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Are family firms more tax aggressive than non-family firms, especially if they have a male CEO?

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I   Abstract

Taxes has received much attention the past years, with scandals like Enron and the Panama- and Paradise papers setting it on the agenda in many countries. Although there exists extensive research on individual tax avoidance, research on corporate tax avoidance- and aggressiveness is more recent. Further, research of family firms, especially private, is underrepresented in current literature compared to the share such firms constitute in the world. The complexity of firm behaviour complicates the discussion and theory is not unambiguous in its expectations of firms' tax behaviour. The dominating theories on differences in tax aggressiveness between family- and non-family firms are agency theory and the socioemotional wealth perspective. While many of the previous studies on family firms and tax aggressiveness base the main analysis on one of the two theories, we seek to combine them in order to enhance the understanding of firms' tax aggressiveness and differences between family- and non-family firms. Using data of Norwegian public- and private firms, we compare family- and non-family firms, as well as the effect of listing status within the group of family firms. In our main analysis, we do not find a systematic difference between either private- nor public family- and non-family firms but discover that public family firms may be less tax aggressive than their counterparts when investigating larger firms, substantiating the findings of Chen et al. (2010). Moreover, we find that family dominated private firms are indeed less tax aggressive but are not able to identify a clear non-linear relationship between family ownership and tax aggressiveness. Further, we analyse whether family firms' tax behaviour differ when the CEO is male compared to female. The results indicate that both private- and public family firms are more tax aggressive when the CEO is male, in line with previous research on gender differences.

1 Introduction

While individual tax avoidance and compliance are well studied in public economics (Slemrod & Yitzhaki, 2002) research on corporate tax avoidance is a more recent and growing topic (Gaaya, Lakhal, & Lakhal, 2017; Hanlon & Heitzman, 2010, p. 128). Scandals like Enron (Frank, Lynch, & Rego, 2009; Slemrod, 2004) and the late Panama- and Paradise Papers have, however, lead to an increased focus of corporate tax avoidance and aggressiveness. Although many of the factors affecting individual tax avoidance and compliance are applicable for corporations, intricate structures and relations add complexity (Hanlon & Heitzman, 2010, p. 138). These fundamental differences (Klassen, Lisowsky, & Mescall, 2015) makes research on the distinctive corporate features important. Further, Hanlon and Heitzman (2010, p. 129) call for more work on privately held firms because of the differences in ownership and incentives. As most family firms are private (Berzins & Bøhren, 2013; Che & Langli, 2015), we will follow their note by studying whether the level of tax aggressiveness differs between Norwegian family- and non-family firms. In the analysis, we will also compare public- and private family firms in order to establish possible differences.

Corporations employ different tax planning schemes which in most cases are legitimate and has sound business motives. However, they can also be used as means to circumvent the tax regulations in a manner that is not appropriate and possibly conflicts with the purposes of the applicable tax systems. Investigating aggressive tax planning schemes on losses, OECD identified several schemes employed by corporations, including both real- and artificial losses (OECD, 2011). Among these were shifting profits to a loss-making party, circumventing time restrictions on the carry-over of losses or the rules on the recognition of losses, and creation of artificial losses or multiple uses of the same loss. Three risk areas were identified, namely the use of financial instruments, corporate reorganisations and non-arm's length transfer pricing. Shifting profit or loss between different taxpayers and by this enabling them to use the losses upfront or to circumvent restrictions regarding change of ownership, are examples of how financial instruments can be used in aggressive tax planning schemes. An example of the use of corporate reorganisation is when a firm acquires a loss-making

company only in order to merge it or include it in the tax group consisting of profit-making companies and by this reducing the profits of the group companies. Further, transfer pricing involves schemes such as over- or under-pricing of transactions.

The research of corporate tax aggressiveness adds value on several fronts. Firstly, taxation has a large and growing importance on corporate decision makers (Klassen et al., 2015), and is often viewed as the "most considerable cost incurred by firms" (Gaaya et al., 2017). Further, Crocker and Slemrod (2005) argue that the focus of corporate tax departments has shifted towards active and aggressive tax planning, amongst other referring to the estimated increase in tax revenue loss in the US of 50 percent when comparing 1999 to 1993. Moreover, this is corroborated by Lanis and Richardson (2011) who claim that the number of managers engaging in tax aggressive activities is increasing. Secondly, the issue does not seem to decrease in relevance, as the OECD in 2013 deemed tax avoidance to be a major issue due to its "complexity and economic consequences" (OECD, 2013). Lastly, the research can contribute to other fields as well. Since the theory of tax avoidance includes the relationships between shareholders, management and the government, and potential agency issues that can arise (Hanlon & Heitzman, 2010, p. 137), research on corporate tax aggressiveness can improve the understanding of corporate behaviour. It can also provide insights useful for legislative purposes (Crocker & Slemrod, 2005).

Furthermore, it is rewarding to study family firms as they constitute a large part of the economy, both in Norway and internationally (Helsen, Lybaert, Steijvers, Orens, & Dekker, 2017). In Norway, approximately 65 percent of active limited liability firms are family firms, accounting for 36 percent of employment and 19 percent of revenues (Berzins & Bøhren, 2013). Internationally, family firms make up roughly ⅔ to 90 percent of all firms worldwide, depending on how the term "family" is defined (Aldrich & Cliff, 2003; Family Firm Institute, 2016). Given the large portion private firms constitute of the economy, Hanlon and Heitzman (2010, p. 129) point to the relative lack of research. In relation to tax aggressiveness, Steijvers and Niskanen (2014) emphasize that family firms are a heterogeneous group and that differences in tax aggressive behaviour within the group are unstudied. This is also substantiated by Jacob, Rohlfing-Bastian and

Sandner (2016) who prompt research on the relation between family firms and tax planning, and Shackelford and Shevlin (2001). Lastly, Norway provides an interesting setting. There is little research on corporate tax aggressiveness in Norway, although some studies have included Norwegian firms in their analysis. An example is Pierk (2016), where the tax aggressiveness of Norwegian firms proved different than in other European countries.

We find this entangled situation intriguing and want to exploit the unique information we have of Norwegian ownership structure and detailed accounting information, also on private firms, to examine if family firms are more tax aggressive than non-family firms. Differences in factors like capital market pressure, regulations and incentives pose the possibility that family- and non-family firms (public and private) may behave differently. Further, previous research has found gender to affect corporate outcomes. For instance, some find women to be more risk averse (e.g Bernasek & Shwiff, 2001; Cohn, Lewellen, Lease, & Schlarbaum, 1975; Jianakoplos & Bernasek, 1998; Riley Jr. & Chow, 1992; Sundén & Surette, 1998) and more likely to comply with rules and regulations (e.g Huang, Huang, & Lee, 2014). Inspired by the results of (Dyreng, Hanlon, & Maydew, 2010) which indicate that individual executives have a statistically and economically significant role in a firm's level of tax avoidance, we will also investigate if tax aggressiveness is influenced by the gender of the CEO.

2 Literature review

The main stream in prior research on tax evasion and aggressiveness is based on the agency perspective, e.g. Crocker and Slemrod (2005). Additionally, researchers have studied the relation between tax aggressiveness and other factors such as financial reporting (e.g. Frank et al., 2009), the use of auditors (Klassen et al., 2015) and firm characteristics like firm value (Desai & Dharmapala, 2009), firm size and industry membership (e.g. Gupta & Newberry, 1997; Shevlin & Porter, 1992; Siegfried, 1974; Stickney & McGee, 1982; Zimmerman, 1983). It is not until recent years that the relation to family firms has been examined (Chen, Chen, Cheng, & Shevlin, 2010; Steijvers & Niskanen, 2014) This might be due to the difficulty of obtaining data, as most of the family firms are private (Berzins &

Bøhren, 2013) and therefore not subject to many of the disclosure requirements applicable to public firms. In the following, we will provide a review of relevant prior research.

2.1 Tax aggressiveness in an agency framework

The theoretical foundation for understanding corporate tax aggressiveness, within an agency framework was laid by a series of articles (e.g. Chen & Chu, 2005; Crocker & Slemrod, 2005; Slemrod, 2004) (Hanlon & Heitzman, 2010, p. 138). Agency costs refer to the conflicts arising from the separation of management and shareholders, where the manager acts as a representative of the owners. The theoretical foundation is the conflicts of interest and asymmetric information that may arise due to the separation, where alignment of interests diminish agency problems (Eisenhardt, 1989; Jensen & Meckling, 1976). Conflict of interest arises from divergent desires or goals while asymmetric information stems from the difficulty to verify that the behaviour of the agent (manager) is appropriate. Moreover, different risk preferences may also result in agency costs (Eisenhardt, 1989). Agency costs are divided into two types, type I which refers to agency conflicts related to the separation of ownership and management, and type II which refers to agency costs related to conflicts between minority- and majority shareholders (Barroso, Ali, & Lesage, 2018), for example family owners and non-family owners (Cheng, 2004; Salvato & Moores, 2010).

Even though there exists research on the topic, Bartholomeusz and Tanewski (2006) argue that the academic literature has underrepresented the economic significance of family firms, given the relative scarcity of research regarding the effects of agency costs in other ownership structures, particularly family firms. We will in the following paragraphs account for the main theory substantiating the conflicting predictions of agency costs on tax aggressiveness.

Regarding the effect of family ownership on agency costs, theory predicts family firms to have lower agency costs type I than non-family firms. This is derived from the fact that the family often has a high ownership share (Chen et al., 2010; Fama & Jensen, 1983) and often also represent the management (Schulze, Lubatkin, & Dino, 2003), hence reducing the separation between ownership and

control. Anderson and Reeb (2003) further recognize that the high concentration represents an incentive to reduce agency costs, as a larger portion of costs and benefits will be distributed to the family. Additionally, there is an expectation that family firms will behave altruistically towards each other because of their relation, which could reduce agency costs (Stewart, 2003). Moreover, they often invest for the long term (Chen et al., 2010) which can be illustrated through the high share of founding family ownership (Pierk, 2016). The difference in time horizon between family owners and managers materialises and is exemplified in the risk of penalties after an IRS audit, since there often is a long lag between the time of a transaction and an audit. Family owners' longer time horizon makes managers more cautious, while for a professional CEO, potential penalties may be easier to avoid (Chen et al., 2010).

Conversely, family firms can be predicted to have higher agency costs of type II, compared to non-family firms. Bartholomeusz and Tanewski (2006) add to the literature by examining the agency costs of family firms through a corporate governance perspective and find that public family firms create agency costs. The underlying theory is elaborated by e.g. Gaaya et al. (2017) and Shleifer and Vishny (1986), who argue that family firms may exhibit larger agency costs due to the opposing interest of the family owners and the minority. In such a setting, the majority owner can be thought to take advantage of the minority, by acting controlling or taking advantage of private benefits in the minority's disadvantage. Further, Chen et al. (2010) and Gaaya et al. (2017) argue that family ownership can increase agency costs due to the high equity shares. Moreover, Bartholomeusz and Tanewski (2006) see altruism as a potential cause of agency problems if the family members pursue their interests in a manner where outsiders pay the costs. Altruism has also been found to cause agency costs due to free riding by family members (Bruce & Waldman, 1990) and ineffectiveness of managers (Morck, Shleifer, & Vishny, 1988).

2.2 Tax aggressiveness in a socioemotional wealth perspective

The socioemotional wealth perspective complements agency theory and refers to noneconomic goals (Chrisman, Chua, Pearson, & Barnett, 2012). In literature,

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examples of such goals are the preservation of the family dynasty, name and reputation, and continuation of family values (Berrone, Cruz, & Gomez-Mejia, 2012; Chrisman et al., 2012). Berrone et al. (2012) further argue that the identity of the family and the company are intertwined, which is substantiated by Sharma and Manikutty (2005) and Westhead, Cowling and Howorth (2001) who find that family firms are especially concerned about family image and reputation. An example is given by Berrone, Cruz, Gomez-Mejia and Larraza-Kintana (2010) who found that the studied family firms contaminated less due to factors like family image and protection of SEW, and put more emphasis on community citizenship. Another example of how the valuation of SEW differ between family- and non-family firms is the lower CEO turnover sensitivity to financial results in family firms found by Visintin, Pittino, & Minichilli (2017), who argue the difference may be explained by the promotion of long-term executive tenure found in family firms by Gomez-Mejia, Nuñez-Nickel and Gutierrez (2001). The importance of SEW is also validated in Sharma and Manikutty (2005) where family firms were found to accentuate the perpetuation of positive family image and reputation. Moreover, Stockmans, Lybaert and Voordeckers (2010) claim that socioemotional wealth is a key goal in itself in most private family firms and it is therefore believed to be more important in these firms (Steijvers & Niskanen, 2014). Since socioemotional wealth is a great concern, the firms are more engaged in corporate citizenship (Berrone et al., 2012). In total, the perspective is believed to reduce tax aggressive behaviour that originates from agency costs (Steijvers & Niskanen, 2014).

However, Miller and Le Breton–Miller (2014) comment that the causal effects have not been identified. Hence, research attributing outcomes to SEW may be mistaken, in that it may be a result of other motivations. The authors therefore point to the necessity of corroborative evidence with regards to the motivations in order to establish if an outcome is in fact a result of SEW. Further, they also note that the motives of a family firm may be mixed between financial and non-financial motivations, where the result of a behaviour may reward both motivations, again emphasizing the difficulty in determining the true motivation. An example is financial performance, which may "bring prestige to a family and satisfy its need for social status" (Miller & Le Breton–Miller, 2014, p. 715). These considerations call for a careful interpretation of the findings in previous

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literature. This is also substantiated by Basco (2017), where the results imply that family firms not only care about family- and non-economic goals, but also business- and economic goals by considering different stakeholders.

Moreover, family firms are heterogeneous. Some researchers have therefore defined three stages of family firms based on the family concentration (e.g. Schulze et al., 2003). The first stage is founding-family-controlled and managed firms, the second is ownership and management consisting of extended family, and the last is ownership by extended family with professionally managed firms (Gómez-Mejía, Haynes, Núñez-Nickel, Jacobson, & Moyano-Fuentes, 2007). It is reasonable to divide family firms into these groups, as the importance of socioemotional wealth is believed to reduce as the companies move from the first stage towards the third (Gómez-Mejía et al., 2007). One could therefore expect to find differences in tax aggressiveness not only between family- and non-family firms, but also within family-firms depending on which stage they operate.

Further, the theory of SEW can help predict differences between family- and non-family firms. Since some of the previous theory concerns large ownership shares in general, it might fall short with regards to anticipated differences between the firms, as both types of firms can have large shareholders. SEW can therefore help in establishing variations on tax aggressive behaviour, since it predicts incentives and motivations that will only prove relevant in family firms.

2.3 Prior studies on family firms

2.3.1 Family firms and tax aggressiveness

More specifically to our analysis, there is research on the differences in tax aggressiveness between family- and non-family firms. Chen et al. (2010) investigate public firms, while Steijvers and Niskanen (2014) examine private small- and medium-sized enterprises (SMEs). Both papers base their analysis on the agency framework and find that family firms are less tax aggressive than non-family firms. The results are confirmed by Mafrolla and D'Amico (2016), who additionally identifies a non-linearity of the impact of family entrenchment on tax aggressiveness. Contrary, Gaaya et al. (2017, p. 742) find that family firms "avoid

taxes more aggressively". However, the result has limited value in our setting, since the study is conducted in Tunisia, where the financial market is not well developed and poor protection of investor rights (Gaaya et al., 2017).

Related, Pierk (2016) studies tax aggressiveness in Germany and test the generalizability of the results on some European countries, among them Norway. He finds statistically- and economically significant results providing evidence that German, and some other European countries' (Belgium, Finland, Italy and Spain) public firms, are more tax aggressive than private firms and that there is an increase in aggressive behaviour after an initial public offering (IPO). Hence, the results support the findings of Chen et al. (2010). In the study, descriptive statistics indicates that Norway and France stand out as countries where public firms are not more tax aggressive than private firms. However, the regression results for Norway tend to lack statistically significant coefficients for both the effect of being public and being a family firm, and the findings are inconclusive. Therefore, the paper does not provide a large contribution to the understanding of differences between Norwegian public and private firms, nor the effects of family ownership. It does, however, make it interesting to pursue further research in Norway, as the results indicate that Norway might differ from the other European countries included in the analysis.

2.3.2 Family firms and earnings quality

Further, family firms and accounting choices has been studied in other related contexts. Salvato and Moores (2010) assess the literature on earnings quality in family firms, where earnings quality refers to the informativeness of reported numbers, level of disclosure and the degree of compliance with accounting standards. Their analysis indicates that family firms report both higher and lower quality of earnings. Further, they argue that according to the alignment hypothesis, a reduction of agency cost type I reduces the incentives for managers to report information that deviate for the underlying performance, hence expecting a positive relation between family ownership and financial reporting quality. While the opposing entrenchment hypothesis argues that family ownership is negatively related to earnings quality because of concentrated ownership, family ownership over a certain threshold increases agency costs type II which may

increase the risk of wealth expropriation on the cost of minority owners (Salvato & Moores, 2010).

Several studies (e.g. Cascino, Pugliese, Mussolino, & Sansone, 2010; Tong, 2007; Wang, 2006) find that public family firms provide higher quality accounting information compared to non-family firms. Further, Ali, Chen and Radhakrishnan (2007) find that public family firms manipulate discretionary accruals less and predict their future cash flows with more skill, compared to non-family firms. Moreover, they elaborate that family firms with founder CEOs are primarily responsible for family firms' better disclosure practises in comparison to non-family firms. In line with these findings, Mengoli, Pazzaglia and Sandri (2017) found that family firms exhibited higher quality earnings across institutional environments. However, well-developed formal institutions had a more beneficial effect on the quality of earnings among non-family firms. Conversely, evidence of a negative relationship between family control and quality of financial reporting on public firms is provided by Prencipe, Markarian and Pozza (2008) and Yang (2010).

2.3.3 Family firms and earnings management

A related line of research is earnings management, where a larger extent of earnings management is found to affect the earnings quality negatively (Yang, 2010). Healy and Wahlen (1999, p. 368) define earnings management in the following way: "Earnings management occurs when managers use judgement in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers". Earnings management is "cosmetic" when accrual based without any cash flow consequences and "real" when actions have cash flow consequences (Salvato & Moores, 2010).

The extent of earnings management in family firms may be determined by the level of ownership concentration and potential executive entrenchment. The high managerial stake common in family firms may provide managers with incentives to engage in earnings management in order to increase share value (Cheng & Warfield, 2005). Martin, Campbell and Gomez-Mejia (2016) find evidence of less

earnings management among family firms and that founder firms are less likely than later generations of family owners to engage in income-increasing earnings management. Recently, Achleitner, Günther, Kaserer and Siciliano (2014) studied the practices of earnings management among listed family and non-family firms in Germany. They found that family firms engage in less real- but more in accrual-based earnings management compared to non-family firms, resulting in decreased earnings.

2.4 The Chief Executive Officer's influence

2.4.1 The Chief Executive Officer's influence on tax aggressiveness

The influence and effect of executive officers on the firm's tax aggressiveness has been subject in several studies (Chen et al., 2010; Crocker & Slemrod, 2005; Dyreng et al., 2010). Dyreng et al. (2010) investigate if individual top executives have effects on their firm's tax avoidance that firm characteristics cannot explain. Their results indicate that executives have a significant role in determining the level of tax avoidance in the firm and may be viewed as the decision maker. Chen et al. (2010) examine how different CEO types affect family firm's tax aggressiveness. They examine the following professional-, founder- and descendant CEOs, where the CEOs are outsiders, the founder or a descendant, respectively. Their results show that family firms with professional or founder CEOs exhibit less tax aggressive behaviour compared to non-family firms and that firms with descendant CEO in general do not exhibit this behaviour. Further, findings indicate that CEOs may have a stronger influence than CFOs over firms' tax behaviour (Rego & Wilson, 2012).

2.4.2 The effect of Chief Executive Officer's ownership

Several studies have analysed CEO ownership within an agency framework. Evidence in Steijvers and Niskanen (2011) suggest that agency costs depend on the level of ownership of the CEO, where firms with higher CEO ownership are more aligned and less likely to behave in a tax aggressive manner. Chen et al. (2010) argue that the benefit of tax aggressiveness is reduced tax cost, but the complexity of the activities may allow the CEO to mask rent extraction. Lafond and Roychowdhury (2008) argue that conservatism can facilitate effective

contracting between principals and agents, by using conservatism as a mean to address the potential lack of interest alignment where managers can transfer wealth to themselves, and in the process create costs for the shareholders by reducing the attention on creating value for the shareholders. They define accounting conservatism as involving "the use of stricter standards for recognizing bad news as losses than for recognizing good news as gains" (p.102) and find that conservatism decreases with CEO ownership. They explain the results by hypothesizing that shareholders' demand for conservatism decreases when the CEO ownership share increases, due to the reduced agency conflicts. Among family and non-family firms, Chen, Chen, & Cheng (2014) find that conservatism increases with non-family CEO ownership. Moreover, they find that family firms with a founder CEO are likely to exhibit a greater extent of conservatism, as well as family equity holdings and representation increases focus on conservatism. They explain the contradictory results compared to the ones of Lafond and Roychowdhury (2008) by referring to the characteristics of family firms. Since family owners often have their wealth tied up in the firm, they face substantial risk which can incentivize greater control of their managers and thereby increase the preference for conservative accounting. Since private family firms are a heterogeneous group (Westhead & Howorth, 2007) and executives are believed to have an impact on the level of tax aggressiveness (Dyreng et al., 2010), we will investigate if the CEO has an effect on firms behaviour.

2.4.3 The effect of executive compensation

Based on theory and previous literature, it is reasonable to expect certain differences in executive compensation between family- and non-family firms. When shareholders are able to directly monitor their manager, as is the case in some family firms (Visintin et al., 2017), agency theory predicts that outcome-based compensation of the CEO is inefficient (Eisenhardt, 1989). Eisenhardt further argues such a scheme needlessly would transfer risk to the manager, who is thought to be more risk-averse than the shareholders.

The predictions of agency theory are further substantiated by research. A family CEO is less likely to receive compensation based on earnings figures (Michiels, Voordeckers, Lybaert, & Steijvers, 2013) and inferred to be more loyal to the priorities of the family (Kvaal, Langli, & Abdolmohammadi, 2012). Contrary,

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there is often a bonus scheme linked to accounting numbers in a non-family CEO's compensation (Banghøj, Gabrielsen, Petersen, & Plenborg, 2010; Kvaal et al., 2012). This is interesting, as it exemplifies one of the differences between family and non-family firms. Based on the theory elaborated in (Eisenhardt, 1989), one would expect less bonus schemes in family firms, as they often are able to monitor their manager. The findings of Banghøj et al., (2010) and Kvaal et al., (2012) therefore indicate that family firms differ from their counterparts in that they are cautious with providing their non-family CEO equity shares, which might be motivated by the ambition to maintain family control. Related is the study by Michiels et al. (2013) who find performance-based CEO compensation to be more significant in private non-family firms compared to private family firms. Performance based compensation could constitute a possible incentive for tax aggressiveness, if it is believed to increase the firm's performance due to reduced tax expense.

The relation between executive compensation and tax aggressiveness has been studied by Rego et al. (2008). The study found that total executive compensation is positively linked to aggressive tax planning. Later, Rego and Wilson (2012) found that larger equity risk incentives, i.e. changes in stock prices that affect managerial wealth, were associated with greater tax risk. The results from the chosen measures may be interpreted as not only greater tax risk, but also tax aggressiveness. Further, compensating CEOs based on after-tax measures is found to decrease the effective tax rate (Gaertner, 2014). Interestingly, Phillips (2003) finds similar results regarding division managers but no association between CEOs. Desai and Dharmapala (2006) on the other hand, find evidence of lower tax aggressive behaviour by compensating executives with option grants. This evidence suggests that alignment of managerial incentives motivate tax avoidance (Seidman & Stomberg, 2017). This research is interesting, since family firms often are cautious about providing outside managers with equity shares, hence increasing the probability of performance based salaries or bonuses (Banghøj et al., 2010).

Looking specifically at the compensation of CEOs and CFOs, Hansen, Lopez and Reitenga (2017) find that both are compensated for earnings resulting from changes in effective tax rate (ETR), i.e. the tax component of earnings. Consistent

with prior research on executive compensation finding that executives are protected from various income-decreasing items, such as R&D spending (Adut, Cready, & Lopez, 2003; Cao & Laksmana, 2010; Cheng, 2004), Hansen et al. (2017) find that CFOs receive larger rewards for decreases in ETR compared to penalties for increases. The paper further examines if the relation between executive bonus compensation and the tax component of earnings is influenced by the firm's tax aggressiveness. The results suggest that highly tax aggressive firms, measured as firms that are more likely to engage in aggressive tax strategies, have bonus compensation premiums to CFOs for earnings stemming from changes in ETR, hence rewarding the CFOs for decreasing taxes. Furthermore, Crocker and Slemrod (2005) examined tax evasion and the contractual relationship between the shareholders of a firm and the chief financial officer (CFO). They found that in regard to reducing tax evasion, it was more effective to impose penalties directly on the CFO instead of the shareholders. They also found that the optimal contract had the potential of at least partially offsetting the incentives generated by increased sanctions against illegal avoidance.

There has also been established an association between risk-taking incentives of CEOs and effective tax rate, where more incentives lead to lower effective tax rates. It has therefore been argued that this encourages CEOs to engage in risky tax-reducing strategies (Rego & Wilson, 2012). Further, Armstrong, Blouin and Larcher (2012) examined the relation between incentives of the tax director and different measures of tax aggressiveness. Their analysis provides evidence that the incentive compensations of tax directors have a strong negative relation with ETR, which indicates that tax directors have incentives to reduce the tax expense. Another implication of their result is that in the presence of a tax director, the link is attenuated to CEO and CFO. The generalizability of these results is however limited as the sample consisted primarily of large US-domiciled, multinational firms.

2.4.4 The relationship of executives and tax aggressiveness

The relationship between CEOs and CFOs is of interest as it may affect the level of tax aggressiveness. A CFO's primary responsibility is the management of the financial system, in other words financial reporting (Chava & Purnanandam, 2010; Jiang, Petroni, & Wang, 2010; Mian, 2001). Habib and Hossain (2013)

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discuss a CEO's interest in financial reporting and accounting. They argue a CEO will be interested, as they are factors determining the firm's operating performance and may also be used to judge the CEO's performance. It is also expected that CEOs pay particular interest in accounting numbers as their compensation incentives often are closely tied to reported earnings (Habib & Hossain, 2013).

In prior literature, the CFO has been viewed as an agent of the CEO (Graham & Harvey, 2001). The dynamic between the two can be affected by the power a CEO has to replace a CFO (Fee & Hadlock, 2004; Mian, 2001), and may also affect the interplay between the two regarding the financial reporting, although this is not known (Baker, Lopez, Reitenga, & Ruch, 2018). A study of the implications of a CEO's power found that the CEO is able to influence the reporting quality and incentive compensation (Friedman, 2014). Further analysis of the relationship between CEOs and CFOs are presented by Bishop, Dezoort and Hermanson (2017). They identified different forms of social influence pressure (obedience and compliance) posed by the CEO that impacts the CFO's financial reporting decisions. These findings are further substantiated in a study from 2011 which provides evidence that CEOs can pressure CFOs to engage in accounting manipulation to meet or beat market expectations (Feng, Ge, Lou, & Shevlin, 2011). The fact that CEOs has been found able to influence and pressure CFOs on such matters, demonstrate that CEOs might be able to affect the firm's tax aggressiveness.

2.5 Gender differences

Gender differences regarding risk aversion in the general population are well established (e.g. Croson & Gneezy, 2009; Eckel & Grossman, 2008) in contrast to among professionals. A review of 150 studies related to gender differences in risk-taking finds significant support for that women, on average, are more cautious and less aggressive than men in decision contexts (Byrnes, Miller and Schafer, 1999). According to Croson and Gneezy (2009), reasonable explanations for these differences are that women are more likely to experience nervousness and fear in uncertain situations. Secondly, women may perceive risk differently due to

confidence and thirdly, women tend to experience risky situations as threats rather than challenges as males do.

Further, it has been studied how gender differences regarding caution and risk aversion translate into differences in financial judgment. Several studies (e.g. Bernasek & Shwiff, 2001; Cohn et al., 1975; Jianakoplos & Bernasek, 1998; Riley Jr. & Chow, 1992; Sundén & Surette, 1998) confirm that females are more risk averse in investment decisions. Contrary, Atkinson, Baird and Frye (2003) study the performance and investment behaviour of professional mutual fund managers and find that females appear similar to males in regards of fund performance, risk and other fund characteristics. In their discussion, they suggest that the gender differences found in previous studies in their field may be attributable to differences in financial decision-making expertise or wealth constraints.

Other examples of gender differences are how females are more likely to maintain compliance with rules and regulations (Huang et al., 2014). In their study of ethical behaviour, Betz, O'Connell and Shepard (1989) observe that female directors tend to have a higher moral and ethical stance than men. Examining the moral development in accounting, Bernardi and Arnold (1997) substantiate that female managers on average exhibit higher levels of moral. More recent research on ethical stance and gender has been conducted on accounting students, where the findings are inconclusive. Examples are for instance Taylor (2013) who does not find that gender affect the ethical sensitivity, while the results of Sadler and Barac (2005) indicate that males act less ethical than females. Additionally, Wood, Polek and Aiken (1985) indicate that females communicate in a more effective manner and perform better than men in problem-solving requiring consensus. Carter, Simkins and Simpson (2003) find that female directors are more likely to exhibit greater independent thinking than male directors. Further, Heminway (2007) argues that females are more trustworthy. Building on Heminway's findings, Peni and Vähämaa (2010) argue that females are less likely to manipulate corporate financials and other disclosures.

When investigating if there are systematic differences in forecasting styles and abilities among analysts due to gender, Kumar (2010) finds that female analysts issue bolder and more accurate forecasts. These findings suggest that there may be

a difference between females in general and professional females. Some argue that females who are more risk tolerant self-select into managerial professions, in other words that their risk preferences resemble males (Adams & Funk, 2011; Atkinson et al., 2003; Kumar, 2010; Niederle, Segal, & Vesterlund, 2012). Research conducted on a sample from Sweden provide results that "are at least suggestive that such candidates (female candidates for leadership positions) may have different attributes to the population average" (Adams & Funk, 2012, p. 221). They find that women in the population have different values and different observable characteristics than females who obtain director positions.

Whether there is a difference in how female and male executives engage in tax aggressiveness was first studied by Francis, Hasan, Qiang Wu and Meng Yan (2014). They test pre- and post-transition periods for male-to-female CFO turnovers and examine if there is a significant decline in tax aggressiveness. The results indicate that female CFOs are less likely to behave in a tax aggressive manner and that risk aversion of female CFOs is an important explanatory factor. Thirdly, they do not find any evidence that female CFOs behave differently in less-risky tax avoidance activities. Related is the study by Dyreng et al. (2010) which studies the effect of executives on tax avoidance. They find evidence of executive fixed effects on tax avoidance but no gender effect. Francis et al. (2014) argue tax aggressiveness is more likely to be affected by top executives, thus providing a stronger test setting. In addition to measuring different concepts, the different results could be due to the low female representation in Dyreng et al's dataset (5 percent) and the executives in focus. While Francis et al solely focuses on CFOs, Dyreng et al also studies CEOs, CFOs, and some non-CEO and non-CFO titles and do not separate the females in each group.

Further, Richardson, Taylor and Lanis (2013) have studied the relation between female board members and tax aggressiveness, and find that high female presence reduces the probability of tax aggressiveness. Their findings build on the work of Adams and Ferreira (2009) who find that women are better monitors, by arguing that greater female board representation lead to better monitoring and therefore is likely to reduce tax aggressiveness. Since the current literature on gender and tax aggressiveness is limited, the following paragraphs will provide a review of gender research on related fields.

2.5.1 Gender differences in related research fields

Financial reporting can be related to tax aggressiveness in that the tax incentives likely is not the only driver, and that financial reporting incentives can affect the disclosure of tax related items (Chi, Huang, & Sanchez, 2017). Khlif and Achek (2017) argue that financial reporting practices may be influenced by the mentioned identified gender differences and cause differences in earnings quality (e.g. conservatism and earnings management) and corporate reporting policy (e.g. social- and environmental disclosure). Quality of financial reporting may depend on managerial motives and characteristics (Peni & Vähämaa, 2010). With regards to earnings management, Barua, Davidson, Rama and Thiruvadi (2010) examine how CFO gender affect accruals quality and find that firms with female CFOs report lower levels of abnormal total and current accruals. Peni and Vähämaa's (2010) study on earnings management and executive gender support these findings. They provide evidence which suggests that firms with female CFOs are associated with income-decreasing discretionary accruals, in other words that female CFOs are using more conservative earnings management strategies. Some studies also suggest that male CFO overconfidence could make female CFO behaviour appear more conservative in comparison (e..g. Barber & Odean, 2001; Huang & Kisgren, 2013). Further Arun, Almahrog and Aribi (2015) find that firms with higher numbers of female and independent female directors tend to apply more conservative accounting policies, i.e. prefer income-decreasing rather than income-increasing earnings management.

Further, Francis, Hasan, Park and Wu (2015) examine whether there are any systematic differences between male and female CFOs in the choice of accounting conservatism. They find a significant increase in the degree of accounting conservatism following the hiring of a female CFO compared to a male. Their results further imply a positive relation between female CFOs and conservatism, and thereby support a moderating effect of risk on the relation between CFO gender and conservatism. Recent research also provides support to females being more careful in the recognition and measurement of assets and income, and that they also exercise higher control of good news than of bad news (Francis et al., 2015; Thiruvadi & Huang, 2011).

There is also research investigating gender and corporate boards. Recently, the literature on women in boardrooms has documented that females affect corporate outcomes. Carter et al. (2003) were early to provide evidence that board diversity improves financial value. They define board diversity as the percentage of women and minorities (African Americans, Asians and Hispanics) and reveal a positive relationship between board diversity and firm value. Contrary, Adams and Ferreira (2009) investigate US-firms and find that gender diverse boards have a significant effect on board inputs, where women's attendance behaviour differ and boards with a higher female percentage lead to a higher male attendance as well. Their results on the relation between gender-diverse boards and firm performance suggest that the more gender-diverse boards, the worse firm performance. The meta-analysis of women on boards and firm financial performance show, as exemplified, that the results are mixed (Post & Byron, 2015).

Of interest is also Matsa and Miller (2013), which studied the impact of gender quotas on board seats on corporate decisions. Norway was the first country to introduce by law, a requirement for amongst other all publicly listed companies, state-owned enterprises and large cooperative companies, to increase female representation to 40 percent on their board of directors (Ikdahl, 2014). Taking advantage of the introduction of a female quota in Norway, Matsa and Miller (2013) found that most corporate decisions were unaffected by the increased female representation when comparing financial data for publicly listed firms in Norway with a matched sample of unlisted firms in Norway, as well as listed and unlisted firms in other Nordic countries. However, differences in the employment policies emerged, where the affected firms had fewer layoffs resulting in reduced short-term profits. Interestingly, they do not find evidence of changes in other characteristics of the board members, such as age or experience. In the past years, several policymakers in Europe have adopted similar quotas to increase the growth of women in business leadership (Lai, Srinidhi, Gul, & Tsui, 2017).

Further, Adams and Funk (2012) have studied gender differences among corporate leaders in Sweden. They find that the female directors care less about self-enhancement values (achievement and power) and more about self-transcendent values (universalism and benevolence). They also find differences between the gender of board members, where female board members are more

independent-minded, valuing self-direction and stimulation. Since gender equality in Sweden and Norway are similar (World Economic Forum, 2017), we would expect similar findings in a Norwegian survey.

Related, Srinidhi, Gul and Tsui (2011) argue gender-diverse boards exhibit higher quality earnings because these boards are more likely to engage in discussions, including difficult issues that more likely would be "washed over" by all-male or largely male boards. A meta-analysis on the effect of women on boards on financial performance finds that female board representation is positively related to accounting returns and associated with board monitoring (Post & Byron, 2015).

Moreover, these findings find support in research on gender and audit. Lai et al. (2017) study whether the presence of female directors and female audit committee members has an effect on audit quality in the US. They examine the association by investigating the relation to audit fees as well as auditor choice and compare the difference between boards- and audit committees consisting of only men and those that are gender-diverse. Their results show that boards that has one or more female member have higher demands for their auditors and hire higher-quality auditors by engaging industry-specialists, and that audit committees that consist of at least one female pay higher audit fees. The findings of the paper therefore substantiate the previous evidence that female directors have a positive effect on the financial reporting process. Based on private Finnish firms, female auditors are found to allow more discretion in income reporting, driven by female auditors being more conservative (Niskanen, Karjalainen, Niskanen, & Karjalainen, 2011).

Investigating the association between the gender of the firm's audit engagement partner and accruals quality using data from listed firms in Finland, Denmark and Sweden, Ittonen and Peni (2012) find indications that female auditors may have a constraining effect on earnings management by reducing abnormal accruals, and hence increasing the accruals quality. Thiruvadi and Huang (2011) show similar findings using data of smaller firms (S&P SmallCap 600) in the US. Their results suggest that the presence of a female director in the audit committee reduces earnings management by increasing negative (income-decreasing) discretionary accruals, consistent with women being more conservative and unbiased in making ethical decisions. Further, a study of how the gender composition in the

partnership structure of audit firms affect audit quality, measured as the earnings quality of the audit clients, was studied using a Portuguese sample (Montenegro & Bras, 2015). They do not find any association between gender diversity in the partnership structure and audit quality. However, they find evidence that a predominant presence of female Certified Public Accountants (CPAs) in partner positions is associated with higher audit quality.

In a large-scale laboratory experiment conducted in Belgium, Hardies, Breesch, and Branson (2013) studied gender differences in risk-taking and (over)confidence of auditors. They tested within the group of auditors and compared them with groups of students (both business and non-business studies). The results indicate that females tend to take less risk than males. In the auditor sample, the results imply that younger individuals with high cognitive abilities tend to take more risks. Hardies et al conducted additional tests on the interaction effects between gender and higher positions and tenure in the auditor sample, which showed no significant coefficients, indicating gender symmetrical effects.

Lastly, more research on the relation between gender and tax aggressiveness is called upon in literature. In their review, Khlif and Achek (2017) especially emphasize the lack of knowledge about gender and tax aggressiveness. We intend to reduce this void, by examining the effect of male CEOs on corporate tax aggressiveness.

2.6 Contribution

Our paper differentiates from the former articles in several ways. Chen et al. (2010) and Mafrolla and D'Amico (2016) were both limited to public family firms, while we have access to detailed information about private firms. Since theory predicts potentially different behaviour, it is interesting to investigate if the same trend can be seen for private as for public firms. In addition to general differences in countries, we separate from Steijvers and Niskanen (2014) in the degree of tax alignment. While their research was based in the high tax alignment country of Finland with resulting low book-tax differences, Norwegian legislation separates financial statements and tax, and is thus not a high tax alignment country (Kvaal et al., 2012; Nobes & Schwencke, 2006). Moreover, the literature

on gender differences in private and family firms is scarce, which enhances the relevance of our research topic. We will extend the research of gender in corporate activities by examining if the gender of the CEO influences the level of tax aggressiveness. In this regard, Norway provides an interesting setting due to the female quota requirements.

3 Hypothesis development

Investigating private firms, Steijvers and Niskanen (2011, 2014) found family firms to be less tax aggressive than non-family firms. However, firms are heterogeneous and the differences between private family- and non-family firms will amongst other depend on which stage of family control the family firm operates in. It is reasonable to expect that SEW will be more prominent in a firm that is controlled and managed by the founding family (stage one) or has high family ownership, compared to a family firm where the family has less control, although it most likely will be a key goal in itself (Stockmans et al., 2010). Therefore, family firms will consider both the economic and noneconomic aspects and interactions when making decisions (Classen, Van Gils, Bammens, & Carree, 2012). Steijvers and Niskanen (2011) further argue that penalties from tax authorities possibly are more substantial to private family owners since they often are under-diversified and have a large portion of their wealth tied in the firms. These findings pose the possibility that private family firms, especially those with high family concentration, may be less tax aggressive than non-family private firms.

Agency theory also predicts differences between family- and non-family firms. Based on theory, one might expect private family firms to be less tax aggressive than private non-family firms, since the latter likely experiences more of agency costs type I and hence could accommodate a manager's tax aggressive schemes. On the other hand, theory on agency costs of type II expects increased tax aggressiveness for firms with large majority owners, which could be especially prominent in private family firms based on their often high family ownership shares. Moreover, Hanlon and Heitzman (2010, p.144) claim that the high equity shares can increase the demand for equity return and thereby tax evasion, since the controlling family will benefit from the tax savings.

Further, the compensation of a family CEO is less likely to be based on earnings figures (Michiels et al., 2013), while bonus schemes based on accounting numbers are often used for non-family CEOs (Banghøj et al., 2010; Kvaal et al., 2012). The increased likelihood of performance-based CEO compensation in private non-family firms (Michiels et al., 2013) constitute a possible incentive for tax aggressiveness, if it is believed to increase the firm's performance due to lower tax expense. One might therefore expect private family firms to be less tax aggressive than non-family firms.

Based on predictions from theory, our hypothesis is:

> *H1: Norwegian private family firms exhibit a less aggressive tax behaviour compared to private non-family firms.*

Regarding public family firms, the family's ownership share will likely decrease in order for the shares to be liquid and to gain new capital, thereby reducing the family's control and changing the motivations of the firm. This could also reduce the agency costs arising from concentrated family ownership and outside minorities (type II). Moreover, external shareholders require a return on their investments. The consequence could be reduced opportunity for the family to take advantage of the minority since it could potentially harm the share price as well as fewer incentives to prioritize some of the socioemotional wealth goals, such as preservation of family dynasty. Given this reasoning, the importance of SEW can be predicted to decrease, hence aligning the incentives of family and non-family firms to some extent. However, Chen et al. (2010) found evidence that public family firms are less aggressive than non-family firms, consistent with family owners being more concerned with potential reputational damages and penalties than non-family firms. This finding indicates that the incentives of family firms and non-family firms still might differ.

Moreover, family firms are found to engage less in earnings management (e.g. Ali et al., 2007; Martin et al., 2016), which implies that they have higher earnings quality (Yang, 2010). Since tax aggressiveness is associated with lower earnings quality (Balakrishnan, Blouin, & Guay, 2012), these findings may imply that family firms are less tax aggressive than non-family firms. Further, increased

family equity could lead to increased conservatism (Chen et al., 2014), which in turn is associated with lower BTD (Koubaa & Jarboui, 2017). Since BTDs are associated with tax avoidance, one could expect family firms to be less tax aggressive.

Further, factors related to the firms' CEOs could have an effect on tax aggressiveness of the firm. The findings of Gaertner (2014), Phillips (2003) and Desai and Dharmapala (2006) regarding executive compensation (see section 2.4.3) could indicate that the compensation of a non-family CEO may pose an incentive for the CEO to engage in tax aggressiveness, especially if it is believed to increase earnings and thereby increasing the non-family CEO's pay, while the compensation of a family CEO may have an opposite effect. The difference in compensation schemes could therefore result in differences in tax behaviour, where family firms with a family CEO may be less tax aggressive. However, since the turnover of CEOs in family firms are found to be significantly lower than in non-family firms, there are indications that a possible rent extraction might not be punished by the shareholders (Tsai, Hung, Kuo, & Kuo, 2006). A result could be that CEOs in family firms engage in more tax aggressive behaviour, due to the decreased likelihood of punishment.

Based on the predictions found in relevant literature, our hypothesis is:

> *H2: Norwegian public family firms exhibit a less aggressive tax behaviour to public non-family firms.*

When investigating differences in tax aggressiveness between private and public firms, Pierk (2016) found private firms to be less tax aggressive than public. However, the results of the Norwegian firms were inconclusive.

It is reasonable to expect certain differences between public family firms compared to private. The first is in relation to the three stages of family concentration, where a public family firm is less likely to be controlled and managed by the founding family (stage one) and more likely to have moved towards stage three, where ownership consists of extended family and the company is professionally managed. We find this reasonable to expect, since a

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firm operating in stage one most likely is not interested in having outsiders of the founding family as shareholders. Given that the firm is also professionally managed, the classical agency conflicts (type I) could also be more dominant. Private firms, however, can likely operate on any of the three stages of family concentration. This implies that SEW could be more prominent in private family firms compared to public family firms. Additionally, one might expect the classical agency costs (type I) with manager and shareholder conflicts to be more prevalent in public firms, while private firms may exhibit more of type II agency costs, which relates to the relationship between majority and minority shareholders. Which of the two agency costs that accommodates tax aggressive behaviour the most is nevertheless unknown.

Secondly, a public family firm will be subject to the capital market pressure. Chen et al. (2010) found capital markets to have a disciplinary effect, referring to the potential price discount a firm experience as a result of shareholder punishment of CEO rent extraction. Moreover, listed companies face the market's need for transparency and have stricter accounting regulations (Kvaal et al., 2012) which could increase the likelihood of exposure (Pierk, 2016). The costs related to aggressive tax planning schemes could also be higher for public firms due to the increase in book-tax differences, since it could be perceived negatively by investors (Pierk, 2016). Furthermore, Klassen (1997) found managers of closely held firms to be better at signalling their abilities through communication, which reduced the pressure of employing income-increasing accounting choices. These factors could reduce the incentives to engage in aggressive tax planning. On the other hand, public firms could be motivated to engage in tax aggressiveness. Such factors could be earnings targets based on after-tax earnings, or competitive equity markets pressuring firms to increase profitability (Pierk, 2016). This is supported in research, where firms are found to decrease their effective tax rate in the last quarter in order to deliver results expected by consensus analyst forecasts (Dhaliwal, Gleason, & Mills, 2010).

Thirdly, differences in accounting requirements may pose a difference between public and private family firms. Norwegian public firms report under IFRS, which is enforced by a government supervisory body, while private firms can opt between IFRS or the 1998 Accounting Law and accounting standards issued by

the Norwegian Accounting Standards Boards. Most private companies choose the latter[1], in which the only external control is conducted by their auditors and to some degree tax authorities. Moreover, the Norwegian GAAP is thought to be less burdensome and informative, in addition to relying more on broad principles compared to amongst other IFRS (Fardal, 2007; Kvaal et al., 2012). Hope and Langli (2010) therefore argue that the litigation risk for non-compliance in accounting is considered low. This may result in public family firms being less tax aggressive compared to private family firms, as their actions are more likely to be exposed.

Investigating reporting incentives among European private and public firms, Burgstahler, Hail and Leuz (2006) report that private firms engage more in earnings management. As elaborated earlier, earnings management can be associated with tax aggressiveness and the results could therefore imply that private firms are more tax aggressive than public. However, they also find that earnings management increases in private firms that operate in high tax alignment countries. Since Norway has a low alignment (Kvaal et al., 2012; Nobes & Schwencke, 2006), it could lead to different results in a Norwegian setting.

Further, Graham, Hanlon, Shevlin and Shroff (2014) conducted a survey asking corporate tax executives about their company's incentives, as well as disincentives, for tax planning and avoidance. Interestingly, their results indicate that public firms are more concerned about reputational damage and adverse media attention when evaluating whether or not to engage in tax planning. More than 70 percent of the public firms and close to 60 percent of the private firms claim that reputational harm is important or very important. According to the authors, this difference can be a result of the additional scrutiny public firms experience. This survey indicates that reputational concerns may lead public firms to exhibit a more careful behaviour with regard to tax aggressiveness.

Since there is conflicting evidence as to how the family firms will behave and uncertainty regarding which of the identified forces that will be the most important, our hypothesis is neutral:

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[1] Numbers from Experian AS.

H3: Norwegian public family firms exhibit a systematically different level of tax aggressiveness compared to private family firms.

Recent research has found the CEO able to influence financial reporting choices (Friedman, 2014) and tax behaviour of the firm (Chen et al., 2010; Dyreng et al., 2010; Rego & Wilson, 2012). Among reviewed literature, there appears to be consistent gender differences. Some argue that parts of the observed differences in the general population will not be prominent in corporate decision making due to self-selection into managerial professions (e.g. Adams & Funk, 2012; Atkinson et al., 2003; Kumar, 2010; Niederle et al., 2012). However, the gender differences found in many corporate studies indicate that the self-selection theory is not sufficient and that differences could exist also in relation to corporate behaviour, exemplified by for instance Francis et al. (2014). The gender differences observed may indicate that females are less likely to engage in tax aggressive behaviour.

As mentioned earlier, publicly listed companies in Norway face a requirement of a female share of 40 percent on the board. Even though Matsa and Miller (2013) did not find the introduction of the gender quota to affect corporate decisions, the findings mentioned in the literature review and especially those of Richardson, Wang and Zhang (2016), leads to an expectation of females being less eager to engage in tax aggressiveness. The requirement therefore has the possibility of reducing tax aggressiveness, to the extent that boards have control of, and oversee, a CEO's tax aggressive actions. Following this reasoning, one could expect a male CEO of a public family firm to be less tax aggressive than a male of a private family firm.

Since the literature on gender differences find indications of females being more conservative across research fields, our hypotheses are:

H4: Norwegian private family firms are more tax aggressive if the CEO is male.

H5: Norwegian public family firms are more tax aggressive if the CEO is male.

4 Sample and research design

4.1 Sample selection

The sample is provided by the Centre for Corporate Governance Research (CCGR), which possesses information that is difficult to obtain in other countries. The CCGR obtains information from two sources; Experian AS and the National Register Office (NRO). While Experian collects information from financial statements, the Brønnøysund Register Centre (BRC) is an administrative agency responsible for national control and registration schemes for business and industry. Information about family relations for all past and present inhabitants in Norway are provided by the National Register Office (NRO) (Hope, Langli, & Thomas, 2012). Together, these sources provide detailed information regarding ownership, accounting data and internal information such as the composition of the boards, both for listed and non-listed firms, and family firms in particular (Centre for Corporate Governance Research, 2017). Additionally, the CCGR have information on a large portion of private- and family firms, suitable for a quantitative analysis. The access to this data enables us to explore the relations in a unique manner.

Some of the prior research on family firms have suffered from a lack of observations, as most of the family firms are private and hence difficult to gather information about. A result has been that the required ownership shares in order to be regarded a family firm has been low, since researchers have been dependent on public firms to gather the relevant information. The data available is therefore an advantage, as we are able to increase the threshold for private firms and by that study firms where families are dominant. Regarding public firms, we are able to study the effect of having families as significant blockholders, by possessing equity shares that grants control functions in the firms.

The panel originally consisted of 3.461.967 observations over the years from 2000 to 2015. After excluding firms that are not AS or ASA, as well as observations with missing listing status, the sample consists of 3.011.975 observations. We remove firms that are subsidiaries as in Kvaal et al. (2012), and those that operate in the financial- or utilities industry since they are subject to some special

legislations, exemplified in the taxation rules (Norwegian tax law §14-5(4) f). This is also common in prior literature (e.g. Francis et al., 2014; Lanis, Richardson, & Taylor, 2017; Lin, Tong, & Tucker, 2014; Moore, Suh, & Werner, 2017; Richardson et al., 2016). Moreover, observations with missing information regarding industry, family ownership, data needed to calculate control- and tax aggressive variables are excluded. As in Chen et al. (2010), observations with missing or negative profit before tax are also excluded since it will cause errors when calculating ETR. Lastly, we remove observations with misinformation, in particular ownership larger than 100 percent. The resulting sample is presented in table one. The number of observations is reduced, but the sample for both for private and listed firms still contains enough observations to be regarded as a large sample (Thrane, 2018, p.121).

Table 1 Sample selection

		Private firms	Listed firms	Total
Number of observations for 2000 - 2015		3 009 399	2 576	3 011 975
Less: Subsidiarys		707 061	296	707 357
Less: Industry				
	Missing values	111 596	87	111 683
	Financial or utilities	207 766	213	207 979
Less: Missing values				
	Family ownership	339 713	585	340 298
	Used to genrate control variables	266 207	44	266 251
Less: Negative profit before tax		467 545	632	468 177
Less: Faults in data				
	Ownership > 100%	1 185		1 185
Less: Missing values used to generate measures		329 077	305	329 382
Number of observations		579 249	414	579 663
Family firms (threshold 50% for private firms, 10% for listed firms)		431 213	221	431 434
Non-family firms		148 036	193	148 229

4.2 Descriptive statistics

Table two panel A presents an overview of the distribution of family ownership among private and listed firms. We experience that family ownership generally is higher in private firms compared to public firms and that families have common control over a considerable fraction of the private firms. Moreover, the table implies that families exert control in some public firms as well, by having negative control (1/3) in approximately eight percent of the listed firms. Further, over 50 percent of the private firms are fully owned by families.

An overview of board representation is presented in panel B. Most private firms have at least 10 percent family representation on the board (95,45 percent), while this is the case for approximately half of the public firms (45,17 percent). The difference is larger when considering the cases where families have ordinary majority (50 percent) or qualified majority (2/3), in which the latter is needed to change the firm's amendments. In private firms, families have ordinary majority in 80 percent and qualified majority in 63,32 percent of the cases. In public firms, however, the families rarely have ordinary majority (only 0,24 percent) and do not have qualified majority in any of the cases. Moreover, around 60 percent of the private firms are fully governed by families, substantiating the tendency in panel A in that the private sample is somewhat dominated by families. Further, panel C displays differences in CEO affiliation, where around 80 percent of private firms, contrary to approximately 19 percent of listed firms, have a family CEO. This indicates that private family firms tend to operate in the first two stages of family concentration.

Table 2 Family firm characteristics

Panel A: Family ownership	Private firms		Listed firms	
	N		N	
Families with at least 5% ownership	577 263	99,7 %	317	76,6 %
Families with at least 10% ownership	573 334	99,0 %	221	53,4 %
Families with at least 1/3 ownership	523 106	90,3 %	34	8,2 %
Families with at least 50% ownership	488 786	84,4 %	14	3,4 %
Families with at least 2/3 ownership	385 592	66,6 %	8	1,9 %
Families with at least 90% ownership	351 801	60,7 %	1	0,2 %
Families with 100% ownership	329 403	56,9 %	0	0,0 %

Panel B: Board of directors	Private firms		Listed firms	
	N		N	
Percentage of firms with family board representation equal to or larger than 10%	548 230	95,4 %	187	45,2 %
Percentage of firms with family board representation equal to or larger than 1/3	512 979	89,3 %	28	6,8 %
Percentage of firms with family board representation equal to or larger than 50%	460 032	80,1 %	1	0,2 %
Percentage of firms with family board representation equal to or larger than 2/3	363 714	63,3 %	0	0,0 %
Percentage of firms with family board representation equal to 100%	357 681	62,3 %	0	0,0 %

Panel C: Family CEO	Private firms		Listed firms	
	N		N	
Percentage of firms with family CEO	472 687	81,6 %	80	19,3 %
Percentage of firms with external CEO	106 562	18,4 %	333	80,7 %

The distribution of CEO gender is presented in table three. Private firms have a larger fraction of female CEOs compared to listed firms, where approximately 15 percent of private firms have a female CEO. Moreover, private family- and non-family firms are similar, with around 15- and 14 percent female CEOs respectively. Regarding public firms, only approximately three percent of the non-family firms' CEO is female, while the percentage is almost triple for family firms

(nine percent). The difference between private and public firms is interesting, as the female quota most likely is more applicable to public firms. The observed difference could therefore signal that female board members might not be more eager than male board members to hire female CEOs.

Generally, we experience that the sample is dominated by male CEOs. This is in line with the general situation in Norway (Statistics Norway, 2008) which has been subject to several research papers (Halrynjo, Kitterød, & Teigen, 2015). Halrynjo et al. (2015) provide a review of the current research front, where several theories have been investigated. One theory is the existence of invisible barriers that restrict the promotions of females, known as the "glass ceiling". According to Halrynjo et al, the research is contradictory, where some find evidence of such a barrier while others do not. Further, they mention the "sticky floor" theory, which hypothesises that the female barriers are not experienced at the top levels of the firm, but rather that women are surpassed by males at the lowest levels. This theory also considers how females themselves limit their own career opportunities. A recent Norwegian study find no documentation for neither the "glass ceiling" nor the "sticky floor" theories, but interestingly suggests that children is an explanatory factor by hindering promotions (Rønning & Karlsen, 2014). This is substantiated by Keloharju, Knüpfer, and Tåg (2018) who find that that Swedish women experience slow career progression in the years following the first childbirth. We are not able to establish which factors that are applicable in our sample, but the mentioned theories and research may explain some of the difference.

Table 3 CEO gender composition

Panel A: Private firms

CEO gender	Non-family firms		Family firms		Total	
	N		N		N	
Female	20 744	14,0 %	65 516	15,2 %	86 260	14,9 %
Male	127 292	86,0 %	365 697	84,8 %	492 989	85,1 %
Total	148 036	100,0 %	431 213	100,0 %	579 249	100,0 %

Panel B: Listed firms

CEO gender	Non-family firms		Family firms		Total	
	N		N		N	
Female	6	3,1 %	20	9,0 %	26	6,3 %
Male	187	96,9 %	202	91,0 %	389	93,7 %
Total	193	100,0 %	222	100,0 %	415	100,0 %

Table four presents descriptive statistics of the private- and listed sample. The standard deviation is mostly smaller than 0,31 for the variables presented, except from the dummy variables indicating family firm and big-4, and size. The higher values for the family firm- and big-4 indicator variables are as expected, since they are binary. Regarding size, there is a large variation in total assets, which is also shown in the difference between the minimum and maximum value. Generally, the standard deviations are higher in the private sample, indicating larger variations. Among the measures of tax aggressiveness, private firms have higher average effective tax rates and lower book-tax difference, where the average ETR is 24,81% and 16,28% for private- and listed firms respectively. This could indicate that listed firms are more tax aggressive than their counterparts.

Table 4 Descriptive statistics

Mean, standard deviation, minimum value and maximum value of control- and dependent variables. Variables included: Return on assets (ROA) winsorized at 1% level, Leverage (LEV) winsorized at 1% level, Property, plant and equipment (PPE) winsorized at 1% level, Intangiable assets (INTANG) winsorized at 1% level, Equity income (EQINC) winsorized at 1% level, Size (natural logarithm of total assets), BIG4 (indicator variable for BIG4 auditor), Indicator variables family firm, ETR winsorized at 1% level, CETR winsorized at 1% level, BT (Book-tax difference) winsorized at 1% level and DD book-tax (Residual book-tax difference).

Panel A: Private firms

	Mean	Std.Dev	Min	Max
Family Firm (50%)	0,7444	0,4362	0,0000	1,0000
ROA	0,2490	0,3069	0,0000	1,9287
LEV	0,1909	0,3089	0,0000	1,6207
PPE	0,1662	0,3034	0,0000	1,1781
INTANG	0,0111	0,0375	0,0000	0,2771
EQINC	0,0423	0,1458	0,0000	0,8829
SIZE	14,9135	1,3905	10,4341	18,7670
BIG4	0,1648	0,3710	0,0000	1,0000
ETR	0,2481	0,1620	-0,3333	1,0000
Cash ETR	0,0571	0,0735	0,0000	0,3964
Book-tax	0,0340	0,1807	-0,3361	1,1893
DD book-tax	0,0462	0,0005	0,0229	0,4190

Panel B: Listed firms

	Mean	Std. Dev	Min	Max
Family Firm (10%)	0,5338	0,4995	0,0000	1,0000
ROA	0,1498	0,1935	0,0002	1,9287
LEV	0,1982	0,2465	0,0000	1,6207
PPE	0,0406	0,1262	0,0000	0,9104
INTANG	0,0380	0,0692	0,0000	0,2771
EQINC	0,4724	0,2967	0,0000	0,8829
SIZE	18,7011	0,2840	16,0559	18,7670
BIG4	0,8647	0,3424	0,0000	1,0000
ETR	0,1628	0,2423	-0,3333	1,0000
Cash ETR	0,0114	0,0305	0,0000	0,3964
Book-tax	0,0845	0,1802	-0,3361	1,1893
DD book-tax	0,0462	0,0000	0,0462	0,0464

The Pearson correlation matrix is presented in table five. Comparing panel A (private firms) and B (public firms), we notice some differences. For instance, while the family firm indicator variable in both panels is positively correlated with ROA and EQINC, private family firms are negatively associated with LEV, INTANG and PPE in contrast to public family firms. This indicates that family firms increase profitability, but that there are differences in assets and leverage depending on listing status. Further, we experience that the coefficients in the matrix mainly are marginal, except from the correlation between Cash ETR and ROA which indicates a strong positive relationship for both listed- and private

firms. There is also a strong positive relationship between LEV and PPE for private firms, which is as expected since PPE is capital intensive and therefore often require external funding. Furthermore, there is a strong positive correlation between ROA and book-tax difference for public firms, indicating that book-tax differences increase with profitability.

Regarding the correlation between the tax aggressive measures, there is a strong negative relationship (for both private and listed firms) between ETR and book-tax differences. This is as predicted, since we expect book-tax differences to increase when ETR decreases and vice versa. The remaining tax aggressive measures show a negligible or weak relationship with each other, with the anticipated signs. Concluding, the panels in table five do not indicate great problems with multicollinearity (Li. Lin, 2007).

Table 5 Pearson Correlation matrix

Family firm is an indicator variable for family firms, ROA is return of assets , LEV is long-term debt divided by total lagged assets, PPE is property, plant and equipment divided by total lagged assets, INTANG is intangible assets divided by total lagged assets, EQINC is income from subsidiaries, companies in the same group or affiliated companies divided by total lagged assets, SIZE is the natural logarithm of total assets and BIG4 is an indicator variable coded as one if the auditor is one as one if the auditor is one of the Big4 audit firms.

Panel A: Private firms

	Family firm	ROA	LEV	PPE	INTANG	EQINC	SIZE	BIG4	ETR	Cash ETR	Book-tax	DD Book-tax
Family firm (50%)	1											
ROA	0.0209 ***	1										
LEV	- 0.0293 ***	- 0.1311 ***	1									
PPE	- 0.0439 ***	- 0.1881 ***	0.5583 ***	1								
INTANG	- 0.0387 ***	- 0.0086 ***	0.0428 ***	0.0514 ***	1							
EQINC	0.0040 **	0.0109 ***	0.0572 ***	0.0740 ***	0.0376 ***	1						
SIZE	- 0.1215 ***	0.1365 ***	0.1729 ***	0.2161 ***	0.0205 ***	0.2448 ***	1					
BIG4	- 0.0478 ***	0.0386 ***	0.0081 ***	0.0163 ***	0.0098 ***	0.0830 ***	0.1750 ***	1				
ETR	- 0.0223 ***	0.0810 ***	0.0579 ***	0.0153 ***	0.0221 ***	0.1798 ***	0.0526 ***	0.0240 ***	1			
Cash ETR	0.0071 ***	0.6668 ***	0.2085 ***	0.1836 ***	0.0147 ***	0.1235 ***	0.1437 ***	0.0516 ***	0.2553 ***	1		
Book-tax	0.0328 ***	0.4192 ***	0.0353 ***	0.0574 ***	0.0086 ***	0.1697 ***	0.0226 ***	0.0106 ***	0.5137 ***	0.2357 ***	1	
DD Book-tax	0.0010 -	0.0012 -	0.0015 -	0.0002 -	0.0004 -	0.0104 ***	0.0090 ***	0.0000 -	0.0006 -	0.0020 -	0.0003 -	1

* p<0.05, ** p<0.01, *** p<0.001

Panel B: Listed firms

	Family firm	ROA	LEV	PPE	INTANG	EQINC	SIZE	BIG4	ETR	Cash ETR	Book-tax	DD Book-tax
Family firm (10%)	1											
ROA	0.0311 -	1										
LEV	0.0417 -	0.0184 -	1									
PPE	0.0803 -	0.0614 -	0.2313 **	1								
INTANG	0.0215 -	0.0957 -	0.1908 **	0.0308 -	1							
EQINC	0.1633 **	0.0414 -	0.1914 **	0.2438 **	0.1257 *	1						
SIZE	0.1377 -	0.0483 -	0.0735 -	0.0710 -	0.1324 **	0.0853 -	1					
BIG4	0.0440 -	0.0199 -	0.0903 -	0.1403 **	0.0863 -	0.1153 *	0.0252 -	1				
ETR	0.0741 -	0.1270 **	0.0067 -	0.0907 -	0.0069 -	0.1893 **	0.0476 -	0.0109 -	1			
Cash ETR	0.1109 *	0.4864 **	0.0714 **	0.0135 -	0.0635 -	0.0890 -	0.0621 -	0.0265 -	0.1415 **	1		
Book-tax	0.0944 -	0.5813 **	0.0510 -	0.0765 -	0.1495 **	0.1301 **	0.0174 -	0.0154 -	0.5254 **	0.0886 -	1	
DD Book-tax	0.0505 -	0.2388 **	0.0926 -	0.0362 -	0.1908 **	0.1188 *	0.0300 **	0.1501 **	0.0100 -	0.0706 -	0.2209 **	1

* p<0.05, ** p<0.01, *** p<0.001

4.3 Concepts and measures

4.3.1 Family firms

A concept that needs to be defined is the term "family firm". Defining exactly what constitutes a "family firm" has been, and still is, a challenge in the research field (Astrachan, Klein, & Smyrnios, 2002; Diéguez-Soto, López-Delgado, & Rojo-Ramírez, 2015; Sharma, 2004). The lack of a general definition may explain the lack of conclusive results regarding differences between family and non-family firms in prior research (Diéguez-Soto et al., 2015). We include the relations of kinship, marriage, and adoption in our definition of "family". Next, we must clarify the demands for a firm to be considered a family firm. It is common that family firms involve founding members who are shareholders and take part in the management of its activities (Miller & Le Breton-Miller, 2006; Moore et al., 2017). Research based on US firms often use the term family firm as firms where members of the founding family continue to hold positions in the top management, are represented on the board, or are blockholders.

Based on the review by Mandl (2008) which found 90 different definitions of the term "family business", the European Commission proposes the following definition: "A firm, of any size, is a family business, if: (1) The majority of decision-making rights is in the possession of the natural person(s) who established the firm, or in the possession of the natural person(s) who has/have acquired the share capital of the firm, or in the possession of their spouses, parents, child or children's direct heirs. (2) The majority of decision-making rights are indirect or direct. (3) At least one representative of the family or kin is formally involved in the governance of the firm. (4) Listed companies meet the definition of family enterprise if the person who established or acquired the firm (share capital) or their families or descendants possess 25 percent of the decision-making rights mandated by their share capital" (European Commission, 2009, p. 10).

Researching public firms, the threshold for family equity holding differs. Some apply thresholds as low as 5 percent (e.g. Anderson & Reeb, 2003; Chen et al., 2010), while Mafrolla and D'Amico (2016) require 25 percent family ownership

on their Italian dataset. The requirements for private firms also vary. In Norwegian samples, a threshold of 50 percent is common (e.g. Berzins & Bøhren, 2013; Che and Langli, 2015; Kvaal et al., 2012). However, Kvaal et al. (2012) also analyse their data with family ownership as a continuous variable and Che and Langli (2015) use several thresholds of family ownership to examine the relationship between ownership and firm performance. Moreover, Steijvers and Niskanen (2011, 2014) employ a threshold for family held equity of 50 percent in their study of Finnish firms. Additionally, research on diversity in innovation-activities between family and non-family firms based in Belgium and the Netherlands employ another restriction of a family firm, namely that a family firm require the majority of shares and the CEO position to be within one single family (Classen et al., 2012). Similarly, Basco (2017) employ two criteria, where at least one of them must be met. The first is that members of the family must owe at least 51 percent of the shares, and the second is that at least two family members work on the board or in management positions.

We will employ two different thresholds in order to be considered family firms, depending on listing status. The Norwegian Companies Act entails that a shareholder gains common control over a company when exceeding 50 percent of the shares (Lov om aksjeselskaper of 13th of June 1997 number 44 §5-17 and Lov om allmennaksjeselskaper of 13th of June 1997 number 45 § 5-17). We will therefore require at least 50 percent ownership for privately held firms, since the family in such a case will have powerful influence of the firm. However, while private firms often are characterized by quite concentrated ownership, public firms tend to be more diluted. This is partly due to the prerequisites of public interest and broad ownership structure in order to be listed (Børsforskriften §4), which makes is less probable to obtain common control of a firm. Exploring the data, we experience that families only have common control of 20 public firms, which reduces the validity of an analysis. Since the ownership structure in listed firms is broad, shareholders can gain considerable effective control over a company by owning 10 percent, for example by being able to demand an investigation of the company (Lov om allmennaksjeselskaper of 13th of June 1997 number 45 § 5-25). To increase the basis of comparison between public family- and non-family firms, we will therefore reduce the family threshold to 10 percent for firms with listed shares, hereafter referred to as listed or public firms.

We note that our definition therefore encompasses all three stages of family concentration.

4.3.2 Tax aggressiveness

The term tax aggressiveness has different interpretations, and when Hanlon and Heitzman (2010, p. 137) wrote a review of tax research, the was no universally accepted definition of the term. Additionally, there has been confusion as to the difference between tax *avoidance* and tax *aggressiveness*. In this regard, we follow the reasoning presented in the said article, where tax avoidance encompasses all tax planning strategies and where tax aggressiveness refers to actions that are closer to illegalness or grey areas (p. 137). Guenther, Matsunaga and Williams (2013) distinguish the concepts of tax avoidance, tax aggressiveness and tax risk. They define tax avoidance as adopting tax policies that reduce the firm's income tax payments, tax aggressiveness as to the extent which the firms take tax positions that are unlikely to survive a challenge by the IRS, and tax risk as uncertainty regarding the firm's future tax payments. Tax aggressiveness is therefore "the extent to which firms use ambiguity in the tax law to reduce their tax payments" (Guenther et al., 2013, p. 8).

Even though there is no standardized definition of tax aggressiveness, one seems to be commonly accepted by researchers (e.g. by Chen et al., 2010; Richardson, Wang, et al., 2016; Sánchez-Marín, Portillo-Navarro, & Clavel, 2016). It was introduced by Frank et al. (2009), who define tax aggressiveness as "downward manipulation of taxable income through tax planning that may or may not be considered fraudulent tax evasion". Their definition embraces wide and implies that tax aggressiveness does not have to be illegal. Since there appears to be somewhat of a consensus of the definition, we will also employ it in our analysis.

4.3.3 Tax aggressive measures

Not only have various definitions of tax aggressiveness been employed, but also different measures that capture different aspects. Common measures in recent literature are effective tax rate, cash effective tax rate, book-tax differences and discretionary or "abnormal" book-tax differences (Frank et al., 2009; Hanlon & Heitzman, 2010, section 3.2.1). Lisowsky, Robinson and Schmidt (2013) argues

that effective tax rate, cash effective tax rate and total book-tax differences capture the milder forms of tax evasive behaviour, while measures as SHELTER, discretionary permanent differences (DTAX) and unrecognized tax benefits (UTBs) capture more aggressive actions (Lisowsky, 2010; Lisowsky et al., 2013; Rego & Wilson, 2012). SHELTER is the probability of a firm to engage in tax sheltering activities, based on identified characteristics associated with firms engaged in such activities (Wilson, 2009). Since this measure captures the more illegal forms of tax aggressiveness, we will not employ it in our analysis. Since no single measure is likely to capture a firm's tax-aggressive behaviour (S. Lin et al., 2014), we will in this section provide an overview of the different measures. Further, we will employ multiple measures to capture the levels of tax aggressiveness and improve the reliability of our analysis.

4.3.3.1 Effective tax rate (ETR)

The first measure, firm effective tax rate (ETR), is widely used as a proxy to measure a firm's tax behaviour within several research areas (Badertscher, Katz, Rego, & Wilson, 2017; Chen et al., 2010; Dyreng, Hanlon, & Maydew, 2008; Dyreng et al., 2010; Francis et al., 2014; Frank et al., 2009; Gaaya et al., 2017; Lanis & Richardson, 2011; Lin et al., 2014; Moore et al., 2017; Pierk, 2016; Sánchez-Marín et al., 2016; Steijvers & Niskanen, 2011, 2014). ETR is an inverse function, where more aggressive behaviour results in lower tax rates and is calculated as the ratio between the tax expense and profit before tax. The measure is found by several authors (Graham, 1996; Plesko, 2003; Zimmerman, 1983) to be a robust measure of firms tax pressure, with high correlation with tax aggressiveness (Sánchez-Marín et al., 2016). ETR is a suitable measure of a firm's tax avoidance as it, according to Dyreng, Hanlon, Maydew and Thornock (2017), can capture any form of tax reduction through tax shelters and loopholes in present tax laws. Moreover, it reflects tax planning through permanent book-tax differences as the numerator is based on the firm's taxable income and the denominator is based on the financial statement Badertscher et al. (2017).

Since previous research has shown that temporary book-tax differences reflect earnings management (Hanlon, 2005; Phillips, Pincus, & Rego, 2003), some researchers question ETR as it is often based on total or temporary book-tax differences (Frank et al., 2009) rather than only permanent book-tax differences.

However, total book-tax differences may be used since permanent differences are extremely difficult to capture (Hanlon, 2005). Examples of behaviour driving book-tax differences are investments in tax havens with lower tax rates or investments in tax-exempt or tax-favoured assets (Chen et al., 2010), increasing depreciation reserves and locating operations in low tax countries (Steijvers & Niskanen, 2014). These examples are also valid in a Norwegian setting. On the other hand, several items that are not tax planning strategies might affect ETR, like changes in the valuation allowance or changes in the tax contingency reserve (or unrecognized tax benefits as it is now named in FIN 48) (Hanlon & Heitzman, 2010, p. 139). However, equivalent measures for the valuation allowance and unrecognized tax benefits lack in the IFRS and NGAAP, so these factors might not influence ETR as much in Norway. Further, tax avoidance by reporting lower accounting earnings and taxable income will not be captured by ETR (i.e. conforming tax avoidance) (Hanlon & Heitzman, 2010, p. 141). As pointed out by (Dyreng et al., 2008), an issue with the measure is that it is based on annual data. Variation in year to year effective tax rates and missing effective tax rates due to negative denominators can lead to vague interpretations about a firm's tax behaviour.

4.3.3.2 Cash effective tax rate (Cash ETR)

Another measure that is commonly used is the cash effective tax rate (Cash ETR) (e.g. Chen et al., 2010; Dyreng et al., 2010, 2017; Francis et al., 2015; Gaaya et al., 2017; Graham et al., 2014; Hasan, Hoi, Wu, & Zhang, 2014; Moore et al., 2017; Rego & Wilson, 2012; Richardson, Taylor, & Lanis, 2016; Richardson, Wang, et al., 2016). Cash ETR is often calculated as cash taxes paid divided by pre-tax income and reflects both permanent and temporary book-tax differences. Therefore, some of the critique against ETR is also valid against Cash ETR. Another issue is that it does not control for non-discretionary items like intangible assets and property, plant and equipment, which can cause both temporary and permanent book-tax differences (Frank et al., 2009). Moreover, financial accounting income has the disadvantage of possibly being affected by earnings management and regulatory changes to financial accounting rules. Guenther et al. (2013) discuss the different aspects of tax planning and find that Cash ETR is a more appropriate measure of tax avoidance than tax aggressiveness. This notion is

supported by Hasan et al. (2014), who claim that the measure reflects, but is not designed to capture tax aggressiveness.

However, the measure also has advantages. The wide range of tax behaviour activities captured may explain its wide use, including income shifting from high-tax to low-tax jurisdictions (e.g. strategic transfer pricing arrangements, cost-sharing agreements, income stripping using intracompany debt), investments in tax favoured assets, accelerated depreciation deductions and tax credits (Dyreng et al., 2017). Chen et al. (2010) argue that by focusing on taxes paid one avoids overstatement of current tax expense and Chen and Lin (2017) use Cash ETR as it is less affected by changes in tax-accounting accruals. According to Dyreng et al. (2017) the measure is advantageous because it measures changes in tax avoidance generally, without the need for precise specifications. He further points out how using financial accounting income, not taxable income, allows the measure to capture tax strategies that lead to reductions in the taxable income. Another benefit of using taxes paid is that it also takes tax benefits of employee stock options into account (Dyreng et al., 2008).

A weakness by using Cash ETR as a measure of tax avoidance is that taxes paid over a short period is an imperfect measure of tax behaviour because it includes payments to (and refunds from) the tax authorities (Dyreng et al., 2008). In order to mitigate this, Dyreng et al use a Cash ETR measured over longer periods. This increases the likelihood that the income that taxes reflect are included in the ratio. The "long-term" Cash ETR has also been used by other researchers (e.g. Dyreng et al., 2010; Graham et al., 2014; Lin et al., 2014; Moore et al., 2017). Lin et al. (2014) further argue that long term Cash ETR avoids issues associated with the use of current tax expense as a measure of corporate tax liabilities.

There has also been modifications to the Cash ETR, where some use the standard deviation of the firm's Cash ETR (e.g. Gallemore & Labro, 2015; Guenther et al., 2013; Guenther, Matsunaga, & Williams, 2017; Moore et al., 2017). The standard deviation of the Cash ETR represents the variability in the firm's tax outcomes and is therefore a measure of uncertainty regarding the tax rate and suitable to measure a firm's tax risk. Further, Badertscher et al. (2017) employ a new variant of the measure, calculated as the ratio of cash taxes paid and lagged total assets, in

order to capture conforming tax avoidance. However, they acknowledge that it can be biased in situations where firms engage in decreasing earnings management such as earnings smoothing or earnings baths.

Cash taxes paid is not available in a European setting, since the companies are not required to disclose their cash flows by IFRS or NGAAP. Therefore, articles with European samples modify Cash ETR. Pierk (2016) substitutes cash taxes paid with tax expense and deflates it with lagged total assets, motivated by Badertscher et al. (2017) who captures conforming tax avoidance by the ratio of cash taxes paid to lagged total assets. Jaafar and Thornton (2015) employ two measures to triangulate a firm's tax burden. The first is current tax expense divided by pre-tax income, while the second is current tax expense divided by operating cash flows. This resembles how Gaaya et al. (2017) use total tax expense divided by operational cash flows rather than earnings before tax in their calculation (also used by Lanis & Richardson, 2011; Richardson et al., 2013). The latter measure is also supported by Chen et al. (2014), who argue that measures based on information from the cash flow statement can exclude the impact of earnings management.

4.3.3.3   Book-tax differences (BTD)

Thirdly, book-tax differences have been used in various studies to document elements of tax avoidance and refers to a firm's pre-tax book income less estimated taxable income, scaled by total assets (e.g. Chen & Lin, 2017; Gaaya et al., 2017; Lin et al., 2014; Wilson, 2009). Book-tax differences are used as a measure of a firm's tax avoidance, as firms that engage in tax avoidance activities have larger differences. However, Hanlon and Heitzman (2010, p. 141) claim that "the information in book-tax differences about tax avoidance is harder to document because valid tax outcomes are difficult to obtain". Nonetheless, Mills (1998) found evidence that firms with lager book-tax differences are more likely to be audited by the Internal Revenue Service (IRS). Hanlon and Heitzman (2010, p. 141) comment that book-tax differences capture non-conforming tax avoidance and therefore cannot be used to compare tax avoidance activities across firms with varying levels of importance on financial accounting earnings. Another weakness with this measure is that it is not able to separate tax aggressiveness from the other strategies included in tax avoidance, for example differences stemming from

earnings management (e.g. Hanlon, 2005; Phillips et al., 2003), and not only tax planning (Chen et al., 2010; Chen & Lin, 2017). Moreover, Frank et al. (2009) pose the same critique against this measure as to the Cash ETR, in that it does not control for non-discretionary items that can cause temporary and permanent book-tax differences.

4.3.3.4 Residual book-tax difference

To eliminate or reduce the book-tax difference caused by earning management activities, a residual of the book-tax difference can be used. Desai and Dharmapala (2006) construct a measure based on the Manzon and Plesko (2002) book-tax gap, where they based on accruals isolate the component attributable to earning management activities, thereby enabling an at least partially identification of the effects of tax aggressiveness (Chen et al., 2010). The measure is the residual from a regression employing the Manzon-Plesko book-tax gap and total accruals, and has been employed several times since (e.g. Chen et al., 2010; Chen & Lin, 2017; Richardson, Taylor, et al., 2016; Richardson, Wang, et al., 2016; Sánchez-Marín et al., 2016). Sánchez-Marín et al. (2016) argue this is a proper measure of tax aggressiveness, as a higher book-tax gap can be attributable to more tax aggressive behaviour. This is consistent with the findings of Wilson (2009), who find that firms accused by the Treasury or identified in the media as tax shelter participants have larger book-tax differences. Again, Frank et al. (2009) raise critique by arguing that the measure does not control for non-discretionary items that cause temporary and permanent book-tax differences.

4.3.3.5 Discretionary permanent differences (DTAX)

Frank et al. (2009) developed a new proxy of tax aggressiveness. They managed to validate that discretionary permanent differences (DTAX) are a significant predictor of tax sheltering activities. The use of the measure has increased in recent research (e.g. Chen & Lin, 2017; Francis et al., 2014; Graham et al., 2014; Hasan et al., 2014; Lisowsky et al., 2013; Rego & Wilson, 2012). Frank et al. (2009) estimate the proxy, by regressing total permanent differences on non-discretionary items that are known to cause permanent differences (e.g., intangible assets) and other statutory adjustments (e.g., state taxes). Removing the underlying determinants of tax avoidance is a strength of DTAX.

However, Hanlon and Heitzman (2010, p. 142) comment that the estimation of permanent differences, which is the difference between effective and statutory tax rates multiplied by pre-tax accounting income, is "essentially an "ETR differential"". Since the measure is a function of ETR, the measure does not capture conforming tax avoidance of tax deferral strategies, for which they argue the measure cannot be used to make assumptions about overall tax behaviour. Further, DTAX will be affected by tax credits, foreign operations with different tax rates and any other items that affect ETRs.

4.3.3.6 Unrecognized tax benefits (UTBs)

Unrecognized tax benefits is a line item disclosed under US GAAP (FIN 48). It reflects a firm's uncertain tax position that not has been resolved through an audit or litigation and thus is a liability that "reflects the dollar amount of tax benefits (e.g., deductions or credits) related to all open tax positions that may ultimately be disallowed by the tax authority" (Klassen et al., 2015, p. 183). Several papers (e.g. Guenther et al., 2013; Rego & Wilson, 2012) claim that UTBs is the best measure to capture tax aggressiveness since it can proxy risky tax planning. Lisowsky et al. (2013) further claim that UTBs is the only measure with significant association with reportable transactions (tax-sheltering activities). However, Hanlon and Heitzman (2010, p. 143) comment that UTBs is not a clean measure, in that one of the two drivers of the measure, financial reporting incentives, constitutes an accounting accrual subject to the manager's judgement. They claim this can be problematic if the manager wants to increase earnings by recognizing the uncertain tax benefits, in which case the reserve will not be recorded and thereby not captured in the UTB. Lisowsky et al. (2013) acknowledge this weakness but conclude that UTBs still is a suitable proxy for tax aggressiveness. The IFRS does not specifically address the accounting for tax uncertainties, but partly addresses it by provisions in IAS 37 where uncertain tax positions may constitute liabilities of uncertain timing and amount (Deloitte, 2018).

4.4 Research design

Due to accounting regulations in Norway, especially those for private firms, we are unfortunately not able to estimate some of the above-mentioned measures. This includes UTBs, as the information needed is not required by the Norwegian

accounting standards and hence not disclosed by the firms in our sample. Additionally, we will not be able to access information that is disclosed in the accompanying notes to the financial statements and are therefore not able to calculate a modified UTB-measure under the IFRS. This also affects DTAX, because the required information is disclosed in the firm's accompanying notes. Since the measures discussed captures different aspects and degrees of lawfulness, we will employ both ETR, CETR, book-tax differences and residual book-tax difference. ETR is calculated in the same manner which is common in relevant literature (e.g. Chen et al., 2010; Sánchez-Marín et al., 2016; Steijvers & Niskanen, 2011). We employ the modified measure presented in Pierk (2016) when calculating CETR due to the lack of information of both cash taxes paid and operating cash flow. Further, we estimate taxable income to calculate book-tax difference based on Manzon and Plesko (2002) adapted to our setting. This measure is also used in the regression to find the residual book-tax difference following Desai and Dharmapala (2006).

The measures of tax aggressiveness are calculated in the following manner:

$$(1) \text{ Effective tax rate (ETR)} = \frac{\text{Tax expence}}{\text{Earnings before tax}}$$

$$(2) \text{ Cash effective tax rate (CETR)} = \frac{\text{Taxes payable}}{\text{Lagged total assets}}$$

$$(3) \text{ Book-tax difference (BT)} = \frac{\text{Earnings before tax} - \text{Estimated taxable income}}{\text{Lagged total assets}}$$

$$(6) \text{ Estimated taxable income} = \frac{(\text{Tax expense earnings} + \text{Tax expense extraordinary items})}{\text{Statutory tax rate}}$$
+ Change in deferred tax liability - Change in deferred tax asset

(5) Residual book-tax difference (DD BT) $= \mu_i + \epsilon_{i,t}$
from the following regression: $BT_i = \beta_1 \text{Total Accruals}_{i,t} + \mu_i + \epsilon_{i,t}$
where BT is the book-tax difference based on Manzon and Plesko book-tax difference (equation 3). Total Accurals is calculated as in number 6. μ_i is the average value of the residual for firm i over the sample period, and $\epsilon_{i,t}$ is the deviation of the residual in year t from firm i's average residual.

$$(6) \text{ Total Accruals} = \frac{\Delta \text{Assets} - \Delta \text{Liabilities} - \Delta \text{Cash and cash equivalents}}{\text{Lagged total assets}}$$

4.4.1 Model specification

In order to test the relationships of tax aggressiveness, OLS regressions are used. The basic regression models employed to investigate differences between family and non-family firms, i.e. hypothesis one, two, four and five, are the following:

Equation 1

$$TaxAgg_{i,t} = \alpha_0 + \beta_1 Family_{i,t} + \beta_2 Family_{i,t} * CEOgender_{i,t} + \beta_3 GEOgender_{i,t} + \beta_4 ROA_{i,t} + \beta_5 LEV_{i,t} + \beta_6 PPE_{i,t} + \beta_7 INTANG_{i,t} + \beta_8 EQINC_{i,t} + \beta_9 SIZE_{i,t-1} + \beta_{10} BIG4_{i,t} + IndFE + YearFE + CompFE + \varepsilon_{i,t}$$

Equation 2

$$TaxAgg_{i,t} = \alpha_0 + \beta_1 FamilyOwn_{i,t} + \beta_2 FamilyOwn_{i,t} * CEOgender_{i,t} + \beta_3 GEOgender_{i,t} + \beta_4 ROA_{i,t} + \beta_5 LEV_{i,t} + \beta_6 PPE_{i,t} + \beta_7 INTANG_{i,t} + \beta_8 EQINC_{i,t} + \beta_9 SIZE_{i,t-1} + \beta_{10} BIG4_{i,t} + IndFE + YearFE + CompFE + \varepsilon_{i,t}$$

Where

$Family_{i,t}$ = Indicator variable coded as 1 if the firm is a family firm; 0 otherwise. The thresholds are 50- and 10 percent family ownership for private- and listed firms respectively.

$FamilyOwn$ = Continuous family ownership variable

$Family_{i,t} * CEOgender_{i,t}$ = Family indicator variable multiplied by the indicator variable for CEO gender

$FamilyOwn_{i,t} * CEOgender_{i,t}$ = Continuous family ownership variable multiplied by the indicator variable for CEO gender

$GEOgender_{i,t}$ = Indicator variable coded as 1 if the CEO is male; 0 otherwise

$ROA_{i,t}$ = Return on assets for firm i in year t, calculated as profit before tax divided by total lagged assets.

$LEV_{i,t}$ = Leverage for firm i in year t, calculated as long-term debt divided by total lagged assets.

$PPE_{i,t}$ = Property, plant and equipment for firm i in year t, calculated as PPE divided by total lagged assets.

$INTANG_{i,t}$ = Intangible assets for firm i in year t, calculated as intangible assets divided by total lagged assets.

EQINC i,t = Proxy for equity income for firm i in year t, calculated as income from subsidiaries, other enterprises in the same group or affiliates divided by total lagged assets.

SIZE $i,t-1$ = Size of firm i at the beginning of the year, calculated as the natural logarithm of total assets.

BIG*4* i,t = Indicator variable coded as 1 if the auditor of firm i in year t is one of the big 4 companies (KPMG, Deloitte, EY or PwC); 0 otherwise.

IndFE = Industry fixed effects.

YearFE = Year fixed effects.

CompFE = Company specific fixed effects.

Equation three is used to analyse the third hypothesis. The definition of the variables is the same as for those in equation one and two. In addition to the already defined variables, the variable "ListingStatus" is equal to 1 if the firm is publicly listed and zero otherwise, and the interaction term between listing status and family ownership is defined as listing status multiplied by family ownership. The sample for hypothesis three only consists of family firms, defined by at least 10 percent family ownership, and employs the following regression:

Equation 3

$$\text{TaxAgg}_{i,t} = \alpha_0 + \beta_1 \text{ListingStatus}_{i,t} + \beta_2 \text{FamilyOwn}_{i,t} + \beta_3 \text{FamilyOwn}_{i,t1} * \text{ListingStatus}_{i,t} + \beta_4 \text{CEOgender}_{i,t} + \beta_5 \text{FamilyOwn}_{i,t} * \text{CEOgender}_{i,t} + \beta_6 \text{ROA}_{i,t} + \beta_7 \text{LEV}_{i,t} + \beta_8 \text{PPE}_{i,t} + \beta_9 \text{INTANG}_{i,t} + \beta_{10} \text{EQINC}_{i,t} + \beta_{11} \text{SIZE}_{i,t-1} + \beta_{10} \text{BIG4}_{i,t} + \text{IndFE} + \text{YearFE} + \text{CompFE} + \varepsilon_{i,t}$$

To ease reading, the equations are also presented in the accompanying tables.

We include CEO gender and the interaction terms between CEO gender and the family firm variables in our models, since we expect these factors to affect firms' tax behaviour. Return on assets (ROA), which captures firm profitability and efficiency, and leverage (LEV), which capture firm leverage, are included since previous research (Anderson & Reeb, 2003) has found that family firms have better operating performance compared to non-family firms. As highly profitable firms are found to have higher ETR (Steijvers & Niskanen, 2014), family firms

could evidently be presented as less tax aggressive if these differences are not considered. Further, firms with higher leverage have been found to reduce corporate taxes more effectively (Gupta & Newberry, 1997) amongst other through interest deductions (Badertscher et al., 2017; Moore et al., 2017; Richardson, Taylor, et al., 2016; Steijvers & Niskanen, 2014). Higher leveraged firms can be expected to have larger incentives to engage in tax aggressiveness than less leveraged firms due to the need to serve their debt (Langli & Willikens, 2017). To capture the tangible- and intangible presence we include property, plant and equipment (PPE) and intangible assets (INTANG). These are included due to the possibility of depreciations and impairments, which affects the tax rate. PPE is for example found to be negatively related to ETR (Steijvers & Niskanen, 2014; Gupta and Newberry, 1997) and noted by Richardson, Taylor, et al. (2016) to be positively related to tax aggressiveness. Moreover, intangible assets are by some referred to as being related to tax management (Kiesewetter & Manthey, 2017). Furthermore, equity income is controlled for due to the reporting of consolidated earnings when employing the equity method, as in (Chen et al., 2010). All of these control variables are common in related research (Chen et al., 2010; Dyreng et al., 2010; Mafrolla & D'Amico, 2016; Steijvers & Niskanen, 2014).

Further, we control for size effects (SIZE). Larger firms seem to have higher ETRs (Steijvers & Niskanen, 2014). Conversely, Richardson et al. (2013), Lanis et al. (2017) and Lin et al. (2014) find that size is associated with tax aggressiveness. Lanis et al. (2017) further argue that large firms potentially can benefit from economies of scale in their tax planning, but also recognizes that political costs could reduce tax aggressiveness. The existence of economies of scale is further substantiated by Rego (2003). We choose to measure size as the natural logarithm of total assets following Kvaal et al. (2012), Mafrolla and D'Amico (2016) and Steijvers and Niskanen (2014), but other alternatives such as the natural logarithm of equity or market value have been employed (e.g. Chen et al., 2010; Martinez & Ramalho, 2014).

Additionally, the control variables will include a variable indicating whether the company is audited by a big four auditing firm or not. We include this variable based on previous research, which has found relevant effects to our study. These findings include Klassen et al. (2015), who found that big four tax preparers were

linked to less tax aggressiveness when they were the auditor and Eshleman and Guo (2014) who found evidence suggesting that big four auditors performed higher quality audits. Further, Kanagaretnam, Lee, Lim and Lobo (2016) found auditor quality to be negatively associated with tax aggressiveness. Contrary, Jones, Temouri and Cobham (2018) found a strong correlation between the use of big four auditors and tax havens for multinational entities.

Since stock prices are not included in our dataset, firms are anonymized and a proxy of the market value of equity among private firms is limited, we will not be able to employ market values in our measures as is common in some of the prior research.

4.4.2 The validity of the model

We perform various tests to assess the validity of the model. Firstly, we conduct a Hausman test to decide between fixed- and random effects, which is a "general implementation" of the specification test designed by Hausman in 1978 (Stata, 2018, p. 3). The result indicates that fixed effects are beneficial, which is also common in previous literature (e.g. Chen et al., 2010; Klassen et al., 2015; Rego & Wilson, 2012; Steijvers & Niskanen, 2011, 2014). We therefore employ fixed effects estimators, i.e. within regressions with Driscoll and Kraay standard errors (Hoechle 2007, p. 282 and 286). Further, a Wald test indicates that year fixed effects are needed. Lastly, we include industry fixed effects to control for firms that change industry during the sample period. We therefore employ company specific-, year- and industry fixed effects in our models.

Secondly, we test for heteroscedasticity and autocorrelation, and find that our baseline models have an issue with both. In order to receive robust standard errors that control for these biases, we cluster them on firm level. When the cluster variable is used with the panel identifier, the standard errors are heteroscedasticity and autocorrelation consistent, called Rogers or clustered standard errors (Hoechle 2007, p. 283). We also attempt to analyse whether there is cross-sectional dependence, but are not able to perform the Pesaran test, the Friedman test, Frees' test nor the Breusch-Pagan Lagrange multiplier test. However, cross-sectional dependence is commonly a problem when analysing long time series, i.e. over 20-30 years (Baltagi, 2008, p. 10). Since our timespan is 15 years, the probability of

such disturbance decreases. Moreover, Hoechle (2007) find that the Driscoll and Kraay standard errors are more accurate than many other alternative models when cross-sectional dependence is present, although slightly optimistic (p. 282). We therefore acknowledge that such disturbance potentially could constitute a bias but consider the models to be valid.

Thirdly, endogeneity, which is correlation of the error terms with either the dependent or independent variable, could reduce the internal validity. One source correlation resulting in endogeneity is omitted variables (Dranove, 2017). Chen et al. (2010) argue that "endogeneity is unlikely to be of critical concern […], as it is unlikely that firm's tax aggressiveness prompts families to maintain or relinquish their holdings" (p. 43). However, as in Chen et al, a potential self-selection bias that could result in omitted variables is if some families continue to keep the family holding in order to maintain family control, while others do not. This could be an issue if some of the factors determining the decision have an influence on tax aggressiveness. The inclusion of control variables mitigates this issue, as we control for many factors that might be determinants when deciding whether or not to continue as a family firm. We also include firm age in our supplementary analysis to investigate whether it affects tax aggressiveness, due to correlations between firm age and firm choice.

Furthermore, we consider the data-collection process of CCGR an advantage, in that is collects information through independent third parties that do not rely on individuals or companies to disclose the information. Information regarding amongst other family ties, are automatically transferred to the National Register Office (NRO) and require no action by the individuals themselves. Moreover, companies are required to disclose financial information to the Brønnøysund Register Centre (BRC), which Experian then collects information from. Since the information is not dependent on individuals' or companies' will, it mitigates potential self-selection bias in the data collection process and thereby increases the external validity. However, the analysis might be affected by survivorship bias, in that some companies may cease to exist during the sample period due to bankruptcy or mergers. This can reduce the external validity and generalizability of the results. Moreover, generalizability might be weakened with regards to other countries, especially those that rely on US GAAP, due to differences in

accounting regulation and other country-specific characteristics. The accounting regulation in Norway is quite similar to other EU-member states', as Norway through the European Economic Area agreement implement all EU-directives regarding the free movement of goods, services, capital and persons. This increases the external validity with regard to EU-member states (EFTA, 2018).

5 Primary analysis

Table six presents the regression results of hypothesis one and five, where panel A employs equation one and panel B equation two. In panel A, the family firm indicator is coded as one if a family's ultimate ownership is larger than fifty percent and zero otherwise, while panel B employs the continuous variable of family ownership. Based on our hypothesis development, we expect the family variables to have positive values on ETR and cash ETR, and negative values on book-tax difference and residual book-tax difference, which would be consistent with private family firms being less tax aggressive than their counterparts.

Panel A displays marginal and inconsistent coefficients for the family firm variable. The coefficients of ETR and residual book-tax suggest that private family firms are slightly more tax aggressive than non-family firms. However, the coefficients of cash ETR and book-tax difference contradicts this indication. Moreover, none of the coefficients are statistically significant, suggesting that there are no systematic differences between private family- and non-family firms. In panel B, all the coefficients of family ownership have the expected signs except for the effect on residual book-tax, although marginal and statistically insignificant. In total, the reported effects of family ownership in table six suggests that there are no systematic differences between private family- and non-family firms, thereby rejecting hypothesis one.

Regarding the gender effect of the CEO, panel A and B indicate that private family firms increase tax aggressiveness when the CEO is male compared to female. However, the coefficients for the interaction terms are only significant for book-tax differences, although the tendency is supported by the other measures. Note that the imbalance between male and female CEOs reduces the validity of the analysis. Concluding, we find that the table provides weak evidence that

family firms are more tax aggressive when the CEO is male, thereby confirming hypothesis four.

The indications found from testing hypothesis one are contrary to our expectations and the findings of Steijvers and Niskanen (2011, 2014). It can be noted that previous literature (e.g. Chen et al., 2010) recognizes that using a continuous ownership variable implies a linear relationship between tax aggressiveness and family ownership. The lack of such a relation will constitute a bias from obtaining results (Chen et al., 2010), which might affect panel B of table six and seven. We will therefore analyse whether there exists a nonlinear relationship between family ownership and tax aggressiveness in section 6.1.

Table 6 Regression on private family firm's tax aggressiveness

Variables included: Return on assets (ROA) winsorized at 1% level, Leverage (LEV) winsorized at 1% level, Property, plant and equipment (PPE) winsorized at 1% level, Intangiable assets (INTANG) winsorized at 1% level, Equity income (EQINC) winsorized at 1% level, Size (natural logarithm of total assets), BIG4 (indicator variable for BIG4 auditor), CEO gender, Industry fixed effects, Year fixed effects and Company specific fixed effects. An interaction term between CEO gender and family firm and family ownership is included in panel A and B respectively.

$$Tax\ aggr = \alpha + \beta_1 Family + \beta_2 CEOgender + \beta_3 Family * CEOgender + \beta Controls + Year\ FE + Industry\ FE + Company\ FE + \varepsilon$$

Panel A: Private firms (Family firm indicated by indicator variable)

	Dependent variables			
	ETR	**Cash ETR**	**Book-Tax difference**	**DD Book-Tax difference**
Family Firm (50%)	-0.001	0.000	-0.003	0.000
	(-0.34)	(0.38)	(-1.22)	(0.49)
CEO gender	0.004	-0.000	-0.002	-0.000*
	(1.40)	(-0.56)	(-0.90)	(-2.03)
Family Dummy (50%) * CEO gender	-0.002	-0.001	0.007**	0.000
	(-0.68)	(-1.52)	(2.63)	(0.19)
ROA	-0.053***	0.142***	0.261***	0.000
	(-57.18)	(164.07)	(92.57)	(0.43)
LEV	-0.030***	-0.019***	0.032***	-0.000
	(-19.73)	(-29.56)	(14.57)	(-0.04)
PPE	0.004	0.001	0.004	-0.000
	(1.78)	(1.13)	(1.64)	(-0.57)
INTANG	-0.121***	-0.015***	0.252***	0.000
	(-9.60)	(-3.70)	(15.69)	(1.73)
EQINC	-0.036***	-0.023***	0.077***	0.000
	(-9.66)	(-15.27)	(15.41)	(1.38)
SIZE	0.010***	0.005***	-0.017***	0.000
	(13.71)	(16.91)	(-18.02)	(1.46)
BIG4	-0.000	-0.000	0.001	-0.000
	(-0.30)	(-0.79)	(1.10)	(-1.63)
Constant	0.161***	-0.035***	0.188***	0.045***
	(11.10)	(-6.15)	(10.66)	(232.74)
Year fixed effects	Yes	Yes	Yes	Yes
Company specific fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Within R-squared	0.030	0.475	0.221	0.000
N	579249	579249	579249	579249

* p<0.05, ** p<0.01, *** p<0.001 T-values presented in parentheses.

$$Tax\ aggr = \alpha + \beta_1 FamilyOwn + \beta_2 CEOgender + \beta_3 FamilyOwn * CEOgender + \beta Controls + Year\ FE + Industry\ FE + Company\ FE + \varepsilon$$

Panel B: Private firms (Family firm ownership as a contineous variable)

	Dependent variables			
	ETR	**Cash ETR**	**Book-Tax difference**	**DD Book-Tax difference**
Famliy ownership	0.000	0.000	-0.000	0.000
	(0.57)	(1.35)	(-1.21)	(0.64)
CEO gender	0.004	-0.001	-0.004	-0.000
	(1.03)	(-0.93)	(-1.11)	(-1.86)
Family ownership * CEO gender	-0.000	-0.000	0.000*	0.000
	(-0.41)	(-0.30)	(2.00)	(1.25)
ROA	-0.053***	0.142***	0.261***	0.000
	(-57.19)	(164.06)	(92.57)	(0.43)
LEV	-0.030***	-0.019***	0.032***	-0.000
	(-19.73)	(-29.57)	(14.56)	(-0.04)
PPE	0.004	0.001	0.004	-0.000
	(1.78)	(1.12)	(1.65)	(-0.57)
INTANG	-0.121***	-0.015***	0.252***	0.000
	(-9.59)	(-3.69)	(15.69)	(1.74)
EQINC	-0.036***	-0.023***	0.077***	0.000
	(-9.66)	(-15.26)	(15.41)	(1.38)
SIZE	0.010***	0.005***	-0.017***	0.000
	(13.75)	(16.97)	(-18.03)	(1.46)
BIG4	-0.000	-0.000	0.001	-0.000
	(-0.29)	(-0.76)	(1.09)	(-1.63)
Constant	0.158***	-0.036***	0.190***	0.045***
	(10.72)	(-6.35)	(10.64)	(231.77)
Year fixed effects	Yes	Yes	Yes	Yes
Company specific fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Within R-squared	0.030	0.475	0.221	0.000
N	579249	579249	579249	579249

* p<0.05, ** p<0.01, *** p<0.001 T-values presented in parentheses.

The results from investigating hypothesis two and five are presented in table seven. Panel A employs the family firm indicator variable, now with the threshold of 10 percent, while Panel B employs the continuous family ownership variable.

Regarding hypothesis two, our expectations are equal to those for hypothesis one, namely positive coefficients for the family variables on ETR and cash ETR, and negative effects on book-tax difference and residual book-tax difference. Panel A provides consistent, but statistically insignificant coefficients signalling that public family firms might be less tax aggressive than public non-family firms. Panel B provides support to the observed tendency, with a statistically significant effect on book-tax. Considering both panels, we find evidence that suggests increased family ownership in public firms reduces tax aggressiveness, but that there is no systematic difference between public family firms and their counterparts. The findings are therefore partly consistent with the results of Chen et al. (2010) in that family ownership decreases tax aggressiveness, although we are not able to confirm hypothesis two.

Further, the table provides support to the hypothesis that public family firms are more tax aggressive when the CEO is male. Panel A displays a statistically significant effect of the interaction term on the book-tax measure, which is supported by the effect on ETR and book-tax measure in panel B. However, the issues related to the underrepresentation of female CEOs are present also in this analysis. Our conclusion regarding hypothesis five is therefore similar to that of hypothesis two, in that the table provides evidence that public family firms are more tax aggressive when the CEO is male compared to female but might be affected by an imbalanced sample.

Table 7 Regression on public family firm's tax aggressiveness

Variables included: Return on assets (ROA) winsorized at 1% level, Leverage (LEV) winsorized at 1% level, Property, plant and equipment (PPE) winsorized at 1% level, Intangiable assets (INTANG) winsorized at 1% level, Equity income (EQINC) winsorized at 1% level, Size (natural logarithm of total assets), BIG4 (indicator variable for BIG4 auditor), Industry fixed effects, Year fixed effects and Company specific fixed effects. In panel A and B, CEO gender and an interaction term between gender and family firm is included.

$$Tax\ aggr = \alpha + \beta_1 Family + \beta_2 Family * CEOgender + \beta Controls + Year\ FE + Industry\ FE + Company\ FE + \varepsilon$$

Panel A: Listed firms (Family firm indicated by indicator variable)

	Dependent variables			
	ETR	**Cash ETR**	**Book-Tax difference**	**DD Book-Tax difference**
Family Firm (10%)	0.144	0.007	-0.121	-0.000
	(1.54)	(1.18)	(-1.87)	(-0.08)
CEO gender	-0.219*	-0.001	0.217*	0.000*
	(-2.07)	(-0.15)	(2.54)	(2.35)
Family Dummy (10%) * CEO gender	-0.165	-0.010	0.162*	-0.000
	(-1.77)	(-1.88)	(2.45)	(-0.39)
ROA	-0.092	0.038*	0.562***	0.000**
	(-1.12)	(2.13)	(5.07)	(2.71)
LEV	-0.097	-0.015	0.028	0.000
	(-1.39)	(-1.70)	(0.46)	(0.94)
PPE	0.082	-0.001	0.063	-0.000
	(0.62)	(-0.06)	(0.83)	(-1.29)
INTANG	-1.836**	-0.074	1.988**	0.000
	(-3.15)	(-1.23)	(3.11)	(1.52)
EQINC	0.067	0.002	-0.036	0.000
	(0.65)	(0.20)	(-0.48)	(1.50)
SIZE	-0.071	0.015	-0.049	0.000*
	(-0.52)	(1.60)	(-0.36)	(2.36)
BIG4	-0.094	-0.003	0.069*	-0.000
	(-1.30)	(-0.47)	(1.99)	(-0.13)
Constant	1.689	-0.290	0.137	0.045***
	(0.70)	(-1.73)	(0.06)	(1066.97)
Year fixed effects	Yes	Yes	Yes	Yes
Company specific fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Within R-squared	0.297	0.344	0.674	0.368
N	414	414	414	414

* p<0.05, ** p<0.01, *** p<0.001 T-values presented in parentheses.

$$Tax\ aggr = \alpha + \beta_1 FamilyOwn + \beta_2 CEOgender + \beta_3 FamilyOwn * CEOgender + \beta Controls + Year\ FE + Industry\ FE + Company\ FE + \varepsilon$$

Panel B: Listed firms (Family firm ownership as a contineous variable)

	Dependent variables			
	ETR	**Cash ETR**	**Book-Tax difference**	**DD Book-Tax difference**
Family ownership	0.012	0.000	-0.009*	0.000
	(1.87)	(0.51)	(-2.04)	(0.03)
CEO gender	-0.143	-0.001	0.166*	0.000
	(-1.44)	(-0.17)	(2.03)	(1.34)
Family ownership * CEO gender	-0.014*	-0.000	0.011*	0.000
	(-2.36)	(-1.09)	(2.52)	(0.85)
ROA	-0.090	0.038*	0.565***	0.000*
	(-1.10)	(2.09)	(5.12)	(2.54)
LEV	-0.094	-0.015	0.024	0.000
	(-1.36)	(-1.67)	(0.39)	(0.96)
PPE	0.050	-0.003	0.091	-0.000
	(0.40)	(-0.35)	(1.30)	(-0.54)
INTANG	-1.853**	-0.073	2.008**	0.000
	(-3.14)	(-1.22)	(3.04)	(1.53)
EQINC	0.069	0.001	-0.035	0.000
	(0.67)	(0.10)	(-0.47)	(1.50)
SIZE	-0.074	0.016	-0.057	0.000**
	(-0.55)	(1.80)	(-0.44)	(3.05)
BIG4	-0.092	-0.003	0.064*	0.000
	(-1.31)	(-0.42)	(2.12)	(0.19)
Constant	1.674	-0.306	0.368	0.045***
	(0.70)	(-1.96)	(0.16)	(1205.15)
Year fixed effects	Yes	Yes	Yes	Yes
Company specific fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Within R-squared	0.300	0.344	0.674	0.378
N	414	414	414	414

* p<0.05, ** p<0.01, *** p<0.001 T-values presented in parentheses.

Lastly, table eight presents the results from running equation six which analyses hypothesis three. The estimated effects of the interaction term between family ownership and listing status are all statistically insignificant and somewhat inconsistent. The reported coefficients therefore indicate that there are no systematic differences between listed- and private family firms, rejecting our hypothesis.

Table 8 Regression on family firms listing status

Variables included: Return on assets (ROA) winsorized at 1% level, Leverage (LEV) winsorized at 1% level, Property, plant and equipment (PPE) winsorized at 1% level, Intangiable assets (INTANG) winsorized at 1% level, Equity income (EQINC) winsorized at 1% level, Size (natural logarithm of total assets), BIG4 (indicator variable for BIG4 auditor), Industry fixed effects, Year fixed effects and Company specific fixed effects. Further, listing status, family ownership, an interaction variable between family ownership and listing status, CEO gender and an interaction term between family ownership and CEO gender are included.

$$Tax\ aggr = \alpha + \beta_1 Listing\ status + \beta_2 FamilyOwn + \beta_3 FamilyOwn * Listing\ status + \beta_4 CEOgender + \beta_5 FamilyOwn * CEOgender + \beta Controls + Year\ FE + Industry\ FE + Company\ FE + \varepsilon$$

	Dependent variables			
	ETR	**Cash ETR**	**Book-Tax difference**	**DD Book-Tax difference**
Listing status	0.062	0.003	-0.026	-0.000
	(0.80)	(0.26)	(-0.57)	(-0.50)
Famliy ownership	0.000	0.000	-0.000	0.000
	(0.81)	(1.95)	(-1.56)	(0.49)
Family ownership * Listing status	0.001	0.000	0.000	0.000
	(0.35)	(0.67)	(0.36)	(0.25)
CEO gender	0.005	-0.001	-0.004	-0.000
	(1.18)	(-0.41)	(-1.16)	(-1.80)
Family ownership * CEO gender	-0.000	-0.000	0.000*	0.000
	(-0.55)	(-0.66)	(2.00)	(1.26)
ROA	-0.053***	0.142***	0.261***	0.000
	(-57.16)	(163.64)	(92.36)	(0.43)
LEV	-0.030***	-0.019***	0.032***	-0.000
	(-19.66)	(-29.54)	(14.58)	(-0.03)
PPE	0.004	0.001	0.004	-0.000
	(1.86)	(1.20)	(1.56)	(-0.58)
INTANG	-0.124***	-0.016***	0.255***	0.000
	(-9.76)	(-3.75)	(15.71)	(1.78)
EQINC	-0.035***	-0.023***	0.078***	0.000
	(-9.53)	(-15.26)	(15.38)	(1.38)
SIZE	0.010***	0.006***	-0.018***	0.000
	(13.83)	(17.05)	(-18.16)	(1.46)
BIG4	-0.000	-0.000	0.001	-0.000
	(-0.37)	(-0.76)	(1.11)	(-1.64)
Constant	0.156***	-0.038***	0.192***	0.046***
	(10.53)	(-6.51)	(10.75)	(298.62)
Year fixed effects	Yes	Yes	Yes	Yes
Company specific fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Within R-squared	0.030	0.475	0.222	0.000
N	573545	573545	573545	573545

* p<0.05, ** p<0.01, *** p<0.001 T-values presented in parentheses.

6 Supplementary analysis

ETR captures all reductions in tax burden and in that also less tax aggressive behaviour. However, due to the difficulties in measuring tax aggressiveness in any of the available measures, we find that ETR has an advantage in that it is a robust measure of tax pressure (Graham, 1996; Plesko, 2003; Zimmerman, 1983) and is highly correlated with tax aggressiveness (Sánchez-Marín et al., 2016). Additionally, it is the most common measure and will therefore be the primary measure in some of the supplementary analysis'.

6.1 Entrenchment effect

The distribution of ownership has been found to affect several aspects of a firm. For instance, Barroso et al. (2018) studied the relation between blockholder ownership and audit fees through a corporate governance model, where Norway was included in the group of stakeholder countries. The study identified an inverted U-shaped relation between controlling shareholding and audit fees for stakeholder countries. Barroso et al. (2018) reasoned that when blockholder ownership is low, the management has control and there are little incentives to demand a high audit effort. They further argued that the "entrenchment phase" is entered when shareholders gain access to information through board seats and that in this phase, there is a reduced need for audited information to monitor the management as well as reduced information asymmetries, which results in diminished incentives for a high audit effort.

Similarly, the results of Che and Langli (2015) identified a U-shaped relationship between ownership and firm performance based on private family-controlled firms in Norway. They found that firm performance was better when family ownership was either relatively low- or high. Other factors associated with higher firm performance were a higher percentage of family members on the board as well as smaller boards. Further, Mafrolla and D'Amico (2016) identified a non-linear impact of family involvement on tax aggressiveness. Increased family ownership increased the levels of ETR up to a certain point (39 percent ownership) before family involvement reduced the level of ETR. The findings therefore suggest that the benefits accompanying family involvement regarding

tax aggressiveness are moderated when family ownership reaches a certain threshold.

Due to the limited number of public firms with higher family ownership shares, we experience small samples for the different thresholds and are thereby not able to perform the analysis on the listed sample. Table nine displays the results when controlling for the effect of various levels of family ownership in the sample of private firms. The values of the family ownership variables are continuous if they lie in the specified range, and zero otherwise. This means that only the observations where family ownership lies in the respective range are included, so that for instance, in the first range, only the observations with family ownership share larger than zero but smaller or equal to five percent are included.

Generally, there is a lack of statistically significant results. However, the table suggests that family ownership between five and ten percent reduce the ETR, while the estimated effect of family ownership between 90 and 100 percent indicates that firms dominated by families are less tax aggressive. The latter is consistent with the socioemotional wealth perspective, in that families value non-economic goals such as reputation and family name, and therefore avoid actions which could harm their objectives. Further, it is in line with classical agency theory, where agency costs between the management and shareholders are reduced. The former, however, is consistent with higher horizontal agency costs (type II) and could also suggest that the SEW perspectives of family members are not prioritized by the firm. Considering both the statistically significant- and insignificant coefficients, it appears the relationship between tax aggressiveness and family ownership might be nonlinear, where it seems like the effective tax rate increases when family ownership rises. However, these results are not reliable and might be coincidental, as the t-values are relatively low.

Concluding, table nine suffers from a lack of statistically significant results, where we for the most part cannot identify a structural difference between the different family ownership levels. This reduces the validity of the observed nonlinear tendency. We are, however, able to find a systematic difference for firms dominated by families and firms with low family ownership. It suggests that

family dominated firms are less tax aggressive than their counterparts, but that firms with low family ownership are in fact more tax aggressive.

Table 9 Entrenchment effect

Variables included: Return on assets (ROA) winsorized at 1% level, Leverage (LEV) winsorized at 1% level, Property, plant and equipment (PPE) winsorized at 1% level, Intangiable assets (INTANG) winsorized at 1% level, Equity income (EQINC) winsorized at 1% level, Size (natural logarithm of total assets), BIG4 (indicator variable for BIG4 auditor), Industry fixed effects, Year fixed effects and Company specific fixed effects. CEO gender, FamilyEnt (family ownership in intervals) and interaction terms between FamilyEnt (family ownership in intervals) and CEO gender are included.

$$ETR = \alpha + \beta_1 FamilyEnt + \beta_2 CEOgender + \beta_3 FamilyEnt * CEOgender + \beta Controls + Year\ FE + Industry\ FE + Company\ FE + \varepsilon$$

	Dependent variables						
	ETR	ETR	ETR	ETR	ETR	ETR	ETR
ROA	-0.049	-0.048***	-0.039***	-0.047***	-0.061***	-0.059***	-0.054***
	(-1.74)	(-4.04)	(-9.42)	(-19.33)	(-17.30)	(-13.69)	(-45.99)
LEV	0.003	-0.072**	-0.023**	-0.028***	-0.033***	-0.034***	-0.029***
	(0.06)	(-3.13)	(-3.08)	(-6.93)	(-6.00)	(-4.90)	(-14.38)
PPE	-0.129*	-0.008	0.006	0.006	0.006	0.005	0.003
	(-2.05)	(-0.30)	(0.54)	(0.98)	(0.82)	(0.56)	(1.01)
INTANG	-0.078	0.121	-0.216***	-0.111***	-0.105*	-0.127*	-0.151***
	(-0.38)	(0.91)	(-4.94)	(-3.36)	(-2.43)	(-2.04)	(-8.34)
EQINC	-0.297***	-0.016	-0.032*	-0.038***	-0.032*	-0.007	-0.037***
	(-3.76)	(-0.33)	(-2.50)	(-3.38)	(-2.25)	(-0.44)	(-7.66)
SIZE	0.016	0.014	0.009**	0.007***	0.012***	0.014***	0.010***
	(0.90)	(1.10)	(2.79)	(3.68)	(4.28)	(4.23)	(9.76)
BIG4	0.021	0.009	0.002	-0.004	-0.005	0.003	-0.001
	(0.67)	(0.73)	(0.40)	(-1.39)	(-0.90)	(0.57)	(-0.51)
CEO gender	-0.049	-0.077	0.002	0.028	0.015	-0.032	0.379*
	(-1.04)	(-1.67)	(0.12)	(0.97)	(0.21)	(-0.54)	(2.49)
Family ownership > 0 and <= 5%	-0.021						
	(-1.12)						
Family ownership (> 0 and <= 5 %) * CEO gender	0.015						
	(0.92)						
Family ownership > 5 and <= 10 %		-0.011*					
		(-1.99)					
Family ownership (> 5 and <= 10 %) * CEO gender		0.009					
		(1.52)					
Family ownership > 10 and <= 33 %			0.000				
			(0.64)				
Family ownership (> 10 and <= 33 %) * CEO gender			-0.000				
			(-0.33)				
Family ownership > 33 and <= 50 %				0.001			
				(1.30)			
Family ownership (> 33 and <= 50 %) * CEO gender				-0.000			
				(-0.77)			
Family ownership > 50 and <= 67 %					0.000		
					(0.32)		
Family ownership (> 50 and <= 67 %) * CEO gender					0.000		
					(0.03)		
Family ownership > 67 and <= 90 %						-0.000	
						(-0.49)	
Family ownership (> 67 and <= 90 %) * CEO gender						0.001	
						(0.71)	
Family ownership > 90 and <= 100 %							0.004**
							(2.91)
Family ownership (> 90 and <= 100 %) * CEO gender							-0.004*
							(-2.48)
Constant	-0.141	-0.093	0.094	0.202***	0.112	0.091	-0.233
	(-0.47)	(-0.41)	(1.65)	(3.79)	(1.27)	(1.15)	(-1.67)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Company specific fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Within R-squared	0.104	0.058	0.020	0.022	0.028	0.030	0.037
N	2356	4906	40600	91914	46316	37289	347394

* p<0.05, ** p<0.01, *** p<0.001 T-values presented in parentheses.

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6.2 CEO ownership

Another potential explanation for firms tax behaviour is the ownership share of the CEO. Steijvers and Niskanen's (2014) results indicate that private firms with higher CEO ownership are less eager to behave in a tax aggressive manner, while CEOs with low or no ownership are more eager to engage in tax aggressive activities. One could therefore expect firms with high family concentration, for example in stage one of family concentration, to be less tax aggressive, since the CEO most likely possesses equity shares.

Table 10 displays the results from analysing if CEO ownership affects the level of tax aggressiveness. Investigating CEO ownership levels among public firms, we experience that the sample sizes for the different ranges are small. There are only 14, 9 and 12 public firms where the CEO ownership share is ranging from approximately zero to five percent, five to ten percent, and ten percent to one third, respectively. In the remaining ranges, public firms are not represented at all. Due to the small samples, the analysis will only be conducted on private firms. Furthermore, there are no non-family firms with CEO ownership larger than 50 percent. We will therefore employ two separate models, presented in panel A and B respectively. Panel A displays the results from the different ranges of CEO ownership up to 50 percent, including private family- and non-family firms, while panel B only includes private family firms and presents the results from the remaining CEO ownership ranges.

The table does not provide statistically significant results for the CEO ownership variables. Moreover, the interaction terms with the respective CEO ownership variable and family firm indicator variables in panel A are all statistically insignificant, except for the estimated effect of CEO ownership between one third and 50 percent, which suggests that the ETR marginally decreases. It suggests that CEO ownership in the specified range marginally increase tax aggressiveness of private family firms. In general, however, there are no systematic differences between CEO ownership levels and tax aggressiveness.

Table 10 Effect of CEO ownership

Variables included: Return on assets (ROA) winsorized at 1% level, Leverage (LEV) winsorized at 1% level, Property, plant and equipment (PPE) winsorized at 1% level, Intangiable assets (INTANG) winsorized at 1% level, Equity income (EQINC) winsorized at 1% level, Size (natural logarithm of total assets), BIG4 (indicator variable for BIG4 auditor), CEO gender, Industry fixed effects, Year fixed effects and Company specific fixed effects. Family firm, CEO ownership (in intervals) and interaction variables between CEO ownership and family firm are included in panel A. In panel B, CEO ownership (in intervals) is included. Note that the interaction terms comprised in panel A are excluded since the sample in pnel B only consists of private family firms.

$$ETR = \alpha + \beta_1 Family + \beta_2 CEOownership + \beta_3 Family * CEOownership + \beta_4 CEOgender + \beta_5 Family * CEOgender + \beta Controls + Year\ FE + Industry\ FE + Company\ FE + \varepsilon$$

Panel A: Private firms (family and non-family)

	Dependent variables			
	ETR	**ETR**	**ETR**	**ETR**
Family Firm (50%)	-0.037	0.021	0.005	0.052*
	(-0.84)	(0.30)	(0.28)	(2.19)
ROA	-0.019	-0.060***	-0.051***	-0.049***
	(-1.19)	(-6.58)	(-15.09)	(-21.01)
LEV	0.012	0.004	-0.025***	-0.034***
	(0.56)	(0.25)	(-4.52)	(-9.54)
PPE	0.038	-0.012	-0.003	0.000
	(1.05)	(-0.57)	(-0.32)	(0.10)
INTANG	-0.367	-0.306*	-0.183***	-0.107***
	(-1.85)	(-2.14)	(-4.19)	(-3.40)
EQINC	-0.003	-0.076**	-0.037**	-0.053***
	(-0.08)	(-3.23)	(-2.85)	(-5.05)
SIZE	-0.007	-0.002	0.005	0.013***
	(-0.77)	(-0.35)	(1.95)	(7.06)
BIG4	0.028	-0.007	-0.000	-0.005
	(1.33)	(-0.68)	(-0.02)	(-1.66)
CEO gender	-0.033	-0.011	0.001	0.013
	(-0.95)	(-0.49)	(0.15)	(1.33)
Family Dummy (50%) * CEO gender	-0.005	0.042	-0.009	0.002
	(-0.13)	(1.79)	(-0.89)	(0.23)
CEO ownership > 0 and <= 5 %	0.005			
	(0.46)			
CEO ownership (> 0 and <= 5 %) * Family firm	0.006			
	(0.66)			
CEO ownership > 5 and <= 10 %		0.000		
		(0.11)		
CEO Ownership (> 5 and <= 10 %) * Family firm		-0.003		
		(-0.43)		
CEO ownership > 10 and <= 33 %			0.000	
			(0.73)	
CEO Ownership (> 10 and <= 33 %) * Family firm			0.000	
			(0.76)	
CEO ownership > 33 and <= 50 %				0.000
				(0.72)
CEO Ownership (> 33 and <= 50 %) * Family firm				-0.001*
				(-2.50)
Constant	0.352*	0.328**	0.191***	0.134**
	(2.13)	(2.74)	(3.50)	(2.91)
Year fixed effects	Yes	Yes	Yes	Yes
Company specific fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Within R-squared	0.092	0.051	0.020	0.029
N	3674	8187	56166	106366

* p<0.05, ** p<0.01, *** p<0.001 T-values presented in parentheses.

$$ETR = \alpha + \beta_1 CEOownership + \beta_2 CEOgender + \beta Controls + Year\ FE + Industry\ FE + Company\ FE + \varepsilon$$

Panel B: Private family firms

| | Dependent variables | | |
	ETR	ETR	ETR
ROA	-0.058***	-0.056***	-0.054***
	(-18.25)	(-11.93)	(-37.50)
LEV	-0.027***	-0.031***	-0.027***
	(-5.04)	(-4.07)	(-10.36)
PPE	-0.001	0.014	0.003
	(-0.21)	(1.36)	(0.81)
INTANG	-0.149**	-0.176**	-0.161***
	(-3.26)	(-2.58)	(-7.07)
EQINC	-0.037*	-0.011	-0.035***
	(-2.45)	(-0.48)	(-5.76)
SIZE	0.016***	0.017***	0.008***
	(6.46)	(4.37)	(6.61)
BIG4	-0.003	-0.000	-0.003
	(-0.56)	(-0.05)	(-1.14)
CEO gender	-0.024	-0.008	-0.017
	(-0.91)	(-0.74)	(-1.43)
CEO ownership > 50 and <= 67 %	0.000		
	(0.22)		
CEO ownership > 67 and <= 90 %		0.000	
		(0.05)	
CEO ownership > 90 and <= 100 %			0.002
			(1.49)
Constant	0.046	0.127	0.016
	(0.74)	(1.52)	(0.12)
Year fixed effects	Yes	Yes	Yes
Company specific fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Within R-squared	0.032	0.036	0.042
N	55374	27838	215574

* $p<0.05$, ** $p<0.01$, *** $p<0.001$ T-values presented in parentheses.

6.3 Independent board members

The board of directors' role is amongst other to verify that the firm's management act in the best interest of the shareholders (Bammens, Voordeckers, & Gils, 2011). Both tax authorities and the accounting- and auditing professions have recognized the importance of boards as an internal control for reducing tax aggressiveness (Lanis & Richardson, 2011). The composition of board members has been argued to be crucial in order to create a board that effectively monitors the management, and the value of both inside and outside members to the management is emphasized (Fama, 1980; Fama & Jensen, 1983). Lanis and Richardson (2011) studied how the composition of the board of directors affected corporate tax aggressiveness of public firms and found that more independent boards, measured as the proportion of outside members, reduced the likelihood of tax aggressiveness through better governance. Contrary, findings on private family firms by Steijvers and Niskanen (2014) indicate that boards "are not effective in

mitigating tax aggressive behaviour by the CEO" (p. 355). Furthermore, Steijvers and Niskanen (2014) found that outside directors on the board mitigated the tax aggressiveness of family firms with low CEO ownership. This could again lead to differences in family firms, where firms with less family concentration are more likely to have non-family members on the board, and thereby possibly reducing the increased tax aggressive behaviour of the CEO.

Based on the findings of Steijvers and Niskanen (2014), we will therefore also include CEO ownership to analyse whether the effect of CEO ownership changes when controlling for non-family board members. We define independent board members as members that are not a part of the controlling family since we do not have information regarding the board members' affiliation to the management. The analysis will therefore only be conducted on family firms, in particular private, due to a small sample size of public firms.

Table 11 presents the results. Note that the number of observations is lower due to the reduced sample as well as some missing observations of the included variables. The reported coefficients for independent board members indicate that they decrease the effective tax rates and increase the book-tax difference, with a statistically significant effect on cash ETR. However, the remaining estimated effects suffer from a lack of statistically significant results and the estimated effects could therefore be coincidental, thereby only providing weak evidence that independent board members increase tax aggressiveness of private family firms. Further, it appears like increased CEO ownership marginally reduces tax aggressiveness, indicated by the statistically significant effects on ETR, cash ETR and book-tax difference. The estimated effects of the interaction term between CEO ownership and independent board members are insignificant, suggesting that the hiring of external board members in private family firms has no systematic effect on the reported effect of CEO ownership. We are therefore not able to confirm the relation identified in the Finnish sample of Steijvers and Niskanen (2014). This might be due to the difference in definition, where Steijvers and Niskanen define independent board members as members that do not serve in the management, or that we use a continuous CEO ownership variable. Another explanation might be country-specific differences, such as legislation or corporate culture.

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Table 11 The effect of independent board members

Variables included: Return on assets (ROA) winsorized at 1% level, Leverage (LEV) winsorized at 1% level, Property, plant and equipment (PPE) winsorized at 1% level, Intangiable assets (INTANG) winsorized at 1% level, Equity income (EQINC) winsorized at 1% level, Size (natural logarithm of total assets), BIG4 (indicator variable for BIG4 auditor), Industry fixed effects, Year fixed effects and Company specific fixed effects. Female board members are calculated as the number of female board members divided by the total number of board members. In both panel A and B, CEO gender and an interaction term between CEO gender and family firm are included.

$Tax\ aggr = \alpha + \beta_1 External + \beta_2 CEOown + \beta_3 External * CEOown + \beta_4 CEOgender + \beta Controls + Year\ FE + Industry\ FE + Company\ FE + \varepsilon$

	ETR	Cash ETR	Book-Tax difference	DD Book-Tax difference
		Dependent variables		
Independent board members	-0.013	-0.006*	0.007	-0.000
	(-1.60)	(-2.12)	(0.88)	(-0.90)
CEO ownership	0.000**	0.000***	-0.000*	0.000
	(3.20)	(4.98)	(-2.48)	(0.58)
CEO ownership * Independent board members	0.000	0.000	-0.000	0.000
	(1.35)	(1.40)	(-0.48)	(1.47)
CEO gender	-0.000	-0.004*	0.011*	-0.000
	(-0.01)	(-2.53)	(2.47)	(-1.61)
ROA	-0.054***	0.138***	0.274***	0.000
	(-48.15)	(133.04)	(80.62)	(0.66)
LEV	-0.030***	-0.019***	0.030***	0.000
	(-15.68)	(-23.31)	(11.21)	(0.39)
PPE	0.002	0.000	0.007*	-0.000
	(0.81)	(0.26)	(2.30)	(-0.74)
INTANG	-0.127***	-0.009	0.277***	0.000
	(-7.80)	(-1.58)	(13.21)	(1.56)
EQINC	-0.037***	-0.027***	0.088***	0.000
	(-7.90)	(-13.16)	(13.41)	(1.17)
SIZE	0.010***	0.005***	-0.017***	0.000
	(10.76)	(11.95)	(-13.68)	(1.22)
BIG4	-0.003	-0.001	0.002	-0.000
	(-1.86)	(-1.01)	(1.50)	(-1.47)
Constant	0.147***	-0.028***	0.172***	0.046***
	(7.91)	(-3.93)	(7.87)	(192.74)
Year fixed effects	Yes	Yes	Yes	Yes
Company specific fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
r2_w	0.035	0.464	0.238	0.000
N	384176	384176	384176	384176

* p<0.05, ** p<0.01, *** p<0.001

6.4 CEO type

Steijvers and Niskanen (2014) claimed that complexity and obfuscation are characteristics of tax aggressiveness and that it could allow the CEO to mask other rent-extraction activities. Further, CEO types have been found to affect the level of tax aggressiveness, where family firms with professional- or founder CEOs exhibit less tax aggressive behaviour compared to non-family firms (Chen et al., 2010). Visintin et al. (2017) studied family firms and found that family CEOs were not threatened with replacement by poor financial results. Interestingly, they also found that non-family CEOs were less likely to be replaced after a poor performance when family ownership was concentrated. While a family CEO's incentives might be aligned with the family interests, a non-family CEO might not be as aligned in all cases. The findings could therefore suggest that non-family CEOs can engage in tax aggressiveness in order to mask rent extraction activities,

without being punished by the shareholders. On the other hand, it could also imply that non-family CEOs are loyal towards the family's objectives (Hall & Nordqvist, 2008; Sieger, Zellweger, & Aquino, 2013) and that agency costs and thereby rent extraction is limited.

We are able to separate CEOs into two groups, where we study whether tax aggressiveness differs when the CEO is part of the controlling family or not. The results are presented in table 12, where panel A employs the sample of private family firms with the threshold of family equity of 50 percent, while panel B employs the sample of public family firms, applying the threshold of ten percent family ownership. The first panel displays statistically significant effects on ETR and cash ETR, however inconsistent. This indicates that the measures capture different tax-related actions, and we are therefore not able to conclude regarding the effect of family CEOs. Further, Panel B suggests that there are no systematic differences between family CEOs and non-family CEOs in public family firms, indicated by the lack of statistically significant coefficients. We are therefore not able to confirm the results of Chen et al. (2010) or conclude on the effect on private family firms.

Table 12 CEO type effect on tax aggressiveness

Variables included: Return on assets (ROA) winsorized at 1% level, Leverage (LEV) winsorized at 1% level, Property, plant and equipment (PPE) winsorized at 1% level, Intangiable assets (INTANG) winsorized at 1% level, Equity income (EQINC) winsorized at 1% level, Size (natural logarithm of total assets), BIG4 (indicator variable for BIG4 auditor), CEO type (external or family CEO), CEO gender, Industry fixed effects, Year fixed effects and Company specific fixed effects.

$$Tax\ aggr = \alpha + \beta_1 FamilyCEO + \beta_2 CEOgender + \beta Controls + Year\ FE + Industry\ FE + Company\ FE + \varepsilon$$

Panel A: Private firms

	ETR	Cash ETR	Book-Tax difference	DD Book-Tax difference
		Dependent variables		
CEO type	-0.006*	0.002**	-0.001	0.000
	(-2.45)	(2.87)	(-0.64)	(0.87)
CEO gender	0.005	-0.002	0.004	-0.000
	(1.68)	(-1.94)	(1.35)	(-1.73)
ROA	-0.055***	0.135***	0.280***	0.000
	(-51.65)	(138.59)	(86.90)	(0.59)
LEV	-0.029***	-0.018***	0.030***	0.000
	(-16.59)	(-24.40)	(11.73)	(0.15)
PPE	0.003	-0.000	0.007*	-0.000
	(1.04)	(-0.26)	(2.28)	(-0.69)
INTANG	-0.128***	-0.011*	0.275***	0.000
	(-8.26)	(-2.00)	(13.86)	(1.95)
EQINC	-0.034***	-0.023***	0.079***	0.000
	(-7.95)	(-13.23)	(13.48)	(1.34)
SIZE	0.010***	0.005***	-0.016***	0.000
	(11.40)	(12.73)	(-13.89)	(1.39)
BIG4	-0.001	-0.000	0.001	-0.000
	(-0.61)	(-0.46)	(0.45)	(-1.75)
Constant	0.166***	-0.025***	0.153***	0.046***
	(9.79)	(-3.85)	(7.51)	(224.67)
Year fixed effects	Yes	Yes	Yes	Yes
Company specific fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Within R-squared	0.034	0.456	0.244	0.000
N	431213	431213	431213	431213

* p<0.05, ** p<0.01, *** p<0.001 T-values presented in parentheses.

$$Tax\ aggr = \alpha + \beta_1 FamilyCEO + \beta_2 CEOgender + \beta Controls + Year\ FE + Industry\ FE + Company\ FE + \varepsilon$$

Panel B: Listed firms

	ETR	Cash ETR	Book-Tax difference	DD Book-Tax difference
		Dependent variables		
CEO type	0.130	0.005	0.108	0.000
	(0.84)	(0.99)	(0.75)	(0.11)
CEO gender	-0.499***	-0.002	0.549***	0.000*
	(-4.59)	(-0.51)	(5.82)	(2.00)
ROA	-0.033	0.013	0.588***	0.000*
	(-0.41)	(1.58)	(5.04)	(2.56)
LEV	-0.259	-0.026*	0.043	-0.000
	(-0.75)	(-2.34)	(0.35)	(-0.27)
PPE	-0.001	0.001	0.087	0.000
	(-0.01)	(0.19)	(0.83)	(0.03)
INTANG	-1.725	-0.026	1.044	0.000
	(-1.73)	(-0.62)	(1.45)	(1.92)
EQINC	-0.019	-0.014	-0.106	-0.000
	(-0.14)	(-1.48)	(-0.97)	(-0.72)
SIZE	-0.085	0.002	0.525	-0.000
	(-0.28)	(0.20)	(1.34)	(-0.30)
BIG4	-0.089	0.002	0.115	-0.000**
	(-0.83)	(0.33)	(0.83)	(-3.41)
Constant	-0.499***	-0.002	0.549***	0.000*
	(-4.59)	(-0.51)	(5.82)	(2.00)
Year fixed effects	Yes	Yes	Yes	Yes
Company specific fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Within R-squared	0.433	0.404	0.751	0.485
N	221	221	221	221

* p<0.05, ** p<0.01, *** p<0.001 T-values presented in parentheses.

6.5 Female board members

Female board representation has been found to increase financial performance and to be positively associated with board monitoring (Post & Byron, 2015), which might be due to female board members being more independent-minded (Adams & Funk, 2012). These findings are substantiated by Adams and Ferreira (2009) who found females to be better monitors, as well as Richardson, Taylor, et al. (2016) who identified a negative relation between female board members and tax aggressiveness. Since Norway was the first country to introduce a gender quota on many corporate boards, we want to investigate whether there are similar effects as those reported in previous literature, or if Norway differs. Based on previous findings we expect that the analysis will show coefficients indicating that the presence of female board members decreases tax aggressiveness.

The results are presented in table 13. Panel A employs the private sample, while panel B displays the results for public firms. Both panels suffer from a lack of statistically significant coefficients, indicating that female board members have no systematic effect on firms' tax aggressiveness. The results are similar to the ones of Matsa and Miller (2013) who found that female presence had no effect on many corporate aspects. Further, they could be in line with the theories of e.g. Adams and Funk (2012), Atkinson et al. (2003), Kumar (2010) and Niederle et al. (2012), in that the female board members self-select into managerial professions and that their risk preferences are similar to male's.

Table 13 Female board members effect on tax aggressiveness

Variables included: Return on assets (ROA) winsorized at 1% level, Leverage (LEV) winsorized at 1% level, Property, plant and equipment (PPE) winsorized at 1% level, Intangiable assets (INTANG) winsorized at 1% level, Equity income (EQINC) winsorized at 1% level, Size (natural logarithm of total assets), BIG4 (indicator variable for BIG4 auditor), Industry fixed effects, Year fixed effects and Company specific fixed effects. Female board members are calculated as the number of female board members divided by the total number of board members. In both panel A and B, CEO gender and an interaction term between CEO gender and family firm are included.

$$Tax\ aggr = \alpha + \beta_1 Family + \beta_2 FemaleBoard + \beta_3 CEOgender + \beta_4 Family * CEOgender + \beta Controls + Year\ FE + Industry\ FE + Company\ FE + \varepsilon$$

Panel A: Private firms (Family firm indicated by indicator variable)

	Dependent variables			
	ETR	**Cash ETR**	**Book-tax difference**	**DD Book-tax difference**
Family Firm (50%)	-0.001	0.000	-0.003	0.000
	(-0.28)	(0.40)	(-1.27)	(0.43)
Female board members	0.002	0.001	-0.004	-0.000
	(0.73)	(1.34)	(-1.59)	(-0.56)
CEO gender	0.004	-0.000	-0.003	-0.000*
	(1.63)	(-0.42)	(-1.20)	(-2.11)
Family Dummy (50%) * CEO gender	-0.002	-0.001	0.007**	0.000
	(-0.70)	(-1.52)	(2.75)	(0.00)
ROA	-0.053***	0.142***	0.261***	0.000
	(-56.95)	(163.37)	(92.04)	(0.44)
LEV	-0.030***	-0.019***	0.032***	-0.000
	(-19.75)	(-29.58)	(14.63)	(-0.01)
PPE	0.004	0.001	0.004	-0.000
	(1.89)	(1.28)	(1.55)	(-0.57)
INTANG	-0.121***	-0.015***	0.252***	0.000
	(-9.57)	(-3.63)	(15.67)	(1.65)
EQINC	-0.035***	-0.023***	0.077***	0.000
	(-9.56)	(-15.09)	(15.33)	(1.33)
SIZE	0.010***	0.005***	-0.018***	0.000
	(13.77)	(16.98)	(-18.22)	(1.42)
BIG4	-0.000	-0.000	0.001	-0.000
	(-0.31)	(-0.80)	(1.15)	(-1.45)
Constant	0.159***	-0.036***	0.193***	0.046***
	(10.82)	(-6.33)	(10.89)	(299.79)
Year fixed effects	Yes	Yes	Yes	Yes
Company specific fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Within R-squared	0.030	0.475	0.221	0.000
N	574386	574386	574386	574386

* p<0.05, ** p<0.01, *** p<0.001 T-values presented in parentheses.

$$Tax\ aggr = \alpha + \beta_1 Family + \beta_2 FemaleBoard + \beta_3 CEOgender + \beta_4 Family * CEOgender + \beta Controls + Year\ FE + Industry\ FE + Company\ FE + \varepsilon$$

Panel B: Listed firms (Family firm indicated by indicator variable)

	Dependent variables			
	ETR	**Cash ETR**	**Book-tax difference**	**DD Book-tax difference**
Family Firm (10%)	0.123	0.006	-0.120	-0.000
	(1.22)	(1.12)	(-1.79)	(-0.35)
Female board members	-0.350	-0.013	0.021	-0.000
	(-1.37)	(-0.70)	(0.13)	(-1.17)
CEO gender	-0.217	-0.001	0.216*	0.000*
	(-1.94)	(-0.14)	(2.53)	(2.42)
Family Dummy (10%) * CEO gender	-0.141	-0.010	0.160*	-0.000
	(-1.42)	(-1.64)	(2.34)	(-0.23)
ROA	-0.086	0.038*	0.562***	0.000**
	(-1.08)	(2.12)	(5.08)	(2.76)
LEV	-0.101	-0.016	0.028	0.000
	(-1.49)	(-1.72)	(0.46)	(0.92)
PPE	0.094	-0.000	0.063	-0.000
	(0.83)	(-0.01)	(0.83)	(-1.06)
INTANG	-1.946**	-0.078	1.995**	0.000
	(-3.12)	(-1.30)	(3.01)	(1.31)
EQINC	0.076	0.002	-0.036	0.000
	(0.76)	(0.23)	(-0.48)	(1.56)
SIZE	-0.040	0.016	-0.051	0.000*
	(-0.32)	(1.53)	(-0.39)	(2.57)
BIG4	-0.119	-0.004	0.071*	-0.000
	(-1.64)	(-0.62)	(1.98)	(-0.50)
Constant	1.105	-0.312	0.171	0.046***
	(0.51)	(-1.63)	(0.07)	(1399.59)
Year fixed effects	Yes	Yes	Yes	Yes
Company specific fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Within R-squared	0.305	0.346	0.674	0.373
N	414	414	414	414

* p<0.05, ** p<0.01, *** p<0.001 T-values presented in parentheses.

6.6 State ownership

The Norwegian state is highly involved in domestic businesses controlling around 35 percent of the total values on the Oslo Stock Exchange and is trusted to protect common interests (Lie, 2016). Based on the perception of trust, it is reasonable to expect state owners to be less eager to engage in tax aggressiveness and circumvent the national laws. Since the state's ownership share in domestic corporations is of economic significance, we find it rewarding to investigate whether such ownership effects tax aggressiveness.

The results are presented in table 14, employing a continuous variable of state ownership and interaction terms between state ownership and the family firm indicator variables. Panel A displays the results from the analysis of private firms, while panel B presents the results for listed firms. In panel A, we experience a lack of statistically significant results, as well as some inconsistencies, both for the state ownership variable and the interaction term. This also holds for panel B, except for the statistically significant effect of state ownership on residual book-tax, indicating that increased state ownership marginally decreases tax aggressiveness. The analysis therefore suggests that there is no systematic difference between firms where the state is involved through equity shares and not in private firms, but that it might reduce tax aggressiveness in public firms.

Table 14 State ownership

Variables included: Return on assets (ROA) winsorized at 1% level, Leverage (LEV) winsorized at 1% level, Property, plant and equipment (PPE) winsorized at 1% level, Intangiable assets (INTANG) winsorized at 1% level, Equity income (EQINC) winsorized at 1% level, Size (natural logarithm of total assets), BIG4 (indicator variable for BIG4 auditor), Industry fixed effects, Year fixed effects and Company specific fixed effects. A continuous ownership variable for state ownership, an interaction term between family firm and state ownership, CEO gender and an interaction term between family firm and CEO gender are included in all panels.

$$Tax\ aggr = \alpha + \beta_1 Family + \beta_2 State + \beta_3\ Family * State + \beta_4 CEO gender + \beta_5 Family * CEO gender$$
$$+ \beta Controls + Year\ FE + Industry\ FE + Company\ FE + \varepsilon$$

Panel A: Private firms (Family firm indicated by indicator variable)

	Dependent variables			
	ETR	**Cash ETR**	**Book-Tax difference**	**DD Book-Tax difference**
Family Firm (50%)	-0.001	0.000	-0.003	0.000
	(-0.34)	(0.39)	(-1.23)	(0.49)
State ownership	0.000	0.000	0.000	-0.000
	(0.22)	(0.30)	(0.82)	(-0.15)
Family * State ownership	-0.000	-0.000	0.000	0.000
	(-0.19)	(-1.59)	(0.67)	(0.46)
CEO gender	0.004	-0.000	-0.002	-0.000*
	(1.39)	(-0.56)	(-0.90)	(-2.03)
Family Dummy (50%) * CEO gender	-0.002	-0.001	0.007**	0.000
	(-0.68)	(-1.52)	(2.63)	(0.19)
ROA	-0.053***	0.142***	0.261***	0.000
	(-57.18)	(164.07)	(92.57)	(0.43)
LEV	-0.030***	-0.019***	0.032***	-0.000
	(-19.73)	(-29.56)	(14.57)	(-0.04)
PPE	0.004	0.001	0.004	-0.000
	(1.78)	(1.13)	(1.64)	(-0.57)
INTANG	-0.121***	-0.015***	0.252***	0.000
	(-9.60)	(-3.70)	(15.68)	(1.73)
EQINC	-0.036***	-0.023***	0.077***	0.000
	(-9.66)	(-15.27)	(15.41)	(1.38)
SIZE	0.010***	0.005***	-0.017***	0.000
	(13.71)	(16.90)	(-18.01)	(1.46)
BIG4	-0.000	-0.000	0.001	-0.000
	(-0.30)	(-0.79)	(1.10)	(-1.63)
Constant	0.161***	-0.035***	0.188***	0.046***
	(11.10)	(-6.15)	(10.66)	(302.69)
Year fixed effects	Yes	Yes	Yes	Yes
Company specific fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Within R-squared	0.030	0.475	0.221	0.000
N	579249	579249	579249	579249

* p<0.05, ** p<0.01, *** p<0.001 T-values presented in parentheses.

$$\text{Tax aggr} = \alpha + \beta_1 Family + \beta_2 State + \beta_3 \ Family * State + \beta_4 CEO gender + \beta_5 Family * CEO gender$$
$$+ \beta Controls + Year \ FE + Industry \ FE + Company \ FE + \varepsilon$$

Panel B: Listed firms (Family firm indicated by indicator variable)

	Dependent variables			
	ETR	**Cash ETR**	**Book-Tax difference**	**DD Book-Tax difference**
Family Firm (10%)	0.144	0.007	-0.123	-0.000
	(1.51)	(1.14)	(-1.87)	(-0.01)
State ownership	0.001	0.000	0.000	-0.000*
	(0.34)	(0.13)	(0.08)	(-2.31)
Family * State ownership	-0.006	0.001	0.013	0.000
	(-0.21)	(0.53)	(0.94)	(0.35)
CEO gender	-0.219*	-0.001	0.215*	0.000*
	(-2.04)	(-0.18)	(2.50)	(2.35)
Family Dummy (10%) * CEO gender	-0.164	-0.010	0.163*	-0.000
	(-1.74)	(-1.83)	(2.45)	(-0.45)
ROA	-0.091	0.038*	0.563***	0.000**
	(-1.11)	(2.12)	(5.05)	(2.66)
LEV	-0.096	-0.015	0.028	0.000
	(-1.38)	(-1.69)	(0.46)	(0.92)
PPE	0.078	0.000	0.070	-0.000
	(0.60)	(0.01)	(0.90)	(-1.26)
INTANG	-1.835**	-0.073	1.993**	0.000
	(-3.13)	(-1.21)	(3.10)	(1.49)
EQINC	0.065	0.002	-0.036	0.000
	(0.64)	(0.19)	(-0.49)	(1.54)
SIZE	-0.069	0.015	-0.050	0.000*
	(-0.51)	(1.59)	(-0.36)	(2.31)
BIG4	-0.094	-0.003	0.071*	-0.000
	(-1.27)	(-0.43)	(2.00)	(-0.17)
Constant	1.667	-0.289	0.145	0.046***
	(0.69)	(-1.70)	(0.06)	(1376.37)
Year fixed effects	Yes	Yes	Yes	Yes
Company specific fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Within R-squared	0.297	0.344	0.674	0.371
N	414	414	414	414

* p<0.05, ** p<0.01, *** p<0.001 T-values presented in parentheses.

6.7 Firm sophistication

In previous literature, firm age has been investigated as an alternative explanation for the different levels of tax aggressiveness among firms. Since firms become more experienced over time and thus could be expected to operate the business differently, Chen et al. (2010) used firm age as a proxy for sophistication. Since the average age of private family- and non-family firms are similar and the correlation between firm age and firm type (family- or non-family) is low, it is unlikely an explanation for the identified differences in tax aggressiveness. However, among the listed firms, the average age differs with approximately five years between family and non-family firms, where non-family firms tend to be elder. The correlation between firm age and firm type is also a bit higher than for private firms. We will therefore investigate whether firm age influences public firms' tax aggressiveness, presented in table 15.

The negative, statistically significant coefficient of firm age on the residual book-tax measure is marginal but is supported by the insignificant results on ETR and cash ETR. The table therefore provides weak evidence that more sophisticated firms might be marginally less tax aggressive. The slight inconsistency reported on the book-tax measure is similar to the findings of Chen et al. (2010), who found mixed results of firm age in their analysis.

Table 15 Firm sophistication

Variables included: Return on assets (ROA) winsorized at 1% level, Leverage (LEV) winsorized at 1% level, Property, plant and equipment (PPE) winsorized at 1% level, Intangiable assets (INTANG) winsorized at 1% level, Equity income (EQINC) winsorized at 1% level, Size (natural logarithm of total assets), BIG4 (indicator variable for BIG4 auditor), CEO gender, an interaction term between CEO gender and family firm, Firm age, Industry fixed effects, Year fixed effects and Company specific fixed effects are included.

$$Tax\,aggr = \alpha + \beta_1 Family + \beta_2 FirmAge + \beta_3 CEOgender + \beta_4 Family*CEOgender + \beta Controls + Year\,FE + Industry\,FE + Company\,FE + \varepsilon$$

Panel A: Listed firms (Family firm indicated by indicator variable)

	ETR	Cash ETR	Book-Tax difference	DD Book-Tax difference
		Dependent variables		
Family Firm (10%)	0.144	0.007	-0.121	-0.000
	(1.54)	(1.18)	(-1.87)	(-0.08)
Firm age	0.032	0.003	0.045	-0.000*
	(1.53)	(1.04)	(1.83)	(-2.16)
CEO gender	-0.219*	-0.001	0.217*	0.000*
	(-2.07)	(-0.15)	(2.54)	(2.35)
Family Dummy (10%) * CEO gender	-0.165	-0.010	0.162*	-0.000
	(-1.77)	(-1.88)	(2.45)	(-0.39)
ROA	-0.092	0.038*	0.562***	0.000**
	(-1.12)	(2.13)	(5.07)	(2.71)
LEV	-0.097	-0.015	0.028	0.000
	(-1.39)	(-1.70)	(0.46)	(0.94)
PPE	0.082	-0.001	0.063	-0.000
	(0.62)	(-0.06)	(0.83)	(-1.29)
INTANG	-1.836**	-0.074	1.988**	0.000
	(-3.15)	(-1.23)	(3.11)	(1.52)
EQINC	0.067	0.002	-0.036	0.000
	(0.65)	(0.20)	(-0.48)	(1.51)
SIZE	-0.071	0.015	-0.049	0.000*
	(-0.52)	(1.60)	(-0.36)	(2.37)
BIG4	-0.094	-0.003	0.069*	-0.000
	(-1.30)	(-0.47)	(1.99)	(-0.13)
Constant	0.817	-0.358*	-1.077	0.046***
	(0.38)	(-2.17)	(-0.56)	(1565.54)
Year fixed effects	Yes	Yes	Yes	Yes
Company specific fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Within R-squared	0.297	0.344	0.674	0.368
N	414	414	414	414

* p<0.05, ** p<0.01, *** p<0.001 T-values presented in parentheses.

6.8 Firm size criteria

In the main analysis, no size requirement was enforced on the sample. This could potentially cause a small deflator problem (Chen et al., 2010) and also that the estimated effects might be a result of small firms that have little impact (Che and Langli, 2015). In this section, we therefore examine if the results are affected by excluding firms with less than 1.000.000 NOK in sales, following Che and Langli (2015), reducing the sample by 170.833 and 71 observations for private- and public family firms respectively.

The results from testing hypothesis one and four with the size constraint, both with the family firm dummy variable (equation one) and with the continuous variable (equation two), is presented in table 16 panel A and B respectively. The family firm indicator variable remains inconsistent and insignificant as in the primary analysis, while the continuous family ownership variable in panel B gains statistical significance on both cash ETR and book-tax, indicating that increased family ownership decreases tax aggressiveness in private firms. Further, the interaction terms in panel A and B suggest that private family firms are more tax aggressive when the CEO is male, indicated by the statistically significant result on the book-tax measure, as in the primary analysis. The table therefore substantiates our primary analysis, in that we are not able to find a systematic difference in the tax aggressiveness of private family- and non-family firms, although it does provide evidence that increased family ownership have a decreasing effect. Moreover, the findings regarding the CEO gender are supported.

Table 16 Tax aggressiveness in private firms (with size constraint)

Variables included: Return on assets (ROA) winsorized at 1% level, Leverage (LEV) winsorized at 1% level, Property, plant and equipment (PPE) winsorized at 1% level, Intangiable assets (INTANG) winsorized at 1% level, Equity income (EQINC) winsorized at 1% level, Size (natural logarithm of total assets), BIG4 (indicator variable for BIG4 auditor), CEO gender, Industry fixed effects, Year fixed effects and Company specific fixed effects. An interaction term between CEO gender and family firm and family ownership is included in panel A and B respectively.

$$Tax\ aggr = \alpha + \beta_1 Family + \beta_2 CEO gender + \beta_3 Family * CEO gender + \beta Controls + Year\ FE + Industry\ FE + Company\ FE + \varepsilon$$

Panel A: Private firms (Family firm indicated by indicator variable)

		Dependent variables		
	ETR	**Cash ETR**	**Book-Tax difference**	**DD Book-Tax difference**
Family Firm (50%)	-0.002	0.001	-0.004	0.000
	(-0.78)	(0.89)	(-1.61)	(1.32)
CEO gender	0.003	-0.001	-0.003	-0.000
	(1.13)	(-0.87)	(-1.04)	(-0.78)
Family Dummy (50%) * CEO gender	-0.000	-0.002	0.007**	0.000
	(-0.15)	(-1.75)	(2.81)	(0.24)
ROA	-0.053***	0.198***	0.094***	-0.000***
	(-44.64)	(207.28)	(31.44)	(-3.65)
LEV	-0.029***	-0.021***	0.028***	-0.000***
	(-15.07)	(-27.05)	(11.22)	(-4.43)
PPE	0.003	0.003**	-0.000	0.000**
	(1.39)	(2.76)	(-0.13)	(3.23)
INTANG	-0.083***	0.006	0.206***	-0.000
	(-6.28)	(1.36)	(12.95)	(-0.24)
EQINC	-0.027***	-0.023***	0.049***	0.000***
	(-4.73)	(-9.40)	(6.46)	(3.83)
SIZE	0.004***	0.005***	-0.012***	0.000**
	(4.78)	(12.58)	(-10.76)	(2.96)
BIG4	0.000	0.000	-0.001	-0.000
	(0.16)	(0.97)	(-0.85)	(-0.98)
Constant	0.267***	-0.030***	0.126***	0.046***
	(12.53)	(-4.06)	(5.31)	(6209.92)
Year fixed effects	Yes	Yes	Yes	Yes
Company specific fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Within R-squared	0.027	0.641	0.069	0.003
N	408416	408416	408416	408416

* p<0.05, ** p<0.01, *** p<0.001 T-values presented in parentheses.

$$Tax\ aggr = \alpha + \beta_1 FamilyOwn + \beta_2 CEO gender + \beta_3 FamilyOwn * CEO gender + \beta Controls + Year\ FE + Industry\ FE + Company\ FE + \varepsilon$$

Panel B: Private firms (Family firm ownership as a contineous variable)

		Dependent variables		
	ETR	**Cash ETR**	**Book-Tax difference**	**DD Book-Tax difference**
Famliy ownership	0.000	0.000*	-0.000**	0.000
	(1.07)	(2.50)	(-2.86)	(1.34)
CEO gender	0.003	-0.001	-0.005	-0.000
	(0.81)	(-1.28)	(-1.40)	(-1.28)
Family ownership * CEO gender	-0.000	-0.000	0.000*	0.000
	(-0.09)	(-0.26)	(2.33)	(0.88)
ROA	-0.053***	0.198***	0.094***	-0.000***
	(-44.66)	(207.28)	(31.44)	(-3.65)
LEV	-0.029***	-0.021***	0.028***	-0.000***
	(-15.08)	(-27.06)	(11.22)	(-4.43)
PPE	0.003	0.003**	-0.000	0.000**
	(1.35)	(2.71)	(-0.10)	(3.23)
INTANG	-0.083***	0.006	0.206***	-0.000
	(-6.26)	(1.38)	(12.94)	(-0.24)
EQINC	-0.027***	-0.023***	0.049***	0.000***
	(-4.74)	(-9.41)	(6.47)	(3.83)
SIZE	0.004***	0.005***	-0.012***	0.000**
	(4.89)	(12.71)	(-10.82)	(2.97)
BIG4	0.000	0.000	-0.001	-0.000
	(0.19)	(1.02)	(-0.88)	(-0.97)
Constant	0.260***	-0.033***	0.133***	0.046***
	(12.10)	(-4.42)	(5.57)	(6203.18)
Year fixed effects	Yes	Yes	Yes	Yes
Company specific fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Within R-squared	0.027	0.641	0.069	0.003
N	408416	408416	408416	408416

* p<0.05, ** p<0.01, *** p<0.001 T-values presented in parentheses.

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Table 17 presents the results for hypothesis two and five, employing the family firm indicator variable in panel A and the continuous family ownership variable in panel B. Considering the family variables, the coefficients are similar to those in the primary analysis. The estimated effect of the indicator variable in panel A gains statistical significance on the book-tax measure, while in panel B, the ownership variable is now significant on cash ETR. Contrary to the main analysis, we therefore find somewhat weak evidence that public family firms are less tax aggressive than their counterparts. Further, the interaction term still indicates that public family firms are more tax aggressive when the CEO is male.

Table 97 Tax aggressiveness in listed firms (with size constraint)

Variables included: Return on assets (ROA) winsorized at 1% level, Leverage (LEV) winsorized at 1% level, Property, plant and equipment (PPE) winsorized at 1% level, Intangiable assets (INTANG) winsorized at 1% level, Equity income (EQINC) winsorized at 1% level, Size (natural logarithm of total assets), BIG4 (indicator variable for BIG4 auditor), Industry fixed effects, Year fixed effects and Company specific fixed effects. In panel A, an interaction term between CEO gender and family firm is included, while in panel B, an indicator variable for CEO gender is included. Panel C employs the continuous family ownership variable and includes both the interaction term between CEO gender and

$$\text{Tax aggr} = \alpha + \beta_1 Family + \beta_2 CEO gender + \beta_3 Family * CEO gender + \beta Controls + Year\ FE + Industry\ FE + Company\ FE + \varepsilon$$

Panel A: Listed firms (Family firm indicated by indicator variable)

	Dependent variables			
	ETR	**Cash ETR**	**Book-Tax difference**	**DD Book-Tax difference**
Family Firm (10%)	0.154	0.002	-0.125*	-0.000
	(1.83)	(0.54)	(-2.11)	(-0.85)
CEO gender	-0.232	0.004	0.222*	0.000
	(-1.85)	(0.46)	(2.55)	(1.89)
Family Dummy (10%) * CEO gender	-0.154	-0.009	0.126*	0.000
	(-1.74)	(-1.50)	(2.16)	(1.06)
ROA	-0.143	0.028	0.619***	0.000**
	(-1.52)	(1.84)	(5.28)	(2.71)
LEV	-0.125	-0.016	0.071	0.000
	(-1.61)	(-1.47)	(1.12)	(1.70)
PPE	0.138	-0.001	0.059	-0.000
	(0.83)	(-0.13)	(0.74)	(-1.23)
INTANG	-0.933	0.026	1.050	0.000
	(-1.57)	(0.62)	(1.47)	(1.42)
EQINC	0.165	0.007	-0.088	0.000
	(1.53)	(0.90)	(-1.07)	(0.52)
SIZE	-0.092	0.006	-0.021	0.000
	(-0.38)	(0.39)	(-0.13)	(1.82)
BIG4	-0.137	-0.017***	0.023	0.000
	(-0.74)	(-3.51)	(0.30)	(0.59)
Constant	2.182	-0.100	-0.225	0.046***
	(0.49)	(-0.37)	(-0.08)	(984.47)
Year fixed effects	Yes	Yes	Yes	Yes
Company specific fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Within R-squared	0.252	0.402	0.691	0.401
N	343	343	343	343

* p<0.05, ** p<0.01, *** p<0.001 T-values presented in parentheses.

$$\text{Tax aggr} = \alpha + \beta_1 FamilyOwn + \beta_2 CEOgender + \beta_3 FamilyOwn * CEOgender + \beta Controls + Year\ FE + Industry\ FE + Company\ FE + \varepsilon$$

Panel B: Listed firms (Family firm ownership as a contineous variable)

	ETR	Cash ETR	Book-Tax difference	DD Book-Tax difference
			Dependent variables	
Family ownership	0.015*	-0.000	-0.000	-0.000
	(2.25)	(-0.32)	(-0.82)	(-0.82)
CEO gender	-0.136	0.002	0.000	0.000
	(-1.32)	(0.31)	(0.69)	(0.69)
Family ownership * CEO gender	-0.015*	-0.000	0.000	0.000
	(-2.61)	(-0.61)	(1.57)	(1.57)
ROA	-0.137	0.027	0.000**	0.000**
	(-1.50)	(1.83)	(2.67)	(2.67)
LEV	-0.125	-0.015	0.000	0.000
	(-1.64)	(-1.41)	(1.73)	(1.73)
PPE	0.115	-0.006	-0.000	-0.000
	(0.68)	(-0.68)	(-0.99)	(-0.99)
INTANG	-0.951	0.034	0.000	0.000
	(-1.65)	(0.83)	(1.43)	(1.43)
EQINC	0.172	0.006	0.000	0.000
	(1.63)	(0.72)	(0.60)	(0.60)
SIZE	-0.109	0.004	0.000*	0.000*
	(-0.44)	(0.27)	(2.02)	(2.02)
BIG4	-0.134	-0.016***	0.000	0.000
	(-0.74)	(-3.69)	(0.96)	(0.96)
Constant	2.396	-0.073	0.046***	0.046***
	(0.52)	(-0.27)	(1001.10)	(1001.10)
Year fixed effects	Yes	Yes	Yes	Yes
Company specific fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Within R-squared	0.259	0.401	0.418	0.418
N	343	343	343	343

* p<0.05, ** p<0.01, *** p<0.001 T-values presented in parentheses.

The results from testing hypothesis three are presented in table 18. Note that the number of observations is lower since the regression only employs firms with family ownership equal to or larger than 10 percent. The estimated effects of the interaction term between family firm and listing status remain statistically insignificant but are somewhat more consistent. As in the primary analysis, we are therefore not able to identify a systematic difference between listed- and private family firms.

Table 108 Regression on family firms listing status (with size constraint)

Variables included: Return on assets (ROA) winsorized at 1% level, Leverage (LEV) winsorized at 1% level, Property, plant and equipment (PPE) winsorized at 1% level, Intangiable assets (INTANG) winsorized at 1% level, Equity income (EQINC) winsorized at 1% level, Size (natural logarithm of total assets), BIG4 (indicator variable for BIG4 auditor), Industry fixed effects, Year fixed effects and Company specific fixed effects. Listing status, family ownership, an interaction term between family ownership and listing status, CEO gender and an interaction variable between family ownership and CEO gender is included

$$\text{Tax aggr} = \alpha + \beta_1 Listing\ status + \beta_2 FamilyOwn + \beta_3 FamilyOwn * Listing\ status + \beta_4 CEOgender + \beta_5 FamilyOwn * CEOgender + \beta Controls + Year\ FE + Industry\ FE + Company\ FE + \varepsilon$$

| | Dependent variables | | | |
	ETR	Cash ETR	Book-Tax difference	DD Book-Tax difference
Listing status	0.056	0.008	-0.021	0.000
	(0.60)	(0.85)	(-0.43)	(0.08)
Famliy ownership	0.000	0.000**	-0.000**	0.000
	(1.25)	(2.98)	(-3.01)	(1.32)
Family ownership * Listing status	0.001	0.000	-0.000	0.000
	(0.55)	(0.85)	(-0.28)	(0.24)
CEO gender	0.004	-0.001	-0.005	-0.000
	(0.85)	(-0.70)	(-1.38)	(-1.11)
Family ownership * CEO gender	-0.000	-0.000	0.000*	0.000
	(-0.16)	(-0.64)	(2.27)	(0.77)
ROA	-0.053***	0.198***	0.094***	-0.000***
	(-44.62)	(207.36)	(31.19)	(-3.65)
LEV	-0.028***	-0.021***	0.029***	-0.000***
	(-14.94)	(-27.03)	(11.28)	(-4.40)
PPE	0.004	0.003**	-0.001	0.000**
	(1.50)	(2.76)	(-0.22)	(3.15)
INTANG	-0.085***	0.006	0.207***	-0.000
	(-6.39)	(1.33)	(12.90)	(-0.25)
EQINC	-0.027***	-0.022***	0.048***	0.000***
	(-4.70)	(-9.19)	(6.24)	(3.75)
SIZE	0.004***	0.005***	-0.012***	0.000**
	(4.75)	(12.58)	(-10.74)	(2.98)
BIG4	0.000	0.000	-0.001	-0.000
	(0.25)	(1.01)	(-0.84)	(-0.98)
Constant	0.261***	-0.033***	0.133***	0.046***
	(12.12)	(-4.44)	(5.57)	(6135.60)
Year fixed effects	Yes	Yes	Yes	Yes
Company specific fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Within R-squared	0.028	0.642	0.069	0.003
N	403965	403965	403965	403965

* p<0.05, ** p<0.01, *** p<0.001 T-values presented in parentheses.

Overall, the analysis supports our main findings. However, we find evidence suggesting that public family firms are less tax aggressive than their counterparts, thereby supporting hypothesis two, which might indicate that the results from employing the public sample may be driven by effects of small firms.

7 Discussion

The primary analysis of hypothesis one found no systematic differences in the tax behaviour of private family- and non-family firms, rejecting our hypothesis (section 5). However, enforcing a size constraint (section 6.8) provided evidence that family ownership reduces tax aggressive behaviour in private firms. Moreover, the analysis of family entrenchment (in section 6.1) indicated that family dominated firms were less tax aggressive while an opposite effect was

found for low family ownership. The slight indications of a non-linear relation between family ownership and tax aggressiveness could indicate that the socioemotional wealth perspective is dominant when family ownership is high, but that such values are not emphasized by family members when they do not possess a controlling share of the firm. Further, the results could be consistent with agency theory, in that the vertical agency costs are reduced when family ownership is high but increased when family ownership is low. The decrease could reduce the possibilities of rent extraction and thereby reduce the incentives for a CEO to engage in tax aggressiveness to mask rent extraction (Steijvers & Niskanen, 2014), hence decreasing tax aggressive actions of the firm.

We do not find that there is a systematic difference between family- and non-family CEOs in our sample of private family firms (section 6.4), which suggests that the two CEO types might not be different in their priorities of tax aggressiveness. From a socioemotional wealth perspective, one could have expected that a family CEO would be less eager to engage in tax aggressive actions, in order to preserve the family values. The lack of such a difference could be one reason why the two firm types do not differ in tax behaviour. We also notice that private non-family firms have higher average annual sales than family firms. Even though we proxy firm sophistication with firm age, such differences could potentially hinder firms with less sales from engaging in complex tax schemes. Cultural differences could also be one of the reasons why we do not find a systematic difference between private family firms and non-family firms, in that socioemotional wealth issues like reputation might be just as important for non-family firms, or that the punishment from consumers for engaging in tax aggressive activities is not significant enough. Further, we are not able to determine whether the lack of identified differences in tax aggressive behaviour between public family and non-family firms is due to agency conflicts or the prioritization of socioemotional wealth, as we are not able to capture the motivations of the firms.

Regarding hypothesis two, the primary analysis did not find a systematic difference in tax aggressiveness between public family- and non-family firms but indicated that increased family ownership had a reducing effect (section 5). Moreover, enforcing the size constraint provided somewhat weak evidence that

public family firms are less tax aggressive than their counterparts (section 6). One potential explanation could be reduced agency costs between the shareholders, in that families have lower ownership shares and therefore might not be able to take advantage of the non-family shareholders. Interestingly, we find that elder public firms tend to be marginally less tax aggressive (section 6.7) and that that public family firms on average are younger than their counterparts in our sample. Based on this finding, one could have expected family firms to be slightly more tax aggressive, which exemplifies that public family firms might have different objectives than public non-family firms. Furthermore, the result is in line with prior findings of Chen et al. (2010) in an American setting and Mafrolla and D'Amico (2016) with an Italian setting. Regarding the slightly different results for the listed and private sample, it may be due to different valuations of the socioemotional wealth perspectives, for instance that the potential reputation damage may be larger for public family firms than private.

The analysis resulted in no identified systematic difference between listed- and private family firms, thereby rejecting hypothesis three (section 5). Moreover, the findings were similar when restricting the sample to larger firms (section 6.8). Thus, our result is similar to the findings of Pierk (2016) regarding Norwegian firms. Listed firms' capital market pressure has been found to have a disciplinary effect (Chen et al. 2010) as well as potentially higher costs associated with engaging in tax aggressive schemes (Pierk, 2016). Furthermore, the analysis of Graham et al. (2014) found that reputation was highly important for both private and public firms, and even somewhat more important for public firms. The study thereby illustrates that the some of the motives related to SEW, may also be relevant for non-family shareholders. Such characteristics of listed firms may outweigh the estimated effects of SEW in private family firms.

Furthermore, the analysis of gender provides interesting results from hypothesis four and five, both when employing the main- and the constrained sample (section 5 and 6.8 respectively). In line with the indications of prior literature, we find that both private- and public family firms appear more tax aggressive when the CEO is male, compared to female. However, we acknowledge that our findings may be biased, due to an imbalance between the fraction of female- and male CEOs. Our findings are in line with the general perception in prior literature, for instance that

females are more likely to comply with rules and regulations (Huang et al., 2014) and less likely to manipulate corporate financials and other disclosures (Peni & Vähämaa, 2010). It also extends previous findings where female CFOs are found less likely to engage in tax aggressiveness (Francis et al., 2014).

Moreover, the estimated effects of female board members indicate that they have no systematic effect on neither the tax aggressiveness private, nor public firms (section 6.5). In this regard, the findings are in line with the research of Matsa and Miller (2013) who found that female presence had no effect on many corporate aspects, and possibly the theory of Adams and Ferreira (2009), Atkinson et al. (2003), Kumar (2010) and Niederle et al. (2012), in that female professionals have similar risk preferences to men's.

Interestingly, we are not able to conclude regarding the effect of CEO types (family- vs. non-family CEO) in private firms and do not find that it influences the tax aggressiveness of public firms (section 6.4), which demonstrates that that family affiliation is not sufficient in explaining the behaviour of a CEO. One potential explanation is executive compensation, where performance-based compensation is found to influence CEO motivations (Desai & Dharmapala, 2006; Gaertner, 2014; Phillips, 2003). Further, we find indications that increased CEO ownership marginally reduces tax aggressiveness of private family firm (section 6.3), but that CEO ownership shares between one third and 50 percent actually increase tax aggressiveness (section 6.2). The varying effects of CEO ownership could therefore explain the lack of an identified difference between CEO types. The findings could also be in line with Visintin et al. (2017), who found that external CEOs of private family firms were more sensitive to financial performance compared to family CEOs, but that the sensitivity was reduced when family ownership was high. As presented in the descriptive analysis, family concentration is high in our sample of private firm, which might align the two CEO types in many aspects, in that none of them are likely to be replaced after poor financial results, thereby reducing the pressure to meet financial targets and the incentives to engage in tax aggressive behaviour.

Regarding independent board members (section 6.3), we find weak evidence of an increasing effect of tax aggressiveness, contrary to previous research (e.g. Lanis &

Richardson, 2011). Further, we do not find that the fraction of independent board members influence the effect of CEO ownership, which is similar to the conclusion of Steijvers and Niskanen (2014) that independent board members are not effective at mitigating a CEO's tax aggressive behaviour. Lastly, the analysis of state ownership suggests that tax aggressiveness of public firms marginally decrease as state ownership increases (section 6.6), which may be consistent with the state protecting common interests and emphasizing compliance.

The supplementary analysis generally substantiates our primary analysis but provides some new evidence regarding the differences between private- and public family- and non-family firms. This could indicate the primary analysis might be somewhat affected by smaller firms. Although it provides interesting inputs to our main findings, it is not able to fully explain some of the observed tendencies. A potential explanation for the lack of statistically significant results and inconsistencies in some of the analyses could be the lack of detailed information about the financial statements, which limits our ability to capture tax aggressiveness.

8 Conclusion

The paper studies the level of tax aggressiveness among private and public family- and non-family firms in Norway. Due to the complexity and difficulties of capturing tax aggressive schemes, four measures are employed. The primary findings indicate that there is no systematic difference between public family- and non-family firms but finds that increased family ownership decrease tax aggressiveness. The tendency is substantiated when investigating larger firms, where public family firms appear less tax aggressive than their counterparts, in line with previous literature (e.g. Chen et al. 2010; Mafrolla & D'Amico, 2016). Similarly, no statistically significant results are obtained studying private family- and non-family firms. However, the analysis of larger firms suggests that tax aggressiveness is reduced as family ownership increases and the investigation of family entrenchment find family dominated firms to be less tax aggressive than their counterparts, although we are not able to confirm a non-linear relationship. Further, we do not find evidence that private- and public family firms differ with regards to tax behaviour. The estimated gender effects suggest that family firms

are more tax aggressive when the CEO is male compared to female, substantiating the tendencies identified in previous literature on gender differences. While the effect of CEOs on tax aggressiveness has been studied previously, the effect of gender has not, as far as we know, been investigated. The contribution is, however, limited due to the large fraction of male CEOs in our sample.

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10 Appendix

10.1 Preliminary thesis

Preliminary Thesis Report

BI Norwegian Business School

Are family firms more tax aggressive than non-family firms?

GRA19502 – Preliminary Thesis Report

Study Programme:

MSc in Business, Business Law, Tax & Accounting

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Date of submission:

15.01.2018

1.1.1 Table of Contents

1.1.2 Introduction

There is a variety of research in the field of accounting. While individual tax avoidance and compliance is well studied in public economics (Slemrod & Yitzhaki, 2002), research on corporate tax avoidance is a more recent and growing topic (Gaaya, Lakhal & Lakhal, 2017; Hanlon & Heitzman, 2010). Scandals like Enron (Frank, Lynch & Rego, 2009; Slemrod, 2004) and the late Panama- and Paradise Papers have, however, lead to an increased focus of corporate tax avoidance and aggressiveness. Although many of the factors affecting individual tax avoidance and compliance are applicable for corporations, intricate structures and relations add complexity (Hanlon & Heitzman, 2010). These fundamental differences (Klassen, Lisowsky & Mescall, 2015) makes research on the distinctive corporate features important. Further, Hanlon & Heitzman (2010) call for more work on privately held firms because of the differences in ownership and incentives. As most family firms are private (Che & Langli, 2015), we will follow their note by studying whether the level of tax aggressiveness differ between Norwegian family- and non-family firms.

The research of corporate tax aggressiveness adds value on several fronts. Firstly, taxation has a large and growing importance on corporate decision makers (Klassen et al., 2015), and is often viewed as the "most considerable cost incurred by firms" (Gaaya et al., 2017). Further, Crocker & Slemrod (2005) argue that the focus of corporate tax departments has shifted towards active and aggressive tax planning, amongst other referring to the estimated increase in tax revenue loss in the US of 50% when comparing 1999 to 1993. Moreover, this is corroborated by Lanis & Richardson (2011) who claim that the number of managers engaging in tax aggressive activities is increasing. Secondly, the issue does not seem to decrease in relevance, as the OECD in 2013 deemed tax avoidance to be a major issue due to its "complexity and economic consequences" (OECD, 2013). Lastly, the research can contribute on other fields as well. Since the theory of tax avoidance includes the relationships between shareholders, management and the government, and potential agency issues that can arise (Hanlon & Heitzman 2010), research on corporate tax aggressiveness can improve the understanding of corporate behaviour. It can also provide insights useful for legislative purposes (Crocker & Slemrod, 2005).

Furthermore, it is rewarding to study family firms as they constitute a large part of the economy, both in Norway and internationally. In Norway, approximately 65% of active limited liability firms are family firms, accounting for 36% of employment and 19% of revenues (Berzins & Bøhren, 2013). Internationally, family firms make up roughly ⅔ to 90% of all firms worldwide, depending on how the term "family" is defined (Aldrich & Cliff, 2003; Family Firm Institute, 2016). Given the large portion private firms constitute of the economy, Hanlon & Heitzman (2010) point to the relative lack of research. In relation to tax aggressiveness, Steijvers & Niskanen (2014) emphasize that family firms are a heterogeneous group and that differences in tax aggressive behaviour within the group are unstudied. This is also substantiated by Jacob, Rohlfing-Bastian & Sandner (2016) who prompt research on the relation between family firms and tax planning, and Shackelford & Shevlin (2001).

Lastly, Norway provide an interesting setting. There is little research on corporate tax aggressiveness in Norway, although some studies have included Norwegian firms in their analysis. An example is Pierk (2016), where the tax aggressiveness of Norwegian firms proved different than in other European countries. Further, Norway has a relatively low top statutory corporate tax rate (Langli & Saudagaran, 2004) and we are curious if this changes the incentives.

We find this entangled situation intriguing and want to exploit the unique information we have of Norwegian ownership structure and detailed accounting information, also on private firms, to examine if private family firms are more tax aggressive than private non-family firms. Inspired by the results of Dyreng, Hanlon & Maydew (2010) which indicate that individual executives have a statistically and economically significant role in a firm's level of tax avoidance, we will also investigate if tax aggressiveness is influenced by the gender of the CEO.

1.1.3 Literature review

The main stream in prior research is based on the agency perspective, e.g. Crocker & Slemrod (2005). Additionally, researchers have studied the relation between tax aggressiveness and other factors such as financial reporting (e.g. Frank et al.,

2009), the use of auditors (Klassen et al., 2015) and firm characteristics like firm value (Desai & Dharmapala, 2009), firm size and industry membership (e.g. Gupta & Newberry, 1997; Shevlin & Porter, 1992; Siegfried, 1974; Stickney & McGee, 1982; Zimmerman, 1983). It is not until recent years that the relation to family firms has been examined (Chen, Chen, Cheng, & Shevlin, 2010; Steijvers & Niskanen, 2014). This might be due to the difficulty of obtaining data, as most of family firms are private (99,98% in Norway according to Berzins & Bøhren (2013)), and therefore not subject to many of the disclosure requirements applicable to public firms. In the following, we will provide a review of relevant prior research.

1.1.3.1 Tax aggressiveness in an agency framework

The theoretical foundation for understanding corporate tax avoidance within an agency framework was laid by a series of articles (Hanlon & Heitzman, 2010). In literature, two opposing views are prominent with regard to the effect of family ownership on agency costs. The notion is that corporate tax decisions reflecting the manager's interests can occur as a result of the separation of ownership and control, and hence not that tax aggressiveness is a reflection of agency problems (Hanlon & Heitzman, 2010; Jensen & Meckling, 1976). Even though there exists research on the topic, Bartholomeusz & Tanewski (2006) argues that the academic literature has underrepresented the economic significance of family firms, given the relative scarcity of research regarding the effects of agency costs in other ownership structures, particularly family firms. We will in the following paragraphs account for the main theory substantiating the conflicting predictions of tax aggressiveness.

On the one hand, theory predicts family firms to have lower agency costs than non-family firms. This is derived from the fact that the family often has a high ownership share (Chen et al., 2010; Fama & Jensen, 1983) and often also represent the management (Schulze, Lubatkin, & Dino, 2003), hence reducing the separation between ownership and control. Anderson & Reeb (2003) further acknowledge that the high concentration represents an incentive to reduce agency costs, as a larger portion of costs and benefits will be distributed to the family. Moreover, they often invest for the long term (Chen et al., 2010) which can be illustrated through the high share of founding family ownership (Pierk, 2016). The

long term perspective has further implications, in that family firms usually are more concerned about reputation and behave more altruistically (Gedajlovic & Carney, 2010; Steijvers & Niskanen, 2014). As a result, they might engage in less tax aggressiveness since they likely are more sensitive to the potential costs arising, for example penalties imposed by the tax authorities or reputational damage caused by lawsuits (Chen et al., 2010; Hanlon & Heitzman, 2010). Additionally, Chen et al. (2010) argue that the market has a disciplinary effect, where tax aggressiveness would lead to a price discount if shareholders viewed the tax aggressive behaviour as a way to mask rent extraction. However, since we only will be looking at private firms, this constraint will not be as relevant.

Conversely, Bartholomeusz & Tanewski (2006) add to the literature by examining the agency costs of family firms through a corporate governance perspective, and find that public family firms create agency costs. The underlying theory is elaborated by e.g. Gaaya et al. (2017) and Shleifer & Vishny (1986), who argue that family firms may exhibit larger agency costs due to the opposing interest of the family owners and the minority. In such a setting, the majority owner can be thought to take advantage of the minority, by acting controlling or taking advantage of private benefits in the minority's disadvantage. Further, Chen et al. (2010) and Gaaya et al. (2017) argue that family ownership can increase agency costs due to the high equity shares. They claim this can increase the demand for equity return (Hanlon & Heitzman, 2010), leading the manager to engage in more tax evasion. Moreover, Bartholomeusz & Tanewski (2006) see altruism as a potential cause of agency problems, if the family members pursue their interests in a manner where outsiders pay the costs.

1.1.3.2   Tax aggressiveness in a socioemotional wealth perspective
The socioemotional wealth perspective complements agency theory, and refers to noneconomic goals (Chrisman, Chua, Pearson, & Barnett, 2012). In literature, examples of such goals are preservation of the family dynasty, name and reputation, and continuation of family values (Berrone, Cruz, & Gomez-Mejia, 2012; Chrisman et al., 2012). Berrone, Cruz & Gomez-Mejia (2012) further argue that the identity of the family and the company are intertwined, which is substantiated by Sharma & Manikutty (2005) and Cowling & Howorth (2001) who find that family firms are especially concerned about family image and

reputation. Moreover, Stockmans, Lybaert & Voordeckers (2010) claim that the socioemotional wealth is a key goal in itself in most private family firms, and therefore believed to be more important in these firms (Steijvers & Niskanen, 2014). Since the socioemotional wealth is a great concern, the firms are more engaged in corporate citizenship (Berrone et al., 2012). In total, the perspective is believed to reduce tax aggressive behaviour that originates from agency costs (Steijvers & Niskanen, 2014).

1.1.3.3 Prior studies on family firms and tax aggressiveness

More specifically to our analysis, the differences in tax aggressiveness between family- and non-family firms are investigated by Chen et al. (2010) and Steijvers & Niskanen (2014). Both papers base their analysis on the agency framework and find that family firms are less tax aggressive than non-family firms. In 2016, the Journal of Family Business Strategy also published a research note investigating the impact of various levels of family involvement on tax aggressiveness of firms in Italy (Mafrolla & D'Amico, 2016). The article confirms the results of Chen et al. (2010) and Steijvers & Niskanen (2014), in addition to identifying a non-linearity of the impact of family entrenchment on tax aggressiveness (Mafrolla & D'Amico, 2016).

Pierk (2016) study tax aggressiveness in Germany and test the generalizability of the results on some European countries, among them Norway. In the results, Norway and France stand out as countries where public firms are not more tax aggressive than private firms, and where in Norway, the effect of family ownership is inconclusive. Additionally, the study only includes group companies, resulting in a low number of Norwegian observations (9673 private and 135 public firms). Therefore, the paper does not provide a large contribution to the understanding of differences between Norwegian public and private firms, especially the effects of family ownership. It does, however, make it interesting to pursue further research in Norway, as the results indicated that Norway differs from the other European countries included in the analysis. Should our results corroborate the results found in the paper, it would be interesting for future research to investigate why such differences exist.

1.1.3.4   The Chief Executive Officer's influence on tax aggressiveness

The influence and effect of executive officers on the firm's tax aggressiveness have been subject in several studies (Chen et al., 2010; Crocker & Slemrod, 2005; Dyreng et al., 2010). The article *The Effects of Executives on Corporate Tax Avoidance* by Dyreng et al. (2010) investigates if individual top executives have effects on their firm's tax avoidance that firm characteristics cannot explain. After tracking the movement of executives across firms over time, their results indicate that executives have a significant role in determining the level of tax avoidance in the firm and may be viewed as the decision maker. Unfortunately, key characteristics of the executive officers were not identified. Chen et al. (2010) examine how different CEO types affect the family firms tax aggressiveness. They examine the following CEO types; professional, founder and descendant, where the CEOs are outsiders, the founder or a descendant, respectively. Their results show that firms with professional or founder CEO exhibit less tax aggressive behaviour compared to non-family firms.

When ownership is separated from management, agency costs may arise. The benefit is reduced tax cost, but the complexity of the activities may allow the CEO to mask rent extraction, in addition to potential costs discussed earlier. Evidence in Steijvers & Niskanen (2011) suggest that agency costs depend on the level of ownership of CEO, where firms with higher CEO ownership are less likely to behave in a tax aggressive manner. Since private family firms are a heterogenous group (Westhead & Howorth, 2007) and executive are believed to have impact on the level of tax aggressiveness (Dyreng et al., 2010), we will investigate if the gender of the CEO has effect on firms behaviour.

Further, some has researched other types of executives, e.g. Crocker & Slemrod (2005) who examined tax evasion and the contractual relationship between the shareholders of a firm and the chief financial officer (CFO). They found that in regard to reduce tax evasion, it was more effective to impose penalties directly on the CFO instead of the shareholders. They also found that the optimal contract had the potential of at least partially offsetting the incentives generated by increased sanctions against illegal avoidance.

Related is the research on executive compensation and tax aggressiveness by Rego et al. (2008). The study finds that total executive compensation is positively linked to aggressive tax planning. Desai & Dharmapala (2006) on the other hand find evidence of lower tax aggressive behaviour by compensating executives with option grants. More specifically, compensating CEOs and division managers based on after-tax measures is found to decrease the effective tax rate (Gaertner, 2014; Phillips, 2003). These evidence suggest that alignment of managerial incentives motivate tax avoidance (Seidman & Stomberg, 2017). This research is interesting, since family firms often are cautious about providing outside managers with equity shares, hence increasing the probability of performance based salaries or bonuses (Banghøj, Gabrielsen, Petersen & Plenborg, 2010).

1.1.3.5   Gender differences in tax aggressiveness

Whether there are a difference in how female and male executives engage in tax aggressiveness was first studied by Francis, Hasan, Qiang Wu, & Meng Yan (2014). Gender differences regarding risk aversion in the general population is well established (e.g. Croson & Gneezy, 2009; Eckel & Grossman, 2008), in contrast to among professionals. According to Croson & Gneezy (2009), reasonable explanations for the gender differences are that women are more likely to experience nervousness and fear in uncertain situations. Secondly, women may perceive the risk differently due to confidence and thirdly, women tend to experience risky situations as threats rather than challenges as males. Testing pre- and post-transition periods for male-to-female CFO turnovers, the results of Francis et al. (2014) indicate that female CFOs are less likely to behave in a tax aggressive manner. Further, Richardson, Taylor & Lanis (2016) have studied the relation between female board members and tax aggressiveness, and find that high female presence reduces the probability of tax aggressiveness. More research on the relation is also called upon in literature. Especially, the lack of knowledge about gender and tax aggressiveness is emphasized in the review by Khlif & Achek (2017). We therefore intend to reduce this void, by examining the effect of male CEOs.

1.1.4 Contribution

Our paper differentiates from the former articles in several ways. Chen et al. (2010) and Mafrolla & D'Amico (2016) were both limited to public family firms,

while we have access to detailed information about private firms. Since theory predicts potentially different behaviour, it is interesting to investigate if the same trend can be seen for private as for public firms. In addition to general differences in countries, we separate from Steijvers & Niskanen (2014) in the degree of tax alignment. While their research was based in the high tax alignment country of Finland with resulting low book-tax differences, Norwegian legislation separates financial statements and tax, and thus is not a high tax alignment country (Nobes & Schwencke, 2006). Moreover, we will extend the research of Steijvers & Niskanen (2011) by examining if gender influences the level of tax aggressiveness.

1.1.5 Concepts and measures

1.1.5.1 Tax aggressiveness

1.1.5.2 Definition

The term tax aggressiveness has different interpretations, and when Hanlon & Heitzman (2010) wrote a review of tax research, the was no universally accepted definition for tax aggressiveness. Additionally, there has been confusion as to the difference between tax *avoidance* and tax *aggressiveness*. In this regard, we follow the reasoning presented in the said article, where tax avoidance encompasses all tax planning strategies and where tax aggressiveness refers to actions that are closer to illegalness or grey areas. Even though there is no standardized definition of tax aggressiveness, one seem to be commonly accepted by researchers (e.g. by Chen et al., 2010; Richardson, Wang, & Zhang, 2016; Sánchez-Marín, Portillo-Navarro, & Clavel, 2016). The definition was introduced by Frank et al. (2009), who define tax aggressiveness as "downward manipulation of taxable income through tax planning that may or may not be considered fraudulent tax evasion". Their definition embraces wide, and implies that tax aggressiveness does not have to be illegal. Since there appears to be somewhat of a consensus of the definition, we will also employ it in our analysis.

1.1.5.3 Measure

Not only has various definitions of tax aggressiveness been employed, but also different measures that capture different aspects. Common measures in recent literature are effective tax rate, cash effective tax rate, book-tax differences and discretionary or "abnormal" book-tax differences (Frank et al., 2009; Hanlon &

Heitzman, 2010). Since no single measure is likely to capture a firm's tax-aggressive behaviour (Lin, Tong & Tucker, 2014), we will in this section provide an overview of the different measures. Further, we will employ multiple measures to capture the levels of tax aggressiveness and improve the reliability of our analysis.

The first measure, firm effective tax rate (ETR), is widely used (e.g. Chen et al., 2010; Gaaya et al., 2017; Lanis & Richardson, 2011; Moore, Suh, & Werner, 2017). ETR is a suitable measure of a firm's tax avoidance as it, according to Dyreng, Hanlon, Maydew & Thornock, can capture any form of tax reduction through tax shelters and loopholes in present tax laws (2017) and reflect aggressive tax planning through permanent book-tax differences as the numerator is based on the firm's taxable income and the denominator is based on the financial statement Badertscher, Katz, Rego & Wilson (2017). However, tax avoidance by reporting lower accounting earnings and taxable income will not be captured by this measure (i.e. conforming tax avoidance) (Hanlon & Heitzman, 2010).

The second measure we will use is the cash effective tax rate (Cash ETR), also a common measure used in recent literature (e.g. Badertscher et al., 2017; Chen et al., 2010; Dyreng et al., 2017; Lin et al., 2014). Cash ETR is a longer-term measure of tax aggression (Lin et al., 2014) which avoids issues associated with the use of current tax expense as a measure of corporate tax liabilities. However, some argue it is not an appropriate measure of tax aggressiveness, but rather tax avoidance (Dyreng, Hanlon & Maydew, 2008; Frank et al., 2009).

Thirdly, book-tax differences has been used in various studies to document elements of tax avoidance, and refers to a firm's pre-tax book income less estimated taxable income, scaled by total assets (e.g. Gaaya et al., 2017; Lin et al., 2014; Wilson, 2009). Hanlon & Heitzman (2010) comment that book-tax differences capture non-conforming tax avoidance and therefore cannot be used to compare tax avoidance activities across firms with varying levels of importance on financial accounting earnings. A weakness with this measure is that it is not able to separate tax aggressiveness from the other strategies included in tax

avoidance. An example is that the difference can be a result of earnings management, and not only tax planning (Chen et al., 2010).

The last measure we will be employing tries to mitigate this issue, by calculating the residual from the book-tax difference on total accruals (Chen et al., 2010). The measure, referred to as the residual book-tax difference, is developed by Desai & Dharmapala (2006) and enables us to at least partially identify the effects of tax aggressiveness (Chen et al., 2010).

1.1.5.4   Family firms

1.1.5.4.1   Definition

Another concept that needs to be defined is the term "family firm". We include the relations of kinship, marriage, and adoption in our definition of "family". Next, we must clarify the demands for a firm to be considered a family firm. It is common that family firms involve founding members who are shareholders and take part in the management of its activities (Miller & Le Breton-Miller, 2006; Moore et al., 2017). Research based on US firms often use the term family firm as firms where members of the founding family continue to hold positions in top management, are on the board, or are blockholders of the company. The threshold for family equity holding differs, where values as low as 5 % is applied (e.g. Anderson & Reeb, 2003; Chen et al., 2010). However, it should be noted that (Chen et al., 2010) and most of the US studies examine public firms.

Conducting their analysis on private family firms in Finland, Steijvers & Niskanen (2014) employ a threshold for family held equity of 50%. Further, others conduct their analysis using several thresholds of family ownership to examine the relationship between ownership and firm performance (e.g. Che & Langli, 2015). The lower bound varies, where Mafrolla & D'Amico (2016) employ 25% on their Italian dataset whereas the Norwegian studies by Che & Langli (2015) and Berzins & Bøhren (2013) apply 50%. Further, the Norwegian legislation entails that a shareholder gains common control over a company when exceeding 50 % of the shares. Since we only will be studying private firms and prior Norwegian studies has used a threshold of 50 %, as well as it coincides with

the structure of Norwegian legislation, we will use 50 % ownership as the threshold to be considered a family firm.

1.1.6 Research design

In this paper, we will investigate if Norwegian family firms are more tax aggressive than non-family firms. It is rewarding to investigate Norwegian companies, as the Centre for Corporate Governance Research (CCGR) possess information that is difficult to obtain in other countries. Amongst these are detailed information regarding ownership, accounting data and internal information such as composition of the boards, both for listed and non-listed firms, and family firms in particular (Centre for Corporate Governance Research, 2017). Additionally, the CCGR have information on a large portion of private and family firms, suitable for a quantitative analysis. The access to this data enables us to explore the relations in a unique manner.

Some of the prior research on family firms have suffered from a lack of observations, as most of family firms are private and hence difficult to gather information about. A result has been that the threshold of ownership share required to be regarded as a family firm has been low, as researchers have been dependent on public family firms to gather the relevant information. The data available is therefore an advantage, as we are able to increase the threshold and by that study firms where families are dominant.

1.1.7 Hypothesis development

As elaborated, prior research is not consistent regarding the effect of family ownership. However, some anticipations can be made. In the case of high outside ownership, we expect two main effects. Firstly, the non-family owners can be anticipated to exhibit a control function, possibly decreasing the focus of equity return and hence reducing the level of tax aggressiveness. On the other hand, it could increase the conflicts of interest and hence also the agency costs, potentially making room for the manager to employ tax aggressiveness. Which effect will be the strongest is nevertheless unknown.

In the case of high family ownership, the socioemotional wealth perspective predict low tax aggressiveness as the family owners would be concerned about

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non-economic measures such as reputation. This is also supported by the investment argument, which claims that family owners have a long-term perspective. Further, agency theory is inconclusive. It opens for the family to take advantage of the minority and act in its own interest, but it is not clear what the family values the most of profitability or non-economic measures.

Since we find the predictions from theory inconclusive, our hypothesis is neutral:

> *H1: Norwegian private family-firms exhibit a systematically different level of tax aggressiveness compared to private non-family firms.*

Regarding the effect of a male CEO, the literature is scarce. However, prior research on CFOs and board members are so far unambiguous, and we find it likely that the same effects can be observed for CEOs. Our prediction is therefore the following:

> *H2: Norwegian private family firms are more tax aggressive if the CEO is male.*

1.1.8 Progress plan

In January, we intend to continue reviewing literature and supplement our hypothesis development if new and relevant information is gathered, in addition to specifying the variables needed. Further, we will retrieve the necessary data and start running regressions and analysing the results by the end of February. In March and April, we will conduct sensitivity and robustness checks, and review our results. The first draft should be finished by the beginning of May, before we plan to hand in the thesis by the end of June.

1.1.9 References

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