs in high tax alignment countries than in low tax alignment countries when the tax incentive for financial reporting in case of positive pretax earnings is high, as predicted (H2).

AMADEUS provides consolidated financial statements when available and parent firm financial statement information otherwise. Consolidated financial statements are not liable to tax as individual entities. Therefore, it is reasonable to test whether the results reported in tables 6 to 8 are sensitive to the exclusion of consolidated financial statements. Columns (ii) and (iv) in tables 6 and 8 present the results for model (1); and columns (ii) and (iv) in Table 7 present the results for model (2) estimated for a sub-sample of positive (ii) and negative (iv) contemporaneous cash flow from operations excluding consolidated financial statements. This additional sensitivity analysis revealed that the regression results presented in tables 6 to 8 are insensitive to the exclusion of consolidated financial statements.

The regression analysis of the panel data set is often subject to the potentially biasing effects of heteroscedasticity and the autocorrelation of residuals since accounting variables within a single firm are correlated in a time series. To address this concern, the results presented in tables 4 to 7 were initially based upon a covariance matrix estimator that is robust for heteroscedasticity (White, 1980), and within firm correlation of residuals.

Overall, the results presented in tables 6 to 8 suggest that greater tax-induced reporting conservatism is observed for private firms in high tax alignment countries than in low tax alignment countries after controlling for tax incentive and firm-specific determinants of conditional conservatism. These results imply that private firms in high tax alignment countries use more conditionally conservative earnings for tax-related reasons than private firms in low tax alignment countries, thereby supporting the hypotheses (H1 and H2).

5 Discussion and conclusion

The aim of this study is to investigate whether tax-induced conditional conservatism differs in high versus low tax alignment countries in a sample of private firms in 13 member states of the EU. This study contributes to prior literature on the tax alignment and financial reporting of private firms. It also extends the prior literature that was limited to US public firms, which provided mixed views on whether conditional conservatism is induced by taxation. We find that the conditional conservatism of private firms is induced by taxation more in high tax alignment countries than in low tax alignment countries after controlling for tax incentive and firm-specific determinants of conditional conservatism.

We interpret the findings to mean that private firms in high tax alignment environments engage more in earnings management based on conditional accounting conservatism than those in low tax alignment countries, since this accounting policy allows firms to temporarily decrease current earnings and shift income from periods for tax-related reasons (as suggested by García Lara et al., 2009). Firms in low tax alignment countries are more able to report their accounting earnings irrespective of taxable income, thus making tax issues in financial reporting less important for them. This allows private firms in low tax alignment countries to report smoother earnings as compared to private firms in high tax alignment countries. Given that high tax alignment introduces more downwards bias in financial reports in the form of conditional conservatism, it also lowers tax receipts, and thus, runs counter to the needs of tax authorities. However, these costs are offset by the benefits of conditional conservatism for different constituencies in private-firm financial reports, regulators, and the economy in general. Focusing on institutions, prior studies documented that differences in reporting demands between creditors and shareholders regarding conditional conservatism exist in private firms (Peek et al., 2010). This study sheds light on how tax alignment, as an institutional factor, shapes the reporting demands regarding the tax-induced conditional conservatism of private-firm shareholders.

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Appendices

Table A.1
The country-based frequencies and percentages of observations for a total sample employed in (1) and (2)

Country	$TAXALIGN_{jt}$	(1) N=153,926		(2) N=138,225	
Austria	0	2,624	1,70%	2,238	1,62%
Belgium	0	965	0,63%	911	0,66%
Finland	0	5,434	3,53%	5,104	3,69%
France	0	3,950	2,57%	3,720	2,69%
Germany	0	31,015	20,15%	25,760	18,64%
Greece	0	132	0,09%	128	0,09%
Ireland	1	1,044	0,68%	878	0,64%
Italy	0	26,521	17,23%	26,081	18,87%
Netherlands	1	4,878	3,17%	2,189	1,58%
Portugal	0	3,429	2,23%	3,307	2,39%
Spain	0	16,372	10,64%	15,719	11,37%
Sweden	0	14,289	9,28%	13,511	9,77%
United Kingdom	1	43,273	28,11%	38,679	27,98%

Variable definitions: $TAXALIGN_{jt}$, equals an indicator variable that takes the value of 1 for private firm j that has its domicile in Ireland, the United Kingdom, or the Netherlands (low tax alignment countries) at t, and 0 otherwise.

Table A.2
Descriptive Statistics for Variables employed in (1)

Variable	NI_{jt}	ΔNI_{jt}	ΔNI_{jt-1}	$D\Delta NI_{jt-1}$	$D\Delta NI_{jt-1} * \Delta NI_{jt-1}$	$Size_{jt}$	$Leverage_{jt}$	$Growth_{jt}$	$Cycle_{jt}$
Panel A:	**Subsample of private firms in high tax alignment countries (N=104,731)**								
Mean	0.0631	0.0008	0.0015	0.4697	−0.0217	44,573.2	0.2908	0.0354	0.3017
SD	0.1136	0.0660	0.0666	0.4991	0.0422	102,279.1	0.2092	0.1610	0.2167
P1	−0.2060	−0.1968	−0.2079	0.0000	−0.2079	2,798.6	0.0000	−0.3847	0.0132
P50	0.0439	0.0009	0.0020	0.0000	0.0000	15,084.5	0.2688	0.0343	0.2501
P99	0.4116	0.1928	0.1932	1.0000	0.0000	575,064.8	0.8209	0.4962	1.0386
Panel B:	**Subsample of private firms in low tax alignment countries (N=49,195)**								
Mean	0.0731	0.0003	0.0003	0.4777	−0.0256	68,837.6	0.2773	0.0219	0.2399
SD	0.1035	0.0718	0.0739	0.4995	0.0468	141,778.7	0.2269	0.1688	0.1548
P1	−0.1657	−0.2071	−0.2256	0.0000	−0.2256	3,076.6	0.0000	−0.3815	0.0075
P50	0.0573	0.0011	0.0020	0.0000	0.0000	21,859.8	0.2303	0.0243	0.2195
P99	0.3991	0.2068	0.2075	1.0000	0.0000	804,394.3	0.8932	0.5044	0.8156
Panel C:	**Total sample (N=153,926)**								
Mean	0.0663	0.0006	0.0011	0.4723	−0.0229	52,328.1	0.2865	0.0311	0.2820
SD	0.1106	0.0679	0.0690	0.4992	0.0437	116,918.6	0.2151	0.1637	0.2011
P1	−0.1923	−0.2001	−0.2137	0.0000	−0.2137	2,852.0	0.0000	−0.3841	0.0107
P50	0.0483	0.0009	0.0020	0.0000	0.0000	16,976.0	0.2562	0.0315	0.2372
P99	0.4077	0.1983	0.1981	1.0000	0.0000	672,529.0	0.8546	0.4981	1.0021
t-statistics[a]	−16.50***	1.17	3.22***	−2.91**	16.30***	−38.15***	11.49***	15.16***	56.84***

NI_{jt}, equals pretax earnings at t, standardized by total assets at the end of $t-1$ for private firm j; ΔNI_{jt}, equals the change in pretax earnings from $t-1$ to t, standardized by total assets at the end of $t-1$ for private firm j; ΔNI_{jt-1}, equals the change in pretax earnings from $t-2$ to $t-1$, standardized by total assets at the end of $t-1$ for private firm j; $D\Delta NI_{jt-1}$, equals an indicator variable that takes the value of 1 if ΔNI_{jt-1} <0, and 0 otherwise; $TAXALIGN_{jt}$, equals an indicator variable that takes the value of 1 for private firm j that has its domicile in Ireland, the United Kingdom, or the Netherlands (low tax alignment countries) at t, and 0 otherwise; $Size_{jt}$ equals year-end total assets for private firm j, (expressed in thousand of Euros); $Leverage_{jt}$, equals total noncurrent liabilities divided by total assets at the end of t for private firm j; $Growth_{jt}$ equals percentage of change in turnover from $t-1$ to t for private firm j; $Cycle_{jt}$ equals average receivables from $t-1$ to t scaled by turnover at t plus average inventories from $t-1$ to t scaled by operating expenses at t (expressed in years) for private firm j; [a] t-statistics for two-tailed test of difference between the sample means of accounting variables by $TAXALIGN_{jt}$; *, **, and *** represent significance levels of 0.10, 0.05, and 0.01 respectively.

Table A.3
Descriptive Statistics for Variables employed in (2)

Variable	ACC_{jt}	CFO_{jt}	ΔCFO_{jt}	$D\Delta CFO_{jt}$	$D\Delta CFO_{jt} * \Delta CFO_{jt}$	$Size_{jt}$	$Leverage_{jt}$	$Growth_{jt}$	$Cycle_{jt}$
Panel A:	**Subsample of private firms in high tax alignment countries (N=96,479)**								
Mean	−0.0360	0.0754	0.0006	0.4931	−0.0567	44,099.0	0.2882	0.0350	0.3081
SD	0.1044	0.1195	0.1555	0.5000	0.0948	101,666.3	0.2068	0.1625	0.2192
P1	−0.3114	−0.2269	−0.4287	0.0000	−0.4287	2,797.9	0.0000	−0.3877	0.0144
P50	−0.0363	0.0688	0.0019	0.0000	0.0000	14,934.0	0.2672	0.0340	0.2570
P99	0.2431	0.4046	0.4221	1.0000	0.0000	570,127.0	0.8082	0.5023	1.0495
Panel B:	**Subsample of private firms in low tax alignment countries (N=41,746)**								
Mean	−0.0289	0.0809	−0.0043	0.5071	−0.0597	64,294.4	0.2770	0.0222	0.2362
SD	0.1037	0.1170	0.1568	0.5000	0.0972	134,249.1	0.2263	0.1698	0.1485
P1	−0.2975	−0.2155	−0.4379	0.0000	−0.4379	3,059.7	0.0000	−0.3865	0.0076
P50	−0.0310	0.0747	−0.0018	1.0000	−0.0018	20,336.1	0.2303	0.0243	0.2182
P99	0.2497	0.4054	0.4125	1.0000	0.0000	759,086.5	0.8927	0.5075	0.7605
Panel C:	**Total sample (N=138,225)**								
Mean	−0.0338	0.0776	−0.0009	0.4973	−0.0576	50,198.3	0.2848	0.0312	0.2864
SD	0.1042	0.1284	0.1559	0.5000	0.0956	112,886.8	0.2130	0.1648	0.2032
P1	−0.3076	−0.2388	−0.4315	0.0000	−0.4315	2,845.8	0.0000	−0.3873	0.0115
P50	−0.0347	0.0707	0.0007	0.0000	0.0000	16,412.7	0.2558	0.0315	0.2413
P99	0.2456	0.4331	0.4184	1.0000	0.0000	644,591.0	0.8456	0.5041	1.0064
t-statistics[a]	−11.50***	−7.85***	5.32***	−4.80***	5.32***	−30.64***	9.04***	13.31***	61.24***

ACC_{jt}, equals accruals at t, standardized by total assets at the end of $t-1$ for private firm j, where accruals is computed as the change in non-cash working capital (Δinventory + Δdebtors + Δother current assets − Δcreditors − Δother current liabilities) minus depreciation; CFO_{jt} equals cash flow from operations at t, standardized by total assets at the end of $t-1$ for private firm j, where cash flow from operations equals net income before extraordinary items minus accruals at t; ΔCFO_{jt} equals the change in cash flow from operations from $t-1$ to t, standardized by total assets at the end of $t-1$ for private firm j, where cash flow from operations equals net income before extraordinary items minus accruals at t; $D\Delta CFO_{jt}$ equals an indicator variable that takes the value of 1 if $\Delta CFO_{jt} < 0$, and 0 otherwise; $TAXALIGN_{jt}$, equals an indicator variable that takes the value of 1 for private firm j that has its domicile in Ireland, the United Kingdom, or the Netherlands (low tax alignment countries) at t, and 0 otherwise; $Size_{jt}$ equals year-end total assets for private firm j; $Leverage_{jt}$, equals total noncurrent liabilities divided by total assets at the end of t for private firm j; $Growth_{jt}$ equals percentage of change in turnover from $t-1$ to t for private firm j; $Cycle_{jt}$ equals average receivables from $t-1$ to t scaled by turnover at t plus average inventories from $t-1$ to t scaled by operating expenses at t (expressed in years) for private firm j; [a] t-statistics for two-tailed test of difference between the sample means of accounting variables by $TAXALIGN_{jt}$; *, **, and *** represent significance levels of 0.10, 0.05, and 0.01 respectively.

Table A.4
The Pearson (Spearman) correlation coefficients below (above) the diagonal for variables employed in (1)

	1	2	3	4	5	6	7	8	9	10	11	12
ΔNI_{jt}(1)		0.1149*	−0.1508*	−0.1437*	−0.0027	0.0546*	−0.0783*	−0.0600*	0.0114*	−0.0104*	0.0262*	0.0144*
$D\Delta NI_{jt-1}$(2)	0.1110*		−0.8647*	−0.9362*	0.0074*	0.4487*	−0.5613*	−0.4467*	−0.0117*	−0.1300*	0.1216*	0.1300*
ΔNI_{jt-1}(3)	−0.1829*	−0.6810*		0.9236*	−0.0062*	−0.4103*	0.5446*	0.4258*	0.0076*	0.1316*	−0.1628*	−0.1439*
$D\Delta NI_{jt-1}$*ΔNI_{jt-1}(4)	−0.1741*	−0.5540*	0.8166*		−0.0256*	−0.4442*	0.5549*	0.4610*	0.0279*	0.1425*	−0.1435*	−0.1558*
$TAXALIGN_{jt}$(5)	−0.0030	0.0074*	−0.0082*	−0.0415*		0.6193*	0.0434*	−0.6165*	0.1363*	0.0829*	0.0081*	−0.0761*
$TAXALIGN_{jt}$*$D\Delta NI_{jt-1}$(6)	0.0550*	0.4487*	−0.3363*	−0.2971*	0.6193*		−0.7527*	−0.9954*	0.0771*	0.0504*	−0.0139*	−0.0416*
$TAXALIGN_{jt}$*ΔNI_{jt-1}(7)	−0.1174*	−0.3941*	0.6054*	0.4984*	0.0035	−0.5450*		0.7562*	0.0147*	0.0084*	0.0194*	−0.0145*
$TAXALIGN_{jt}$*$D\Delta NI_{jt-1}$*ΔNI_{jt-1}(8)	−0.0958*	−0.2978*	0.4584*	0.5683*	−0.4111*	−0.6637*	0.7503*		−0.0732*	−0.0455*	0.0106*	0.0358*
$Size_{jt}$(9)	0.0094*	−0.0124*	0.0081*	0.0441*	0.1397*	0.0791*	0.0083*	−0.0234*	0	0.6378*	0.0500*	−0.6095*
$Size_{jt}$*$D\Delta NI_{jt-1}$(10)	0.0027	−0.0194*	0.0478*	0.0653*	0.0955*	0.1152*	−0.0199*	−0.0338*	0.6831*		−0.6255*	−0.9855*
$Size_{jt}$*ΔNI_{jt-1}(11)	0.0139*	0.0587*	−0.1250*	−0.1077*	0.0055*	−0.0268*	0.0197*	0.0061*	0.0231*	−0.4766*		0.6529*
$Size_{jt}$*$D\Delta NI_{jt-1}$*ΔNI_{jt-1}(12)	0.0024	0.0492*	−0.1005*	−0.1330*	−0.0572*	−0.0526*	0.0036	0.0185*	−0.4573*	−0.6695*	0.7122*	
$Leverage_{jt}$(13)	0.0074*	−0.0004	0.0014	0.0424*	−0.0223*	−0.0178*	0.0100*	0.0246*	0.1320*	0.0959*	−0.0031	−0.0757*
$Leverage_{jt}$*$D\Delta NI_{jt-1}$(14)	0.0083*	0.0108*	0.0315*	0.0554*	−0.0197*	−0.0207*	0.0204*	0.0323*	0.0951*	0.1392*	−0.0776*	−0.1095*
$Leverage_{jt}$*ΔNI_{jt-1}(15)	−0.0044	0.0425*	−0.0911*	−0.0809*	0.0120*	0.0232*	−0.0317*	−0.0411*	−0.0030	−0.0772*	0.1694*	0.1327*
$Leverage_{jt}$*$D\Delta NI_{jt-1}$*ΔNI_{jt-1}(16)	−0.0178*	0.0325*	−0.0728*	−0.0979*	0.0046	0.0203*	−0.0403*	−0.0493*	−0.0732*	−0.1071*	0.1313*	0.1836*
$Growth_{jt}$(17)	0.1054*	−0.0859*	0.0783*	0.0640*	−0.0943*	−0.0987*	0.0478*	0.0816*	−0.0509*	−0.0327*	−0.0108*	0.0165*
$Growth_{jt}$*$D\Delta NI_{jt-1}$(18)	0.0829*	0.0849*	−0.0427*	−0.0231*	−0.0670*	−0.0496*	0.0232*	0.0563*	−0.0352*	−0.0517*	0.0264*	0.0343*
$Growth_{jt}$*ΔNI_{jt-1}(19)	−0.0184*	−0.1156*	0.1583*	0.0849*	0.0058*	−0.0066*	−0.0014	−0.0311*	−0.0068*	0.0243*	−0.0601*	−0.0325*
$Growth_{jt}$*$D\Delta NI_{jt-1}$*ΔNI_{jt-1}(20)	−0.0653*	−0.0363*	0.0434*	0.0495*	0.0488*	0.0473*	−0.0496*	−0.0812*	0.0216*	0.0317*	−0.0289*	−0.0395*
$Cycle_{jt}$(21)	−0.0204*	0.0192*	−0.0167*	0.0281*	−0.1469*	−0.0915*	−0.0005	0.0582*	−0.0405*	−0.0297*	0.0060*	−0.0011
$Cycle_{jt}$*$D\Delta NI_{jt-1}$(22)	−0.0189*	0.0256*	0.0180*	0.0417*	−0.1111*	−0.1328*	0.0539*	0.0845*	−0.0291*	−0.0427*	−0.0006	−0.0016
$Cycle_{jt}$*ΔNI_{jt-1}(23)	0.0181*	0.0477*	−0.1230*	−0.0890*	0.0124*	0.0811*	−0.1382*	−0.1079*	0.0067*	−0.0008	0.0332*	0.0148*
$Cycle_{jt}$*$D\Delta NI_{jt-1}$*ΔNI_{jt-1}(24)	0.0194*	0.0218*	−0.0701*	−0.0992*	0.0644*	0.0930*	−0.0992*	−0.1370*	−0.0001	−0.0002	0.0137*	0.0185*

Table continues on the next page

Table A.4 Continued...

	13	14	15	16	17	18	19	20	21	22	23	24
$\Delta NI_{jt}(1)$	0.0078*	0.0027	0.0011	−0.0028	0.1113*	0.0764*	−0.0053*	−0.0750*	−0.0181*	−0.0331*	0.0288*	0.0369*
$D\Delta NI_{jt-1}(2)$	−0.0004	−0.0598*	0.0829*	0.0598*	−0.0893*	0.0774*	−0.1692*	−0.0774*	0.0186*	−0.1429*	0.1436*	0.1429*
$\Delta NI_{jt-1}(3)$	−0.0041	0.0808*	−0.1255*	−0.0860*	0.0954*	−0.0549*	0.1788*	0.0627*	−0.0220*	0.1374*	−0.1905*	−0.1539*
$D\Delta NI_{jt-1}$*$\Delta NI_{jt-1}(4)$	0.0226*	0.0875*	−0.1032*	−0.0931*	0.0913*	−0.0595*	0.1508*	0.0679*	−0.0079*	0.1488*	−0.1614*	−0.1667*
$TAXALIGN_{jt}(5)$	−0.0393*	−0.0355*	0.0077*	0.0342*	−0.1085*	−0.0711*	−0.0024	0.0683*	−0.1156*	−0.0912*	0.0112*	0.0903*
$TAXALIGN_{jt}$*$D\Delta NI_{jt-1}(6)$	−0.0282*	−0.0723*	0.0599*	0.0705*	−0.1066*	−0.0582*	−0.0110*	0.0545*	−0.0713*	−0.1810*	0.1447*	0.1798*
$TAXALIGN_{jt}$*$\Delta NI_{jt-1}(7)$	0.0040	0.0639*	−0.0747*	−0.0640*	0.0472*	0.0166*	0.0116*	−0.0141*	−0.0053*	0.1525*	−0.1816*	−0.1550*
$TAXALIGN_{jt}$*$D\Delta NI_{jt-1}$*$\Delta NI_{jt-1}(8)$	0.0298*	0.0745*	−0.0634*	−0.0743*	0.1077*	0.0602*	0.0073*	−0.0563*	0.0698*	0.1788*	−0.1486*	−0.1819*
$Size_{jt}(9)$	0.1141*	0.0748*	−0.0016	−0.0733*	−0.0536*	−0.0314*	−0.0009	0.0309*	−0.0413*	−0.0310*	0.0020	0.0234*
$Size_{jt}$*$D\Delta NI_{jt-1}(10)$	0.0692*	0.0932*	−0.0764*	−0.0916*	−0.0176*	−0.0410*	0.0441*	0.0400*	−0.0481*	−0.0505*	0.0085*	0.0392*
$Size_{jt}$*$\Delta NI_{jt-1}(11)$	−0.0019	−0.0753*	0.1219*	0.0777*	−0.0146*	0.0300*	−0.0611*	−0.0312*	0.0055*	0.0132*	−0.0022	−0.0082*
$Size_{jt}$*$D\Delta NI_{jt-1}$*$\Delta NI_{jt-1}(12)$	−0.0680*	−0.0917*	0.0788*	0.0925*	0.0133*	0.0355*	−0.0408*	−0.0360*	0.0457*	0.0473*	−0.0089*	−0.0363*
$Leverage_{jt}(13)$		0.6461*	0.0421*	−0.6183*	−0.0092*	−0.0014	−0.0140*	0.0038	0.0384*	0.0302*	−0.0033	−0.0320*
$Leverage_{jt}$*$D\Delta NI_{jt-1}(14)$	0.6877*		−0.6245*	−0.9858*	0.0037	−0.0068*	0.0156*	0.0100*	0.0346*	0.0575*	−0.0438*	−0.0581*
$Leverage_{jt}$*$\Delta NI_{jt-1}(15)$	0.0130*	−0.4815*		0.6522*	−0.0153*	0.0105*	−0.0412*	−0.0125*	−0.0023	−0.0352*	0.0558*	0.0395*
$Leverage_{jt}$*$D\Delta NI_{jt-1}$*$\Delta NI_{jt-1}(16)$	−0.4621*	−0.6715*	0.7180*		−0.0027	0.0075*	−0.0158*	−0.0108*	−0.0333*	−0.0550*	0.0451*	0.0574*
$Growth_{jt}(17)$	−0.0127*	−0.0068*	−0.0106*	0.0051*		0.6345*	0.0524*	−0.6122*	−0.0263*	−0.0105*	−0.0047	0.0104*
$Growth_{jt}$*$D\Delta NI_{jt-1}(18)$	−0.0059*	−0.0076*	0.0118*	0.0142*	0.6740*		−0.6329*	−0.9888*	−0.0191*	−0.0408*	0.0343*	0.0401*
$Growth_{jt}$*$\Delta NI_{jt-1}(19)$	−0.0099*	0.0095*	−0.0418*	−0.0180*	0.0243*	−0.4979*		0.6542*	0.0028	0.0480*	−0.0624*	−0.0482*
$Growth_{jt}$*$D\Delta NI_{jt-1}$*$\Delta NI_{jt-1}(20)$	0.0104*	0.0147*	−0.0160*	−0.0213*	−0.4677*	−0.6892*	0.7146*		0.0189*	0.0409*	−0.0356*	−0.0417*
$Cycle_{jt}(21)$	0.0379*	0.0315*	−0.0038	−0.0150*	−0.0574*	−0.0455*	0.0011	0.0314*		0.6356*	0.0404*	−0.6028*
$Cycle_{jt}$*$D\Delta NI_{jt-1}(22)$	0.0310*	0.0454*	−0.0150*	−0.0217*	−0.0488*	−0.0657*	0.0300*	0.0454*	0.6940*		−0.6290*	−0.9833*
$Cycle_{jt}$*$\Delta NI_{jt-1}(23)$	−0.0040	−0.0172*	0.0298*	0.0242*	0.0069*	0.0446*	−0.0728*	−0.0532*	0.0051*	−0.4634*		0.6596*
$Cycle_{jt}$*$D\Delta NI_{jt-1}$*$\Delta NI_{jt-1}(24)$	−0.0170*	−0.0244*	0.0235*	0.0322*	0.0370*	0.0584*	−0.0535*	−0.0725*	−0.4490*	−0.6470*	0.7183*	

Notes: All variables presented in this table are defined in Table 6. Significant at 10 % level or better (*).

Table A.5
The Pearson (Spearman) correlation coefficients below (above) the diagonal for variables employed in (2)

	1	2	3	4	5	6	7	8	9	10	11	12	
ACC_{jt}(1)		0.4707*	−0.5705*	−0.5224*	0.0286*	0.2153*	−0.2752*	−0.2264*	−0.0945*	−0.0975*	0.0513*	0.0988*	
$D\Delta CFO_{jt}$(2)	0.4528*		−0.8660*	−0.9269*	0.0129*	0.4276*	−0.5468*	−0.4256*	−0.0063*	−0.0736*	0.0623*	0.0736*	
ΔCFO_{jt}(3)	−0.5913*	−0.7337*		0.9343*	−0.0153*	−0.3739*	0.5031*	0.3909*	0.0037	0.0716*	−0.0833*	−0.0809*	
$D\Delta CFO_{jt}$*ΔCFO_{jt}(4)	−0.4926*	−0.6063*	0.8325*		−0.0150*	−0.4002*	0.5248*	0.4184*	0.0121*	0.0766*	−0.0742*	−0.0866*	
$TAXALIGN_{jt}$(5)	0.0309*	0.0129*	−0.0143*	−0.0143*		0.6465*	−0.0140*	−0.6436*	−0.0342*	−0.0317*	0.0027	0.0338*	
$TAXALIGN_{jt}$*$D\Delta CFO_{jt}$(6)	0.2088*	0.4276*	−0.3188*	−0.2675*	0.6465*		−0.7679*	−0.9954*	−0.0262*	−0.0707*	0.0546*	0.0733*	
$TAXALIGN_{jt}$*ΔCFO_{jt}(7)	−0.3221*	−0.4036*	0.5528*	0.4681*	−0.0229*	−0.5747*		0.7714*	0.0054*	0.0675*	−0.0747*	−0.0707*	
$TAXALIGN_{jt}$*$D\Delta CFO_{jt}$*ΔCFO_{jt}(8)	−0.2548*	−0.3020*	0.4181*	0.5037*	−0.4567*	−0.7063*	0.7550*		0.0276*	0.0725*	−0.0583*	−0.0770*	
$Size_{jt}$(9)	−0.0829*	−0.0068*	0.0003	0.0164*	−0.0168*	−0.0157*	0.0015	0.0205*		0.6617*	0.0061*	−0.6327*	
$Size_{jt}$*$D\Delta CFO_{jt}$(10)	−0.0670*	−0.0006	0.0111*	0.0178*	−0.0143*	−0.0184*	0.0185*	0.0264*	0.7024*		−0.6400*	−0.9845*	
$Size_{jt}$*ΔCFO_{jt}(11)	0.0293*	0.0156*	−0.0322*	−0.0189*	0.0016	0.0203*	−0.0392*	−0.0259*	−0.0033	−0.5169*		0.6686*	
$Size_{jt}$*$D\Delta CFO_{jt}$*ΔCFO_{jt}(12)	0.0575*	0.0112*	−0.0162*	−0.0199*	0.0150*	0.0237*	−0.0251*	−0.0330*	−0.5074*	−0.7223*	0.7158*		
$Leverage_{jt}$(13)	−0.0051	0.0033	−0.0065*	0.0320*	0.1206*	0.0775*	−0.0050	−0.0406*	0.1458*	0.1039*	−0.0044	−0.0774*	
$Leverage_{jt}$*$D\Delta CFO_{jt}$(14)	−0.0388*	−0.0250*	0.0479*	0.0633*	0.0843*	0.0972*	−0.0291*	−0.0487*	0.1038*	0.1475*	−0.0790*	−0.1101*	
$Leverage_{jt}$*ΔCFO_{jt}(15)	0.0832*	0.0742*	−0.1242*	−0.0962*	−0.0012	−0.0285*	0.0366*	0.0326*	−0.0043	−0.0780*	0.1520*	0.1127*	
$Leverage_{jt}$*$D\Delta CFO_{jt}$*ΔCFO_{jt}(16)	0.0655*	0.0479*	−0.0792*	−0.1009*	−0.0656*	−0.0640*	0.0344*	0.0626*	−0.0772*	−0.1094*	0.1130*	0.1574*	
$Growth_{jt}$(17)	0.0329*	−0.0324*	0.0330*	0.0197*	−0.0959*	−0.0782*	0.0236*	0.0599*	−0.0140*	−0.0129*	0.0001	0.0161*	
$Growth_{jt}$*$D\Delta CFO_{jt}$(18)	0.1057*	0.1248*	−0.0916*	−0.0756*	−0.0697*	−0.0375*	−0.0011	0.0330*	−0.0136*	−0.0183*	0.0186*	0.0247*	
$Growth_{jt}$*ΔCFO_{jt}(19)	−0.1427*	−0.1477*	0.2051*	0.1508*	0.0034	−0.0153*	0.0308*	0.0095*	−0.0001	0.0168*	−0.0441*	−0.0264*	
$Growth_{jt}$*$D\Delta CFO_{jt}$*ΔCFO_{jt}(20)	−0.1110*	−0.0855*	0.1164*	0.1395*	0.0526*	0.0320*	−0.0005	−0.0245*	0.0174*	0.0239*	−0.0266*	−0.0363*	
$Cycle_{jt}$(21)	0.0925*	0.0013	0.0006	0.0127*	−0.1672*	−0.1085*	0.0041	0.0763*	0.0506*	0.0344*	0.0076*	−0.0303*	
$Cycle_{jt}$*$D\Delta CFO_{jt}$(22)	0.0842*	0.0273*	−0.0082*	0.0027	−0.1210*	−0.1430*	0.0648*	0.1006*	0.0341*	0.0487*	−0.0304*	−0.0427*	
$Cycle_{jt}$*ΔCFO_{jt}(23)	−0.0112*	−0.0127*	−0.0176*	−0.0161*	0.0042	0.0726*	−0.1319*	−0.1001*	0.0078*	−0.0312*	0.0717*	0.0367*	
$Cycle_{jt}$*$D\Delta CFO_{jt}$*ΔCFO_{jt}(24)	−0.0558*	−0.0087*	−0.0140*	−0.0279*	0.0854*	0.1053*	−0.0976*	−0.1426*	−0.0306*	−0.0436*	0.0367*	0.0513*	

Table continues on the next page

Table A.5 Continued...

	13	14	15	16	17	18	19	20	21	22	23	24
ACC_{jt}(1)	−0.0037	−0.0870*	0.1158*	0.0977*	0.0339*	0.1046*	−0.1251*	−0.1110*	0.1091*	0.0163*	0.0573*	0.0025
$D\Delta CFO_{jt}$(2)	0.0041	−0.1345*	0.1495*	0.1345*	−0.0327*	0.1275*	−0.1852*	−0.1275*	0.0015	−0.1362*	0.1036*	0.1362*
ΔCFO_{jt}(3)	−0.0077*	0.1400*	−0.1926*	−0.1540*	0.0346*	−0.1119*	0.1959*	0.1244*	−0.0001	0.1209*	−0.1314*	−0.1412*
$D\Delta CFO_{jt}$*ΔCFO_{jt}(4)	0.0161*	0.1498*	−0.1698*	−0.1648*	0.0285*	−0.1198*	0.1831*	0.1332*	−0.0015	0.1294*	−0.1187*	−0.1512*
$TAXALIGN_{jt}$(5)	0.1169*	0.0711*	0.0034	−0.0678*	−0.1104*	−0.0766*	0.0010	0.0746*	−0.1373*	−0.1024*	0.0068*	0.1011*
$TAXALIGN_{jt}$*$D\Delta CFO_{jt}$(6)	0.0750*	0.0353*	−0.0026	−0.0312*	−0.0863*	−0.0452*	−0.0095*	0.0426*	−0.0900*	−0.1865*	0.1376*	0.1849*
$TAXALIGN_{jt}$*ΔCFO_{jt}(7)	−0.0013	0.0151*	0.0029	−0.0186*	0.0216*	−0.0044	0.0133*	0.0067*	0.0034	0.1580*	−0.1821*	−0.1606*
$TAXALIGN_{jt}$*$D\Delta CFO_{jt}$*ΔCFO_{jt}(8)	−0.0724*	−0.0323*	0.0006	0.0271*	0.0862*	0.0452*	0.0085*	−0.0418*	0.0890*	0.1853*	−0.1426*	−0.1884*
$Size_{jt}$(9)	0.1283*	0.0771*	−0.0041	−0.0719*	−0.0115*	−0.0110*	0.0027	0.0132*	0.0522*	0.0362*	0.0044	−0.0389*
$Size_{jt}$*$D\Delta CFO_{jt}$(10)	0.0809*	0.1024*	−0.0777*	−0.0953*	−0.0066*	−0.0234*	0.0280*	0.0264*	0.0411*	0.0657*	−0.0539*	−0.0674*
$Size_{jt}$*ΔCFO_{jt}(11)	−0.0014	−0.0761*	0.1161*	0.0760*	−0.0012	0.0227*	−0.0379*	−0.0254*	0.0050	−0.0458*	0.0849*	0.0507*
$Size_{jt}$*$D\Delta CFO_{jt}$*ΔCFO_{jt}(12)	−0.0776*	−0.0983*	0.0792*	0.0943*	0.0083*	0.0257*	−0.0298*	−0.0293*	−0.0426*	−0.0671*	0.0575*	0.0707*
$Leverage_{jt}$(13)		0.6561*	0.0039	−0.6280*	−0.0527*	−0.0287*	−0.0032	0.0288*	−0.0483*	−0.0370*	0.0002	0.0322*
$Leverage_{jt}$*$D\Delta CFO_{jt}$(14)	0.7044*		−0.6478*	−0.9850*	−0.0244*	−0.0466*	0.0494*	0.0469*	−0.0511*	−0.0566*	0.0265*	0.0489*
$Leverage_{jt}$*ΔCFO_{jt}(15)	−0.0033	−0.5176*		0.6744*	−0.0071*	0.0407*	−0.0719*	−0.0429*	−0.0011	0.0256*	−0.0445*	−0.0227*
$Leverage_{jt}$*$D\Delta CFO_{jt}$*ΔCFO_{jt}(16)	−0.5099*	−0.7247*	0.7148*		0.0217*	0.0433*	−0.0487*	−0.0456*	0.0536*	0.0591*	−0.0304*	−0.0512*
$Growth_{jt}$(17)	−0.0501*	−0.0338*	−0.0071*	0.0254*		0.6534*	0.0070*	−0.6309*	−0.0278*	−0.0091*	−0.0110*	0.0096*
$Growth_{jt}$*$D\Delta CFO_{jt}$(18)	−0.0341*	−0.0521*	0.0364*	0.0441*	0.6926*		−0.6543*	−0.9881*	−0.0133*	−0.0355*	0.0292*	0.0362*
$Growth_{jt}$*ΔCFO_{jt}(19)	−0.0065*	0.0332*	−0.0816*	−0.0487*	0.0103*	−0.5286*		0.6755*	−0.0054*	0.0402*	−0.0575*	−0.0424*
$Growth_{jt}$*$D\Delta CFO_{jt}$*ΔCFO_{jt}(20)	0.0295*	0.0443*	−0.0488*	−0.0636*	−0.5138*	−0.7406*	0.7064*		0.0132*	0.0356*	−0.0315*	−0.0385*
$Cycle_{jt}$(21)	−0.0492*	−0.0327*	0.0013	0.0172*	−0.0603*	−0.0369*	−0.0046	0.0297*		0.6571*	0.0023	−0.6265*
$Cycle_{jt}$*$D\Delta CFO_{jt}$(22)	−0.0325*	−0.0469*	0.0194*	0.0256*	−0.0381*	−0.0491*	0.0256*	0.0400*	0.7047*		−0.6450*	−0.9837*
$Cycle_{jt}$*ΔCFO_{jt}(23)	0.0011	0.0200*	−0.0299*	−0.0245*	−0.0041	0.0301*	−0.0682*	−0.0483*	−0.0047	−0.5207*		0.6731*
$Cycle_{jt}$*$D\Delta CFO_{jt}$*ΔCFO_{jt}(24)	0.0194*	0.0277*	−0.0245*	−0.0338*	0.0316*	0.0431*	−0.0469*	−0.0682*	−0.5125*	−0.7270*	0.7160*	

Notes: All variables presented in this table are defined in Table 7. Significant at 10 % level or better (*).

Table A.6
The results for (1): the differential time-series reversal of pretax earnings changes of private firms between high and low tax alignment countries for the period of 2005 to 2011. Dependent variable: ΔNI_{jt}

	Expected sign	Total sample	CFO_{jt}>0 i	ii	CFO_{jt}<0 iii	iv
Intercept (β_0)	?	−0.003***	−0.000	0.000	−0.014***	−0.014***
		(−7.93)	(−0.31)	(0.25)	(−15.68)	(−14.38)
ΔNI_{jt-1} (β_2)	−	−0.129***	−0.120***	−0.127***	−0.175***	−0.164***
		(−15.54)	(−12.97)	(−12.69)	(−8.97)	(−7.97)
$D\Delta NI_{jt-1}$*ΔNI_{jt-1} (β_3)	−	−0.136***	−0.174***	−0.165***	−0.034	−0.052*
		(−11.00)	(−12.59)	(−10.93)	(−1.26)	(−1.82)
$TAXALIGN_{jt}$*ΔNI_{jt-1} (β_6)	?	−0.044**	−0.037**	−0.023	−0.100**	−0.139**
		(−3.09)	(−2.39)	(−1.24)	(−2.85)	(−3.33)
$TAXALIGN_{jt}$*$D\Delta NI_{jt-1}$*ΔNI_{jt-1} (β_7)	+	0.041*	0.037	0.050*	0.082*	0.124**
		(1.96)	(1.62)	(1.84)	(1.73)	(2.24)
$CONTROLS_{jt}$ (not reported)	?	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared		5.21%	5.74%	5.55%	5.09%	5.12%
N		153,926	121,816	94,919	32,110	26,988
n		46,902	43,560	34,184	21,052	17,367

Columns (i) and (ii) reports the result for a subsample of firm-years with nonnegative cash flow from operations (CF) at t for private firm j; and (iii) and (iv) reports the results for a subsample of firm-years with negative cash flow from operations at t for private firm j. Columns (ii) and (iv) excludes firm-years with earnings based on consolidated accounts; dependent variable,ΔNI_{jt}, equals the change in pretax earnings from $t-1$ to t, standardized by total assets at the end of $t-1$ for private firm j; ΔNI_{jt-1}, equals the change in pretax earnings from $t-2$ to $t-1$, standardized by total assets at the end of $t-1$ for private firm j; $D\Delta NI_{jt-1}$, equals an indicator variable that takes the value of 1 if ΔNI_{jt-1} <0, and 0 otherwise; $TAXALIGN_{jt}$, equals an indicator variable that takes the value of 1 for private firm j that has its domicile in Ireland, the United Kingdom, or the Netherlands (low tax alignment countries) at t, and 0 otherwise; $CONTROLS_{jt}$, including $Size_{jt}$, $Leverage_{jt}$, $Growth_{jt}$, and $Cycle_{jt}$. As Peek et al. (2010) do, $Size_{jt}$ equals natural log of year-end total assets for private firm j;$Leverage_{jt}$, equals total noncurrent liabilities divided by total assets at the end of t for private firm j; $Growth_{jt}$ equals percentage of change in turnover from $t-1$ to t for private firm j; and $Cycle_{jt}$ equals average receivables from $t-1$ to t scaled by turnover at t plus average inventories from $t-1$ to t scaled by operating expenses at t (expressed in years) for private firm j. To address multicollinearity $Size_{jt}$, $Leverage_{jt}$, $Growth_{jt}$, and $Cycle_{jt}$ are firm averages centered on the sample mean; these coefficients are not reported for brevity purposes; the regression excludes extreme 1% on minimum and maximum values for ΔNI_{jt} and ΔNI_{jt-1}. The t-statistics are based upon a covariance matrix estimator that is robust for heteroscedasticity (White, 1980), and within firm correlation of residuals; *, **, and *** represent significance levels of 0.10, 0.05, and 0.01 respectively.

Table A.7
The results for (2): the differential relationship between cash flow changes and accruals of private firms between high and low tax alignment countries for the period of 2005 to 2011. Dependent variable: ACC_{jt}

	Expected sign	Total sample	CFO_{jt}>0 i	ii	CFO_{jt}<0 iii	iv
Intercept (δ_0)	?	-0.043^{***}	-0.051^{***}	-0.050^{***}	0.026^{***}	0.026^{***}
		(-68.83)	(-84.19)	(-74.48)	(12.55)	(11.79)
ΔCFO_{jt} (δ_2)	−	-0.376^{***}	-0.375^{***}	-0.376^{***}	-0.081^{***}	-0.075^{***}
		(-78.22)	(-80.24)	(-73.80)	(-4.48)	(-3.92)
$D\Delta CFO_{jt}$*ΔCFO_{jt} (δ_3)	+	0.003	0.219^{***}	0.221^{***}	-0.246^{***}	-0.253^{***}
		(0.41)	(25.99)	(23.91)	(-12.74)	(-12.48)
$TAXALIGN_{jt}$*ΔCFO_{jt} (δ_6)	?	0.012	0.016^{**}	0.015	0.045	0.026
		(1.44)	(2.02)	(1.52)	(1.28)	(0.64)
$TAXALIGN_{jt}$*$D\Delta CFO_{jt}$*ΔCFO_{jt} (δ_7)	−	-0.015	-0.034^{**}	-0.041^{**}	-0.008	0.033
		(-1.21)	(-2.37)	(-2.42)	(-0.21)	(0.77)
$CONTROLS_{jt}$ (not reported)	?	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared		37.34%	28.65%	28.52%	22.90%	23.07%
N		138,225	107,191	83,316	31,034	25,974
n		43,171	39,534	30,936	20,270	16,628

Columns (i) and (ii) reports the result for a subsample of firm-years with nonnegative cash flow from operations (CF) at t for private firm j; and (iii) and (iv) reports the results for a subsample of firm-years with negative cash flow from operations at t for private firm j. Columns (ii) and (iv) excludes firm-years with earnings based on consolidated accounts; dependent variable,ACC_{jt}, equals accruals at t, standardized by total assets at the end of $t-1$ for private firm j, where accruals is computed as the change in non-cash working capital (Δinventory + Δdebtors + Δother current assets − Δcreditors − Δother current liabilities) minus depreciation; ΔCFO_{jt} equals the change in cash flow from operations from $t-1$ to t, standardized by total assets at the end of $t-1$ for private firm j, where cash flow from operations equals net income before extraordinary items minus accruals at t. $D\Delta CFO_{jt}$ equals an indicator variable that takes the value of 1 if ΔCFO_{jt} <0, and 0 otherwise; $TAXALIGN_{jt}$, equals an indicator variable that takes the value of 1 for private firm j that has its domicile in Ireland, the United Kingdom, or the Netherlands (low tax alignment countries) at t, and 0 otherwise; $CONTROLS_{jt}$, including $Size_{jt}$, $Leverage_{jt}$, $Growth_{jt}$, and $Cycle_{jt}$; as Peek et al. (2010) do, $Size_{jt}$ equals natural log of year-end total assets for private firm j;$Leverage_{jt}$, equals total noncurrent liabilities divided by total assets at the end of t for private firm j; $Growth_{jt}$ equals percentage of change in turnover from $t-1$ to t for private firm j; and $Cycle_{jt}$ equals average receivables from $t-1$ to t scaled by turnover at t plus average inventories from $t-1$ to t scaled by operating expenses at t (expressed in years) for private firm j; To address multicollinearity $Size_{jt}$, $Leverage_{jt}$, $Growth_{jt}$, and $Cycle_{jt}$ are firm averages centered on the sample mean; these coefficients are not reported for brevity purposes; the regression excludes extreme 1% on minimum and maximum values for ACC_{jt} and ΔCFO_{jt}; the t-statistics are based upon a covariance matrix estimator that is robust for heteroscedasticity (White, 1980), and within firm correlation of residuals; *, **, and *** represent significance levels of 0.10, 0.05, and 0.01 respectively.

Table A.8
Sensitivity check for (1): the differential time-series reversal of pretax earnings changes of private firms between high and low tax alignment countries for a a subsample of negative and positive pretax earnings for the period of 2005 to 2011. Dependent variable: ΔNI_{jt}

	Expected sign	$NI_{jt}>0$ i	$NI_{jt}>0$ ii	$NI_{jt}<0$ iii	$NI_{jt}<0$ iv
Intercept (β_0)	?	0.004^{***}	0.004^{***}	-0.048^{***}	-0.047^{***}
		(11.60)	(11.24)	(−40.79)	(−36.69)
ΔNI_{jt-1} (β_2)	−	-0.119^{***}	-0.126^{***}	-0.124^{***}	-0.115^{***}
		(−13.38)	(−13.11)	(−5.65)	(−4.95)
$D\Delta NI_{jt-1}$*ΔNI_{jt-1} (β_3)	−	-0.238^{***}	-0.231^{***}	-0.152^{***}	-0.164^{***}
		(−17.22)	(−15.19)	(−5.40)	(−5.46)
$TAXALIGN_{jt}$*ΔNI_{jt-1} (β_6)	?	-0.055^{***}	-0.040^{**}	−0.016	−0.064
		(−3.74)	(−2.30)	(−0.42)	(−1.36)
$TAXALIGN_{jt}$*$D\Delta NI_{jt-1}$*ΔNI_{jt-1} (β_7)	+	0.068^{**}	0.077^{**}	−0.011	0.047
		(2.99)	(2.89)	(−0.22)	(0.78)
$CONTROLS_{jt}$ (not reported)	?	Yes	Yes	Yes	Yes
Adjusted R-squared		7.59%	7.32%	8.36%	8.15%
N		126,601	100,265	27,325	21,642
n		42,555	33,564	15,703	12,223

Columns (i) and (ii) reports the result for a subsample of firm-years with nonnegative pretax earnings (NI) at t for private firm j; and (iii) and (iv) reports the results for a subsample of firm-years with negative pretax earnings at t for private firm j. Columns (ii) and (iv) excludes firm-years with earnings based on consolidated accounts; dependent variable,ΔNI_{jt}, equals the change in pretax earnings from $t-1$ to t, standardized by total assets at the end of $t-1$ for private firm j. ΔNI_{jt-1}, equals the change in pretax earnings from $t-2$ to $t-1$, standardized by total assets at the end of $t-1$ for private firm j; $D\Delta NI_{jt-1}$, equals an indicator variable that takes the value of 1 if $\Delta NI_{jt-1}<0$, and 0 otherwise; $TAXALIGN_{jt}$, equals an indicator variable that takes the value of 1 for private firm j that has its domicile in Ireland, the United Kingdom, or the Netherlands (low tax alignment countries) at t, and 0 otherwise; $CONTROLS_{jt}$, including $Size_{jt}$, $Leverage_{jt}$, $Growth_{jt}$, and $Cycle_{jt}$; as Peek et al. (2010) do, $Size_{jt}$ equals natural log of year-end total assets for private firm j;$Leverage_{jt}$, equals total noncurrent liabilities divided by total assets at the end of t for private firm j; $Growth_{jt}$ equals percentage of change in turnover from $t-1$ to t for private firm j; and $Cycle_{jt}$ equals average receivables from $t-1$ to t scaled by turnover at t plus average inventories from $t-1$ to t scaled by operating expenses at t (expressed in years) for private firm j; to address multicollinearity $Size_{jt}$, $Leverage_{jt}$, $Growth_{jt}$, and $Cycle_{jt}$ are firm averages centered on the sample mean; these coefficients are not reported for brevity purposes; the regression excludes extreme 1% on minimum and maximum values for ΔNI_{jt} and ΔNI_{jt-1}; the t-statistics are based upon a covariance matrix estimator that is robust for heteroscedasticity (White, 1980), and within firm correlation of residuals; *, **, and *** represent significance levels of 0.10, 0.05, and 0.01 respectively.

The Effects of Corporate versus Owners' Tax Minimization on Earnings Management when Incentives Compete: Evidence from Private Finnish Firms

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ABSTRACT

This study investigates whether corporate or owners' tax minimization affected earnings management when these incentives competed in private firms. The Finnish tax reform of 2005 provides an excellent setting for this type of investigation because the tax laws were changed so that corporate tax rates were decreased and tax rates for dividends were increased simultaneously. The findings indicate that owners' personal tax minimization dominates over corporate tax minimization and that this has had an effect on earnings management. Specifically, managers of private firms did not manage earnings downwards in the year prior to the corporate tax rate decrease, but they opportunistically managed earnings upwards in order to receive tax benefits from the more favorable dividend taxation system. Thus, this study sheds light on how owner-opportunism in a form of tax minimization dominates the resource allocations of small private firms via earnings management.

JEL classifications: G14, G18, K34, M41, M48

Keywords: earnings management, taxation, owners, private firms

1 Introduction

The term "earnings management" is generally defined as the choice by a manner of accounting policies, or actions affecting earnings, so as to achieve some specific reported earnings objective (Scott 2009, 403). Earnings management can take several patterns, such as of "taking a bath," income minimization, income maximization, or income smoothing (Scott 2009, 405). Tax related incentives for income minimization or income shifting may occur when future tax rate decreases (Scholes, Wilson and Wolfson 1992; Guenther 1994; Lopez, Regier and Lee 1998). In contrast, income maximization may occur when a future corporate tax rate suddenly increases (Monem 2003; Firth, Lo and Wong 2013). In addition, the effect of taxes on the firm's capital structure, dividend, and investment decisions has been widely studied with data from public firms (Desai and Dharmapala 2009; Korkeamäki, Liljeblom and Pasternack 2010). However, little is known about these issues in private firms that have a more concentrated ownership structure and, consequently, strong owner-manager related incentives.

This study examines whether tax minimization at the corporate or the owner level affects earnings management when these incentives compete in private firms. In this sense, the Finnish private firm setting is particularly interesting. First, private firms are closely held with a substantial influence of owner-managers in decisions of how to report earnings, in e.g., for compensation purposes. Prior empirical literature suggest that earnings are more likely to be managed in private firms than in public firms with more separated ownership and management structures (Beatty and Harris 1999; Mills and Newberry 2001; Beatty, Ke and Petroni 2002; Ball and Shivakumar 2005; Coppens and Peek 2005; Goncharov and Zimmermann 2006; Burgstahler, Hail and Leuz 2006). Hence, the private firm setting makes it possible to link the incentives of managers and owners when the effects of these incentives on earnings management are examined.

Second, in Finland, there is a strong conformity between the accounting and the taxation of limited companies. This special characteristic of the Finnish setting offers less discretion in reporting taxable earnings independently of accounting earnings. This is in contrast to low tax alignment settings, such as those in the UK and the US, where firms have more discretion to overstate earnings for reporting purposes and to minimize taxable income in the same reporting period (Shackelford and Shevlin 2001; Desai and Dharmapala 2009). Prior studies showed that private firms are more likely to manage earnings in a high than in a low tax alignment environment (Coppens and Peek 2005;

Burgstahler et al. 2006; Goncharov and Zimmermann 2006; Van Tendeloo and Vanstraelen 2008).

Third, this study takes advantage of the Finnish tax reform of 2005. Following this reform, taxation at the corporate level was relaxed, and taxation through dividend payments at the owner level was tightened. Previous studies indicate that private Finnish firms adjusted their dividend policies in response to the Finnish tax reform of 2005 with the aim of receiving tax benefits from the more favorable dividend taxation system (Kari, Karikallio and Pirttilä 2008; Kari, Karikallio and Pirttilä 2009; Harju and Matikka 2013). This study expands these studies by examining the effects of the Finnish tax reform of 2005 on the earnings management of private firms. The owner-managers of private firms in such settings have less discretion in minimizing both corporate taxes and personal taxes through dividend payments simultaneously as they manage earnings in response to the tax reform. Therefore, the Finnish tax reform of 2005 provides a unique opportunity to examine whether owners' tax minimization (through dividends) or corporate tax minimization affect the earnings management when these incentives compete.

This study contributes to the prior literature on corporate tax rate changes and earnings management that have thus far been limited to public firms in the US with low tax alignment (Scholes et al. 1992; Guenther 1994; Lopez et al. 1998). In addition, this study contributes to previous studies that have otherwise been limited to the firm-level tax-induced earnings management of private firms in a high tax alignment environment (Moreira 2006; Garrod, Ratej and Valentincic 2007; Marques, Rodrigues and Craig 2011; Steijvers and Niskanen 2011; Watrin, Pott and Ullmann 2012). This study also participates in the discussion of the effects of dividend policy and dividend tax changes on corporate earnings management, previously limited to public firms (Balachandran, Hanlon and Tu 2013; Kasanen, Kinnunen and Niskanen 1996).

The results suggest that private firms do not manage earnings downwards in the year prior to the effective date of the decrease in corporate tax rate, as has been previously documented in similar cases. Instead, managers of private firms opportunistically manage earnings upwards to receive tax benefits from the more favorable dividend taxation system. The results hold for both the analysis of signed and unsigned earnings management based on abnormal working capital and total accruals. The results also indicate that smaller private companies were more opportunistic in this sense than larger private companies.

The remainder of this paper is organized as follows: Section 2 describes the Finnish institutional setting in detail and develops the hypotheses by utilizing the Finnish tax reform of 2005 as a natural experiment; Section 3 describes the research design; Section 4 presents the main results and the sensitivity analyses; and Section 5 discusses the results and presents the conclusions.

2 The Finnish tax reform of 2005 and development of the hypotheses

In 2005, a tax reform was implemented in Finland. Two notable changes in the taxation of private firms were introduced through this reform: from 2004 to 2005. First, the corporate tax rate was reduced from 29 percent to 26 percent. Second, the full dividend imputation system that private firms had used was concurrently abandoned during the years 2005 and 2006. In the full dividend imputation system, owners did not pay taxes other than firm tax on their dividends, so that after the abandonment of this system, dividends became partially double-taxed. Because the Finnish tax reform of 2005 abandoned the full dividend imputation system gradually, in 2005, about 57 percent of dividends were taxable, and since 2006, 70 percent of dividends were taxable.

Based on the discussion of the effects of corporate tax rate changes on earnings management (Scholes et al. 1992; Guenther 1994; Lopez et al. 1998), the Finnish tax reform of 2005 would give private firms an incentive to manage earnings downwards in the year prior to the effective date of the corporate tax rate decrease in order to retain some "tax-free" earnings that otherwise would be taxed with higher corporate tax rate to the subsequent periods. However, managers who control operations in privately held firms may also manage earnings to achieve some personal earnings objective. Such an objective could be the minimization of the personal tax through dividend payments. In this sense, the Finnish tax reform of 2005 would give the managers of private firms an incentive to manage earnings upwards in the year prior to the effective date of the abandonment of a full-dividend imputation system[1]. This is because managers may want to receive tax benefits from a more favorable dividend taxation system. Thus, the incentives described above are conflicting as the Finnish accounting environment gives the managers less discretion in minimizing both corporate and owners' taxes through dividend payments

[1] In particular, earnings retained in 2004 were subject to dividend policy decisions in 2005, which only partially tightened owners' dividend taxation compared with the dividend tax policy as of 2006.

simultaneously as they manage earnings in response to the Finnish tax reform of 2005 due to high tax alignment. Therefore, I predict the following:

H1: In cases where the minimization of corporate tax dominates the owners' incentives for tax minimization, the earnings of private firms are more managed downwards in 2004 (the year prior to the effective date of the Finnish tax reform of 2005) than in other sample years.

H2: In cases where the owners' incentives to minimize tax dominate the corporate level incentives for tax minimization, the earnings of private firms are more managed upwards in 2004 (the year prior to the effective date of the Finnish tax reform of 2005) than in other sample years.

3 Research design

3.1 MEASUREMENTS OF CORPORATE EARNINGS MANAGEMENT

In this study, I use the DeFond and Park (2001) model to estimate abnormal working capital accruals as proxy for the corporate earnings management of private firms.[2] DeFond and Park (2001) computed abnormal (or unexpected) working capital accruals as the difference between observed working capital accruals and expected working capital accruals at t (1):

$$\textit{Abnormal Working Capital Accruals} = \Delta WC - \{[\Delta PWC / PS] \times S\} \quad (1)$$

where
ΔWC = the change in non-cash working capital (Δinventory + Δdebtors + Δother current assets − Δcreditors − Δother current liabilities) from $t - 1$ to t
ΔPWC = the change in non-cash working capital from $t - 2$ to $t - 1$
PS = annual sales revenue at $t - 1$
S = annual sales revenue at t

To test hypotheses 1 and 2, the following equation (2) is estimated for a total sample:

$$ABWCA = \beta_0 + \beta_1 I\_2004 + \beta_2 SIZE + \beta_3 DEBT + \beta_4 CFO + \beta_5 LOSS + \sum INDUSTRY + \varepsilon \quad (2)$$

where *ABWCA* is computed as the signed value of abnormal working capital accruals obtained from (1) and is deflated by the total assets at the end of $t - 1$. The test variable, *I_2004*, is an indicator variable that takes the value of one if the sample year is 2004 (the year prior to the effective date of the Finnish tax reform of 2005) and zero if otherwise.

[2] Industry-based models, such as modified Jones (1991) model, exclude industries with an insufficient number of observations within a single year. Therefore, I use the DeFond and Park (2001) model to estimate abnormal working capital accruals as an alternative model independent of industry-year observations.

The control variables for size (*SIZE*), leverage (*DEBT*), cash flow from operations (*CFO*), and loss (*LOSS*) are added into model because prior studies on earnings management and overall accounting conservatism control these firm-specific characteristics (see Reynolds and Francis 2001; Ahmed, Billings, Morton and Stanford-Harris 2002; Wang 2006; Ahmed and Duellman 2007). *SIZE* equals the natural log of the sum of year-end total assets and one. *DEBT* equals total liabilities deflated by the total assets at the end of *t*. *CFO* equals cash flow from operations at *t* deflated by the total assets at the end of $t - 1$, where cash flow from operations is computed as net income before extraordinary items minus accruals (= Δinventory + Δdebtors + Δother current assets [less cash or cash equivalents] − Δcreditors − Δother current liabilities − depreciation). *LOSS* is an indicator variable that takes the value of one if net earnings at *t* are negative and zero if otherwise. In addition, indicators for three-digit NACE [3] codes (*INDUSTRY*) are added in (2). These variables are not reported because of the conciseness.

This study also takes into consideration the sign of corporate earnings management; therefore, the predictions for the control variables have been taken (inversely) from the previous studies on overall accounting conservatism (Ahmed et al. 2002; Ahmed and Duellman 2007). Ahmed et al. (2002) showed that bondholders in public US firms favor conservative reporting as it protects them from the excessive dividend payments. I predict that leverage (*DEBT*) and cash flow from operations (*CFO*) are negatively associated with signed earnings management.

The test variable, *I_2004*, was based on time-series (denotes a single year); therefore, it was important to investigate whether earnings were managed in a time series within individual firm in response to the Finnish tax reform of 2005. To do so, the fixed (within) effects (FE) regression coefficients were estimated in addition to pooled Ordinary Least Squares (OLS) regression estimates. This panel method controls for both observable and unobservable time-invariants within firm on earnings management. Prior studies suggested that the greater political costs in larger firms may enforce them to report more conservative earnings (see Watts and Zimmerman 1978; Zmijewski and Hagerman 1981; Ahmed et al. 2002; Ahmed and Duellman 2007). However, since the FE regression transforms firm size (*SIZE*) to firm growth (equal to the first difference in firm size); I predict the negative pooled OLS and positive FE coefficient for *SIZE*. I set prediction neither the intercept, nor *LOSS*.

DeFond and Park (2001) model has potential limitations that need to be addressed further. The model presumes that prior year's earnings were unmanaged when estimating current years' earnings management. Therefore,

[3] NACE refers to the industrial classification used by Eurostat in Revision 1 and is an acronym of Nomenclature generale des Activites economiques dans les Communautes europeennes.

the DeFond and Park (2001) model may be insufficient or weak in detecting earnings management in response to the Finnish tax reform of 2005. To add robustness to the analysis, modified Jones (1991) model as alternative proxy for earnings management is used. Prior studies suggest that modified Jones (1991) model was the best proxy to detect earnings management relative to other earnings management measures (Dechow, Sloan and Sweeney, 1995). Based on this model (3), the observed total accruals (*TA*) are a function of lagged assets (*A*); the difference between the change in revenues (Δ*REV*) and the change in net receivables (Δ*REC*); and the level of gross property, plant and equipment (*PPE*):

$$TA = \gamma_0 + \gamma_1 (1/A) + \gamma_2 (\Delta REV - \Delta REC) + \gamma_3 PPE + \eta \quad (3)$$

where

TA = total accruals at *t* deflated by the total assets at the end of *t* − 1, where total accruals are computed as the change in non-cash working capital (*Δ*inventory + *Δ*debtors + *Δ*other current assets − *Δ*creditors − *Δ*other current liabilities) from *t* − 1 to *t*, minus depreciation at *t*

A = total assets at the end of *t* − 1

ΔREV = the change in sales revenue from *t* − 1 to *t*, deflated by the total assets at the end of *t* − 1

ΔREC = the change in net receivables from *t* − 1 to *t*, deflated by the total assets at the end of *t* − 1

PPE = gross property, plant and equipment deflated by the total assets at the end of *t* − 1

Abnormal total accruals at *t* (η) and deflated by the total assets at the end of *t* − 1 are obtained as the difference between the observed total accruals (*TA*) and an estimate of the normal total accruals obtained from (3) separately estimated by a two-digit NACE code and fiscal year.[4] To test hypotheses 1 and 2, the following equation (4) is estimated for a total sample:

$$ABTA = \delta_0 + \delta_1 I\_2004 + \delta_2 SIZE + \delta_3 DEBT + \delta_4 CFO + \delta_5 LOSS + \varepsilon \quad (4)$$

where *ABTA* is the signed value of abnormal total accruals and deflated by the total assets at the end of *t* − 1, obtained from (3). The test variable, *I_2004*, and control variables (other than industry dummies, which are excluded in [4]) are defined above. The predictions for the coefficient on *I_2004* and control variables in (4) equal to those described above.

[4] I require each two-digit NACE code and year combination to have at least 30 observations in each industry-year regressions.

Heteroscedasticity can invalidate the statistical tests of significance in the regression analysis if the modeled error terms are correlated, abnormally distributed, and the variances of errors are inconstant. In time series regressions, the existence of serial correlation may also invalidate the statistical tests of significance if the modeled errors are correlated in time series. Therefore, all regressions presented in this paper are based on a covariance matrix estimator that is robust for heteroscedasticity (White 1980) and provides cluster robust standard errors within firm.

3.2 SAMPLE SELECTION

The sample was collected from the AMADEUS database, which is maintained by Bureau van Dijk. I focused on the financial statements of Finnish private limited firms available for the period from 2002 to 2009. Several additional filters were applied; for example, only firms with available information on financial statements including taxation were selected for further sample selection.[5] This criterion yielded 105,001 firm-year observations (13,482 individual firms). I further excluded private firms that were operating in financial or insurance sectors because their financial statements would likely differ from those operating in other sectors. Finally, after eliminating anomalies in financial statement items, and after excluding one percent of extreme values for all continuous variables employed in (1), (2), (3), and (4), the final sample consisted of 70,128 firm-year observations (13,164 individual firms) for (2); and 78,127 firm-year observations (12,841 individual firms) for (4).

[5] In the sample period, most limited private Finnish firms were obligated to audit their financial statements with the exception that only very small firms (total assets less than €100 thousand) were not obligated to audit their financial statements in the later sample years (since the change in audit requirement criteria in June 2007). Therefore, I did not set any size criteria for Finnish private firms.

4 Results

4.1 DESCRIPTIVE STATISTICS AND CORRELATION

Table 1 presents the descriptive statistics and comparisons of the univariate means of the accounting variables of private firms in a sample from 2004 and sample years other than 2004 (2005–09); and the descriptive statistics of a total sample in (2). Table 2 presents the descriptive statistics and comparisons of the univariate means of the accounting variables of private firms in a sample from 2004 and sample years other than 2004 (2003, 2005–09); it also presents the descriptive statistics of a total sample in (4). These results provide further evidence of the need to control leverage, cash flow from operations, and firm size in the regression analysis presented in the next section.

Table 1: Descriptive statistics for variables employed in (2) excluding industry

Panel A: Observations in 2004 (N = 11,460; n = 11,460)

Variable	***WCA***	***ABWCA***	***NABWCA***	***SIZE***	***DEBT***	***CFO***	***LOSS***
Mean	0.0104	0.0035	0.1733	1317.2	0.4766	0.2185	0.0693
SD	0.0981	0.2380	0.1631	3783.9	0.2473	0.2257	
1st percentile	−0.2791	−0.6514	0.0019	26.0	0.0400	−0.2495	
Median	0.0060	0.0043	0.1224	320.0	0.4688	0.1858	
99th percentile	0.3554	0.6449	0.7175	20610.0	0.9723	0.9141	

Panel B: Observations between 2005 and 2009 (N = 58,668; n = 13,089)

Variable	***WCA***	***ABWCA***	***NABWCA***	***SIZE***	***DEBT***	***CFO***	***LOSS***
Mean	0.0091	−0.0047	0.1597	1540.3	0.4269	0.2010	0.0689
SD	0.0967	0.2214	0.1534	4011.3	0.2458	0.2114	
1st percentile	−0.2897	−0.6293	0.0016	30.0	0.0316	−0.2367	
Median	0.0062	−0.0021	0.1110	411.8	0.4016	0.1688	
99th percentile	0.3294	0.5997	0.6949	22183.9	0.9584	0.8830	

Panel C: All observations between 2004 and 2009 (N = 70,128; n = 13,164)

Variable	***WCA***	***ABWCA***	***NABWCA***	***SIZE***	***DEBT***	***CFO***	***LOSS***
Mean	0.0094	−0.0034	0.1619	1503.9	0.4351	0.2039	0.0690
SD	0.0969	0.2242	0.1551	3975.8	0.2468	0.2139	
1st percentile	−0.2877	−0.6342	0.0017	29.0	0.0325	−0.2384	
Median	0.0062	−0.0011	0.1127	395.0	0.4127	0.1713	
99th percentile	0.3334	0.6082	0.7012	21901.2	0.9612	0.8889	
t-statistics[a]	−1.29	**−3.60**	**−8.60**	**5.50**	**−19.75**	**−7.98**	0.14

Descriptive statistics and univariate mean comparisons of accounting variables of private firms in 2004 and sample years other than 2004 for (2). The total sample consists of 70,128 annual observations for 13,164 private firms between 2004 and 2009. The test variable, *I_2004*, equals an indicator variable that takes the value of 1 if the sample year is 2004 (the year before the effective date of tax rate reduction) and 0 if otherwise. *WCA* equals working capital accruals at *t* deflated by the total assets at the end of *t* − 1, where working capital accruals are computed as the change in non-cash working capital (*Δ*inventory + *Δ*debtors + *Δ*other current assets − *Δ*creditors − *Δ*other current liabilities). *ABWCA* equals signed abnormal working capital accruals obtained from the DeFond and Park (2001) model at *t*, and deflated by the total assets at the end of *t* − 1. *NABWCA* equals naturalized (absolute) value of *ABWCA*. *SIZE* equals total assets at the end of *t*, € thousand. *DEBT* equals total liabilities divided by total assets at the end of *t*. *CFO* equals cash flow from operations at *t* deflated by the total assets at the end of *t* − 1, where cash flow from operations is computed as net income before extraordinary items minus accruals (= *Δ*inventory + *Δ*debtors + *Δ*other current assets [less cash or cash equivalents] − *Δ*creditors − *Δ*other current liabilities − depreciation). *LOSS* is an indicator variable that takes the value of 1 if net earnings at *t* are negative and 0 if otherwise.[a]*t*-statistics for two-tailed test of difference between the sample means of 2004 and other sample years than 2004. Significant at 10% level or better are denoted by boldface characters, respectively.

Table 2: Descriptive statistics for variables employed in (4)

Panel A: Observations in 2004 (N = 10,903; n = 10,903)

Variable	***TA***	***ABTA***	***NABTA***	***SIZE***	***DEBT***	***CFO***	***LOSS***
Mean	−0.0569	−0.0003	0.1153	1100.1	0.4686	0.2164	0.0685
SD	0.1722	0.1570	0.1065	2924.0	0.2472	0.2236	
1st percentile	−0.5305	−0.4126	0.0013	27.8	0.0367	−0.2622	
Median	−0.0522	−0.0030	0.0828	314.7	0.4591	0.1865	
99th percentile	0.3983	0.4368	0.4806	14679.0	0.9710	0.8986	

Panel B: Observations in 2003 and between 2005 and 2009 (N = 67,224; n = 12,821)

Variable	***TA***	***ABTA***	***NABTA***	***SIZE***	***DEBT***	***CFO***	***LOSS***
Mean	−0.0509	−0.0003	0.1054	1201.4	0.4277	0.2020	0.0713
SD	0.1591	0.1463	0.1014	2880.5	0.2465	0.2109	
1st percentile	−0.5106	−0.4205	0.0013	30.0	0.0307	−0.2449	
Median	−0.0450	−0.0006	0.0747	377.1	0.4026	0.1710	
99th percentile	0.3716	0.4036	0.4767	14326.0	0.9595	0.8763	

Panel C: All observations between 2004 and 2009 (N = 78,127; n = 12,841)

Variable	***TA***	***ABTA***	***NABTA***	***SIZE***	***DEBT***	***CFO***	***LOSS***
Mean	−0.0518	−0.0003	0.1068	1187.3	0.4334	0.2040	0.0709
SD	0.1610	0.1478	0.1022	2886.8	0.2470	0.2128	
1st percentile	−0.5132	−0.4187	0.0013	29.0	0.0311	−0.2465	
Median	−0.0461	−0.0009	0.0758	368.0	0.4108	0.1728	
99th percentile	0.3760	0.4070	0.4773	14351.7	0.9612	0.8788	
t-statistics[a]	**3.57**	−0.00	**−9.32**	**3.40**	**−16.07**	**−6.54**	1.06

Descriptive statistics and univariate mean comparisons of accounting variables of private firms in 2004 and sample years other than 2004 for (4). The total sample consists of 78,127 annual observations for 12,841 private firms between 2003 and 2009. The test variable, *I_2004*, equals an indicator variable that takes the value of 1 if the sample year is 2004 (the year before the effective date of tax rate reduction) and 0 if otherwise. *TA* equals total accruals at *t* deflated by the total assets at the end of *t* − 1, where total accruals are computed as the change in non-cash working capital (*Δ*inventory + *Δ*debtors + *Δ*other current assets − *Δ*creditors − *Δ*other current liabilities), minus depreciation at *t*. *ABTA* equals signed value of abnormal accruals obtained from modified Jones (1991) model at *t*, and deflated by the total assets at the end of *t* − 1. *NABTA* equals naturalized (absolute) value of *ABTA*. *SIZE* equals total assets at the end of *t*, € thousand. *DEBT* equals total liabilities divided by total assets at the end of *t*. *CFO* equals cash flow from operations at *t* deflated by the total assets at the end of *t* − 1, where cash flow from operations is computed as net income before extraordinary items minus accruals (= *Δ*inventory + *Δ*debtors + *Δ*other current assets [less cash or cash equivalents] − *Δ*creditors − *Δ*other current liabilities − depreciation). *LOSS* is an indicator variable that takes the value of 1 if net earnings at *t* are negative, and 0 otherwise. [a]*t*-statistics for two-tailed test of difference between the sample means of 2004 and other sample years than 2004. Significant at 10% level or better are denoted by boldface characters, respectively.

Panel A and Panel B of Table 3 present the Pearson (Spearman) correlation coefficients below and above the diagonal for variables employed in (2) and (4) excluding industry. The correlation coefficients indicate that *I_2004* was significantly positively associated with unsigned earnings management. Additionally, the correlation coefficients indicate that *I_2004* was significantly positively associated with signed abnormal working capital accruals. However, the correlation coefficients between *ABTA* and *I_2004* were insignificant. If the correlation coefficients between the two or more independent variables in a multiple regression model are greater than 0.8, multicollinearity may bias the regression results. Table 3 shows that none of the correlations coefficients between the independent variables exceeded this threshold; therefore, the possibility that the regressions results presented in the next section are biased due to multicollinearity can be precluded.

Table 3: The correlation coefficients for variables employed in (2) and (4) excluding industry

Panel A: The Pearson (Spearman) correlation coefficients below (above) a diagonal for variables employed in (2): N = 70,128; n = 13,164; 2004–2009

Variable	***NABWCA***	***ABWCA***	***I_2004***	***SIZE***	***DEBT***	***CFO***	***LOSS***
NABWCA	1.0000	−0.0165*	0.0300*	−0.1425*	0.0423*	0.0936*	0.0055
ABWCA	−0.0403*	1.0000	0.0131*	−0.0066*	−0.0187*	−0.4549*	−0.0496*
I_2004	0.0357*	0.0125*	1.0000	−0.0640*	0.0744*	0.0295*	0.0005
SIZE	−0.1389*	−0.0018	−0.0463*	1.0000	0.1010*	−0.1225*	−0.0698*
DEBT	0.0502*	−0.0158*	0.0566*	0.0910*	1.0000	−0.1042*	0.1458*
CFO	0.1400*	−0.4674*	0.0232*	−0.1316*	−0.0800*	1.0000	−0.2285*
LOSS	0.0113*	−0.0436*	−0.0015	−0.0732*	0.1706*	−0.2092*	1.0000

Panel B: The Pearson (Spearman) correlation coefficients below (above) a diagonal for variables employed in (4): N = 78,127; n = 12,841; 2003–2009

Variable	***NABTA***	***ABTA***	***I_2004***	***SIZE***	***DEBT***	***CFO***	***LOSS***
NABTA	1.0000	0.0014	0.0331*	−0.1127*	0.0574*	0.0609*	0.0278*
ABTA	−0.0073*	1.0000	−0.0054	0.0158*	−0.0712*	−0.5832*	−0.1005*
I_2004	0.0320*	0.0000	1.0000	−0.0434*	0.0578*	0.0236*	−0.0038
SIZE	−0.1048*	0.0119*	−0.0395*	1.0000	0.0795*	−0.1190*	−0.0736*
DEBT	0.0553*	−0.0749*	0.0568*	0.0831*	1.0000	−0.1146*	0.1463*
CFO	0.1188*	−0.6015*	0.0233*	−0.1187*	−0.0999*	1.0000	−0.2308*
LOSS	0.0354*	−0.0945*	−0.0058*	−0.0753*	0.1644*	−0.2188*	1.0000

This table reports the Pearson (Spearman) correlation coefficients below or above a diagonal for variables employed in (2) and (4), excluding industry. The extreme 1% on values for each continuous variable are excluded. *NABWCA* equals naturalized (absolute) value of *ABWCA*, where *ABWCA* equals signed value of abnormal working capital accruals obtained from the DeFond and Park (2001) model at *t*, and deflated by the total assets at the end of *t* – 1. *NABTA* equals naturalized (absolute) value of *ABTA*, where *ABTA* equals signed value of abnormal total accruals obtained from modified Jones (1991) model at *t*, and deflated by the total assets at the end of *t* – 1. *I_2004* is an indicator variable that takes the value of 1 if the sample year is 2004 and 0 if otherwise. *SIZE* equals the natural log of the sum of year-end total assets and one. *DEBT* equals total liabilities divided by total assets at the end of *t*. *CFO* equals cash flow from operations at *t* deflated by the total assets at the end of *t* − 1, where cash flow from operations is computed as net income before extraordinary items minus accruals (= *Δ*inventory + *Δ*debtors + *Δ*other current assets [less cash or cash equivalents] − *Δ*creditors − *Δ*other current liabilities − depreciation). *LOSS* equals an indicator variable that takes the value of 1 if net earnings at *t* are negative and 0 if otherwise. Significant at the 10% (*) level (two-tailed) or better, respectively.

4.2 TESTING H1 AND H2

Table 4 presents the pooled OLS and FE (within) regression coefficient estimates for (2) and (4) using a total sample. The pooled OLS regression coefficients on *I_2004* were positive and statistically significant. The FE (within) regression coefficients on *I_2004* also were positive and statistically significant. In the pooled OLS regression coefficient estimates, the adjusted R- squared for (2) denotes that the explanatory power of the model is 25.98 percent; and the adjusted R-squared for (4) denotes that an explanatory power of a model was 44.04 percent. For the FE (within) regression coefficient estimates, the within R-squared for (2) denotes that the explanatory power of the model was 36.79 percent; and the within R- squared for (4) denotes that the explanatory power of the model was 55.73 percent. These results imply that the FE estimates are better predictors for tax-induced earnings management in response to the Finnish tax reform of 2005.

Based on the results presented in Table 4, since β_1 is significantly positive as predicted by hypothesis 2, hypothesis 2 is accepted and hypothesis 1 is rejected. These results suggest that earnings are rather managed upwards than downwards to minimize owners' rather than corporate tax in 2004 as a response to the tax reform.

Table 4: Testing H1 and H2: signed corporate earnings management in response to the Finnish tax reform of 2005 using a total sample

		Dependent variable			
Independent		***(2) ABWCA***		***(4) ABTA***	
Variables	***Prediction***	***OLS***	***FE***	***OLS***	***FE***
Intercept	?	0.1676	0.0389	0.1830	0.1007
		(29.72)***	(1.75)*	(65.39)***	(9.44)***
I_2004	*−/+ H1/H2*	0.0173	0.0258	0.0076	0.0155
		(8.47)***	(11.46)***	(6.96)***	(14.41)***
SIZE	?	−0.0096	0.0184	−0.0086	0.0117
		(−17.81)***	(5.03)***	(−22.01)***	(6.64)***
DEBT	?	−0.0294	0.0289	−0.0637	−0.1040
		(−10.27)***	(3.33)***	(−29.92)***	(−23.38)***
CFO	?	−0.5585	−0.7826	−0.4694	−0.5828
		(−98.33)***	(−126.06)***	(−128.10)***	(−162.10)***
LOSS	?	−0.1392	−0.1735	−0.1319	−0.1397
		(−44.86)***	(48.85)***	(−70.91)***	(−72.81)***
INDUSTRY		(not reported)	No	No	No
Adjusted R-squared		25.98%		44.04%	
Within R-squared			36.79%		55.73%
N		70,128	70,128	78,127	78,127
n		13,164	13,164	12,841	12,841
Years		2004–09	2004–09	2003–09	2003–09

This table reports the pooled Ordinary Least Squares (OLS) and fixed (within) effects (FE) regression coefficient estimates for (2) and (4) for a total sample. The pooled OLS regression coefficient estimates for (2) include indicators for three-digit NACE codes (*INDUSTRY*). For brevity proposes these indicator variables are not reported. The regression excludes extreme 1% values for each continuous variable. The *t*-statistics reported in parentheses are robust with respect to residuals corrected for heteroscedasticity (White, 1980) and serial correlation within firm (cluster robust standard errors). The test variable, *I_2004*, equals an indicator variable that takes the value of 1 if a sample year is 2004, and 0 otherwise. *ABWCA* equals signed value of abnormal working capital accruals obtained from the DeFond and Park (2001) model at *t*, and deflated by the total assets at the end of *t* − 1. *ABTA* equals signed value of abnormal total accruals obtained from modified Jones (1991) model at *t*, and deflated by the total assets at the end of *t* − 1. *SIZE* equals the natural log of the sum of year-end total assets and one. *DEBT* equals total liabilities divided by total assets at the end of *t*. *CFO* equals cash flow from operations at *t* deflated by the total assets at the end of *t* − 1, where cash flow from operations is computed as net income before extraordinary items minus accruals (= *Δ*inventory + *Δ*debtors + *Δ*other current assets [less cash or cash equivalents] − *Δ*creditors − *Δ*other current liabilities − depreciation). *LOSS* is an indicator variable that takes the value of 1 if net earnings at *t* are negative and 0 if otherwise. Significant at the 10% (*); 5% (**); and 1 % (***) level (two-tailed), respectively.

4.3 SENSITIVITY ANALYSIS: UNSIGNED EARNINGS MANAGEMENT AS DEPENDENT VARIABLE

To add robustness to the analysis, the additional test using absolute earnings management as dependent variable was executed. The OLS regression assumes that the values of dependent variable are normally distributed. Therefore, I used the truncated regression coefficient estimates since the explanatory variables (*NABWCA* in [2]; and *NABTA* in [4]) have only absolute (naturalized) values in the analysis of unsigned earnings management as dependent variable. To examine whether earnings were managed upwards or downwards in response to the Finnish tax reform of 2005, I added an interacting term for *I_2004* and indicator for signed earnings management (*I_NABWCA* for [2]; *I_ NABTA* for [4], that equals one for firm-years with upwards managed earnings and zero if otherwise). The untabulated results of this additional test confirmed that the main results presented in Table 4 are insensitive to the alternative model specification.

4.4 SENSITIVITY ANALYSIS: CONTROLLING FOR SIZE WITHIN TWO TIME SERIES CATEGORIES

Since the data did not contain managerial ownership information, I cannot preclude the possibility that the managers' and owners' incentives were not always aligned in a sample, which however, is quite unlikely in privately owned firms. Implicitly, in smaller private firms typically managed by the entrepreneurs, the incentives of owner-managers for personal tax minimization are stronger than in larger private firms with more dispersed ownership structure. Prior studies suggested that the greater political costs in larger firms may enforce them to report more conservative earnings (see Watts and Zimmerman 1978; Zmijewski and Hagerman 1981; Ahmed et al. 2002; Ahmed and Duellman 2007). Therefore, large firms may have lower incentives to act on behalf of owners by managing earnings upwards in response to the Finnish tax reform of 2005 as they face greater political costs forcing them to report more conservative earnings.

To check whether the results presented in Table 4 are sensitive to private firm size; an additional sensitivity analysis to allow differences in the coefficients on *SIZE* between the samples of 2004 and other years than 2004 was executed. Therefore, I re-ran (2) and (4) by adding an interaction term for *I_2004* and *SIZE*; and predict that the negative association between firm sizes and signed earnings management is greater in 2004 than in other sample years. Thus the coefficients on *SIZE* and *I_2004* × *SIZE* are predicted to be negative. Table 5 presents the OLS regression results of this additional test. As predicted, the pooled OLS regression coefficients on *SIZE* and *I_2004* × *SIZE* were significantly negative.

Overall, the sensitivity analysis showed that the results presented in Table 4 are sensitive to the differences in firm size.

Table 5: Sensitivity analysis: controlling for size within two time series categories

Independent		***Dependent variable***	
Variables	***Prediction***	***(2) ABWCA***	***(4) ABTA***
Intercept	?	0.1639	0.1799
		(28.52)***	(62.71)***
I_2004	*−/+ H1/H2*	0.0397	0.0298
		(4.30)***	(5.79)***
SIZE	−	−0.0090	−0.0080
		(−15.75)***	(−19.98)***
I_2004 × SIZE	−	−0.0038	−0.0038
		(−2.65)***	(−4.66)***
DEBT	?	−0.0296	−0.0638
		(−10.33)***	(−29.97)***
CFO	?	−0.5588	−0.4696
		(−98.29)***	(−128.13)***
LOSS	?	−0.1391	−0.1319
		(−44.86)***	(−70.90)***
INDUSTRY		(not reported)	No
Adjusted R-squared		25.99%	44.06%
N		70,128	78,127
n		13,164	12,841
Years		2004–09	2003–09

This table reports the pooled OLS regression coefficient estimates for (2) and (4) adding an interaction term, *I_2004* × *SIZE*, using a total sample. Indicators for three-digit NACE codes (*INDUSTRY*) are added in (2). For brevity proposes these indicator variables are not reported. The regression excludes extreme 1% values for each continuous variable. The *t*-statistics reported in parentheses are robust with respect to residuals corrected for heteroscedasticity (White 1980) and serial correlation within firm (cluster robust standard errors). The test variable, *I_2004*, equals an indicator variable that takes the value of 1 if a sample year is 2004, and 0 otherwise. *ABWCA* equals signed value of abnormal working capital accruals obtained from the DeFond and Park (2001) model at *t*, and deflated by the total assets at the end of *t* − 1. *ABTA* equals signed value of abnormal total accruals obtained from modified Jones (1991) model at *t*, and deflated by the total assets at the end of *t* − 1. *SIZE* equals the natural log of the sum of year-end total assets and one. *DEBT* equals total liabilities divided by total assets at the end of *t*. *CFO* equals cash flow from operations at *t* deflated by the total assets at the end of *t* − 1, where cash flow from operations is computed as net income before extraordinary items minus accruals (= *Δ*inventory + *Δ*debtors + *Δ*other current assets [less cash or cash equivalents] − *Δ*creditors − *Δ*other current liabilities − depreciation). *LOSS* is an indicator variable that takes the value of 1 if net earnings at *t* are negative and 0 if otherwise. Significant at the 10% (*); 5% (**); and 1 % (***) level (two-tailed), respectively.

5 Discussion and conclusion

This study investigates whether incentives for corporates or owners to minimize taxes affect the earnings management when these incentives compete in private firms. This study utilizes as a natural experiment the Finnish tax reform of 2005 that reduced corporate tax rates from 29 percent to 26 percent and gradually abandoned the full dividend imputation system that private companies had used previously. The findings showed that tax-induced earnings management is driven by owners' incentives more than by firm incentives. Specifically, the findings showed, as opposed to previously documented findings, that private companies manage earnings upwards but not downwards prior to the decreased tax rate in order to benefit from the more favorable dividend taxation system. Furthermore, the sensitivity analysis revealed that incentives for owner's tax minimization through managing earnings in response to the tax reform became stronger with decreasing private firm size, as a proxy for the strength of managerial self-interest through implicit ownership concentration.

The results of this study suggest that the corporate tax rate reductions may not be as influential tax motives on financial reporting in the case with strong owner incentives in private firms. This is contrast to what has been documented previously for corporate tax rate changes in public firms. Thus, this study sheds light on how managerial opportunism manifested in the form of tax minimization on behalf of owners dominate the resource allocations of private firms and hence lead to postponed corporate tax benefits (retained tax-free earnings).

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Auditor Gender and Corporate Earnings Management Behavior in Private Finnish Firms

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ABSTRACT

This paper investigates whether auditor gender has an impact on the magnitude of corporate earnings management in small and medium-sized private Finnish firms. We examine the association between auditor gender and earnings management of private firms by means of multiple linear regression analysis. In our analysis we use discretionary accruals (DACC) estimated by using the cross-sectional version of the Jones (1991) model as a measure for corporate earnings management. When we regress the absolute (unsigned) earnings management on gender and a set of control variables, we find that female auditors allow for more discretion in income reporting. When the analysis is conducted separately for sub-samples of income increasing and income decreasing discretionary accruals, the results suggest that female auditors are more conservative. This study has been conducted by using data from one country. Since it is commonly known that the role of females in the society varies from one country to the next more research is needed in different social environments. When selecting auditors, management should pay attention also to the gender of the auditor. It may also be useful for stakeholders to pay attention to the gender of the auditors that they engage or the gender distribution of the audit team. Our results imply that gender diversity in the auditing profession may improve the quality of financial statement overall. This study is the first one that investigates the effect that auditor gender may has on actual earnings management behavior. It also adds to the understanding on earnings management in private firms.

Keywords: auditor gender; earnings management; private firms

1 Introduction

Corporate earnings management has been one of the most extensively researched areas in financial accounting and finance during the last few decades. By managing earnings, management hides the true earnings and financial position of the firm through inappropriate use of discretionary accruals. According to the definition by Healy and Wahlen (1999), firms involved in earnings management in their financial reports attempt to mislead some stakeholders about the performance of the firm, or to influence the outcomes of the firm's contracts which are based on accounting numbers.

There are several types of earnings management. The early empirical research concentrates on the income smoothing type of earnings management by which the firms attempt to give the shareholders and lenders the impression that they are low risk firms. (Beidleman, 1973; Ronen and Sadan, 1981). The contracting view of the positive accounting theory provides more specific hypotheses for the occurrence and direction of earnings management in certain contexts (Kasanen et al., 1996). Several of the firms' contracts are either explicitly or implicitly based on accounting numbers. Explicit contracts examined in accounting literature include management compensation, (Healy, 1985), debt covenants (DeFond and Jiambalvo, 1994) and taxation (Guenther, 1994). Implicit accounting based contracts include, e.g., management buyouts (DeAngelo, 1986) and labour union contract negotiations (Liberty and Zimmerman, 1986). Recently, Teoh, Welch and Wong (1998a, 1998b) and Kinnunen et al. (2000) find that seasoned equity issuers (as well as issuers of initial public offerings) tend to increase reported earnings by increasing discretionary accruals.

The aim of this paper is to investigate whether auditor gender has an effect on the magnitude of corporate earnings management in small and medium-sized private Finnish firms. That is, we examine if there are differences between firms audited by male and female auditors. Although earnings management literature, gender literature and auditing literature are all extensive as such with points of contact with many other disciplines, we are not aware of any previous studies on the effect that auditor gender may have on actual earnings management behavior.

Only few previous studies combine gender and earnings management, overall. There have been some attempts to investigate the impact that gender has on the attitudes towards earnings management by using surveys targeted at

accounting students. The results indicate that gender is not a decisive issue in this context. Others have investigated the impact that gender diversity in corporate management has on earnings quality. If it holds what has been argued in the gender literature that women are more risk averse and conservative (e.g., Byrnes & Miller, 1999) we expect to find less opportunistic earnings management behavior in firms audited by women.

Most prior studies on earnings management have concentrated on large listed firms. However, recently an increasing number of studies have focused on the earnings quality of small and medium-sized private firms, e.g., Beatty and Harris (1999), Burgstahler et al. (2006) and Ball and Shivakumar (2005). Becker et al. (1998) and Van Tendeloo and Vanstraelen (2008) both concentrate on the effect of audit quality on earnings management in private firms.

The Finnish institutional setting provides an excellent environment for investigating the role that auditor gender has. In Finland auditors are required to personally sign the auditor's reports on behalf of the audit firm. This is in contrast to many other institutional settings such as the U.S. and U.K., where auditors are not required to personally sign the auditor's reports, but the firms are obligated to publish the name of the audit firm responsible for the audit. Hence, Finnish data enables us to identify the auditor's gender and other features related to the auditor's person.

Our results concerning gender differences in audit practices are twofold. First, when we regress absolute (unsigned) discretionary accruals (estimated using a cross-sectional variation of the Jones, 1991, model) on a gender dummy and a set of control variables, we find that female auditors allow for more discretion in income reporting than their male colleagues. When the analysis is conducted separately for income increasing and income decreasing discretionary accruals, it appears that the coefficient of the gender dummy is positive and significant only in the sub-sample of income decreasing absolute discretionary accruals. The results for the total sample of unsigned discretionary accruals thus seem to be driven by the income decreasing discretionary accruals, which suggests higher conservatism of female auditors.

This paper proceeds as follows. In the next section, we discuss the effect that gender has on business behaviour. In the subsequent section, we present the data and empirical method to be used in the analysis. Finally, we present and discuss our results.

2 Gender and business behavior

A number of studies have investigated the differences that gender imposes on different aspects of behavior in individuals. It has been widely agreed, that at least in the general population, women are more risk averse (Byrnes & Miller, 1999) and less overconfident than men. Similar results are obtained when the sample has been limited to the field of accounting and finance (Sunden & Surette, 1998; Jianakoplos & Bernasek, 1998; Olsen & Cox, 2001; Graham et al., 2002; Dwyer et al., 2002; Watson & Robinson, 2003; Watson & McNaughton, 2007). Women also seem to be less overconfident on financial matters than men (Johnson & Powell, 1994; Barber & Odean, 2001; Bliss & Potter, 2002; Schubert, 2006).

Some studies suggest that women behave more ethically than men, while others find no gender differences in ethical behaviour (for review of this literature see Ford & Richardson, 1994). Women are also observed to be more ethical in a business context (Ruegger & King, 1992; Khazanchi, 1995; Eynon et al., 1997). Roxas and Stoneback (2004) agree that overall, women are less likely to engage in unethical behaviour, but when the country context is taken into account, gender based differences are significant only in some countries. Other studies suggest that women are less likely to engage in unethical behaviour in the work place to gain financial rewards (Betz et al., 1989; Bernardi & Arnold, 1997).

Only a few studies combine gender and earnings management overall. Clikeman et al. (2001) use data from a survey targeted at accounting students to investigate whether gender and national origin has an impact on attitudes towards common methods to manage earnings. Their results indicate that gender is not a decisive issue in this context. Krishnan and Parsons (2006) investigate actual earnings management behavior in a sample of Fortune 500 companies and find that earnings quality is positively associated with gender diversity in corporate management. Gul et al. (2007) use data on S&P 500 companies and find that firms with female directors on the board exhibit significantly lower earnings management and higher accruals quality than the firms with no female directors.

The role that female auditors play in the auditing profession has been given an increasing amount of attention lately, but the results are still somewhat ambiguous. Gold et al. (2009) provide evidence that female auditors are more risk-averse than their male counterparts in auditor judgement. Bernardi and Arnold (1997) find that women in Big 5 accounting firms perform better than their male colleagues in moral development. Ittonen et al. (2008) investigate the association between female audit committee representation and audit fees. Their central result is that audit fees are lower in firms with female audit firm representation. Owhoso (2002), however, finds no gender differences among auditors with the same experience in detecting fraud risk in audit planning.

Overall, the psychological gender differences and previous evidence on gender differences in the auditing profession imply that female auditors may invest more effort in audit planning and the audit process for detecting and preventing earnings management. As a result, we would observe female auditors restricting opportunistic earnings management more effectively than male auditors.

3 Methodology and data

3.1 THE FINNISH CONTEXT

Similar to Sweden, Denmark and Germany, the certification of auditors in Finland is characterized by a two-tier system (Niemi, 2004). First-tier certified auditors, KHT-auditors, are authorized and controlled by the Auditing Board of Central Chamber of Commerce. Second-tier certified auditors, HTM-auditors, are authorized and controlled by the Auditing Committees of regional Chambers of Commerce. Both are supervised by the Central Chamber of Commerce. Approximately 28.5 percent of KHT-auditors in Finland are female (Source: Annual report 2004/2005, The Finnish Institute of Authorized Public Accountants). A special feature of the audit markets in Finland in our study period is that, in addition to these two tiers of certified auditors, some small and medium-sized firms in Finland were allowed to have audit services by uncertified "third-tier" auditors while larger firms were obligated to have certified auditors (HTM or KHT) depending on legally predetermined size-limits (see, e.g., Niemi, 2004, Knechel, Niemi and Sundgren, 2008).

3.2 RESEARCH DESIGN

We examine the association between auditor gender and earnings management of private firms by means of multiple linear regression analysis. In our analysis we use discretionary accruals (DACC) estimated by using the cross-sectional version of the Jones (1991) model as a measure for corporate earnings management (see e.g., DeFond & Subramanyam, 1998; Reynolds & Francis, 2000). Dechow et al. (1995) test the different approaches of estimating nondiscretionary accruals. They find that the modified Jones (1991) model performs best especially in detecting upward earnings management. This is the primary methodology used in this study.

The cross-sectional Jones model estimates normal accruals as a function of a change in sales and level of gross property, plant, and equipment. The amount of discretionary accruals is obtained as the difference between observed accruals and an estimate of the Jones model. The Jones model is specified as follows:

$$TA_{it}/A_{it-1} = \beta_0 + \beta_1(1/A_{it-1}) + \beta_2(\Delta SALES_{it}/A_{it-1}) + \beta_3(PPE_{it}/A_{it-1}) + \varepsilon_{it} \quad (1)$$

where

TA_{it} = total accruals for firm i for year t;
Ai_{t-1} = total assets for firm i for year t-1;
$\Delta SALES_{it}$ = change in sales for firm i for year t;
PPE_{it} = gross property plant and equipment for firm i for year t and
ε_{it} = error term;

The Jones model is separately estimated for each industry (based on two-digit SIC) and year combination. Total accruals is measured from balance sheet data and defined as a change in non-cash current assets minus a change in current liabilities excluding the current portion of long-term debt minus depreciation and amortization. A measure of discretionary accruals (DACC) is obtained as an error term from the estimated Jones model. To mitigate effects of outliers on estimates of discretionary accruals, the Jones model is estimated using truncated variables which exclude observations outside the 1th and 99th percentiles.
To test whether auditor's gender has an impact on the magnitude of earnings management among private firms we estimate the following regression model from panel data:

$$ACCRUAL_{it} = \eta_0 + \eta_1 GENDER_{it} + \eta_2 NonCERT_{it} + \eta_3 BIG\_4_{it} + \eta_4 TWOorMORE_{it} + \eta_5 LAW_{it} + \eta_6 CFO_{it} + \eta_7 LogSALES_{it} + \eta_8 DTA_{it} + \varepsilon_{it} \quad (2)$$

The dependent variable ACCRUAL is either the absolute (unsigned) value of total accruals scaled by lagged assets (TACC), or the absolute (unsigned) value of discretionary accruals estimated using the Jones model and scaled by lagged assets (DACC). As the main test variable, the Model (2) includes a dummy variable GENDER indicating audits in which at least one responsible auditor is female.

Model (2) also includes control variables for audit quality and earnings management. In Finland actual audit quality may depend on whether or not an auditor has a professional certification (Sundgren, 1998) and, therefore, we include an indicator for audits by noncertified auditors (NONCERT). Previous studies show that at least in the context of U.S. listed firms, Big 4 audit firms are more effective in restricting corporate earnings management than smaller audit firms (Becker et al., 1998; Francis et al., 1999). Therefore, we include an indicator for audits Big 4 audit firms. In the regression, audits by noncertified auditors and those by Big 4 certified auditors are compared with an omitted group

representing audits by non-Big 4 certified auditors. The regression specification, therefore, attempts to control for potential differences in audit quality between noncertified, non-Big 4 certified, and Big 4 certified auditors.
In Finland auditor's report can be signed by more than one responsible auditor, and, therefore, we include a control variable indicating audits with more than one responsible auditor (TWOorMORE). Auditor independence may be more likely to be sustained and/or audit effort increased if there is more than one signing auditor responsible for the audit engagement. We further include an indicator for firms that are legally obligated to have a certified auditor (LAW) instead of a noncertified auditor based on their size. The justification for this variable is that firms which voluntarily choose certified auditors may have lower earnings management incentives than the firms which are legally obligated to do so. More specifically, the variable LAW indicates whether a firm is obligated to have its financial statement audited by an auditor with a HTM or KHT certification by meeting at least two of the three following criteria based on its financial position in the end of the fiscal year:

(1) total assets > €0.34 million,
(2) gross revenues > €0.68 million, and
(3) number of personnel > 10.

Other control variables included in Model (2) are for financial characteristics that previous studies have indicated to be important determinants of corporate earnings management. We include CFO defined as cash flow from operations scaled by lagged total assets, LogSALES defined as log of sales, and DTA defined as total debt scaled by lagged total assets, because cash flows, firm size and leverage are shown to be associated with the level of discretionary accruals (e.g., Becker et al., 1998; Reynolds & Francis, 2000). Finally, we control for fixed industry and year effects on corporate earnings management by including indicators for firm's industry classification (based on two-digit SIC codes) and for fiscal year. The variable definitions are summarized in Table 1.

In the main analysis, we estimate the Model (2) as a pooled (cross-sectional time-series) ordinary least squares (OLS) regression. To address concerns about heteroskedasticity and both cross-sectional and time-series dependence of regression error terms we cluster error terms by firm and year (see Cameron et al., 2009; Gow et al., 2009).

3.3 SAMPLE SELECTION

In the regression analysis we use a sample of Finnish private firms drawn from the VOITTO database of Suomen Asiakastieto Oy, a Finnish credit rating and financial information company. The database includes financial and auditing data of approximately 100,000 Finnish, mainly limited firms from time-series of different length ranging from one to five years and covering fiscal years from 1999 to 2006. First, a random sample of 5,000 firms was drawn from the database by requiring sample firms to have financial statements from five successive years and fiscal years with 12 moths. This sampling yielded an initial sample of 25,000 firm-years of financial statement data from 1999 to 2006, which was supplemented with manually collected data on firms' auditing, industry classification, company form, and group membership.

In order to obtain our test sample, we impose several restrictions on the initial dataset. First, we restrict the test sample to private, unconsolidated, and limited companies. In addition, sufficient data were required to compute total accruals and the variables needed to estimate the Jones model. In order to mitigate effects of extreme observations on estimates of discretionary accruals, all variables needed to estimate the Jones model were truncated by excluding observations outside the top and bottom percentiles. In addition, at least ten observations for all two-digit industry-class and year combination is further required to improve accuracy of the estimates of the Jones model (see e.g., Kothari et al., 2005). Finally, requiring non-missing data on all regression variables in Model (2) restricts the test sample to 13,908 observations representing 3,900 individual firms.

3.4 DESCRIPTIVE STATISTICS

Table 2 presents descriptive statistics for the test sample. As can be seen in Table 2, approximately one fifth (21.1%) of all audits presented in the sample have female auditors as responsible auditors. The sample mean (median) absolute Jones model discretionary accruals is 10.5 (7.3) percent of (lagged) total assets.

Table 3 presents univariate comparisons by auditor gender (Panel A) and discretionary accruals (Panel B). Panel A shows that the firms with female auditors are smaller and have higher proportions of absolute total and discretionary accruals of (lagged) total assets. In addition, female auditors are less often single responsible signing auditors, less likely to represent Big 4 audit firms, and more often noncertified auditors. Panel A also separately compares income increasing and decreasing absolute discretionary accruals by auditor

gender. These univariate results show that clients of female auditors report higher absolute levels of income increasing and decreasing discretionary accruals, but the difference is more pronounced for income decreasing discretionary accruals.

The univariate results presented in Panel B show that firms reporting higher than the sample median discretionary accruals are more likely to have a female auditor. In addition, these firms are smaller and more levered. Audit reports of firms reporting higher levels of discretionary accruals are also more often signed by only one responsible auditor. Panel B also separately compares relative frequencies of audits by female auditors in subsamples of income increasing and decreasing absolute discretionary accruals. These univariate comparisons reveal that the relative frequency of audits by female auditors is significantly higher among firms reporting higher than the sample median level of income decreasing discretionary accruals. This difference is not observed for income increasing discretionary accruals.

In sum, the univariate results provide preliminary evidence that auditor gender may have an impact on the level of discretionary accruals. More precisely, the results suggest that firms audited by female auditors report higher levels of absolute discretionary accruals. However, separate analysis of income increasing and decreasing discretionary accruals suggests that this difference is driven by income decreasing discretionary accruals.

In multivariate regression analysis multicollinearity could bias the coefficient estimate of the test variable GENDER if this variable correlates highly with any of the control variables in the Model (2). However, these (untabulated) correlations do not exceed ±0.10. Among the control variables, we observe the largest correlations between LogSALES and LAW (0.776), DTA and CFO (−0.293), and LogSALES and BIG_4 (0.286), while other correlations are less than ±0.25. Furthermore, the variance inflation factors (VIFs) of regressors in the Model (2) are less than 2.7. Therefore, based on these diagnostics we conclude that multicollinearity is not a problem in the multivariate regression analysis presented in the next section.

Table 1: Variable definitions

TACC	Absolute value of total accruals, scaled by lagged total assets;
DACC	Absolute value of discretionary accruals from the Jones model, scaled by by lagged total assets;
CFO	Cash flow from operations scaled by lagged total assets;
LogSALES	Log of sales;
DTA	Ratio of total debt to total assets;
GENDER	An indicator variable equal to 1 in case of a female auditor, 0 otherwise;
NonCERT	An indicator variable equal to 1 in case of a non-certified auditor, 0 otherwise;
BIG_4	An indicator variable equal to 1 in case of a Big 4 auditor, 0 otherwise;
TWOorMORE	An indicator variable equal to 1 in case of two or more auditors, 0 otherwise;
LAW	An indicator variable equal to 1 if a firm is legally obligated to choose a certified (HTM or KHT) auditor, 0 otherwise.

Table 2: Descriptive statistics

Continuous variables	***N***	***Mean***	***SD***	***1st Percentile***	***Median***	***99th Percentile***
TACC	13,908	0.123	0.112	0.001	0.090	0.520
DACC	13,908	0.105	0.102	0.002	0.073	0.478
DACC (income	7,128	0.103	0.101	0.002	0.072	0.491
DACC (income	6,780	0.106	0.103	0,002	0.074	0.471
CFO	13,908	0.206	0.243	−0.375	0.180	0.941
LogSALES	13,908	6.262	1.480	3.114	6.196	9.967
DTA	13,908	0.516	0.286	0.041	0.498	1.241
Discrete variables:	***N***	***%***	–	–	–	–
GENDER (= 1)	2,937	21.1	_	_	_	_
NonCERT (= 1)	3,054	22.0	_	_	_	_
BIG_4 (= 1)	2,433	17.5	_	_	_	_
TWOorMORE (= 1)	859	6.2	_	_	_	_
LAW (= 1)	5,284	38.0	_	_	_	_

This table presents descriptive statistics for the test sample; *N* denotes the number of firm-year observations; data covers years from 1999 to 2006; for variable definitions, see Table 1.

Table 3: Univariate tests

Panel A: Comparisons by auditor gender

	Descriptive statistics					
	GENDER = 1 (N = 2,937)		***GENDER = 0 (N = 10,971)***		***Comparisons***	
Continuous variables	***Mean***	***SD***	***Mean***	***SD***	***Diff.***	***p-value***
TACC	0.128	0.120	0.121	0.110	**0.008**	**0.002**
DACC	0.112	0.109	0.103	0.100	**0.010**	**0.000**
CFO	0.211	0.256	0.205	0.239	0.006	0.252
LogSALES	5.982	1.461	6.336	1.477	**−0.354**	**0.000**
DTA	0.511	0.284	0.518	0.286	−0.007	0.216
Discrete variables	***%***		***%***		***Diff.***	***p-value***
GENDER (= 1)	100.0		0.0		–	–
NonCERT (= 1)	27.7		20.4		**7.3**	**0.000**
BIG_4 (= 1)	13.3		18.6		**−5.3**	**0.000**
TWOorMORE (= 1)	8.9		5.4		**3.5**	**0.000**
LAW (= 1)	30.2		40.1		**−9.9**	**0.000**

	GENDER = 1		***GENDER = 0***			
Signed discretionary	***Mean***	***SD***	***Mean***	***SD***	***Diff.***	***p-value***
Income increasing DACC	0.108	0.107	0.102	0.099	**0.006**	**0.062**
N	1,544		5,584			
Income decreasing DACC	0.117	0.111	0.104	0.100	**0.014**	**0.000**
N	1,393		5,387			

This table presents additional descriptive statistics and univariate tests; Panel A presents univariate comparisons by auditor gender; for the continuous variables, the reported statistics are differences in means, and the reported *p*-values are for independent samples' mean comparison *t*-test; for the discrete variables, the reported statistics are differences in relative frequencies, and the reported *p*-values are for Pearson's chi-squared test; *N* denotes the number of firm-year observations; differences significant at the 10 % level or better are reported with bold characters; data cover years from 1999 to 2006; for variable definitions, see Table 1.

Table 3 continues on the next page

Table 3: Continued…

Panel B: Comparisons by discretionary accruals

	Descriptive statistics					
	DACC ≤ 0.072 (N = 6,954)		***DACC > 0.072 (N = 6,954)***		***Comparisons***	
Continuous variables	***Mean***	***SD***	***Mean***	***SD***	***Diff.***	***p-value***
TACC	0.065	0.055	0.180	0.125	**–**	**–**
DACC	0.034	0.021	0.175	0.102	**–**	**–**
CFO	0.204	0.200	0.208	0.279	−0.004	0.391
LogSALES	6.359	1.476	6.165	1.479	**0.194**	**0.000**
DTA	0.486	0.286	0.547	0.282	**−0.061**	**0.000**
Discrete variables	***%***		***%***		***Diff.***	***p value***
GENDER (= 1)	20.0		22.2		**−2.2**	**0.001**
NonCERT (= 1)	20.5		23.4		**−2.9**	**0.000**
BIG_4 (= 1)	18.0		17.0		0.9	0.147
TWOorMORE (= 1)	6.7		5.7		**1.0**	**0.012**
LAW (= 1)	41.7		34.3		**7.5**	**0.000**

Signed discretionary accruals: income increasing DACC

	DACC ≤ 0.072 (N = 3,564)	***DACC > 0.072 (N = 3,564)***		
	%	***%***	***Diff.***	***p-value***
GENDER (= 1)	21.0	22.3	−1.3	0.136

Signed discretionary accruals: income decreasing DACC

	DACC ≤ 0.074 (N = 3,390)	***DACC > 0.074 (N = 3,390)***		
	%	***%***	***Diff.***	***p-value***
GENDER (= 1)	19.1	22.0	**−2.9**	**0.002**

This table presents additional descriptive statistics and univariate tests; Panel B presents univariate comparisons by discretionary accruals; for the continuous variables, the reported statistics are differences in means, and the reported *p*-values are for independent samples' mean comparison *t*-test; for discrete variables, the reported statistics are differences in relative frequencies, and the reported *p*-values are for Pearson's chi-squared test; *N* denotes the number of firm-year observations; differences significant at the 10 % level or better are reported with bold characters; data cover years from 1999 to 2006; for variable definitions, see Table 1.

4 Results

4.1 MULTIVARIATE REGRESSION RESULTS

Table 4 presents multivariate regression results. In our analysis, total accruals and discretionary accruals are regressed on a dummy indicating auditor gender and several control variables. Columns 1 and 2 present pooled cross-sectional time-series OLS regressions using the absolute total accruals scaled by lagged total assets (TACC), and absolute discretionary accruals from the Jones model scaled by lagged total assets (DACC) as the dependent variable, respectively.

In the model using TACC as the dependent variable, the coefficient of GENDER is positive and significant at the five percent level. Furthermore, in the model using DACC as the dependent variable the coefficient of GENDER is positive and significant at the one percent level. The magnitude of the coefficient on GENDER indicates that firms audited by female auditors report discretionary accruals to total assets that are on average 0.58 percent higher compared to firms audited by male auditors. At the sample mean of total assets (998 TEUR) this effect equals to 5.79 TEUR, which can be considered economically significant in the context of private firms. Overall, the significant results for the test variable in Table 4 suggest that female auditors allow more discretion in accruals management by means of total and discretional accruals. The observed gender effect, however, can be driven by income increasing or decreasing earnings management..

With respect to control variables related to auditing, the coefficients of NonCERT and BIG_4 are consistently positive and significant in Table 4. The negative and significant coefficients of LAW and LogSALES in Column 2 suggest that discretionary accruals as a proportion of total assets decreases with an increase in firm size. This result is consistent with prior findings in Reynolds & Francis (2000). In contrast to prior findings, however, positive and significant coefficients of CFO and DTA suggest that discretionary accruals as a proportion of total assets increases with operating cash flows and financial leverage (Dechow et al., 1995; Becker et al., 1998).

Table 4: Multivariate regression results

Independent variables	***Prediction***	***Dependent variable***	
		Column 1: TACC	***Column 2: DACC***
Intercept	?	0.0807	**0.0530**
		(.)	**(0.013)**
GENDER	?	**0.0044**	**0.0058**
		(0.028)	**(0.001)**
NonCERT	+	**0.0065**	**0.0050**
		(0.009)	**(0.094)**
BIG_4	–	**0.0116**	**0.0072**
		(0.000)	**(0.000)**
TWOorMORE	?	0.0044	0.0017
		(0.391)	(0.738)
LAW	?	**–0.0081**	**–0.0115**
		(0.000)	**(0.000)**
CFO	?	**0.1173**	**0.0237**
		(0.000)	**(0.000)**
LogSALES	?	**–0.0059**	**–0.0023**
		(0.000)	**(0.030)**
DTA	?	**0.0975**	**0.0554**
		(0.000)	**(0.000)**
Year controls		Yes	Yes
Industry controls		Yes	Yes
N		14,482	13,908
Adjusted R^2		0.120	0.058

This table presents the main regression results; columns 1 and 2 present pooled OLS regressions with total absolute accruals (TACC), and Jones model discretionary accruals (DACC) as the dependent variable, respectively; *N* denotes the number of firm-year observations per model; *p*-values of *t* statistics are reported in parenthesis and are based on standard errors clustered by firm and year; coefficients significant at the 10 % level or better based on two-tailed test are reported with bold characters; data cover years from 1999 to 2006; for variable definitions, see Table 1.

The results presented in Table 4 are based on absolute values of income increasing and decreasing discretionary accruals. To gain further insight on whether the results conserning the gender-effect are driven by either income increasing or decreasing earnings management we ran regressions separately for subsamples of income increasing and decreasing absolute discretionary accruals. These models are presented in Table 5. In the model for income decreasing (increasing) DACC, the coefficient of GENDER is positive and significant at the five percent level (insignificant). Therefore, the results on GENDER seem to be driven by income decreasing earnings management. This finding suggests that while male and female auditors both restrict overstatement of earnings by private firms, female auditors being more conservative are less restrictive or contribute to understatement of these earnings.

Table 5: Signed discretionary accruals

	Dependent variable	
Independent variables	***Column 1: income decreasing DACC***	***Column 2: income increasing DACC***
Intercept	**−0.0234**	**0.0658**
	(0.066)	**(0.000)**
GENDER	**0.0045**	0.0018
	(0.010)	(0.612)
NonCERT	0.0027	0.0037
	(0.372)	(0.122)
BIG_4	**0.0114**	0.0021
	(0.000)	(0.268)
TWOorMORE	**0.0192**	**−0.0193**
	(0.016)	**(0.000)**
LAW	−0.0023	**−0.0164**
	(0.530)	**(0.000)**
CFO	**0.1981**	**−0.1667**
	(0.000)	**(0.000)**
LogSALES	**−0.0069**	0.0018
	(0.000)	(0.145)
DTA	**0.1082**	−0.0112
	(0.000)	(0.109)
Year controls	Yes	Yes
Industry controls	Yes	Yes
N	6,780	7128
Adjusted R^2	0.234	0.152

This table presents additional sensitivity analysis; columns 1 and 2 presents pooled OLS regressions separately on subsamples of income decreasing and income increasing absolute discretionary accruals (DACC), respectively; *N* denotes the number of firm-year observations per model; *p*-values of *t* statistics are reported in parenthesis and are based on standard errors clustered by firm and year; coefficients significant at the 10 % level or better based on two-tailed test are reported with bold characters; data cover years from 1999 to 2006; for variable definitions, see Table 1.

The results presented in Table 4 are based on absolute values of income increasing and decreasing discretionary accruals. To gain further insight on whether the results conserning the gender-effect are driven by either income increasing or decreasing earnings management we ran regressions separately for

subsamples of income increasing and decreasing absolute discretionary accruals. These models are presented in Table 5. In the model for income decreasing (increasing) DACC, the coefficient of GENDER is positive and significant at the five percent level (insignificant). Therefore, the results on GENDER seem to be driven by income decreasing earnings management. This finding suggests that while male and female auditors both restrict overstatement of earnings by private firms, female auditors being more conservative are less restrictive or contribute to understatement of these earnings.

4.2 SENSITIVITY ANALYSIS

Because of the panel nature of the data, it is appropriate to test whether time-constant firm-effects (i.e., firm heterogeneity) should be further controlled in the multivariate analysis by means of the appropriate panel data estimation method. The specification tests (i.e., Hausman contrast test and Preusch-Pagan LM test) not reported in detail reject the consistency of the pooled and random effects models, and suggest that fixed effects (within) method is appropriate for estimation of the Model (2) from the data.

Accordingly, we run fixed effects (within) regressions for the total sample and separately for subsamples of income increasing and decreasing absolute discretionary accruals. The coefficient on GENDER, however, is insignificant in all models. This may imply that pooled OLS results with respect to GENDER are biased because of an omitted variable problem caused by confounding firm-effects. An alternative explanation is that the fixed effects (within) method, that makes statistical inference based on time-series variation of the data, lacks efficiency in detecting gender effects since the variability of GENDER is mostly cross-sectional instead of temporal in the data. Therefore, we draw the conclusions of this study based on pooled OLS results.

To check whether the results are sensitive to the choice of an earnings management measure we estimate the Model (2) using modified Jones model discretionary accruals (i.e., the modification by Dechow et al., 1995) as an alternative measure for earnings management. The difference between the Jones model and the modified Jones model is that the latter attributes the entire change in receivables to earnings management. According to unreported regressions, the results are unaffected by the use of this alternative discretionary accruals measure. In the model with DACC (income decreasing DACC) as the dependent variable, the coefficient of GENDER is positive and significant at the one (five) percent level.

One concern regarding the research design applied in this study is the self-selection problem. Because sample firms self-select their auditors, auditor choice indicator GENDER is likely to be endogenous in the multivariate regression model, and therefore, can have a biased coefficient estimate in regressions. Univariate results presented in Table 2 indicate a self-selection problem since firms in the sub-samples of female and male auditors systematically differ in various firm-specific characteristics. Consequently, significant coefficient of GENDER in regressions can be attributable to confounding firm characteristics rather than auditor's gender.

To check whether the main results are affected by potential endogeneity of the test variable, we conduct propensity score matching analysis (Heckman, 1979; Rosenbaum & Rubin, 1983). First, for every year and industry (based on two-digit SIC) combination we match firms having female auditors with those having male auditors based on predicted probabilities obtained from the following pooled auditor selection probit model[1]:

$$GENDER_{it} = \lambda_0 + \lambda_1 \text{ NonCERTit} + \lambda_2 BIG\_4_{it} + \lambda_3 \text{ TWOorMORE}_{it} + \lambda_4 \text{ LAW}_{it} + \lambda_5 \text{ CFO}_{it} + \lambda_6 \text{ LogSALES}_{it} + \lambda_7 \text{ LogSALES2}_{it} + \lambda_8 \text{ LogSALES3}_{it} + \lambda_9 \text{ DTA}_{it} + \lambda_{10} \text{ ROA}_{it} + \varepsilon_{it} \quad (3)$$

The auditor selection model includes GENDER as the dependent variable. Independent variables in the Model (4) include all control variables from the Model (2), higher order terms for LogSALES, and an additional control variable ROA, defined as operating income scaled by lagged total assets. ROA is included in order to eliminate differences in profitability between matched firms (see Kothari et al., 2005). Next, we estimate Model (2) for the matched subsample drawn from the data. In the regression with DACC (income decreasing DACC) as the dependent variable and matched sample size of 5,290 (2,542) observations, the coefficient of GENDER is positive and significant at the 0.1 (five) percent level. In sum, the consideration of the potential endogeneity problem related to the test variable GENDER does not change the conclusion that female auditors seem to contribute to income decreasing earnings management of private firms.

To check whether there are systematic differences in the observed gender-effect between groups of non-certified, non-Big 4 certified and Big 4 certified auditors, we run regressions by interacting GENDER with NonCERT and BIG 4.

[1] Specifically, matched test sample is formed by matching observations of female auditor with those of male auditor within caliper of 0.01 of predicted probability with nearest neighbour without replacement.

However, we do not observe any significant interaction effects in these regressions either by using DACC or income increasing and decreasing DACC as the dependent variable. Based on these results, we conclude that there are no significant differences in observed gender-effect between groups of non-certified, non-Big 4 certified and Big 4 certified auditors.

The test variable GENDER codes observations (N = 211) of firms with auditor's report signed by female and male auditors as having the value of one. Therefore, we ran regressions by excluding these observations to check whether the results are sensitive to these observations. Untabulated regressions indicate that the results and the conclusions about the gender-effect are unaffected by this exclusion.

5 Discussion and conclusion

The purpose of this paper is to investigate whether auditor gender has an impact on the magnitude of corporate earnings management in small and medium-sized private Finnish firms. Although the earnings management literature, gender literature and auditing literature are all extensive with points of contact with many other disciplines, we are not aware of any prior studies on the effect that auditor gender has on actual earnings management in private firms. There have been some attempts to investigate the impact that gender has on earnings management. Some studies have used surveys targeted at accounting students to investigate whether gender and national origin have an impact on attitudes towards common methods to manage earnings. The results indicate that gender is not a decisive issue in this context. Others investigate actual earnings management behavior and find that earnings quality is positively associated with gender diversity in corporate management. The role that female auditors play in the auditing profession has been given an increasing amount of attention, too. The results imply that female auditors are more risk-averse in auditor judgement, perform better in moral development.

Our results concerning gender differences in audit practices are twofold. First, when we regress the absolute (unsigned) earnings management on a gender dummy and a set of control variables, we find that female auditors allow for more discretion in income reporting than their male colleagues. When the analysis is conducted separately for sub-samples of income increasing and income decreasing discretionary accruals, the results suggest that female auditors are more conservative than their male colleagues.

This study contributes to previous literature on gender and earnings quality by documenting a positive association between auditor gender and actual earnings quality. Auditors are expected to be a homogenous group of professionals because they are obligated to follow equal auditing standards in their profession. Conversely, there is lot more heterogeneity allowed in the level of profession between firm managers, including male and female. The results of this study show that gender diversity is evident also in a more homogenous group of professionals.

These results may also have practical implications. When selecting auditors, management should pay attention also to the gender of the auditor. It may also be useful for stakeholders to pay attention to the gender of the auditors that they engage or the gender distribution of the audit team. Our results also imply that gender diversity in the auditing profession may improve the quality of financial statements overall.

One of the main limitations of this study is that it has been has been conducted by using data from one country. In Finland, women are very equal with men in all branches of life. They are also equally well, in some industries on average even better, educated than their male colleagues. However, since it is commonly known that the role of females in the society varies from one country to the next more research is needed in different social environments.

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Earnings cosmetics and auditor gender: evidence from Finnish private firms

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Abstract: This paper investigates whether there are differences in cosmetic earnings management between firms audited by male vs. female auditors in a sample of private Finnish firms. We find that earnings cosmetics is more likely to appear in firms audited by male auditors. Our results also indicate that private firms, too, do engage in cosmetic earnings management. Our results imply that gender diversity in the auditing profession may improve the quality of financial statements overall. This suggests that when selecting auditors, management and other stakeholders should pay attention also to the gender of the auditors that they engage or the gender distribution of the audit team. While this is the first study to combine earnings cosmetics and auditor gender, it is also the first one to document that earnings cosmetics takes place in private firms.

Keywords: earnings cosmetics; auditor; gender; Finland.

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1 Introduction

Corporate earnings management has been extensively researched in financial accounting and finance during the last few decades. Earnings management means that the company hides its true earnings and financial position by using discretionary accruals in an inappropriate way. According to Healy and Wahlen's (1999) definition, firms involved in earnings management attempt to mislead stakeholders about the performance of the firm, or to influence the outcomes of the firm's contracts which are based on accounting numbers.

There are several types of earnings management, including income smoothing, boosting of earnings and income reduction for tax purposes (for a review of the early literature see e.g., Kasanen et al., 1996). Carslaw (1988) examines a special type of earnings enhancement, which is based on the existence of cognitive reference points. If a company achieves such a reference point by adjusting reported earnings, company stakeholders may perceive the earnings numbers to be abnormally larger than they would without the adjustment. While human beings have only a limited amount of memory available, they will place the most emphasis on the first digit of a number (Brenner and Brenner, 1982; Carslaw, 1988). For instance, showing an annual profit of 201 millions may look much better than showing 199 millions. That is, when earnings increase, earnings information users do not perceive them to increase following a linear pattern, but there are more than proportional shifts when the first digit of the earnings number becomes larger by one. In this paper, such type of behaviour of the management is called cosmetic earnings management since its effect on the reported income number is usually very small and economically insignificant (see Niskanen and Keloharju, 2000).

Carslaw (1988) examines the financial statements of New Zealand companies and finds that corporations manage their earnings to exceed the key reference points of $N * 10^k$, where the integer N is the first digit of the earnings number. Especially, Carslaw finds that numbers just in excess of factors 10^k were abnormally common, i.e., there were more zeros and other small numbers in the second digit of reported earnings than would be expected by pure chance. Later studies including those by Thomas (1989), Niskanen and Keloharju (2000), Van Caneghem (2002) and Kinnunen and Koskela (2003) have all observed the same phenomenon first documented by Carslaw (1988) with data on listed firms from different countries.

The auditing system present in most countries is an important tool to help the owners of the firm, the state and municipal authorities and other audiences to become convinced of the quality of the financial statements presented by management. Our aim is to investigate the impact that auditor gender has in earnings cosmetics. In Finland auditors are required to personally sign audit reports on behalf of the audit firm. This is in contrast to many other dominant institutional settings such as USA and UK systems, where auditors are not required to personally sign the audit reports but the firms are obligated to publish the name of the audit firm which is responsible for the audit. Therefore, Finnish data enables us to identify the auditor's gender and other features related to the auditor's person.

During the study period, the smallest firms in Finland were allowed to have audits by noncertified auditors whereas larger firms were obligated to have certified auditors depending on a legally predetermined size-threshold (see e.g., Knechel et al., 2008). This differs from the international ISA standards (valid in Finland since the change in auditing law in 2007) which allow only certified auditors to be selected. First-tier certified auditors, KHT-auditors, are authorised and controlled by the Auditing Board of Central Chamber of Commerce. Second-tier certified auditors, HTM-auditors, are authorised and controlled by the Auditing Committees of regional Chambers of Commerce. Both are supervised by the Central Chamber of Commerce. Approximately 28.5% of KHT-auditors in Finland are female (Annual Report 2004/2005, The Finnish Institute of Authorized Public Accountants). In our sample, 14% of KHT-certified auditors and 22.8% of HTM-certified auditors are females. Furthermore, 22.9% of non-certified auditors are female.

This is the first study to combine earnings cosmetics and auditor gender. In general, previous literature suggests that women are more conservative and risk averse than men and that gender diversity in corporate management may help prevent excessive risk taking. Even so, only a few previous studies combine gender and earnings management.

There have been some attempts to investigate the impact that gender has on the attitudes towards earnings management by using surveys targeted at accounting students. The results indicate that gender is not a decisive issue in this context. Others have investigated the impact that gender diversity in corporate management has on earnings quality. Gul et al. (2007) find that female representation in the board lowers earnings management behaviour and increases accruals quality, while Krishnan and Parsons (2008) find that gender diversity in corporate management is positively associated with higher earnings quality.

The impact of auditor gender, too, has been given some attention in the literature. Recently, Niskanen et al. (2011) provide evidence that female auditors have more severe attitudes towards earnings management in its traditional and economically more meaningful sense. Ittonen et al. (2010) find that audit fees are lower in the firms with female audit team representation. Gold et al. (2009) suggest that female auditors are more risk averse than their male counterparts. If it holds what has been argued in the gender literature that women are more risk averse and conservative (e.g., Byrnes et al., 1999) we expect to find less cosmetic earnings management behaviour in firms audited by women than in firms audited by men. This is especially so, because cosmetic earnings management by nature has always an income increasing effect, in which case a detection of an audit error usually is considered more severe than in the inverse case.

We are interested in the effect of auditor gender on the earnings management practices of private firms. Recently, an increasing number of studies have focused on the earnings quality of small and medium-sized private firms from other perspectives (Beatty and Harris, 1999; Burgstahler et al., 2006; Ball and Shivakumar, 2005). Becker et al. (1998) and Van Tendeloo and Vanstraelen (2008) both concentrate on the effect of audit quality on earnings management in private firms.

Listed firms may have different motives for earnings management than small firms because wider audiences are interested in their accounting numbers. Also, manager controlled listed firms may have more wide-ranging motives than owner controlled private firms to enhance their earnings by using accounting methods (see e.g., Lambert, 1984). As already mentioned, the practice of cosmetic upwards rounding of earnings numbers has without exception been observed in prior studies using large firm data. Thus, it is interesting to find out, whether private firms with obviously different motives for such behaviour than large listed firm also engage in these operations.

Our main result is that the auditor's gender matters: firms with male auditors are more likely to allow cosmetic earnings management. Our results also complement previous research on cosmetic earnings management. Our results indicate that private firms, too, do engage in cosmetic earnings management.

In the next section, we present the data and method applied in the analysis. In the third section, we present the results. Finally, the fourth section concludes the study.

2 Data and method

In empirical analyses, we use a sample drawn from VOITTO (1/2006) database maintained by *Suomen Asiakastieto Oy*, a Finnish credit rating and financial information company. This database includes financial and auditing data of approximately 100,000 Finnish, mainly limited firms from time-series of different length ranging from one to five years and covering fiscal years from 1999 to 2006. First, a random sample of 5,000 firms was drawn from the database by requiring sample firms to have financial statements from five successive years and fiscal years with 12 months. This sampling yielded an initial sample of 25,000 firm-years of financial statement data from 1999 to 2006 which was next supplemented with manually collected data on firms' auditors, industry classification, company form, and group membership.

To obtain our test sample, we imposed some restrictions on the initial dataset. We restricted our test sample to private, unconsolidated, and limited companies. In addition, we omit observations with negative earnings (21.7% of all earnings observations) because the potential bias in the digits in negative net income years is likely to differ from the bias in positive net income years (for empirical evidence concerning this issue, see Thomas, 1989). We also omit observations with positive earnings less than 10,000 euros. In all, our sample consists of 12,357 observations with a positive net income.

Our method is to analyse the second leftmost digits of net earnings by testing whether the observed distribution of the digits differs from their theoretical distribution. As it appears in Table 3, the theoretical distribution of the second digit differs from an even distribution, since there are more zeros and other small numbers than large digits. This phenomenon – sometimes referred to as Benford's Law [found in Benford (1938); for a textbook expression, see Feller (1971, p.63)] – has recently been subject to

discussion in different audit forums. Nigrini and Mittermaier (1997) suggest that Benford's Law could be used by auditors as a basis for analytical procedures in the planning stage of the audit. Auditors could test the authenticity of lists of numbers by comparing the actual and expected digital frequencies. Benford's law (sometimes called the first-digit law) states that the probability that d (d = 1, 2, ...,9) is encountered as the first digit is

$$P(d) = \log_b(d+1) - \log_b(d) = \log_b\left(1+\frac{1}{d}\right)$$

Base 10 (b = 10) is used to estimate probability densities for the first digit. By using the above equation and base 10, the probability that d (d = 0, 1, ...,9) is encountered as the n^{th} (n > 1) digit (in the case of second digit n = 2) is $\sum_{k=10^{n-2}}^{10^{n-1}-1} \log_{10}\left(1+\frac{1}{10k+d}\right)$ (Hill, 1995).

We posit that small private firms also have motives to boost their earnings because of their financiers, mainly banks, public funding organisations and venture capital firms. Our hypotheses may be put in the following form:

H_1 There are more zeros or ones as the second digit of the earnings numbers in our sample than Benford's Law predicts.

H_2 There are fewer nines and other large numbers as the second digit of the earnings numbers in our sample than Benford's Law predicts.

Our hypothesis concerning the auditor gender effect on cosmetic earnings management is based on prior literature stating that women are more conservative and cautious in general and also when it comes to business.

H_3 Cosmetic earnings management is more likely to appear in firms audited by male auditors than in firms audited by female auditors.

3 Results

Table 1 presents frequency distributions of the sample by industry classification. Distributions are presented for the overall sample and for subsamples of firms audited by female and male auditors. Statistics in Table 1 show that the largest industry groups presented in the sample are wholesale and retail trade (29.35%), manufacturing (18.50%), and real estate, renting and business activities (18.43%), respectively. Observations on firms audited by female and male auditors appear to be relatively evenly distributed across industry groups.

Table 1 Distributions of sample by industry

		Total	*Female*	*Male*
		Sample	*Auditor*	*Auditor*
		N = 12,357	*N = 2,308*	*N = 9,702*
SIC	Industry description	%	%	%
01, 02	Agriculture, hunting and forestry	2.08	0.95	2.33
05	Fishing	0.08	0.00	0.10
10–14	Mining and quarrying	0.32	0.13	0.36
15–37	Manufacturing	18.50	13.52	19.84
40, 41	Electricity, gas and water supply	0.22	0.09	0.25
45	Construction	14.67	16.25	14.35
50–52	Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods	29.35	31.41	28.94
55	Hotels and restaurants	2.79	2.21	2.93
60–64	Transport, storage and communication	7.09	7.28	7.03
65–67	Financial intermediation	0.83	0.78	0.82
70–74	Real estate, renting and business activities	18.43	21.75	17.45
80	Education	0.63	1.04	0.51
85	Health and social work	3.19	2.64	3.29
90–93	Other community, social and personal service activities	1.82	1.95	1.80
		100.00	100.00	100.00

Table 2 presents descriptive statistics of the overall sample in Panel A and univariate comparisons of firms audited by female and male auditors in Panel B. The sample mean (median) sales is 2.5 MEUR (756 TEUR), whereas the sample mean (median) net income is 135 TEUR (49 TEUR). This indicates that distributions of these variables are left-skewed. The mean (median) profitability in terms of the ratio of net income to sales is 10.7% (7.6%). The mean (median) ratio of debt to assets is 45.5% (43.6%). Overall, 19.3% of the sample firms are audited by female auditors. In addition, 18% of the sample firms are audited by noncertified auditors, and 19.3% by auditors representing the Big 4 audit firms. Further, 6.2% of audit reports are signed by more than one responsible auditor (i.e., audit engagement partner). Finally, nearly half (48.3%) of the sample firms are legally obligated to have an audit by a certified auditor, whereas the other half is allowed to choose between noncertified and certified auditors.

The univariate comparisons in Panel B of Table 2 indicate that female auditors usually audit smaller firms with lower net income and leverage. Firms audited by female auditors are also less often legally obligated to have audits by certified auditors. In addition, female auditors more often represent noncertified auditors and audits with more than one responsible auditor. There is also a lower Big 4 representation among female auditors.

Table 2 (a) Descriptive statistics of the overall sample, (b) univariate comparisons by auditor gender

	N	*Mean*	*Std. dev.*	*1st percentile*	*Median*	*99th percentile*
Continuous variables:						
SALES	11,687	2,506.91	8,056.20	52.50	755.70	30,113.40
NI	11,687	134.46	358.20	10.30	49.20	1,619.10
PROFIT	11,687	0.107	0.106	0.005	0.076	0.543
DTA	11,687	0.454	0.255	0.026	0.436	0.993
Discrete variables:	N	%				
GENDER (= 1)	2,258	19.3				
NonCERT (= 1)	2,106	18.0				
BIG_4 (= 1)	2,256	19.3				
TWOorMORE (= 1)	723	6.2				
LAW (= 1)	5,644	48.3				

(a)

	Descriptive statistics				*Comparisons*	
	GENDER = female		*GENDER = male*			
	(N = 2,258)		*(N = 9,423)*			
Continuous variables:	*Mean*	*Std. dev.*	*Mean*	*Std. dev.*	*Diff.*	*p value*
SALES	2,010.41	7,242.78	2,625.57	8,237.37	−615.16	0.000
NI	122.25	364.52	137.26	356.53	−15.01	0.078
PROFIT	0.109	0.106	0.107	0.107	0.003	0.291
DTA	0.443	0.258	0.457	0.253	−0.014	0.019
Discrete variables:	*%*		*%*		*Diff.*	*p value*
Non-CERT (= 1)	21.4		17.2		0.042	0.000
BIG_4 (= 1)	14.8		20.4		−0.055	0.000
TWOorMORE (= 1)	8.9		5.5		0.034	0.000
LAW (= 1)	41.6		49.9		−0.082	0.000

(b)

Notes: This table presents descriptive statistics of the overall sample in Panel A and univariate comparisons by auditor gender in Panel B. In Panel B, the reported *p* values are for independent samples' mean comparison *t* test for the continuous variables and for Pearson's chi-squared test for the discrete variables. SALES is annual sales (TEUR). NI is net income (TEUR). PROFIT is defined as a ratio of net income to sales. DTA is defined as a ratio of total debt to total assets. GENDER is an indicator variable equal to 1 in case of a female auditor, 0 otherwise. Non-CERT is an indicator variable equal to 1 in case of a noncertified auditor, 0 otherwise. BIG_4 is an indicator variable equal to 1 in case of a Big 4 audit firm, 0 otherwise. TWOorMORE is an indicator variable equal to 1 in case of two or more responsible auditors, 0 otherwise. LAW is an indicator variable equal to 1 if a firm is legally obligated to choose a certified (HTM or KHT) auditor, 0 otherwise. *N* denotes the number of firm-year observations. Data cover years from 1999 to 2006.

Table 3 presents the distribution of the second leftmost digit of net earnings in the overall sample. According to the chi-square test ($\chi^2 = 22.66$, $p < 0.01$), the observed distribution differs from the theoretical distribution at the 1% level of significance. The observed frequencies of digits zero and one (nine and eight) as second digit of net earnings are significantly higher (lower) than would be expected in the random sample. Specifically, there are approximately 0.7 percentage points more zeros and ones, and approximately 0.5 percentage points less nines and eights than would be expected. Deviations from expected frequencies are statistically significant at the 5% level for digits zero, one and nine, and at the 10% level for digit eight. Overall, the results present in Table 3 support hypotheses H_1 and H_2 by indicating that sample firms tend to enhance the first digit of the net earnings by rounding up earnings numbers.

In order to check that our results are not a consequence of some sort of concentration of the firms' earnings, e.g., to certain size classes, we performed the same test as in Table 1 for the net sales figures of the sample firms. Net sales is a number which is most difficult to manipulate using accounting methods. The results – which are not reported here – indicate that there is no departure from the theoretical distribution in the second digit.

Table 3 The frequencies of the second leftmost digits of Finnish private firms during the period 1999–2006

Digit	*Observed frequency*	*Percentage of all observations*	*Expected percentage of all observations*	*Percentage deviation from expected frequency*	*z-value*[+)]
0	1,568	12.69	11.97	0.72	2.47**
1	1,496	12.11	11.39	0.72	2.51**
2	1,316	10.65	10.88	−0.23	−0.83
3	1,333	10.79	10.43	0.36	1.29
4	1,221	9.88	10.03	−0.15	−0.55
5	1,208	9.78	9.67	0.11	0.41
6	1,104	8.93	9.34	−0.41	−1.54
7	1,098	8.89	9.04	−0.15	−0.58
8	1,024	8.29	8.76	−0.47	−1.85*
9	989	8.00	8.50	−0.50	−1.98**

Notes: $\chi^2 = 22.66$***
$N = 12{,}357$
*** = statistically significant at the 1% level
** = statistically significant at the 5% level
* = statistically significant at the 10% level
[+)] The test statistic z is computed as follows:

$$z_i = \frac{f_i - np_i}{\sqrt{np_i(1-p_i)}}$$

where f_i is the observed frequency of the i*th* digit, p_i is the expected relative frequency, and n is the number of observations.

Table 4 (a) The frequencies of the second leftmost digits for Finnish private firms audited by female auditors during the period 1999–2006, (b) the frequencies of the second leftmost digits for Finnish private firms audited by male auditors during the period 1999–2006

Digit	*Observed frequency*	*Percentage of all observations*	*Expected percentage of all observations*	*Percentage deviation from expected frequency*	*z-value*
0	276	11.96	11.97	−0.01	−0.01
1	281	12.18	11.39	0.79	1.19
2	243	10.53	10.88	−0.35	−0.55
3	254	11.01	10.43	0.58	0.90
4	256	11.09	10.03	1.06	1.70*
5	229	9.92	9.67	0.25	0.41
6	186	8.06	9.34	−1.28	−2.11**
7	213	9.23	9.04	0.19	0.32
8	193	8.36	8.76	−0.40	−0.67
9	177	7.67	8.50	−0.83	−1.43

(a)

Notes: $\chi^2 = 11.06$
$N = 2{,}308$
*** = statistically significant at the 1% level
** = statistically significant at the 5% level
* = statistically significant at the 10% level

Digit	*Observed frequency*	*Percentage of all observations*	*Expected percentage of all observations*	*Percentage deviation from expected frequency*	*z-value*
0	1,235	12.73	11.97	0.76	2.31**
1	1,194	12.31	11.39	0.92	2.85***
2	1,029	10.61	10.88	−0.27	−0.87
3	1,044	10.76	10.43	0.33	1.06
4	933	9.62	10.03	−0.41	−1.36
5	943	9.72	9.67	0.05	0.17
6	896	9.24	9.34	−0.10	−0.35
7	857	8.83	9.04	−0.21	−0.69
8	788	8.12	8.76	−0.64	−2.21**
9	783	8.07	8.50	−0.43	−1.52

(b)

Notes: 22.44***
9,702
*** = statistically significant at the 1% level
** = statistically significant at the 5% level
* = statistically significant at the 10% level

To test the sensitivity of cosmetic earnings management to auditor gender, we split our data into two sub-samples of firms audited by male (n = 9,702) and female auditors (n = 2,308). Table 4 presents the distributions of digits for these sub-samples. According

to the chi-square test, the observed distribution differs significantly from the theoretical distribution only for male audited firms (χ^2 = 22.44, p < 0.01). For these firms, the frequencies of digits zero and one are significantly higher, whereas the frequency of digit eight is lower than expected. For female audited firms, however, the frequencies of the lowest and highest digits do not differ significantly from the expected frequencies. Instead, these firms have significantly higher (lower) than expected frequency of digit four (six). This suggests downwards rather than upwards rounding of earnings numbers by firms audited by female auditors. Overall, hypothesis H_3 is supported by the distributions of digits presented in Table 4 which indicate that the enhancement of the first digit of net earnings by rounding up earnings numbers appear to be evident only for firms audited by male auditors.

Panel B in Table 2 show statistically significant univariate differences in variables SALES, NI, DTA, Non-CERT, BIG_4, TWOorMORE, and LAW between the comparison groups of female and male auditors. Niskanen et al. (2011) report similar statistically significant univariate differences between genders. This raises a concern that the differences in earnings cosmetics reported in Table 4 can be potentially attributed to other than gender differences. Also, previous studies suggest that Big-4 dichotomy (e.g., Van Tendeloo & Vanstraelen, 2008) and auditor certification status (e.g., Sundgren, 1998) are associated with audit quality. In addition, client financial characteristics are observed to be associated with earnings quality (e.g., Niskanen et al., 2011).

To rule out these factors as alternative explanations for the results reported in Table 4, we apply the propensity score matching technique (see e.g., Rosenbaum and Rubin, 1983; Rubin, 2006). We apply this matching method to obtain matched comparison samples of female and male audited firms, which are not systematically different with respect to distribution of observed client and auditor factors. Consequently, observable differences in cosmetic earnings management between the resulting matched comparison samples of female and male audited firms can more reliably be attributed to auditor gender. We perform propensity score matching by matching firms audited by female auditors with control firms audited by male auditors on predicted probabilities obtained from the pooled probit model presented below in equation (1). Specifically, matched comparison samples are formed by matching observations of firms audited by female auditor with those audited by male auditor within calliper of 0.01 of predicted probability with nearest neighbour without replacement. The matching is conducted separately for each year and industry (based on two-digit SIC) combination.

$$\begin{aligned} \text{GENDER}_{it} = {} & \lambda_0 + \lambda_1\ \text{Non-CERT}_{it} + \lambda_2\ \text{BIG\_4}_{it} + \lambda_3\ \text{TWOorMORE}_{it} \\ & + \lambda_4\ \text{LAW}_{it} + \lambda_5\ \text{LogSALES}_{it} + \lambda_6\ \text{LogSALES}^2_{it} \\ & + \lambda_7\ \text{LogSALES}^3_{it} + \lambda_8\ \text{DTA}_{it} + \lambda_9\ \text{PROFIT}_{it} + \varepsilon_{it} \end{aligned} \quad (1)$$

This model includes GENDER, indicating firms audited by female auditors, as the dependent variable. Independent variables in the model include: Non-CERT, indicating noncertified auditors; BIG_4, indicating Big 4 audit firms; TWOorMORE, indicating audits with two or more responsible auditors; LAW, indicating firms legally obligated to have a certified auditor; LogSALES, defined as logarithm of sales; higher order terms of LogSALES; DTA, defined as a ratio of debt to total assets; and PROFIT, defined as a ratio of net income to sales. We attempt to control effects of these variables on auditor selection because the univariate tests in Table 2 indicate significant differences in the sample distributions of these variables (except for PROFIT) between male and female

audited firms. The matching procedure results matched comparison samples of male and female audited firms which have 1,994 observations each. According to untabulated univariate tests, there are no significant differences in dimensions of independent variables of Model (1) between the resulting comparison samples of female and male audited firms.

Table 5 (a) The frequencies of the second leftmost digits for Finnish private firms audited by female auditors in the propensity score matched subsample, (b) the frequencies of the second leftmost digits for Finnish private firms audited by male auditors in the propensity score matched subsample

Digit	*Observed frequency*	*Percentage of all observations*	*Expected percentage of all observations*	*Percentage deviation from expected frequency*	*z-value*
0	232	11.63	11.97	−0.34	−0.46
1	240	12.04	11.39	0.65	0.91
2	200	10.03	10.88	−0.85	−1.22
3	228	11.43	10.43	1.00	1.46
4	218	10.93	10.03	0.90	1.34
5	198	9.93	9.67	0.26	0.40
6	164	8.22	9.34	−1.12	−1.71*
7	180	9.03	9.04	−0.01	−0.01
8	174	8.73	8.76	−0.03	−0.05
9	160	8.02	8.50	−0.48	−0.76

(a)

Notes: $\chi^2 = 9.04$
$N = 1{,}994$
*** = statistically significant at the 1% level
** = statistically significant at the 5% level
* = statistically significant at the 10% level

Digit	*Observed frequency*	*Percentage of all observations*	*Expected percentage of all observations*	*Percentage deviation from expected frequency*	*z-value*
0	270	13.54	11.97	1.57	2.16**
1	243	12.19	11.39	0.80	1.12
2	206	10.33	10.88	−0.55	−0.79
3	200	10.03	10.43	−0.40	−0.59
4	190	9.53	10.03	−0.50	−0.75
5	205	10.28	9.67	0.61	0.93
6	196	9.83	9.34	0.49	0.76
7	155	7.77	9.04	−1.27	−1.97*
8	157	7.87	8.76	−0.89	−1.40
9	172	8.63	8.50	0.13	0.20

(b)

Notes: $\chi^2 = 13.18$
$N = 1{,}994$
*** = statistically significant at the 1% level
** = statistically significant at the 5% level
* = statistically significant at the 10% level

Table 5 presents distributions of the second leftmost digit of net earnings for the propensity score matched samples of male and female audited firms. For male audited firms, we observe again a significantly higher than expected frequency of digit zero, and significantly lower than expected frequency of digit seven. With regard to female audited firms, the smallest and highest digits do not exhibit significant deviations from the expected frequencies. For female audited firms, the occurrence of digit six is lower than would be expected. Overall, comparison of the propensity score matched samples does not change our conclusion that cosmetic earnings management appear to be evident only for male audited firms. Furthermore, this comparison improves the internal validity of the study because it rules out client or auditor factors other than auditor gender as alternative explanations for the observed differences in cosmetic earnings management between male and female audited firms.

As an additional test, we match the observations of male and female audited firms based on client assets and sales. Untabulated results indicate that the main results are insensitive to this matching procedure.

4 Conclusions

The practice of cosmetic upwards rounding of earnings numbers has been observed in prior studies using large firm data. The purpose of this paper is to investigate if earnings cosmetics takes place also in private firms and especially whether auditor gender plays any role in this behaviour.

There have been some attempts to investigate the impact that gender has on earnings management. Some studies have used surveys targeted at accounting students to investigate whether gender and national origin have an impact on attitudes towards common methods to manage earnings. The results of those studies indicate that gender is not a decisive issue in this context. Others investigate actual earnings management behaviour and find that earnings quality is positively associated with gender diversity in corporate management. The role that female auditors play in the auditing profession has been given an increasing amount of attention, too. The results imply that female auditors are more risk-averse in auditor judgments. In this study, we take these results further and investigate whether auditor gender has an impact on actual cosmetic earnings management behaviour in a sample of private firms.

Our results indicate that Finnish private firms engage in cosmetic earnings management by rounding their earnings upwards. This practice, however, seems to be evident only for firms audited by male auditors. The results, therefore, imply that auditor gender matters: female auditors appear to mitigate cosmetic earnings management in our sample of private firms. The results suggest that gender diversity in the auditing profession affects audit quality.

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Jussi Karjalainen

Essays on Earnings Management in Private Firms

This dissertation takes advantage of the multiple institutional environments within the European Union, with a focus on Finland, for the purpose of enhancing our understanding of earnings management in private firms. The dissertation provides evidence regarding high versus low tax alignments and auditor gender as factors restricting earnings management in private firms on a wide scale. In addition, it provides evidence regarding the resource allocation effects of dividend tax rate changes in Finland via earnings management.

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