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The effect of generalized trust and altruism on tax avoidance in Norway

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Abstract

The popularity of research on the relationship between corporate tax avoidance and social concepts has steadily increased and been more emphasized. Prior research on the relationship between social capital and tax avoidance seems to have a common consensus where counties with higher levels of social capital experience less tax avoidance. Using an extensive database with high quality of accounting data from CCGR, complemented with regional data from NSD and SSB, we obtain contradicting results compared to prior research. Our results indicate that higher levels of trust and altruism are associated with higher levels of tax avoidance, arguing that civic perception and firm reputation provide incentives to withstand tax-avoiding activities. The results are robust when we take into account the 2006 Norwegian tax reform and whether the firm is small or not.

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Introduction

There has been a lot of research on corporate tax avoidance, and currently, the research on its relationship to social concepts, such as social capital, has been more emphasized recently. However, prior research on the relationship between social capital and tax avoidance seems to have a common consensus arguing and finding evidence that the higher the county's social capital, the less tax avoidance is experienced in the respective county (Chircop et al., 2018; De Olalla López, 2014; Hasan et al., 2017; Kanagaretnam et al., 2018). Therefore, this paper seeks to extend the prior research and explore how different components of social capital relate to corporate tax avoidance. More specifically, we will investigate the effect of generalized trust and altruism on corporate tax avoidance in Norway.

The term social capital was first popularized by Putnam et al. (1993)'s "Making a democracy work", and its relation to economic factors has since been subject to research in several papers over the past decades. When interpreting prior research, several definitions of social capital occur. Both Wintrobe and Gerxhani (2004) and Kanagaretnam et al. (2018) use the terms social capital and societal trust, respectively, and have a mutual definition, viewing social capital as informal institutional trust, referring to the trust that follows a set of shared and established unwritten rules, communicated through informal channels. In addition to Wintrobe and Gerxhani (2004), De Olalla López (2014) identifies that there is a link between generalized trust and the trust of the government. Using Giddens (1990)'s definition of generalized trust as "confidence in the reliability of a person or system, regarding a given set of outcomes or events", De Olalla López (2014) finds that higher levels of generalizable trust increase firm owners' likelihood of contributing to the common good in society, using participation in taxation arbitrage opportunities as the determinant. He argues that firm owners are less inclined to engage in tax-arbitrage behavior when they believe their tax money is being put to proper use, which serves as a benefit to the firm owner. This ties with Portes (1998)'s definition of social capital as the ability of actors to secure benefits through participation in social networks or other social structures.

Further, Putnam (2001) argues that social participation, and in turn, a measure of social capital, can be captured by studying a region's level of social altruism. Chamlin and Cochran (1997) define social altruism as "... the willingness of communities to commit scarce resources to the aid and comfort of their members, distinct from the beneficence of the state". Further, the relationship between altruism and generalized trust is also supported by Glanville et al. (2016), arguing that individuals in high-trust regions are more likely to give money to charitable organizations than others.

Similar to Guiso et al. (2004), we believe there are underlying complications when measuring levels of social capital, as most measurements in prior research are outcome-based and contaminated by other factors. Prior research uses several variables in measuring the level of social capital, where some are more commonly used than others. De Olalla López (2014) and Kanagaretnam et al. (2018) based their measure of social capital on the level of generalized trust measured by World Value Surveys (WVS), a database that explores individuals' values and beliefs, how they change over time, and what social and political impact they may have. Further, crime rates in countries are taken into consideration in De Olalla López (2014). Messner et al. (2004) show a link between the level of trust and crime rate in the respective region. Guiso et al. (2004) use electoral participation and blood donation as measures for social capital, arguing that these measures are free from criticism since there are neither legal nor economic incentives to donate blood or vote. "Both decisions are driven only by social pressure and internal norms, i.e., the fundamental components of social capital" (Guiso et al., 2004). In addition, participation in blood donations has also been positively associated with participation in charitable fundraising activities and used as a measure of altruism (Piliavin & Charng, 1990).

Kanagaretnam et al. (2018) argue that social capital is likely to play an important role in corporate tax avoidance. When addressing tax strategies in companies, the general concept concerns how companies can utilize different strategies to reduce their tax expense. Whether we talk about tax aggressiveness, tax planning, or any other similar term, it is covered by the concept of tax avoidance (Hanlon & Heitzman, 2010). Hanlon and Heitzman (2010) define tax avoidance as strategies

companies use to create a temporary or permanent difference in the book value of tax and reduce explicit taxes.

According to Shackelford and Shevlin (2001), previous literature on the effects of minimizing tax are ambiguous in terms of how it affects organizational goals. However, companies that participate in and practice tax avoidance strategies can generate extensive economic benefits (Lanis & Richardson, 2012). Motivated by profit logic (Christensen & Murphy, 2004), tax avoidance strategies in companies have been increasingly more common (Lanis & Richardson, 2012). Allingham and Sandmo (1972) find that taxpayers are prone to maximizing their utilities, and with increasingly more complex tax rules and difficulties practicing tax enforcement, companies are enabled to participate in tax avoidance (Kanagaretnam et al., 2018).

Despite the possible economic benefits a company can gain from tax avoidance, Lanis and Richardson (2012) point out that this behavior could negatively impact society, as tax payments are one of the most fundamental ways for a company to interact with society (Christensen & Murphy, 2004).

Hanlon and Heitzman (2010) examine theoretical models of corporate tax avoidance and identify 12 empirical tax avoidance measures. However, not all measures are appropriate for all research questions. Proxies such as effective tax rate measures, probability of tax sheltering, and book-tax differences are found in other research papers. Although estimates of tax avoidance do not necessarily reflect the true value of taxes paid due to the unavailability of tax reports, we find that measures of effective tax rate are the most frequent proxy used in the reviewed literature. For example, Hasan et al. (2017) and Chircop et al. (2018) use effective tax rates and cash effective tax rates "to capture consequences of broad tax avoidance practices that reduce the firm's taxes relative to its pre-tax accounting income" (Hasan et al., 2017). Further, Chircop et al. (2018) supplement with discretionary book-tax differences as an alternative proxy of tax avoidance. Hanlon and Heitzman (2010) find evidence that book-tax differences capture some element of tax avoidance. However, their main proxy of tax avoidance is the probability of a firm conducting tax-sheltering activities, based on a model developed by Wilson (2009), predicting the degree to which firms engage in tax sheltering using several values that can be found and calculated based on public information of the firms.

Lastly, in the research conducted by De Olalla López (2014), dividend payouts before and after a taxation reform in 2006 are examined to uncover indications of tax arbitrage behavior to minimize taxes paid on labor.

We aim to extend the current research by examining two concepts of social capital, generalized trust and altruism, and their effect on corporate tax avoidance. Kanagaretnam et al. (2018) argue that corporate tax avoidance is a setting in which social capital is likely to be significant. De Olalla López (2014) studies the effect of generalized trust on tax avoidance by using the tax reform in Norway in 2006. Tax avoidance was measured by reclassifying wages as dividends to minimize a firm's tax expenses. The study shows a moderating effect of trust levels on dividend payouts of Norwegian closely-held firms located in the respective regions when dividends were exempt from taxes. De Olalla López (2014) argues that high levels of trust imply fewer incentives to avoid paying taxes since the taxpayer believes that the government uses tax money efficiently to benefit society as a whole. Besides, incentives for conducting tax avoidance decrease in regions with high levels of social capital due to the risk of reputational loss that can occur if the violation is discovered (De Olalla López, 2014).

In a study conducted by Hasan et al. (2017), using the density of social networks and strength of civic norms in US counties as a proxy of social capital, they find negative and statistically significant relations between the levels of social capital and three tax avoidance measures. The study also finds a negative association between social capital and the probability that a firm undertakes tax-sheltering activities.

Chircop et al. (2018) examine the relationship between the level of social capital in regions where a firm is headquartered and the occurrence of tax avoidance in US counties. The probability of a firm undertaking tax-sheltering activities and a US county social capital index are used as proxies for the level of tax avoidance and social capital in a region, respectively. Similar to Hasan et al. (2017), the study finds robust evidence that firms headquartered in high-social-capital areas engage significantly less in tax avoidance activities.

Contrasting to the studies mentioned above, Kanagaretnam et al. (2018) conducted an international study on the effect of societal trust on tax avoidance. Using a large

sample from 25 countries, evidence of a negative relationship is found. In line with De Olalla López (2014), the study argues that the relationship is negative because the costs of violating social norms increase with the level of trust. Also, the negative relationship is less considerable when there is a high level of legal enforcement and more significant in areas with more substantial capital market pressure. The results imply that high levels of social capital and legal enforcement substitute each other, which is harmonious with Atwood et al. (2012) stating that tax avoidance is lower for firms located in countries with stronger perceived tax enforcement.

To summarize, several studies in the areas of social capital and tax avoidance conclude with similar results. However, we find several gaps this paper possibly can fill to extend the research in the field. Few papers examine the concept and relationship in a small, economic region like Norway, except De Olalla López (2014). In other selected papers mentioned above, they examine the relationship between social capital and tax avoidance in much larger regions, like Hasan et al. (2017) and Chircop et al. (2018), which focuses their study on the US at a county level. Kanagaretnam et al. (2018) include a sample from 25 countries in their study. Besides, the use of proxies between the studies differs tremendously. We find measures regarding effective tax rates and book-tax differences as more generalizable between regions, either between countries or counties. These proxies were not used in De Olalla López (2014)'s study, where reclassification of wages as dividends was used.

Our result contradicts prior research. We argue that the effect of generalized trust and altruism in Norway, where the level is generally high, is relatively insignificant compared to evidence given in prior research. However, we get indications from our results that higher levels of trust and altruism are associated with higher levels of tax avoidance, which may be explained through corporate reputation. In addition, we argue that firms may compensate for tax avoidance by contributing to society through charity contributions. Lastly, we find that corporate structure and performance have a more significant influence on the level of tax avoidance than social capital in a high-level social capital country such as Norway.

This paper is constructed as follows. First, we develop our research question and hypotheses. Secondly, we present the process of data collection and filtering, relevant variables, and descriptive statistics. Thirdly, the main model and robustness tests are presented. Fourth, the main results are discussed. Next to last, the results from the robustness tests are examined to validate our main results. Lastly, the entire research is reviewed in conclusion.

Research question and hypotheses

We want to explore the effect of generalized trust and altruism on corporate tax avoidance, limiting our study to regions within Norway by using data from firms located in different counties in Norway. Hanlon and Heitzman (2010) argue that corporate tax avoidance is one of the most important topics for further tax research within the field of accounting. Prior research has already been conducted on the relationship between social capital and tax avoidance. To our knowledge, there is little research about tax avoidance and components of social capital in Norway, hence why we find it important to explore the topic further. Therefore, our research question is: "How does the level of regional generalized trust and altruism influence corporate tax avoidance in Norway?".

To study this research question, we construct a hypothesis built on our expectation that there is a negative effect of trust and altruism in a region on the respective level of tax avoidance. This expectation is consistent with several papers in the area of study. For example, De Olalla López (2014), Hasan et al. (2017), Chircop et al. (2018), and Kanagaretnam et al. (2018) all show that there is a negative relationship between levels of social capital and tax avoidance in a region. Thus, our main hypothesis is:

H1: The regional level of generalized trust and altruism is negatively correlated to the level of a firm's tax avoidance in the respective region

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To give an answer to this hypothesis, we construct three sub-hypotheses, which are:

H1.1: The regional level of generalized trust and altruism negatively influences a firm's tax-to-book difference located in the respective region.

H1.2: The regional level of generalized trust and altruism positively influences a firm's effective tax rate located in the respective region.

H1.3: The regional level of generalized trust and altruism positively influences a firm's cash effective tax rate located in the respective region.

Data

Data collection

In this thesis, we rely on secondary data sources. The data is considered dependable since it consists of recently collected and relevant variables (Bryman & Bell, 2015). To examine and answer our research question, we have collected data from the Center of Corporate Governance (CCGR), World Value Survey (WVS), Norwegian Centre for Research Data (NSD), and Statistics Norway (SSB). CCGR, provided by BI Business School, is a database with detailed, high-quality accounting information from Norwegian private firms. The data from CCGR is used to construct tax avoidance, social capital, regional, and accounting variables, serving as the basis for our analysis. The respective firm-specific data will further be combined with county-specific data measuring the level of social capital in the county where the firm is reportedly located. Regional data is provided by WVS, SSB, and NSD. As our dataset only contains data from Norwegian private firms, this paper differs from several papers in the field using either data based on US firms or international studies.

The dataset we received from CCGR contained 4 451 774 observations from a total of 568 481 firms. Next, we apply several filters to construct a dataset suitable to answer our research question regarding the effect of regional social capital on corporate tax avoidance.

Data filtering

Our collected data will undergo a filtering process to be able to produce consistent and reliable results. Considering this, we will apply several filters, including filters commonly applied in prior research.

The filtering process consists of:

1. We exclude observations with missing ID and year, including firms with missing reported county
2. We exclude subsidiaries
3. We include only firms with limited liability (AS/ASA)
4. We exclude firms with inconsistent accounting data
5. We exclude non-active firms
6. We exclude financial, utility, public administration, real estate, and international firms
7. We exclude firms listed on Oslo Stock Exchange (Oslo Børs and Oslo Axess)
8. We exclude firms that changed their reported county during the period
9. The population is limited to observations within the years 2001-2017

Observations, where company ID, year, or county are not assigned cannot be included in our sample. Without an assigned company ID and year, we cannot identify which firm and year the respective observations are associated with. The same goes for the county a firm operates in, which is needed to link regional variables provided by NSD, WVS, and SSB to all observations in our sample. Thus, **filter 1** is applied.

The dataset provided by CCGR contains both unconsolidated and consolidated accounting statements. Some groups are included more than once through the groups' parent firm and its subsidiaries, implying that accounting data from the same group may be counted several times if we choose to include both statements. In this paper, we count each business group as a single entity. Similar to Berzins et al. (2008), **filter 2** is employed to avoid bias that may occur due to the influence of parent firms on their subsidiaries.

Filter 3 ensures that our sample only consists of firms with limited liability. Similar filtering is done by Berzins et al. (2008) and De Olalla López (2014). **Filter 4 and 5** consider non-negativity restrictions, consistency restrictions, and activity restrictions presented by Berzins et al. (2008). Applying the non-negativity restrictions, observations are excluded if it has negative accounting statement items such as assets, liabilities, and sales. Also, there must be a clear and reasonable relationship between a sum and its components. This is verified by investigating that assets are equal to liabilities plus equity. Lastly, the observations must have positive sales, assets, and employees since we only include operationally active firms. By excluding non-active firms, we avoid bias caused by reduced accounting variables due to inactive firms. The same considerations are included by De Olalla López (2014) and Chircop et al. (2018).

Applying **filter 6**, similar to Berzins et al. (2008), De Olalla López (2014), and Chircop et al. (2018), firms operating in specific industries are excluded due to their unique capital requirements and accounting rules. Thus, we exclude financial firms, utility & public administration firms, and firms with operations in real estate. Limiting our study to Norwegian counties, we also exclude international firms.

In the provided dataset, only a marginal number of the firms are listed. **Filter 7** is exercised since firms listed on the Oslo Stock Exchange (OSE), consisting of Oslo Børs and Oslo Axess, may have different characteristics than non-listed firms.

Similar to De Olalla López (2014), firms that changed their reported county throughout the period are excluded. When a firm reports in several locations, it becomes unclear which value of trust and county-specific values to assign to the respective firm. Therefore, **filter 8** is applied to control for this issue.

Location data for the firms, such as the reported county, was not available before 2000, and several Norwegian counties merged after 2017. Also, several variables are constructed with year-over-year calculations, generating missing values in 2000. Therefore, **filter 9** is applied.

Lastly, we control for outliers by winsorizing all continuous accounting variables used in our regression models at the 1st and 99th percentile. Similar processing of variables is done by Chircop et al. (2018) and Kanagaretnam et al. (2018) "...to mitigate the effect of extreme outliers".

Applying the filters above, we obtain a dataset consisting of 723 498 observations from a total of 119 853 firms through the period of 2001-2017. Table 1 displays the remaining observations after each filtering process. It is interesting to see the substantial drop of observations in 2017 after employing filter 1, which suggests that most of the observations in 2017 were missing essential identifiers, whether it be ID, year, or reported county.

Table 1: Sample and filters

This table shows the results of applying successive data filters. The initial population is the total number of observations per year provided by CCGR (Initial population). After that, observations with missing ID, year and county identifier (Filter 1), subsidiaries (Filter 2), non-limited liability firms (Filter 3), firms with inconsistent accounting data (Filter 4), non-active firms (Filter 5), financial, utility, public administration, real estate, and international firms (Filter 6), listed firms (Filter 7), firms that switched location during the sampling time (Filter 8), and observations outside the year of 2001 to 2017 (Filter 9), are sequentially removed (Filter 1 to Filter 9)

Year	Initial population	Filter 1	Filter 2	Filter 3	Filter 4	Filter 5	Filter 6	Filter 7	Filter 8	Filter 9
2000	145656	135895	102067	102067	87993	51530	47613	47543	47543	0
2001	149468	129005	90114	90114	77859	42813	39152	39097	34954	34954
2002	153912	122587	83730	83710	73075	41975	38284	38236	36172	36172
2003	155996	153963	106194	106112	93254	52493	48073	48012	36861	36861
2004	158259	156978	107469	107360	94931	52961	46744	46678	42240	42240
2005	182689	174573	110425	110194	97218	53410	47880	47781	41010	41010
2006	208971	198244	121736	116958	99691	49947	44126	44034	40049	40049
2007	222196	217560	131407	131289	111151	51520	46108	46003	38589	38589
2008	233955	230150	133528	133437	113429	51726	45853	45753	40670	40670
2009	238213	235248	133904	133836	114362	52213	46572	46481	41144	41144
2010	242762	239617	136957	136866	116263	53062	47107	47016	41835	41835
2011	248352	244743	139718	139639	117950	53567	47316	47230	42316	42316
2012	261253	256578	149691	149137	124090	55504	48973	48893	42315	42315
2013	274047	269517	161825	161264	131849	57649	50926	50857	44053	44053
2014	286344	281460	170849	169694	136363	59730	52524	52458	45061	45061
2015	299889	290462	176835	176299	139929	65527	57094	57031	45856	45856
2016	316205	305103	189464	189457	147156	67848	58867	58806	50901	50901
2017	330656	100667	51562	49317	39106	16917	14583	13815	11929	11929

Tax avoidance variables

Similar to Hanlon and Heitzman (2010), we define tax avoidance as strategies firms use to create a temporary or permanent difference in book value of tax and a reduction of explicit taxes. Conducting this study in Norway, we acknowledge that we are constrained on our choice of tax avoidance measures, as measures used in prior studies may not be relevant to regions outside of the respective study. Kanagaretnam et al. (2018) found evidence suggesting that firms facing low tax rates are widely viewed as firms that practice aggressive tax planning. Such actions may be viewed as violations of social norms, which is consistent with our definition of tax avoidance. Our literature review identifies three distinct tax avoidance measures that we find suitable for our study: book-tax difference, effective tax rate,

and cash effective tax rate (definitions of all variables used in the analysis can be found in the appendix).

We find it reasonable to assume that book-tax differences (BTD) can provide information about tax avoidance and are suitable to capture the level of tax avoidance in firms. Hanlon and Heitzman (2010) find evidence from the US that book and taxable income are rarely identical. Wilson (2009) finds that significant book-tax differences are more present in firms accused of tax sheltering than other firms. The evidence from similar studies suggests that book-tax differences can capture some elements of tax avoidance (Hanlon & Heitzman, 2010). Using Kim et al. (2011)'s definition, *BTD* is book income less taxable income, divided by total assets. Unfortunately, the taxable income is not provided by CCGR, and we are forced to construct an estimate. We estimate taxable income as tax on income divided by the Norwegian corporate tax rate in the respective year, subtracted by the change in loss carryforwards. A loss carryforward is a tax provision to offset losses from prior years against current profits (Horne, 1963). Since the loss carryforward is not explicitly stated in the CCGR database, we choose to calculate it as the change in deferred tax assets. The Norwegian corporate tax rate was obtained from the Norwegian Tax Administration.

Due to the possible limitations caused by using estimates for calculating book-tax differences, we choose to include two additional widely used measures to capture tax-avoiding activities, effective tax rate (ETR) and cash effective tax rate (CETR) (Hasan et al., 2017). Both measures are computed by dividing an estimate of tax liability on pre-tax income, and they capture the average rate of tax per NOK of income or cash flow (Hanlon & Heitzman, 2010). Consistent with Chen et al. (2010), Hasan et al. (2017), and Guenther et al. (2019), we define *ETR* as tax on income divided by income before tax. *ETR* measures aggressive tax planning through permanent book-tax differences (Chen et al., 2010). In line with Chen et al. (2010) and Hasan et al. (2017), we define *CETR* as cash taxes paid divided by income before tax. Hasan et al. (2017) argue that tax-avoiding practices could be reflected in this measure by reducing the CETR. As the value of cash taxes paid is not stated in our data, we choose to construct an estimate by following a formula presented by Fathom, a management reporting, forecasting, and financial tool used by accountants and advisors, which can be found in the appendix. Cash taxes paid

provides an estimate of how much tax is paid for a given period. Both measures are set as missing if the denominator is non-positive.

Social capital variables

Through previous literature, there have been several attempts to measure and capture social capital. We choose to measure the components of social capital used by several previous studies, such as De Olalla López (2014), Guiso et al. (2004), Pevzner et al. (2015), and Kanagaretnam et al. (2018). They measure trust based on surveys conducted by WVS as a proxy for social capital. De Olalla López (2014) based his measure on a survey question asked in Norway in 1990. The respective survey question was "Regarding trust of other Norwegians, would you say that you generally have (5) high trust in them, (4) have some trust in them, (3) neither trust or distrust them, (2) distrust them, (1) highly distrust them?". The responses were ranked by numerical code and inverted, similarly done in Guiso et al. (2004) and Ostergaard et al. (2016). Using the ranked values, the average score was calculated in each county. For our analysis, we will use the same measure as De Olalla López (2014) to determine the level of generalized trust (WVS 1990). Pevzner et al. (2015) argued that an individual's response to the WVS survey is a good measure of mutual trust between individuals and firms, as corporations are run by individuals. Also, Guiso et al. (2004) argue that the survey captures generalized trust within a country or region between individuals and other members of its population.

As the measure of trust based on WVS is conducted at one point in time, we will supplement it with the crime rate in Norwegian counties from 2001 to 2017 (Crime Rate), similar to De Olalla López (2014). Furthermore, Messner et al. (2004) identified an inverse relationship between the level of trust and crime rate in the respective region, thus making the crime rate a suitable proxy for generalized trust.

Further, charity donations are used to measure the level of altruism in a given county, similar to Chamlin and Cochran (1997) and Ostergaard et al. (2016). Altruism can be an effective measure of social participation, which is one of two general forms of social capital, according to Buonanno et al. (2009). Piliavin and Charng (1990) identify that participation through charity donations could be used as a proxy for altruism. Further, Glanville et al. (2016) argue that regional differences in trust are correlated with individual participation in charity donations.

Data from NRK's TV-Aksjonen is used to calculate mean charity donations in Norwegian counties per capita (Donations). TV-aksjonen is one of the world's largest charitable fundraising events in terms of numbers of volunteers and funds collected by each volunteer, with over 100 000 individuals collecting tin carriers as well as 7 000 administrative volunteers.

To test the robustness of our choice of proxies, we will substitute the proxies mentioned above of social capital with an alternative measure. Together with the European Value Survey (EVS), WVS conducted a new survey in Norway in 2007. Previously used by Kanagaretnam et al. (2018), they measure trust based on the survey question "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?" with the two possible answers being "Most people can be trusted" and "Can't be too careful". This measure (WVS/EVS 2007) is constructed by coding responses to the numerical value of 1 for "Most people can be trusted" and 0 otherwise. Contrasting to *WVS 1990* with values recorded at the county level, the recorded answers in 2007 are assigned to regions in Norway at the NUTS-2 level.

Regional and accounting variables

Regional variables are included to account for differences in characteristics between Norwegian counties. Our choice of regional variables consists of the fraction of adult population defined as people between 17 and 67 years of age (Adult Population), median household income (Median Income), income inequality (Income Inequality), gross value added per adult (GVA per Adult), growth in GVA (GVA Growth), unemployment rate (Unemployment Rate), the fraction of people over 16 with higher education (Higher Education), and poverty rate (Poverty Rate). Our measures of trust and altruism may reflect influences from inequality within the county. As argued by De Olalla López (2014), the level of GVA per adult and unemployment may reflect the degree of inequality. We also include the county's poverty rate, similar to Chircop et al. (2018). The poverty rate is reflected as the fraction of households below the EU's relative poverty line of 60%. The higher GVA per adult, unemployment, or poverty in a county, the more unequal the society is in the respective county. Another aspect of inequality controlled for by Hasan et al. (2017) is income inequality, defined as the mean of household income divided by the median household income. Inhabitants of an unequal county may be inclined

to conduct tax-avoiding activities if they do not believe that their resources are managed and allocated sufficiently. Ignoring these variables may cause inequality to be captured by trust and altruism. Kanagaretnam et al. (2018) found that countries with stronger economic development, measured by gross domestic product (GDP), avoid more taxes. Therefore, we include the growth in GVA to control for regional economic development. De Olalla López (2014) argues that higher educated people understand the importance of contributing to the community. On the other hand, conducting tax-avoiding activities without it becoming illegal requires adequate knowledge of the applicable tax laws and regulations, implying that higher educated people may be inclined to conduct tax-avoiding activities as well. Including the fraction of adults with higher education is in line with De Olalla López (2014), Hasan et al. (2017), and Chircop et al. (2018). Similar to De Olalla López (2014), we choose to include the influence of a county's age distribution since it is argued that risk aversion is associated with age. Lastly, the county's median household income is included in line with Hasan et al. (2017).

In addition to the regional variables, we include several firm-specific accounting variables that might influence our tax avoidance measures to further improve internal validity. Chircop et al. (2018) argued that tax planning could be associated with firm size, as larger firms have more resources to spend on tax-planning activities than smaller firms. Contrarily, Kanagaretnam et al. (2018) found that larger firms tend to avoid less taxes than smaller firms. Due to conflicting findings, we include firm size measured as the natural algorithm firm assets (Firm Size).

Kanagaretnam et al. (2018) argued that growth in sales is associated with higher tax avoidance. A firm with greater growth opportunities will have higher motivation to avoid tax, as the marginal benefits of cash tax savings are greater (Shevlin et al., 2016). Expecting that firm growth will lead to higher tax avoidance, we control for firm growth (Firm Growth) measured as the change in sales, like Chircop et al. (2018). Additionally, Chircop et al. (2018) discussed the relation between firm performance, profitability, and tax avoidance, suggesting that firms with higher social capital tend to perform better while arguing that firm performance is associated with less tax-sheltering. On the other hand, findings from both Hasan et al. (2017) and Kanagaretnam et al. (2018) suggest a positive relation between firm performance and profitability and tax avoidance. With ambiguous findings in

previous literature, we find it suitable to control for firm performance and profitability. To reduce the risk of omitted variable bias, we include operating return on assets (Operating ROA) similar to De Olalla López (2014), and revenue growth (Change in Revenue), and firm liquidity (Liquidity) as in Chircop et al. (2018).

Chircop et al. (2018) found loss carryforward to be positively associated with tax sheltering. To account for any effects this will have on tax avoidance, we include both the occurrence of loss carryforward as a dummy variable (Loss Carryforward), and the change in loss carryforward (Change in Loss Carryforward).

Previous literature also argues that riskier firms are more likely to carry out tax-avoiding activities than less risky firms and that high social capital firms tend to be less risky (Chircop et al., 2018). Thus, associating higher risk with higher tax avoidance and lower social capital. Using De Olalla López (2014)'s definition, we include risk (Risk), defined as the standard deviation of growth in sales. Further, De Olalla López (2014) argues that firm leverage is positively associated with risk. We control for this by including both firm leverage (Leverage Ratio) and industry leverage (Industry Leverage), defined as liabilities-to-assets and the industry mean of liabilities-to-assets, respectively. We also include firm age (Firm Age) as De Olalla López (2014) finds that older firms take on less risk. Hence, we expect younger firms to have a higher likelihood of conducting tax avoidance activities.

Kanagaretnam et al. (2018) find operating and financial accruals to be positively associated with tax avoidance. Thus, we include both operating (Operating Accruals) and financial accruals (Financial Accruals). We are also interested in the effect institutional ownership may have on our dependent variables and include the aggregated fraction of a firm's shares held by institutional owners (Fraction of Institutional Owners), similar to Chircop et al. (2018).

Lastly, we are interested in the effect of property, plant & equipment (Property, Plant & Equipment), intangible assets, and research & development (Research & Development Ratio) as a ratio of assets, similar to Chircop et al. (2018). Evident by a negative correlation between social capital and non-current assets, such as PPE and intangible assets, Chircop et al. (2018) find that high social capital firms engage in less investments than firms with low social capital. They also suggest that

intangible assets and tax avoidance are associated. Thus, we account for property, plant & equipment, intangible assets (Intangible Assets), and research & development (Research & Development Ratio).

Descriptive statistics

In this section, we examine the descriptive statistics of our filtered dataset. The descriptive statistics provide us with an overview of the data used to connect the literature with the actual world.

With necessary filters applied to our data, we obtain a dataset consisting of 723 498 observations from a total of 119 853 firms. Table 2 shows a summary of statistics of our main variables from the period 2001 to 2017. For book-tax difference, we have a mean of -0.027 and a median of -0.002. Such low values suggest that the average difference of bookable and taxable income in Norwegian firms is close to zero. The negative value of *BTD* implies that the taxable income is, on average, larger than the bookable income. *ETR* has a mean of 0.255 and a median of 0.280. The mean effective tax rate is expected, given the corporate tax rate level throughout the period. However, as the maximum value of *ETR* is 1.000 and outliers are considered to affect the median more than the mean, the median is, as expected, higher. Looking at *CETR*, we have a mean of 0.301 and a median of 0.169. Compared to *ETR*, the difference in mean and median of *CETR* is slightly higher than expected.

In addition, we can see that both measures of trust suggest that Norway is a high-trust country. *WVS 1990* has a mean of 4.038 and a median of 3.923, with 5 being the highest score in the WVS 1990 questionnaire. Further, *WVS/EVS 2007* is consistent, with a mean of 0.752 with average scores ranging from 0.680 and 0.796 between counties in Norway. The span in values of donations per capita shows us a big difference between the minimum and maximum values of charity donations to TV-aksjonen with respectively 25.9 and 86.2, with a mean of 39.6, suggesting significant regional differences in altruism. The mean crime rate is 0.08, implying that, on average, there are less than 0.1 incidents reported per capita yearly. However, we identify relatively significant regional differences as the minimum value is 0.038, and the maximum is 0.195.

Table 2: Summary statistics

This table shows the descriptive statistics for the variables used in the analysis over the sample period 2001-2017. Detailed definitions of the variables are provided in the appendix. All firm-specific, continuous variables are winsorized at the 1st and 99th percentiles.

VARIABLES	N	Mean	Std. dev.	Median	Min	Max
Book-Tax Difference	573293	-0.027	0.165	-0.002	-0.970	0.432
Effective Tax Rate	486824	0.255	0.159	0.280	-0.255	1.000
Cash Effective Tax Rate	419268	0.301	0.842	0.169	-1.790	5.891
WVS 1990	675955	4.038	0.084	4.048	3.923	4.333
WVS/EVS 2007	675955	0.752	0.039	0.757	0.680	0.796
Donations	675955	39.665	6.976	39.496	25.935	86.254
Crime Rate	675955	0.081	0.033	0.071	0.038	0.195
Firm Size	675955	14.832	1.481	14.713	8.294	27.434
Firm Growth	573293	0.038	0.303	0.028	-0.918	1.039
Operating ROA	573293	0.123	0.238	0.095	-0.574	0.983
Change in Revenue	573293	0.133	0.727	0.055	-2.130	3.299
Loss Carryforward	675955	0.377	0.485	0.000	0.000	1.000
Change in Loss Carryforward	573293	0.001	0.018	0.000	-0.081	0.087
Liquidity	675737	1.387	1.443	1.058	0.057	10.170
Risk	624045	0.626	0.665	0.422	0.025	4.140
Industry Leverage	675955	0.729	0.086	0.721	0.531	0.894
Leverage Ratio	675955	0.764	0.407	0.740	0.094	2.923
Firm Age	672809	13.164	11.442	10.000	1.000	168.000
Operating Accruals	573293	-0.008	0.200	-0.007	-0.620	0.613
Financial Accruals	573293	0.010	0.213	0.001	-0.636	0.797
Fraction of Institutional Owners	675955	0.047	0.431	0.000	0.000	4.170
Property, Plant & Equipment	675955	0.278	0.250	0.196	0.003	0.936
Intangible Assets	675955	0.027	0.071	0.000	0.000	0.448
Research & Development Ratio	675955	0.006	0.034	0.000	0.000	0.261
Adult Population	675955	0.665	0.021	0.660	0.625	0.718
Median Income	675955	12.897	0.183	12.904	12.557	13.281
Income Inequality	675955	1.311	0.166	1.253	1.097	1.690
GVA per Adult	675955	0.603	0.177	0.554	0.390	1.134
GVA Growth	675955	0.023	0.030	0.000	-0.062	0.112
Unemployment Rate	675955	0.014	0.004	0.014	0.005	0.030
Higher Education	675955	0.211	0.039	0.204	0.138	0.303
Poverty Rate	675955	0.300	0.034	0.302	0.221	0.359

Table 3 shows the mean of tax avoidance measures and firm-specific accounting variables by year. The mean of *BTD* is negative and close to zero during the whole period, indicating that the difference in bookable and taxable income is generally small in our sample of Norwegian firms. Both *ETR* and *CETR* are trending downwards, but *CETR* experienced a lot of fluctuation before 2008. In addition, *BTD* and *ETR* experienced a notable increase and decrease, respectively, between 2004 and 2006. We suggest that this is related to the 2006 Norwegian tax reform, announced in 2004. Table 3 also shows a positive trend in firm liquidity from 2006, arguably a result of the Norwegian tax reform being implemented in 2006, reducing firm owners' incentives to extract capital out of a firm.

Table 4 shows the mean of regional variables on a year-to-year basis. The decrease in crime rate and income inequality can be related to a general economic growth in the county, which is reflected by positive *GVA Growth*, increasing *GVA per Adult*, increased *Median Income*, and increased *Higher Education*. Both *WVS 1990* and *WVS/EVS 2007* are held constant of nature.

It is important to note that several regional variables were not available for specific years. By examining table 4, one may think that variables such as median income, income, and poverty rate were constant between 2001 and 2005, and GVA per adult and GVA growth was constant until 2007. Unfortunately, this is not necessarily the case. Due to missing data, we imputed the missing values using the last observation carried backward (LOCB), which is a common statistical approach when analyzing repeated, longitudinal data. The method is conducted by taking the first observation after the missing value and carrying it backward. Unfortunately, by conducting LOCB, we may introduce bias in our analysis, considering that the true values could have a visible trend.

Table 3: Firm-specific accounting variables, yearly mean

This table shows the means per year of the firm-specific accounting variables used in the analysis. Detailed definitions of the variables are provided in the appendix. All firm-specific, continuous variables are winsorized at the 1st and 99th percentiles.

VARIABLES	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Book-Tax Difference	-0.050	-0.044	-0.040	-0.035	-0.015	-0.014	-0.012	-0.029	-0.022	-0.027	-0.023	-0.019	-0.025	-0.021	-0.027	-0.026	-0.029
Effective Tax Rate	0.294	0.287	0.276	0.275	0.247	0.247	0.250	0.267	0.253	0.257	0.254	0.248	0.253	0.239	0.246	0.222	0.213
Cash Effective Tax Rate	0.328	0.313	0.355	0.263	0.330	0.305	0.233	0.354	0.347	0.302	0.279	0.281	0.301	0.291	0.288	0.280	0.260
Firm Size	14.602	14.624	14.726	14.735	14.745	14.776	14.876	14.880	14.872	14.893	14.931	14.933	14.910	14.893	14.897	14.825	15.208
Firm Growth	0.052	0.007	0.006	0.050	0.049	0.097	0.098	0.030	-0.006	0.027	0.050	0.027	0.026	0.028	0.028	0.041	0.038
Operating ROA	0.121	0.127	0.123	0.156	0.138	0.149	0.166	0.124	0.095	0.097	0.115	0.115	0.110	0.115	0.115	0.113	0.104
Change in Revenue	0.201	0.107	0.058	0.184	0.176	0.233	0.307	0.148	-0.062	0.109	0.167	0.122	0.074	0.106	0.111	0.111	0.107
Loss Carryforward	0.349	0.385	0.403	0.392	0.401	0.395	0.392	0.382	0.372	0.383	0.391	0.395	0.377	0.364	0.349	0.328	0.365
Change in Loss Carryforward	0.003	0.002	0.002	-0.000	0.001	0.000	0.000	0.000	0.000	0.002	0.001	0.001	0.000	0.000	-0.000	-0.000	-0.000
Liquidity	1.043	1.003	1.008	0.964	1.179	1.265	1.350	1.389	1.491	1.508	1.525	1.580	1.604	1.648	1.609	1.657	1.697
Risk	0.623	0.623	0.607	0.618	0.627	0.633	0.629	0.631	0.631	0.631	0.629	0.629	0.630	0.631	0.624	0.620	0.589
Industry Leverage	0.808	0.838	0.839	0.872	0.777	0.758	0.729	0.712	0.693	0.690	0.689	0.675	0.672	0.665	0.667	0.665	0.645
Leverage Ratio	0.826	0.851	0.845	0.875	0.815	0.790	0.758	0.751	0.736	0.734	0.731	0.717	0.716	0.712	0.715	0.722	0.702
Firm Age	10.318	11.057	13.405	12.501	12.963	12.844	13.290	13.019	13.286	13.549	13.754	14.015	13.915	13.871	13.789	13.294	17.114
Operating Accruals	0.012	0.010	-0.006	0.033	-0.091	0.004	-0.047	-0.003	-0.013	0.004	0.004	-0.013	0.006	-0.011	-0.007	-0.003	0.004
Financial Accruals	0.018	0.028	0.024	0.002	0.035	-0.017	0.026	0.000	0.010	0.004	0.001	0.012	-0.004	0.009	0.011	0.004	0.002
Fraction of Institutional Owner:	0.026	0.024	0.022	0.022	0.025	0.205	0.033	0.035	0.005	0.005	0.003	0.086	0.077	0.077	0.076	0.029	0.051
Property, Plant & Equipment	0.306	0.301	0.294	0.282	0.278	0.267	0.265	0.273	0.274	0.274	0.270	0.272	0.277	0.278	0.275	0.280	0.271
Intangible Assets	0.027	0.028	0.027	0.028	0.028	0.028	0.026	0.025	0.025	0.025	0.026	0.027	0.027	0.027	0.025	0.026	0.027
Research & Development Ratic	0.011	0.009	0.007	0.009	0.009	0.009	0.009	0.009	0.008	0.007	0.008	0.007	0.001	0.000	0.000	0.002	0.003

Table 4: Regional county-specific variables, yearly mean

This table shows the means per year of the regional variables mong all counties used in the analysis. Detailed definitions of the variables are provided in the appendix.

VARIABLES	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
WVS 1990	4.054	4.054	4.054	4.054	4.054	4.054	4.054	4.054	4.054	4.054	4.054	4.054	4.054	4.054	4.054	4.054	4.054
WVS/EVS 2007	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750
Donations	29.513	34.749	34.595	33.255	30.685	41.272	47.010	40.663	40.324	42.333	45.493	40.845	46.312	49.634	36.751	45.265	46.482
Crime Rate	0.089	0.088	0.082	0.082	0.079	0.079	0.078	0.075	0.075	0.073	0.069	0.069	0.068	0.066	0.062	0.059	0.055
Adult Population	0.648	0.649	0.651	0.652	0.654	0.656	0.658	0.661	0.663	0.664	0.665	0.665	0.665	0.663	0.662	0.660	0.658
Median Income	12.696	12.696	12.696	12.696	12.696	12.737	12.811	12.880	12.891	12.925	12.974	13.006	13.046	13.075	13.100	13.114	13.138
Income Inequality	1.501	1.501	1.501	1.501	1.501	1.441	1.339	1.248	1.234	1.193	1.137	1.141	1.147	1.155	1.174	1.161	1.162
GVA per Adult	0.525	0.522	0.518	0.514	0.510	0.506	0.501	0.494	0.493	0.512	0.524	0.549	0.571	0.595	0.616	0.632	0.649
GVA Growth	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.049	0.037	0.057	0.052	0.050	0.044	0.034	0.032
Unemployment Rate	0.015	0.018	0.020	0.019	0.016	0.011	0.008	0.011	0.014	0.014	0.013	0.013	0.014	0.014	0.015	0.014	0.012
Higher Education	0.165	0.169	0.173	0.179	0.184	0.188	0.191	0.194	0.198	0.202	0.206	0.210	0.213	0.216	0.219	0.223	0.227
Poverty Rate	0.302	0.302	0.302	0.302	0.302	0.301	0.301	0.300	0.301	0.302	0.301	0.302	0.303	0.303	0.303	0.303	0.303

Finally, a Pearson correlation coefficient matrix is presented in table 5 to explore the level of correlation among the variables. Preferably, any correlation between two variables should be below the threshold of ±0.8 to avoid multicollinearity. The correlations between some county-specific variables exceed the threshold. However, these values are not critical to our research. Most important, the correlation coefficients between the main variables in question are within normal ranges.

Table 5: Pearson correlation coefficient matrix

This table shows the Pearson correlation coefficients for pairs of variables used in the analysis over the sample period 2001-2017. Detailed definitions of the variables are provided in the appendix. All firm-specific, continuous variables are winsorized at at a 5% level.

	Book-Tax Difference	Effective Tax Rate	Cash Effective Tax Rate	WVS 1990	Donations	Crime Rate	Firm Size	Firm Growth	Operating ROA	Change in Revenue	Loss Carryforward	Change in Loss Carryforward	Liquidity	Risk	Industry Leverage	Leverage Ratio
Book-Tax Difference	1.0000															
Effective Tax Rate	-0.6278*	1.0000														
Cash Effective Tax Rate	-0.0906*	0.2474*	1.0000													
WVS 1990	0.0090*	-0.0114*	-0.0188*	1.0000												
Donations	0.0346*	-0.0589*	-0.0224*	0.1651*	1.0000											
Crime Rate	-0.0317*	0.0468*	0.0374*	-0.4833*	-0.3507*	1.0000										
Firm Size	0.1430*	0.0717*	-0.0026	-0.0378*	0.0400*	0.0319*	1.0000									
Firm Growth	0.2959*	-0.0628*	-0.1686*	0.0069*	0.0124*	-0.0096*	0.1876*	1.0000								
Operating ROA	0.4020*	-0.0085*	-0.1653*	-0.0223*	-0.0155*	0.0289*	0.0855*	0.4609*	1.0000							
Change in Revenue	0.1341*	-0.0217*	-0.1419*	0.0025	-0.0064*	0.0065*	0.0791*	0.4984*	0.3511*	1.0000						
Loss Carryforward	0.1309*	0.1224*	0.0320*	-0.0325*	-0.0033*	0.0371*	0.1210*	-0.0026	-0.0007	-0.0080*	1.0000					
Change in Loss Carryforward	0.2799*	-0.1506*	0.1007*	0.0002	-0.0154*	0.0122*	0.0068*	-0.0422*	-0.2359*	-0.0729*	0.1620*	1.0000				
Liquidity	0.1063*	-0.0431*	0.0696*	-0.0065*	0.1024*	-0.0327*	0.0891*	0.0149*	0.0469*	-0.0561*	-0.0187*	-0.0332*	1.0000			
Risk	-0.0778*	-0.0479*	-0.0038*	-0.0256*	-0.0153*	0.0545*	-0.1673*	0.0249*	-0.0040*	0.1224*	-0.0175*	-0.0012	-0.1003*	1.0000		
Industry Leverage	-0.0406*	0.0629*	-0.0111*	0.0179*	-0.4618*	0.1984*	-0.1095*	-0.0020	0.0020	0.0319*	-0.0008	0.0180*	-0.2399*	0.0074*	1.0000	
Leverage Ratio	-0.3666*	-0.1141*	-0.1458*	-0.0070*	-0.0912*	0.0490*	-0.2354*	-0.1197*	-0.2299*	-0.0088*	-0.1084*	0.0104*	-0.4406*	0.2023*	0.2022*	1.0000
Firm Age	0.0463*	-0.0091*	0.0044*	-0.0305*	0.0330*	0.0278*	0.2639*	-0.0448*	-0.0429*	-0.0742*	0.0655*	-0.0212*	0.0759*	-0.1205*	-0.0771*	-0.1344*
Operating Accruals	-0.1933*	0.0619*	-0.0228*	0.0002	0.0060*	0.0037*	-0.0094*	-0.0453*	-0.1649*	0.0231*	-0.0110*	0.0604*	-0.1156*	0.0064*	0.0213*	0.1567*
Financial Accruals	-0.3138*	0.0929*	0.0595*	-0.0020	-0.0237*	0.0124*	-0.0488*	-0.0885*	-0.2307*	-0.1185*	-0.0217*	0.0178*	-0.0422*	0.0217*	0.0224*	0.2444*
Fraction of Institutional Owners	-0.0109*	-0.0111*	-0.0040*	0.0033*	0.0195*	-0.0068*	0.1008*	0.0088*	-0.0249*	0.0076*	0.0211*	0.0099*	0.0136*	-0.0101*	-0.0429*	-0.0126*
Property, Plant & Equipment	-0.0145*	-0.0481*	-0.0724*	0.0525*	0.0028*	-0.0656*	0.1110*	-0.0538*	-0.1739*	-0.0884*	-0.0790*	0.0656*	-0.0911*	-0.1183*	0.0453*	0.0837*
Intangible Assets	0.0389*	0.0100*	-0.0474*	-0.0317*	-0.0125*	0.0527*	-0.0001	-0.0813*	-0.1803*	-0.0522*	0.2972*	0.2354*	-0.0642*	0.0187*	-0.0142*	0.0762*
Research & Development Ratio	-0.0270*	0.0019	-0.0192*	-0.0248*	-0.0498*	0.0690*	0.0819*	-0.0056*	-0.0561*	0.0085*	0.0027*	0.0253*	-0.0347*	-0.0209*	0.0290*	0.0291*
Adult Population	-0.0097*	-0.0040*	0.0301*	-0.3969*	-0.0083*	0.7246*	0.0803*	-0.0137*	0.0081*	-0.0101*	0.0390*	-0.0047*	0.0697*	0.0557*	-0.2340*	-0.0274*
Median Income	0.0206*	-0.0694*	-0.0120*	0.1811*	0.5760*	-0.5356*	0.0419*	-0.0151*	-0.0327*	-0.0310*	-0.0191*	-0.0212*	0.1430*	-0.0018	-0.6420*	-0.1138*
Income Inequality	-0.0306*	0.0722*	0.0211*	-0.1897*	-0.6204*	0.5790*	-0.0323*	0.0155*	0.0512*	0.0339*	0.0288*	0.0178*	-0.1410*	0.0149*	0.6822*	0.1205*
GVA per Adult	-0.0192*	0.0034*	0.0275*	-0.4123*	-0.0174*	0.6415*	0.0827*	-0.0081*	0.0186*	-0.0032*	0.0413*	-0.0024	0.0507*	0.0443*	-0.1262*	-0.0147*
GVA Growth	0.0149*	-0.0431*	-0.0107*	0.0275*	0.3155*	-0.1481*	0.0430*	-0.0125*	-0.0313*	-0.0192*	-0.0064*	-0.0074*	0.1106*	0.0045*	-0.4725*	-0.0841*
Unemployment Rate	-0.0357*	0.0282*	0.0198*	-0.1556*	-0.4278*	0.5123*	-0.0088*	-0.0481*	-0.0173*	-0.0420*	0.0074*	0.0118*	-0.0476*	0.0173*	0.2866*	0.0588*
Higher Education	-0.0054*	-0.0238*	0.0275*	-0.3416*	0.1269*	0.5505*	0.0857*	-0.0127*	0.0075*	-0.0127*	0.0360*	-0.0126*	0.1010*	0.0562*	-0.3607*	-0.0512*
Poverty Rate	-0.0052*	-0.0095*	0.0001	-0.3424*	-0.1796*	0.5212*	0.0163*	-0.0050*	-0.0176*	-0.0021	-0.0095*	0.0009	-0.0017	0.0055*	0.0018	0.0130*

	Firm Age	Operating Accruals	Financial Accruals	Fraction of Institutional Owners	Property, Plant & Equipment	Intangible Assets	Research & Development Ratio	Adult Population	Median Income	Income Inequality	GVA per Adult	GVA Growth	Unemployment Rate	Higher Education	Poverty Rate
Firm Age	1.0000														
Operating Accruals	-0.0046*	1.0000													
Financial Accruals	-0.0092*	-0.5502*	1.0000												
Fraction of Institutional Owners	0.0192*	0.0077*	-0.0042*	1.0000											
Property, Plant & Equipment	-0.0023	0.0140*	0.0363*	0.0148*	1.0000										
Intangible Assets	-0.0467*	0.0312*	0.0034*	0.0676*	0.2085*	1.0000									
Research & Development Ratio	-0.0696*	0.0144*	-0.0027*	0.0406*	0.1381*	0.6051*	1.0000								
Adult Population	0.0722*	0.0003	-0.0036*	0.0082*	-0.0873*	0.0543*	0.0206*	1.0000							
Median Income	0.0422*	0.0115*	-0.0200*	0.0048*	-0.0104*	-0.0194*	-0.0885*	-0.0397*	1.0000						
Income Inequality	-0.0349*	-0.0129*	0.0258*	0.0013	-0.0067*	0.0307*	0.0796*	0.0940*	-0.8789*	1.0000					
GVA per Adult	0.0711*	0.0052*	0.0022	0.0155*	-0.0738*	0.0581*	0.0119*	0.8152*	0.0055*	0.2255*	1.0000				
GVA Growth	0.0461*	0.0148*	-0.0169*	0.0112*	-0.0146*	-0.0011	-0.0531*	0.2308*	0.5511*	-0.5944*	0.1653*	1.0000			
Unemployment Rate	0.0046*	0.0201*	0.0158*	-0.0242*	-0.0019	0.0285*	0.0146*	0.3282*	-0.3628*	0.4382*	0.3472*	-0.1528*	1.0000		
Higher Education	0.0905*	-0.0007	-0.0066*	0.0128*	-0.0920*	0.0533*	-0.0022	0.8743*	0.2574*	-0.0755*	0.8515*	0.3242*	0.1901*	1.0000	
Poverty Rate	0.0240*	0.0034*	-0.0009	0.0088*	-0.0102*	0.0229*	0.0189*	0.4720*	-0.4698*	0.2311*	0.3099*	0.0404*	0.3992*	0.2276*	1.0000

Methodology

Main model

To test our hypothesis, we will use the following regression model:

$$TA_{it} = \beta_0 + \beta_1 SC_{it} + \overrightarrow{\beta_k} * \overrightarrow{Controls_{it}} + (u_i + \varepsilon_{it})$$

where:

TA_{it} is proxies for tax avoidance $\begin{cases} BTD_{it} = \text{Book-tax-difference} \\ ETR_{it} = \text{Effective tax rate} \\ CETR_{it} = \text{Cash effective tax rate} \end{cases}$

SC_{it} is proxies for social capital $\begin{cases} \text{WVS 1990}_i = \text{Trust measured by WVS in 1990} \\ \text{Crime rate}_{it} = \text{Crime rate} \\ \text{Donations}_{it} = \text{Charity donation per capita} \end{cases}$

Controls_{it} = Vector of control variables
u_i = Unobserved firm effects
ε_{it} = Error term

The Hausman test is conducted to indicate whether the fixed effects or random effects model is more appropriate. Rejecting the null hypothesis will indicate that the fixed effect model is more appropriate than the random effect model. Given the results from conducting the Hausman test, we should employ the fixed effects model. However, the fixed effects model will not consider time-invariant variables and will omit our proxy for trust and several essential regional variables. Therefore, we are forced to use the random effects model as we argue that the constant variables are essential for our model. In addition, a Breusch-Pagan Lagrange multiplier (LM) test is conducted to see if the random effect model is more appropriate than a pooled OLS model. For all our models, the null hypothesis is rejected at a 1% significance level, indicating that the random effect model is more appropriate. Although not emphasized, the pooled OLS model is still included in our results for robustness.

As discussed earlier, we identified three distinct tax avoidance measures that we found suitable for our study. Therefore, the dependent variables in our model are book-tax difference (BTD), effective tax rate (ETR), and cash effective tax rate (CETR). To explain these dependent variables, we include measures of trust and altruism as our explanatory variables, similar to De Olalla López (2014). Since WVS 1990 is a static measure of trust, we supplement WVS 1990 with the county crime rate. Charity donations (Donations) are used as a measure to measure the level of altruism in a given county, similar to Ostergaard et al. (2016) and Chamlin and Cochran (1997).

Control variables related to our variables in question are included to ensure we obtain as accurate results as possible. To limit the influence other variables may have on the relationship between the dependent variables and the explanatory variables, we include both the identified regional and firm-specific accounting variables. Including these control variables will increase the validity and accuracy of our results.

In corporate finance research, there is regularly an issue with endogeneity in the accounting variables. To deal with this, we include a reasonable amount of relevant control variables to mitigate the degree of omitted variable bias and measurement error. All performance variables are calculated with lagged accounting values to avoid simultaneity since variables such as ROA depend on the closing balance of assets from the prior year. Unfortunately, we cannot guarantee that the problem is eliminated. For instance, there can be some unobservable variables that are not possible to include in the model, such as the influence of market trends on accounting variables throughout the period of examination. In addition, the relationship between corporate tax avoidance and social capital could be influenced by decision-makers in the firm, such as firm executives, and their individual perception of societal norms, which is challenging to observe. Using panel regression, the issue of unobservable but stable differences in firm characteristics can be addressed to some degree. However, we understand that there is little we can do to mitigate the problem of endogeneity.

Regarding the issue of heteroscedasticity, we use the Modified Wald statistic test, which shows indications of heteroscedasticity in our sample. We run all models with robust standard errors to retrieve reliable and consistent standard errors to deal with heteroscedasticity.

Robustness tests

We choose to challenge the robustness of our main model by supplementing with additional implementations. De Olalla López (2014) identify that there was a tax arbitrage opportunity in relation to the 2006 Norwegian tax reform, which mainly affected small private firms. To capture any effects this may have, we conduct additional regressions where the model takes into account both the time of the 2006 Norwegian tax reform and the size of the firms. We divide our regression by

observations before and after the tax reform. The size of firms is split by small firms, defined as firms with three or fewer employees.

Additionally, we conduct a robustness test to validate our choice of proxies for social capital. The European Value Survey (EVS) and World Value Survey (WVS) collectively conducted in 2007 a similar survey as in 1900. We substitute our explanatory variables with the measure of trust based on the survey question "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?" with the two possible answers being "Most people can be trusted" and "Can't be too careful". This measure (WVS/EVS 2007) is constructed by coding responses to the numerical value of 1 for "Most people can be trusted" and 0 otherwise. The 2007 survey was reported at the NUTS-2 level, a higher level than our main social capital proxies, measured at the county level. The overall model used to test robustness is otherwise identical:

$$TA_{it} = \beta_0 + \beta_1 \text{WVS/EVS } 2007_i + \overrightarrow{\beta_k} * \overrightarrow{Controls_{it}} + (u_i + \varepsilon_{it})$$

where:

TA_{it} is proxies for tax avoidance $\begin{cases} BTD_{it} = \text{Book-tax-difference} \\ ETR_{it} = \text{Effective tax rate} \\ CETR_{it} = \text{Cash effective tax rate} \end{cases}$

$\text{WVS/EVS } 2007_i$ is trust measured by WVS/EVS in 2007

Controls_{it} = Vector of control variables

u_i = Unobserved firm effects

ε_{it} = Error term

Results and discussion

Main results

Table 6 shows us the effect of *WVS 1990* on *BTD*, *ETR*, and *CETR*, in addition to all the control variables. Column 1, 2 and 3 shows the pooled OLS regression, while 4, 5 and 6 show us the random effects model. The results are generally consistent and do not change between using pooled OLS or random effect models. For our results, we will focus on the random effects model if not stated otherwise. Trust measured through *WVS 1990* has no significant effect on *BTD* and *ETR*, while its effect on *CETR* is negative and significant. The coefficient on *CETR* is -0.0847 at the 1% significance level, suggesting that firms located in a county with a higher level of trust have a lower cash effective tax rate than firms located in a county with a lower level of trust. The significant negative coefficient of *WVS 1990* on *CETR* contradicts hypothesis *H1.3*, as this indicates that the regional level of trust has a negative influence on a firm's cash effective tax rate, increasing tax avoidance. A possible explanation could be that areas with higher trust provide less incentives for business owners to build reputation and engagement with surrounding society.

Table 6: The effect of trust on BTD, ETR, and CETR

This table shows the results of regressing *book-tax difference* (BTD), *effective tax rate* (ETR), and *cash effective tax rate* (CETR) on *trust WVS 1990* , a set of firm-specific control variables, and a set of county-specific control variables over the sample period 2001-2017. Detailed definitions of the variables are provided in the appendix. All firm-specific, continuous variables are winsorized at the 1st and 99th percentiles. All values with an asterisk are significant at a 5% level. Columns (1), (2), and (3) are estimated with pooled OLS and cluster robust standard errors. Columns (4), (5), and (6) are estimated with random effects and cluster robust standard errors. The standard errors are reported in parentheses. (*** p<0.01, ** p<0.05, * p<0.1).

	(1)	(2)	(3)	(4)	(5)	(6)
	Pooled OLS			Random effects model		
VARIABLES	WVS 1990 on BTD	WVS 1990 on ETR	WVS 1990 on CETR	WVS 1990 on BTD	WVS 1990 on ETR	WVS 1990 on CETR
WVS 1990	0.00244	0.00294	-0.0615***	0.00306	-0.00376	-0.0847***
	(0.00209)	(0.00340)	(0.0187)	(0.00308)	(0.00517)	(0.0212)
Firm Size	0.00326***	0.00770***	-0.0129***	0.00472***	0.0114***	-0.0128***
	(0.000138)	(0.000213)	(0.00100)	(0.000231)	(0.000336)	(0.00118)
Firm Growth	0.0787***	-0.0773***	-0.327***	0.0699***	-0.0662***	-0.291***
	(0.00117)	(0.00128)	(0.00676)	(0.00132)	(0.00133)	(0.00698)
Operating ROA	0.167***	0.0677***	-0.427***	0.201***	0.0403***	-0.552***
	(0.00193)	(0.00151)	(0.00747)	(0.00274)	(0.00190)	(0.00872)
Change in Revenue	-0.00753***	0.00345***	-0.0704***	-0.00814***	0.00251***	-0.0705***
	(0.000363)	(0.000427)	(0.00229)	(0.000372)	(0.000416)	(0.00237)
Loss Carryforward	0.00998***	0.0258***	0.0437***	0.0121***	0.0198***	0.0400***
	(0.000310)	(0.000499)	(0.00286)	(0.000424)	(0.000661)	(0.00312)
Change in Loss Carryforward	3.241***	-1.893***	5.061***	3.292***	-1.872***	4.724***
	(0.0142)	(0.0227)	(0.0871)	(0.0159)	(0.0249)	(0.0929)
Liquidity	-0.00177***	-0.0102***	-0.00342***	-0.000819***	-0.00983***	-0.00417***
	(0.000159)	(0.000234)	(0.00128)	(0.000210)	(0.000294)	(0.00143)
Risk	-0.00719***	-0.00349***	0.0783***	-0.00722***	-0.00279***	0.0820***
	(0.000354)	(0.000439)	(0.00254)	(0.000476)	(0.000602)	(0.00279)
Industry Leverage	0.0630***	0.0516***	-0.273***	0.0538***	0.0556***	-0.260***
	(0.00356)	(0.00499)	(0.0254)	(0.00511)	(0.00727)	(0.0287)
Leverage Ratio	-0.0482***	-0.101***	-0.427***	-0.0562***	-0.103***	-0.426***
	(0.00111)	(0.00117)	(0.00537)	(0.00136)	(0.00143)	(0.00625)
Firm Age	0.000471***	-0.000633***	-0.00220***	0.000508***	-0.000965***	-0.00270***
	(1.37e-05)	(2.27e-05)	(0.000121)	(2.28e-05)	(3.72e-05)	(0.000146)
Operating Accruals	-0.322***	0.218***	0.173***	-0.300***	0.183***	0.121***
	(0.00239)	(0.00203)	(0.00915)	(0.00257)	(0.00223)	(0.00976)
Financial Accruals	-0.339***	0.232***	0.339***	-0.313***	0.194***	0.280***
	(0.00243)	(0.00208)	(0.00910)	(0.00261)	(0.00228)	(0.00981)
Fraction of Institutional Owners	-0.00578***	-0.00604***	-0.00518*	-0.00397***	-0.00171**	-0.00202
	(0.000460)	(0.000654)	(0.00303)	(0.000501)	(0.000692)	(0.00323)
Property, Plant & Equipment	0.0195***	-0.0220***	-0.235***	0.0230***	-0.0344***	-0.239***
	(0.000703)	(0.00117)	(0.00617)	(0.00109)	(0.00166)	(0.00721)
Intangible Assets	0.109***	-0.0295***	-0.824***	0.145***	0.0364***	-0.817***
	(0.00482)	(0.00961)	(0.0387)	(0.00617)	(0.0114)	(0.0428)
Research & Development Ratio	-0.212***	0.00933	0.542***	-0.202***	-0.0135	0.492***
	(0.00876)	(0.0161)	(0.0677)	(0.0102)	(0.0181)	(0.0726)
Adult Population	-0.0264	-0.0285	0.980***	0.0388	0.0584	1.014***
	(0.0272)	(0.0419)	(0.231)	(0.0393)	(0.0608)	(0.258)
Median Income	0.173***	-0.211***	-0.492**	0.180***	-0.124**	-0.441*
	(0.0243)	(0.0382)	(0.215)	(0.0307)	(0.0492)	(0.231)
Income Inequality	-0.0473***	-0.0109	0.0519	-0.0204	-0.0181	0.00645
	(0.0107)	(0.0156)	(0.0845)	(0.0129)	(0.0195)	(0.0894)
GVA per Adult	-0.00620**	0.00701*	-0.0467**	-0.0151***	0.00184	-0.0321
	(0.00262)	(0.00400)	(0.0217)	(0.00380)	(0.00590)	(0.0244)
GVA Growth	0.00361	-0.00935	-0.104	0.00464	-0.00568	-0.0573
	(0.00866)	(0.0135)	(0.0751)	(0.00837)	(0.0125)	(0.0749)
Unemployment Rate	0.315***	-0.297**	-0.992	0.316***	-0.373***	-0.765
	(0.0756)	(0.118)	(0.647)	(0.0887)	(0.135)	(0.681)
Higher Education	-0.0275*	0.0529**	0.634***	-0.0869***	0.0662**	0.705***
	(0.0146)	(0.0210)	(0.116)	(0.0224)	(0.0324)	(0.132)
Poverty Rate	0.503***	-0.540***	-1.611***	0.502***	-0.339***	-1.524***
	(0.0592)	(0.0938)	(0.527)	(0.0741)	(0.120)	(0.566)
Constant	-2.401***	3.082***	7.438**	-2.580***	1.854***	6.895**
	(0.329)	(0.518)	(2.915)	(0.419)	(0.670)	(3.133)
Observations	554,731	408,239	408,239	554,731	408,239	408,239
R-squared	0.502	0.129	0.087			
Time effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm specific effects	No	No	No	Yes	Yes	Yes
Number of ID	78,382	73,702	73,702	78,382	73,702	73,702

Using our second measure for trust, table 7 shows us the results of *Crime Rate* on *BTD*, *ETR*, and *CETR*, in addition to the control variables. The results suggest that the crime rate has a significant effect on both *BTD* and *CETR*. The coefficient on *BTD* is -0.0943 and significant at the 1% level, indicating that firms located in counties with higher crime rates have less differences between book income and taxable income. The coefficient on *CETR* is 1.098 at the 1% significance level, suggesting that companies located in counties with higher crime rates have higher cash effective tax rates than firms located in counties with lower crime rates. Comparing the negative and significant effect of trust and crime on *CETR*, we see an inverse relationship between trust and crime, in line with Messner et al. (2004) that showed a link between the level of trust and crime rate in the respective region. Similar to the effect of *WVS 1990* in table 6, the effect of *crime rate* on *CETR* contradicts *H1.3*, indicating a significant positive relationship between crime rate and tax avoidance, thus implying a negative influence of trust on CETR.

Table 7: The effect of crime on BTD, ETR, and CETR

This table shows the results of regressing *book-tax difference* (BTD), *effective tax rate* (ETR), and *cash effective tax rate* (CETR) on *trust* (proxied by the variable *Crime Rate,* which is negatively related to trust), a set of firm-specific control variables, and a set of county-specific control variables over the sample period 2001-2017. Detailed definitions of the variables are provided in the appendix. All firm-specific, continuous variables are winsorized at the 1st and 99th percentiles. All values with an asterisk are significant at a 5% level. Columns (1), (2), and (3) are estimated with pooled OLS and cluster robust standard errors. Columns (4), (5), and (6) are estimated with random effects and cluster robust standard errors. The standard errors are reported in parentheses. (*** p<0.01, ** p<0.05, * p<0.1).

	(1)	(2)	(3)	(4)	(5)	(6)
	Pooled OLS			Random effects model		
VARIABLES	Crime rate on BTD	Crime rate on ETR	Crime rate on CETR	Crime rate on BTD	Crime rate on ETR	Crime rate on CETR
Crime Rate	-0.0942***	0.0479**	1.052***	-0.0943***	0.0397	1.098***
	(0.0129)	(0.0196)	(0.106)	(0.0180)	(0.0270)	(0.117)
Firm Size	0.00327***	0.00769***	-0.0130***	0.00473***	0.0113***	-0.0129***
	(0.000138)	(0.000213)	(0.00100)	(0.000231)	(0.000336)	(0.00118)
Firm Growth	0.0787***	-0.0772***	-0.326***	0.0699***	-0.0662***	-0.291***
	(0.00117)	(0.00128)	(0.00676)	(0.00132)	(0.00133)	(0.00698)
Operating ROA	0.167***	0.0675***	-0.429***	0.201***	0.0403***	-0.553***
	(0.00193)	(0.00151)	(0.00748)	(0.00274)	(0.00190)	(0.00872)
Change in Revenue	-0.00753***	0.00346***	-0.0704***	-0.00814***	0.00251***	-0.0705***
	(0.000363)	(0.000427)	(0.00229)	(0.000372)	(0.000416)	(0.00237)
Loss Carryforward	0.00997***	0.0258***	0.0439***	0.0121***	0.0198***	0.0402***
	(0.000310)	(0.000499)	(0.00286)	(0.000424)	(0.000660)	(0.00312)
Change in Loss Carryforward	3.242***	-1.893***	5.057***	3.293***	-1.872***	4.721***
	(0.0142)	(0.0227)	(0.0872)	(0.0159)	(0.0249)	(0.0929)
Liquidity	-0.00177***	-0.0102***	-0.00335***	-0.000821***	-0.00983***	-0.00411***
	(0.000158)	(0.000234)	(0.00127)	(0.000210)	(0.000294)	(0.00143)
Risk	-0.00716***	-0.00351***	0.0780***	-0.00718***	-0.00280***	0.0817***
	(0.000354)	(0.000439)	(0.00254)	(0.000476)	(0.000603)	(0.00279)
Industry Leverage	0.0629***	0.0518***	-0.274***	0.0540***	0.0554***	-0.262***
	(0.00356)	(0.00498)	(0.0254)	(0.00510)	(0.00727)	(0.0287)
Leverage Ratio	-0.0481***	-0.101***	-0.427***	-0.0562***	-0.103***	-0.427***
	(0.00111)	(0.00117)	(0.00537)	(0.00136)	(0.00143)	(0.00625)
Firm Age	0.000471***	-0.000633***	-0.00221***	0.000507***	-0.000965***	-0.00270***
	(1.36e-05)	(2.27e-05)	(0.000121)	(2.28e-05)	(3.72e-05)	(0.000145)
Operating Accruals	-0.322***	0.218***	0.172***	-0.300***	0.183***	0.121***
	(0.00239)	(0.00203)	(0.00915)	(0.00257)	(0.00223)	(0.00976)
Financial Accruals	-0.338***	0.231***	0.338***	-0.313***	0.194***	0.280***
	(0.00243)	(0.00208)	(0.00910)	(0.00261)	(0.00228)	(0.00981)
Fraction of Institutional Owners	-0.00582***	-0.00601***	-0.00474	-0.00400***	-0.00170**	-0.00165
	(0.000460)	(0.000654)	(0.00303)	(0.000501)	(0.000692)	(0.00323)
Property, Plant & Equipment	0.0194***	-0.0220***	-0.235***	0.0230***	-0.0344***	-0.239***
	(0.000703)	(0.00117)	(0.00617)	(0.00109)	(0.00166)	(0.00721)
Intangible Assets	0.109***	-0.0292***	-0.820***	0.145***	0.0365***	-0.812***
	(0.00482)	(0.00961)	(0.0387)	(0.00617)	(0.0114)	(0.0428)
Research & Development Ratio	-0.211***	0.00867	0.532***	-0.201***	-0.0138	0.483***
	(0.00876)	(0.0161)	(0.0677)	(0.0102)	(0.0181)	(0.0726)
Adult Population	-0.00817	-0.0291	0.699***	0.0350	0.0579	0.782***
	(0.0268)	(0.0415)	(0.229)	(0.0385)	(0.0601)	(0.255)
Median Income	0.135***	-0.176***	-0.196	0.136***	-0.110**	-0.125
	(0.0232)	(0.0373)	(0.210)	(0.0304)	(0.0488)	(0.227)
Income Inequality	-0.0364***	-0.0197	-0.0452	-0.0141	-0.0200	-0.0782
	(0.0106)	(0.0156)	(0.0842)	(0.0129)	(0.0195)	(0.0892)
GVA per Adult	-0.00890***	0.00813**	-0.0148	-0.0168***	0.00276	9.41e-05
	(0.00264)	(0.00403)	(0.0219)	(0.00381)	(0.00590)	(0.0245)
GVA Growth	0.00655	-0.00895	-0.155**	0.00915	-0.00806	-0.126*
	(0.00858)	(0.0134)	(0.0748)	(0.00836)	(0.0125)	(0.0747)
Unemployment Rate	0.475***	-0.347***	-3.022***	0.408***	-0.418***	-2.573***
	(0.0759)	(0.120)	(0.656)	(0.0894)	(0.136)	(0.689)
Higher Education	0.0132	0.0302	0.206*	-0.0320	0.0439	0.216
	(0.0153)	(0.0223)	(0.123)	(0.0237)	(0.0345)	(0.141)
Poverty Rate	0.421***	-0.462***	-0.990*	0.414***	-0.311***	-0.878
	(0.0567)	(0.0914)	(0.514)	(0.0731)	(0.119)	(0.556)
Constant	-1.914***	2.643***	3.560	-1.988***	1.651**	2.604
	(0.317)	(0.508)	(2.863)	(0.415)	(0.668)	(3.098)
Observations	554,731	408,239	408,239	554,731	408,239	408,239
R-squared	0.502	0.129	0.087			
Time effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm specific effects	No	No	No	Yes	Yes	Yes
Number of ID	78,382	73,702	73,702	78,382	73,702	73,702

Lastly, table 8 shows us the result of *Donations* on *BTD*, *ETR*, and *CETR*, including control variables. The results show a negative and significant effect at a 1% level of donations on *CETR*. The coefficient on *Donations* is -0.00115, suggesting that firms located in counties with a higher value of donations per capita carry out more tax-avoiding activities measured by the cash effective tax rate. Similar to the effect of trust, this might be explained through how firms interact with surrounding society. However, we also find it noteworthy that donations could also provide greater opportunities for tax avoidance due to tax deductions.

Table 8: The effect of donations on BTD, ETR, and CETR

This table shows the results of regressing *book-tax difference* (BTD), *effective tax rate* (ETR), and *cash effective tax rate* (CETR) on *altruism* (proxied by the variable *Donations*), a set of firm-specific control variables, and a set of county-specific control variables over the sample period 2001-2017. Detailed definitions of the variables are provided in the appendix. All firm-specific, continuous variables are winsorized at the 1st and 99th percentiles. All values with an asterisk are significant at a 5% level. Columns (1), (2), and (3) are estimated with pooled OLS and cluster robust standard errors. Columns (4), (5), and (6) are estimated with random effects and cluster robust standard errors. The standard errors are reported in parentheses. (*** p<0.01, ** p<0.05, * p<0.1).

	(1)	(2)	(3)	(4)	(5)	(6)
		Pooled OLS			Random effects model	
VARIABLES	Donations on BTD	Donations on ETR	Donations on CETR	Donations on BTD	Donations on ETR	Donations on CETR
Donations	6.22e-05	-0.000107*	-0.00139***	-1.60e-06	-4.81e-05	-0.00115***
	(4.09e-05)	(6.09e-05)	(0.000344)	(4.54e-05)	(6.68e-05)	(0.000360)
Firm Size	0.00326***	0.00769***	-0.0129***	0.00472***	0.0114***	-0.0128***
	(0.000138)	(0.000213)	(0.00100)	(0.000231)	(0.000336)	(0.00118)
Firm Growth	0.0787***	-0.0773***	-0.327***	0.0699***	-0.0662***	-0.291***
	(0.00117)	(0.00128)	(0.00676)	(0.00132)	(0.00133)	(0.00698)
Operating ROA	0.167***	0.0676***	-0.427***	0.201***	0.0404***	-0.551***
	(0.00193)	(0.00151)	(0.00747)	(0.00274)	(0.00190)	(0.00871)
Change in Revenue	-0.00753***	0.00346***	-0.0704***	-0.00814***	0.00251***	-0.0706***
	(0.000363)	(0.000427)	(0.00229)	(0.000372)	(0.000416)	(0.00237)
Loss Carryforward	0.00997***	0.0258***	0.0440***	0.0121***	0.0198***	0.0403***
	(0.000310)	(0.000499)	(0.00286)	(0.000424)	(0.000660)	(0.00312)
Change in Loss Carryforward	3.241***	-1.893***	5.059***	3.292***	-1.872***	4.722***
	(0.0142)	(0.0227)	(0.0872)	(0.0159)	(0.0249)	(0.0930)
Liquidity	-0.00177***	-0.0102***	-0.00341***	-0.000819***	-0.00983***	-0.00416***
	(0.000159)	(0.000234)	(0.00128)	(0.000210)	(0.000294)	(0.00143)
Risk	-0.00719***	-0.00350***	0.0783***	-0.00722***	-0.00279***	0.0820***
	(0.000354)	(0.000439)	(0.00254)	(0.000476)	(0.000602)	(0.00279)
Industry Leverage	0.0629***	0.0519***	-0.272***	0.0539***	0.0556***	-0.260***
	(0.00356)	(0.00499)	(0.0254)	(0.00510)	(0.00727)	(0.0287)
Leverage Ratio	-0.0482***	-0.101***	-0.427***	-0.0562***	-0.103***	-0.426***
	(0.00111)	(0.00118)	(0.00537)	(0.00136)	(0.00143)	(0.00625)
Firm Age	0.000471***	-0.000633***	-0.00220***	0.000508***	-0.000965***	-0.00270***
	(1.37e-05)	(2.27e-05)	(0.000121)	(2.28e-05)	(3.72e-05)	(0.000146)
Operating Accruals	-0.322***	0.218***	0.173***	-0.300***	0.183***	0.121***
	(0.00239)	(0.00203)	(0.00915)	(0.00257)	(0.00223)	(0.00976)
Financial Accruals	-0.339***	0.231***	0.339***	-0.313***	0.194***	0.280***
	(0.00243)	(0.00208)	(0.00910)	(0.00261)	(0.00228)	(0.00981)
Fraction of Institutional Owners	-0.00578***	-0.00604***	-0.00530*	-0.00397***	-0.00171**	-0.00216
	(0.000460)	(0.000654)	(0.00303)	(0.000501)	(0.000692)	(0.00323)
Property, Plant & Equipment	0.0194***	-0.0219***	-0.235***	0.0230***	-0.0344***	-0.239***
	(0.000703)	(0.00117)	(0.00617)	(0.00109)	(0.00166)	(0.00721)
Intangible Assets	0.109***	-0.0295***	-0.825***	0.145***	0.0363***	-0.818***
	(0.00482)	(0.00961)	(0.0387)	(0.00617)	(0.0114)	(0.0428)
Research & Development Ratio	-0.212***	0.00931	0.545***	-0.202***	-0.0134	0.496***
	(0.00876)	(0.0161)	(0.0677)	(0.0102)	(0.0181)	(0.0726)
Adult Population	-0.0191	-0.0259	0.802***	0.0422	0.0523	0.820***
	(0.0266)	(0.0413)	(0.228)	(0.0387)	(0.0603)	(0.255)
Median Income	0.176***	-0.191***	-0.597***	0.186***	-0.130***	-0.619***
	(0.0230)	(0.0365)	(0.206)	(0.0296)	(0.0476)	(0.222)
Income Inequality	-0.0486***	-0.0140	0.0875	-0.0212*	-0.0163	0.0544
	(0.0105)	(0.0154)	(0.0831)	(0.0129)	(0.0194)	(0.0883)
GVA per Adult	-0.00744***	0.00869**	-0.0190	-0.0154***	0.00267	-0.00830
	(0.00274)	(0.00414)	(0.0225)	(0.00387)	(0.00595)	(0.0250)
GVA Growth	0.00563	-0.00932	-0.151**	0.00519	-0.00692	-0.100
	(0.00859)	(0.0134)	(0.0748)	(0.00836)	(0.0125)	(0.0747)
Unemployment Rate	0.335***	-0.278**	-1.485**	0.325***	-0.388***	-1.284*
	(0.0735)	(0.116)	(0.635)	(0.0879)	(0.134)	(0.671)
Higher Education	-0.0252*	0.0448**	0.586***	-0.0885***	0.0653**	0.684***
	(0.0147)	(0.0213)	(0.118)	(0.0225)	(0.0326)	(0.134)
Poverty Rate	0.511***	-0.494***	-1.868***	0.514***	-0.353***	-1.945***
	(0.0563)	(0.0899)	(0.508)	(0.0719)	(0.116)	(0.548)
Constant	-2.442***	2.828***	8.704***	-2.643***	1.921***	9.023***
	(0.314)	(0.499)	(2.823)	(0.407)	(0.654)	(3.045)
Observations	554,731	408,239	408,239	554,731	408,239	408,239
R-squared	0.502	0.129	0.087			
Time effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm specific effects	No	No	No	Yes	Yes	Yes
Number of ID	78,382	73,702	73,702	78,382	73,702	73,702

Examining the overall significant effects of *WVS 1990*, *Crime Rate*, and *Donations* on *CETR*, in addition to the significant effect of *Crime Rate* on *BTD*, we find that the results are against our hypotheses' *H1.1: The regional level of generalized trust and altruism negatively influences a firm's tax-to-book difference located in the respective region* and *H1.3: The regional level of generalized trust and altruism positively influences a firm's cash effective tax rate located in the respective region*. However, the effects on *ETR* are not significant in any model, which gives us inconclusive results related to *H1.2: The regional level of generalized trust and altruism positively influences a firm's effective tax rate located in the respective region.*

Common in all three random effects models, we see that the remaining control variables and their coefficients are stable for all the significant values. In line with what we would expect given previous research and our literature review, we can see that *Firm Growth*, *Firm Age*, *Property, Plant & Equipment* have a positive effect on tax avoidance and significant at the 1% level, where an increase in any of the aforementioned control variables would implying an increased *BTD*, and reduced *ETR* and *CETR*. In addition, we can see that *Leverage Ratio* has a significant and expected negative correlation with both *ETR* and *CETR*. However, the negative correlation with *BTD* is unexpected.

Our initial results suggest that the level of social capital components, respectively trust, crime, and donations, has a weak positive effect on tax avoidance, where tax avoidance measured in *CETR* is prominent. The effects on *BTD* and *ETR* are mostly insignificant and inconclusive, except for the significant negative effect of crime rates on *BTD*. These results are against our expectations and our hypothesis, *H1: The regional level of generalized trust and altruism is negatively correlated to the level of a firm's tax avoidance in the respective region*.

We posit several explanations for our main results. We find that both the level of trust and crime rate are generally constant throughout Norwegian counties. Examining the level of trust, our descriptive statistics suggest that Norway can be considered a country with high levels of generalized trust, consistent across counties. With both high and arguably constant levels of trust, it might be difficult for our model to capture the effect of differences between counties, explaining why

we get several insignificant coefficients between the main variables in our model. The insignificant effects may be explained by the strict tax regulations in Norway, limiting firms' and their possibilities to conduct tax-avoiding activities. Further, it is important to note that several proxies for tax avoidance are constructed on estimated values. As we only have public accounting data acquired from CCGR available, the actual value of taxes paid is hard to capture precisely. The matter of error and uncertainty in measuring tax avoidance is further discussed in Hanlon and Heitzman (2010).

Despite our insignificant results for *BTD* and *ETR*, we get significant effects on *CETR* throughout all our models. These results indicate that higher levels of trust and altruism are associated with lower *CETR*, thus increasing tax avoidance. We propose that the level of trust and altruism positively influences tax avoidance through corporate reputation. Firms located in counties with a lower trust may have stronger incentives to build more reputation through tax payments. Firstly, we would argue that firms located in counties with lower levels of trust will have a higher marginal benefit of building reputation than others as an approach to be more competitive. Corporate reputation can be seen as the collective opinion of the society on the respective firm. The importance of firm reputation would be less vital in areas with high levels of generalized trust within the society, while in areas with lower trust, the reputational penalty of deviating from civic norms related to tax payments would be greater. Christensen and Murphy (2004) strengthens the argument of reputation, suggesting that tax payments are a fundamental way to interact and connect with the surrounding society, which could be more desired in areas with lower social capital associated with lower generalized trust.

Our results also suggest that the higher average donations to TV-aksjonen are related to higher levels of tax avoidance in the respective county. We argue that the firms can, through donations, compensate for subtle actions of tax avoidance. Firms save tax cash, generating more liquid funds, which can be used for donations and other visible contributions to society. It can be argued that contributions such as donations are more visible to society than ordinary tax compliance, which yields further incentive to use funds on donations as this would help build reputation for the firm. Such donations would also promote further tax avoidance, as donations allow for tax deductions. Looking from another perspective, charitable behavior can

be driven by the presence of guilt as a result of immoral actions, such as tax avoidance, in line with Gneezy et al. (2014).

Trust and altruism are essential components of social capital, but these alone do not capture the entire aspect. Sociability, another component of social capital, may influence the magnitude of a reputational loss, influencing how fast and broad it spreads in a community. Therefore, this research should be examined further by including a measure of sociability within counties. Unfortunately, we do not have such a variable, and we leave that for further research.

Lastly, we suggest that certain firm-specific accounting variables have a more fundamental influence on tax avoidance than trust and altruism. Consistent throughout our models, the effect of *Firm Growth* and *Property, Plant & Equipment* are positively associated with tax avoidance. In line with Shevlin et al. (2016), we find that firm growth is significant and positively associated with tax avoidance, implying that firms with higher growth obtain higher marginal benefits from the taxes saved and hence have more incentive to conduct tax-avoiding activities. The significant positive relationship is also consistent for PPE, which we find reasonable to attribute to increased tax deduction due to higher PPE, arguably resulting in increased depreciation and amortization.

Robustness tests results

Since our initial model yielded unexpected results, we challenge it by including potential effects of the 2006 Norwegian tax reform and whether a firm classifies as a small firm or not in the model.

Table 9 shows us the effect of trust (WVS 1990) on tax avoidance proxies, split between before and after the 2006 Norwegian tax reform, and further split into two groups, separating small firms from the rest of the sample. Although table 6 initially shows a significant and negative effect of *WVS 1990* on *CETR*, table 9 shows that this effect is only significant for smaller firms after the tax reform. In addition, when not considering the firm size and the tax reform, table 6 displays a non-significant effect of trust on *BTD* and *ETR*. However, table 9 shows a significant positive effect on *ETR* for larger firms before the tax reform and a significant positive effect on *BTD* for larger firms after the reform. The positive effect on *ETR* for larger firms is

in line with previous research, suggesting that larger firms located in areas with high trust avoid less taxes. The effect of trust on *BTD* and *CETR* after the tax reform for both small and larger firms, respectively, suggests a relationship against our expectations and prior research.

Table 9: The effect of trust on BTD, ETR, and CETR

This table shows the results of regressing (random effects) *book-tax difference* (BTD), *effective tax rate* (ETR), and *cash effective tax rate* (CETR) on *trust WVS 1990,* a set of firm-specific control variables, and a set of county-specific control variables over the sample period 2001-2017. Detailed definitions of the variables are provided in the appendix. All firm-specific, continuous variables are winsorized at the 1st and 99th percentiles. All values with an asterisk are significant at a 5% level. Columns (1-6) are estimated with observations before the tax reform (2001-2004). Columns (7-12) are estimated with observations after the tax reform (2005-2017). Columns (odd numbers) are estimated with small firms (with employees <3). Columns (even numbers) are astimated with non-small firms (with employees >3). The standard errors are reported in parentheses. (*** p<0.01, ** p<0.05, * p<0.1).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Pre-tax reform						Post-tax reform					
	WVS 1990 on BTD		WVS 1990 on ETR		WVS 1990 on CETR		WVS 1990 on BTD		WVS 1990 on ETR		WVS 1990 on CETR	
VARIABLES	Small firm	Non-small firm	Small firm	Non-small firm	Small firm	Non-small firm	Small firm	Non-small firm	Small firm	Non-small firm	Small firm	Non-small firm
WVS 1990	-0.00565	-0.0138*	-0.00540	0.0403***	0.0476	0.0354	-0.00553	0.0157***	-0.00150	-0.00458	-0.109***	-0.0774***
	(0.0148)	(0.00824)	(0.0220)	(0.0140)	(0.102)	(0.0663)	(0.00561)	(0.00365)	(0.00896)	(0.00656)	(0.0384)	(0.0277)
Firm Size	0.0101***	0.00392***	0.0144***	0.00349***	-0.00841	-0.0385***	0.00626***	0.00256***	0.0148***	0.00830***	-0.00731***	-0.0161***
	(0.000931)	(0.000544)	(0.00140)	(0.000808)	(0.00569)	(0.00358)	(0.000478)	(0.000318)	(0.000690)	(0.000482)	(0.00260)	(0.00169)
Firm Growth	0.0664***	0.0464***	-0.0805***	-0.0655***	-0.365***	-0.328***	0.0946***	0.0560***	-0.0764***	-0.0571***	-0.315***	-0.259***
	(0.00380)	(0.00283)	(0.00435)	(0.00350)	(0.0232)	(0.0204)	(0.00250)	(0.00176)	(0.00230)	(0.00192)	(0.0112)	(0.0107)
Operating ROA	0.137***	0.144***	0.0975***	0.0916***	-0.438***	-0.557***	0.222***	0.210***	0.0395***	0.0180***	-0.419***	-0.648***
	(0.00725)	(0.00621)	(0.00592)	(0.00508)	(0.0270)	(0.0260)	(0.00477)	(0.00381)	(0.00308)	(0.00276)	(0.0130)	(0.0135)
Change in Revenue	-0.00263**	-0.00562***	-0.00289**	0.00227**	-0.0630***	-0.0671***	-0.00789***	-0.00883***	0.00276***	0.00309***	-0.0664***	-0.0756***
	(0.00129)	(0.000858)	(0.00146)	(0.00112)	(0.00801)	(0.00696)	(0.000731)	(0.000485)	(0.000742)	(0.000593)	(0.00396)	(0.00345)
Loss Carryforward	0.00780***	0.00741***	0.0228***	0.0181***	0.0583***	0.0382***	0.0168***	0.0122***	0.0206***	0.0210***	0.0353***	0.0414***
	(0.00187)	(0.000984)	(0.00256)	(0.00158)	(0.0134)	(0.00826)	(0.000851)	(0.000504)	(0.00130)	(0.000844)	(0.00623)	(0.00409)
Change in Loss Carryforward	3.178***	2.897***	-1.613***	-1.556***	4.485***	6.353***	3.557***	3.190***	-2.006***	-1.909***	3.840***	5.118***
	(0.0510)	(0.0441)	(0.0790)	(0.0704)	(0.303)	(0.316)	(0.0265)	(0.0229)	(0.0416)	(0.0377)	(0.135)	(0.143)
Liquidity	-0.00342***	-0.0120***	-0.0100***	-0.00570***	0.00477	0.0309***	0.00109***	-0.00338***	-0.0101***	-0.00871***	-0.00216	0.000566
	(0.000839)	(0.000960)	(0.00125)	(0.00154)	(0.00655)	(0.00795)	(0.000266)	(0.000381)	(0.000371)	(0.000535)	(0.00184)	(0.00251)
Risk	-0.00690***	-0.00351***	-0.00476**	-0.00609***	0.0702***	0.107***	-0.0103***	-0.00480***	-0.00433***	-0.000859	0.0685***	0.0850***
	(0.00150)	(0.00100)	(0.00199)	(0.00149)	(0.00965)	(0.00831)	(0.000826)	(0.000632)	(0.000988)	(0.000800)	(0.00467)	(0.00388)
Industry Leverage	0.273***	0.122***	-0.00126	0.0855***	-1.527***	-0.281**	0.0653***	0.0541***	0.00544	0.0521***	-0.555***	-0.178***
	(0.0339)	(0.0167)	(0.0529)	(0.0278)	(0.242)	(0.123)	(0.00880)	(0.00667)	(0.0122)	(0.00930)	(0.0516)	(0.0368)
Leverage Ratio	-0.0697***	-0.0997***	-0.124***	-0.120***	-0.486***	-0.604***	-0.0389***	-0.0605***	-0.0986***	-0.108***	-0.373***	-0.447***
	(0.00453)	(0.00429)	(0.00466)	(0.00481)	(0.0231)	(0.0241)	(0.00205)	(0.00205)	(0.00214)	(0.00208)	(0.00924)	(0.00920)
Firm Age	0.000908***	0.000617***	-0.000825***	-0.000900***	-0.00325***	-0.00267***	0.000652***	0.000394***	-0.00101***	-0.000812***	-0.00246***	-0.00283***
	(8.64e-05)	(4.35e-05)	(0.000151)	(7.97e-05)	(0.000615)	(0.000348)	(4.34e-05)	(2.80e-05)	(6.79e-05)	(4.65e-05)	(0.000291)	(0.000188)
Operating Accruals	-0.312***	-0.259***	0.207***	0.192***	0.134***	0.355***	-0.305***	-0.295***	0.168***	0.189***	0.0441***	0.181***
	(0.00730)	(0.00616)	(0.00642)	(0.00531)	(0.0306)	(0.0282)	(0.00474)	(0.00384)	(0.00387)	(0.00332)	(0.0151)	(0.0155)
Financial Accruals	-0.322***	-0.279***	0.231***	0.228***	0.416***	0.701***	-0.320***	-0.304***	0.174***	0.195***	0.170***	0.287***
	(0.00770)	(0.00680)	(0.00686)	(0.00601)	(0.0316)	(0.0316)	(0.00462)	(0.00385)	(0.00380)	(0.00334)	(0.0144)	(0.0155)
Fraction of Institutional Owners	-0.00951**	-0.00995***	-0.0278***	-0.0135***	-0.0305	-0.0434***	-0.00377***	-0.00288***	-0.00438**	-0.00148**	-0.0127	0.00337
	(0.00437)	(0.00256)	(0.00557)	(0.00396)	(0.0338)	(0.0142)	(0.00126)	(0.000520)	(0.00186)	(0.000719)	(0.00859)	(0.00349)
Property, Plant & Equipment	0.0236***	0.0210***	-0.0277***	-0.00615	-0.229***	-0.239***	0.0233***	0.0237***	-0.0529***	-0.0261***	-0.220***	-0.241***
	(0.00330)	(0.00230)	(0.00520)	(0.00392)	(0.0247)	(0.0192)	(0.00190)	(0.00145)	(0.00275)	(0.00228)	(0.0123)	(0.0103)
Intangible Assets	0.271***	0.187***	-0.0683*	-0.111***	-1.075***	-0.784***	0.148***	0.113***	0.0750***	0.0274	-0.846***	-0.803***
	(0.0235)	(0.0205)	(0.0384)	(0.0384)	(0.202)	(0.203)	(0.00964)	(0.00868)	(0.0173)	(0.0168)	(0.0630)	(0.0592)
Research & Development Ratio	-0.399***	-0.297***	0.108*	0.162***	0.731**	0.331	-0.215***	-0.135***	-0.0885**	-0.0469*	0.684***	0.456***
	(0.0378)	(0.0285)	(0.0617)	(0.0533)	(0.311)	(0.282)	(0.0210)	(0.0135)	(0.0354)	(0.0248)	(0.141)	(0.0937)
Adult Population	0.0834	-0.0480	0.163	-0.263*	0.845	1.661**	-0.0287	-0.0678	0.0967	0.0333	1.527***	1.431***
	(0.174)	(0.0944)	(0.251)	(0.157)	(1.153)	(0.738)	(0.0775)	(0.0483)	(0.118)	(0.0806)	(0.526)	(0.364)
Median Income	0.338**	0.398***	-0.425*	-0.872***	-2.721**	-2.897***	0.132**	0.0295	-0.125	-0.0140	0.185	0.148
	(0.172)	(0.104)	(0.258)	(0.168)	(1.222)	(0.809)	(0.0620)	(0.0364)	(0.0941)	(0.0621)	(0.452)	(0.307)
Income Inequality	-0.150*	0.101**	0.0424	-0.200**	0.312	-1.346***	-0.000686	-0.0244	-0.0489	-0.00173	0.0440	-0.101
	(0.0898)	(0.0486)	(0.133)	(0.0888)	(0.594)	(0.415)	(0.0262)	(0.0158)	(0.0378)	(0.0251)	(0.180)	(0.124)
GVA per Adult	0.00297	-0.0532***	0.0141	0.0839***	0.162	0.503***	-0.0212***	-0.0115**	-0.00766	0.0171**	-0.101**	-0.00844
	(0.0290)	(0.0159)	(0.0434)	(0.0299)	(0.197)	(0.140)	(0.00699)	(0.00458)	(0.0106)	(0.00735)	(0.0449)	(0.0318)
GVA Growth							-0.0248	0.00556	-0.00758	0.00182	0.0482	-0.0476
							(0.0169)	(0.00890)	(0.0237)	(0.0148)	(0.136)	(0.0919)
Unemployment Rate	0.847**	0.692***	-1.428***	-0.839**	-9.385***	-3.557**	0.00159	0.0409	-0.595**	0.215	0.111	1.102
	(0.361)	(0.203)	(0.543)	(0.349)	(2.652)	(1.712)	(0.195)	(0.115)	(0.283)	(0.182)	(1.433)	(0.952)
Higher Education	-0.0277	-0.0900*	-0.0724	0.126*	0.0464	0.473	-0.0211	-0.00841	0.146**	-0.0404	0.354	0.452**
	(0.0886)	(0.0472)	(0.121)	(0.0749)	(0.543)	(0.357)	(0.0406)	(0.0277)	(0.0574)	(0.0423)	(0.251)	(0.179)
Poverty Rate	0.982***	0.881***	-1.109*	-1.900***	-6.972**	-6.321***	0.403***	0.151*	-0.326	-0.0888	-0.0997	-0.0704
	(0.378)	(0.232)	(0.577)	(0.375)	(2.759)	(1.812)	(0.152)	(0.0880)	(0.232)	(0.151)	(1.118)	(0.753)
Constant	-4.792**	-5.485***	5.789	12.16***	37.72**	40.91***	-1.932**	-0.501	1.824	0.399	-1.608	-1.152
	(2.348)	(1.412)	(3.525)	(2.307)	(16.67)	(11.05)	(0.843)	(0.495)	(1.276)	(0.844)	(6.136)	(4.162)
Observations	45,298	79,931	31,353	60,807	31,353	60,807	159,793	269,709	110,423	205,656	110,423	205,656
Number of ID	17,338	26,892	14,737	23,981	14,737	23,981	37,313	49,235	32,800	44,897	32,800	44,897
Time effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm specific effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Structured similarly to table 9 for trust, table 10 examines the effect of crime on tax avoidance in relation to the tax reform and size of the firms. Consistent with table 7, table 10 shows a significant and positive effect of crime rate on *CETR* for all firm sizes, both before and after the tax reform. However, the significant and negative

effect of crime on *BTD* from table 7 is only consistent for smaller firms after the tax reform, shown in table 10.

Table 10: The effect of crime on BTD, ETR, and CETR

This table shows the results of regressing (random effects) *book-tax difference* (BTD), *effective tax rate* (ETR), and *cash effective tax rate* (CETR) on trust (proxied by the variable Crime Rate, which is negatively related to trust), a set of firm-specific control variables, and a set of county-specific control variables over the sample period 2001-2017. Detailed definitions of the variables are provided in the appendix. All firm-specific, continuous variables are winsorized at the 1st and 99th percentiles. All values with an asterisk are significant at a 5% level. Columns (1-6) are estimated with observations before the tax reform (2001-2004). Columns (7-12) are estimated with observations after the tax reform (2005-2017). Columns (odd numbers) are estimated with small firms (with employees <3). Columns (even numbers) are astimated with non-small firms (with employees >3). The standard errors are reported in parentheses. (*** p<0.01, ** p<0.05, * p<0.1).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
			Pre-tax reform						Post-tax reform			
	Crime rate on BTD		Crime rate on ETR		Crime rate on CETR		Crime rate on BTD		Crime rate on ETR		Crime rate on CETR	
VARIABLES	Small firm	Non-small firm	Small firm	Non-small firm	Small firm	Non-small firm	Small firm	Non-small firm	Small firm	Non-small firm	Small firm	Non-small firm
Crime Rate	-0.0460	-0.0431	-0.110	-0.0225	0.887**	1.148***	-0.0664*	-0.0661***	0.0631	0.0575	0.622**	0.854***
	(0.0664)	(0.0367)	(0.0954)	(0.0604)	(0.432)	(0.291)	(0.0378)	(0.0235)	(0.0560)	(0.0377)	(0.247)	(0.172)
Firm Size	0.0101***	0.00393***	0.0145***	0.00349***	-0.00862	-0.0387***	0.00628***	0.00256***	0.0148***	0.00829***	-0.00730***	-0.0162***
	(0.000931)	(0.000543)	(0.00140)	(0.000808)	(0.00569)	(0.00358)	(0.000478)	(0.000318)	(0.000690)	(0.000482)	(0.00260)	(0.00169)
Firm Growth	0.0663***	0.0464***	-0.0805***	-0.0654***	-0.365***	-0.328***	0.0945***	0.0560***	-0.0763***	-0.0570***	-0.315***	-0.258***
	(0.00380)	(0.00283)	(0.00435)	(0.00350)	(0.0232)	(0.0204)	(0.00250)	(0.00176)	(0.00230)	(0.00192)	(0.0112)	(0.0107)
Operating ROA	0.137***	0.144***	0.0976***	0.0915***	-0.439***	-0.558***	0.222***	0.210***	0.0395***	0.0180***	-0.419***	-0.648***
	(0.00725)	(0.00621)	(0.00592)	(0.00508)	(0.0270)	(0.0260)	(0.00477)	(0.00381)	(0.00308)	(0.00276)	(0.0130)	(0.0135)
Change in Revenue	-0.00264**	-0.00562***	-0.00290**	0.00229**	-0.0629***	-0.0672***	-0.00790***	-0.00882***	0.00277***	0.00309***	-0.0664***	-0.0757***
	(0.00129)	(0.000858)	(0.00146)	(0.00112)	(0.00801)	(0.00695)	(0.000731)	(0.000485)	(0.000742)	(0.000593)	(0.00396)	(0.00345)
Loss Carryforward	0.00777***	0.00741***	0.0227***	0.0181***	0.0586***	0.0384***	0.0168***	0.0122***	0.0207***	0.0210***	0.0355***	0.0414***
	(0.00187)	(0.000983)	(0.00256)	(0.00158)	(0.0134)	(0.00825)	(0.000851)	(0.000503)	(0.00130)	(0.000844)	(0.00623)	(0.00408)
Change in Loss Carryforward	3.178***	2.897***	-1.612***	-1.555***	4.479***	6.349***	3.557***	3.190***	-2.006***	-1.909***	3.837***	5.115***
	(0.0510)	(0.0441)	(0.0791)	(0.0704)	(0.303)	(0.316)	(0.0265)	(0.0229)	(0.0416)	(0.0377)	(0.135)	(0.143)
Liquidity	-0.00342***	-0.0121***	-0.0100***	-0.00571***	0.00479	0.0314***	0.00109***	-0.00337***	-0.0101***	-0.00871***	-0.00211	0.000617
	(0.000840)	(0.000961)	(0.00125)	(0.00154)	(0.00655)	(0.00795)	(0.000266)	(0.000381)	(0.000371)	(0.000535)	(0.00184)	(0.00251)
Risk	-0.00689***	-0.00350***	-0.00473**	-0.00607***	0.0699***	0.106***	-0.0103***	-0.00478***	-0.00434***	-0.000877	0.0684***	0.0848***
	(0.00150)	(0.00100)	(0.00199)	(0.00149)	(0.00967)	(0.00831)	(0.000826)	(0.000632)	(0.000988)	(0.000800)	(0.00468)	(0.00388)
Industry Leverage	0.273***	0.122***	-0.00155	0.0856***	-1.523***	-0.287**	0.0649***	0.0542***	0.00555	0.0521***	-0.557***	-0.177***
	(0.0339)	(0.0167)	(0.0529)	(0.0278)	(0.242)	(0.123)	(0.00880)	(0.00667)	(0.0122)	(0.00929)	(0.0516)	(0.0368)
Leverage Ratio	-0.0697***	-0.0997***	-0.124***	-0.120***	-0.487***	-0.606***	-0.0388***	-0.0605***	-0.0986***	-0.108***	-0.373***	-0.447***
	(0.00453)	(0.00429)	(0.00466)	(0.00481)	(0.0231)	(0.0242)	(0.00205)	(0.00205)	(0.00214)	(0.00208)	(0.00923)	(0.00921)
Firm Age	0.000906***	0.000615***	-0.000827***	-0.000898***	-0.00324***	-0.00267***	0.000652***	0.000395***	-0.00101***	-0.000812***	-0.00246***	-0.00283***
	(8.63e-05)	(4.34e-05)	(0.000151)	(7.97e-05)	(0.000614)	(0.000348)	(4.35e-05)	(2.80e-05)	(6.79e-05)	(4.65e-05)	(0.000291)	(0.000188)
Operating Accruals	-0.312***	-0.259***	0.207***	0.192***	0.133***	0.354***	-0.305***	-0.295***	0.168***	0.189***	0.0444***	0.181***
	(0.00730)	(0.00616)	(0.00642)	(0.00531)	(0.0306)	(0.0283)	(0.00474)	(0.00384)	(0.00387)	(0.00332)	(0.0151)	(0.0155)
Financial Accruals	-0.322***	-0.279***	0.231***	0.228***	0.416***	0.699***	-0.320***	-0.304***	0.174***	0.195***	0.170***	0.287***
	(0.00770)	(0.00680)	(0.00686)	(0.00601)	(0.0316)	(0.0316)	(0.00462)	(0.00385)	(0.00380)	(0.00334)	(0.0144)	(0.0155)
Fraction of Institutional Owners	-0.00955**	-0.00997***	-0.0279***	-0.0135***	-0.0295	-0.0431***	-0.00380***	-0.00288***	-0.00437**	-0.00147**	-0.0128	0.00357
	(0.00437)	(0.00256)	(0.00557)	(0.00396)	(0.0339)	(0.0142)	(0.00126)	(0.000520)	(0.00186)	(0.000719)	(0.00860)	(0.00349)
Property, Plant & Equipment	0.0236***	0.0210***	-0.0276***	-0.00611	-0.229***	-0.238***	0.0232***	0.0237***	-0.0529***	-0.0260***	-0.220***	-0.240***
	(0.00330)	(0.00230)	(0.00520)	(0.00392)	(0.0247)	(0.0192)	(0.00189)	(0.00145)	(0.00275)	(0.00229)	(0.0123)	(0.0103)
Intangible Assets	0.271***	0.187***	-0.0687*	-0.111***	-1.072***	-0.779***	0.147***	0.113***	0.0750***	0.0276	-0.846***	-0.800***
	(0.0235)	(0.0205)	(0.0384)	(0.0384)	(0.202)	(0.204)	(0.00964)	(0.00868)	(0.0173)	(0.0168)	(0.0630)	(0.0593)
Research & Development Ratio	-0.399***	-0.296***	0.108*	0.161***	0.726**	0.316	-0.215***	-0.135***	-0.0888**	-0.0475*	0.681***	0.447***
	(0.0378)	(0.0285)	(0.0617)	(0.0533)	(0.311)	(0.282)	(0.0210)	(0.0135)	(0.0354)	(0.0248)	(0.141)	(0.0937)
Adult Population	0.0976	-0.0453	0.203	-0.212	0.475	1.130	-0.0152	-0.0209	0.0702	0.00770	1.045**	0.951***
	(0.177)	(0.0962)	(0.253)	(0.159)	(1.160)	(0.751)	(0.0778)	(0.0481)	(0.119)	(0.0808)	(0.529)	(0.359)
Median Income	0.252*	0.259***	-0.580**	-0.626***	-1.488	-1.491**	0.0992	0.0371	-0.109	-0.00448	0.0136	0.168
	(0.144)	(0.0872)	(0.231)	(0.151)	(1.078)	(0.708)	(0.0607)	(0.0358)	(0.0920)	(0.0609)	(0.441)	(0.299)
Income Inequality	-0.163*	0.0774	0.0257	-0.142*	0.456	-1.201***	0.00240	-0.0308**	-0.0488	0.000780	0.107	-0.0692
	(0.0876)	(0.0475)	(0.131)	(0.0860)	(0.585)	(0.404)	(0.0259)	(0.0156)	(0.0374)	(0.0248)	(0.177)	(0.121)
GVA per Adult	0.0122	-0.0370**	0.0288	0.0499*	0.0418	0.370***	-0.0223***	-0.0149***	-0.00607	0.0190***	-0.0844*	0.0166
	(0.0268)	(0.0145)	(0.0403)	(0.0272)	(0.182)	(0.127)	(0.00703)	(0.00462)	(0.0107)	(0.00738)	(0.0450)	(0.0320)
GVA Growth							-0.0229	0.0111	-0.0108	-0.00180	-0.0162	-0.110
							(0.0169)	(0.00890)	(0.0237)	(0.0148)	(0.137)	(0.0918)
Unemployment Rate	0.801**	0.586***	-1.480***	-0.536	-9.078***	-3.540**	0.0748	0.127	-0.680**	0.152	-1.545	-0.468
	(0.333)	(0.184)	(0.508)	(0.329)	(2.453)	(1.583)	(0.201)	(0.117)	(0.294)	(0.186)	(1.524)	(0.985)
Higher Education	-0.0181	-0.0881*	-0.0432	0.166**	-0.172	0.187	0.0127	0.0154	0.119**	-0.0670	0.199	0.156
	(0.0908)	(0.0479)	(0.124)	(0.0756)	(0.550)	(0.359)	(0.0425)	(0.0287)	(0.0602)	(0.0443)	(0.265)	(0.190)
Poverty Rate	0.800**	0.585***	-1.434***	-1.375***	-4.385*	-3.346**	0.339**	0.174**	-0.299	-0.0753	-0.552	-0.122
	(0.319)	(0.198)	(0.522)	(0.341)	(2.456)	(1.606)	(0.148)	(0.0865)	(0.227)	(0.148)	(1.091)	(0.733)
Constant	-3.652*	-3.657***	7.829**	8.931***	21.52	22.46**	-1.538*	-0.560	1.629	0.270	0.478	-1.439
	(1.988)	(1.200)	(3.189)	(2.089)	(14.85)	(9.770)	(0.828)	(0.489)	(1.254)	(0.832)	(6.011)	(4.077)
Observations	45,298	79,931	31,353	60,807	31,353	60,807	159,793	269,709	110,423	205,656	110,423	205,656
Number of ID	17,338	26,892	14,737	23,981	14,737	23,981	37,313	49,235	32,800	44,897	32,800	44,897
Time effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm specific effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

As mentioned, table 8 displayed a significant negative effect of altruism, measured through donations, on *CETR* and no significant effect on *BTD* and *ETR*. However, table 11 shows us a significant negative effect at the 5% level on *BTD* for larger firms before the tax reform and a significant positive effect after, yielding inconsistent results compared to previous research. Nevertheless, the effect of altruism on *CETR* for all firm sizes before and after the tax reform is consistent with our results from the initial model.

Table 11: The effect of donations on BTD, ETR, and CETR

This table shows the results of regressing book-tax difference (BTD), effective tax rate (ETR), and cash effective tax rate (CETR) on altruism (proxied by the variable Donations), a set of firm-specific control variables, and a set of county-specific control variables over the sample period 2001-2017. Detailed definitions of the variables are provided in the appendix. All firm-specific, continuous variables are winsorized at the 1st and 99th percentiles. All values with an asterisk are significant at a 5% level. Columns (1-6) are estimated with observations before the tax reform (2001-2004). Columns (7-12) are estimated with observations after the tax reform (2005-2017). Columns (odd numbers) are estimated with small firms (with employees <3). Columns (even numbers) are astimated with non-small firms (with employees >3). The standard errors are reported in parentheses. (*** p<0.01, ** p<0.05, * p<0.1).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Pre-tax reform						Post-tax reform					
	Donations on BTD		Donations on ETR		Donations on CETR		Donations on BTD		Donations on ETR		Donations on CETR	
VARIABLES	Small firm	Non-small firm	Small firm	Non-small firm	Small firm	Non-small firm	Small firm	Non-small firm	Small firm	Non-small firm	Small firm	Non-small firm
Donations	0.000141	-0.000572*	5.32e-06	-0.000739	-0.00856*	-0.00741**	-2.96e-05	9.18e-05*	-6.29e-05	-9.24e-05	-0.00132**	-0.00119***
	(0.000635)	(0.000340)	(0.000895)	(0.000567)	(0.00481)	(0.00318)	(8.72e-05)	(4.94e-05)	(0.000116)	(8.17e-05)	(0.000614)	(0.000459)
Firm Size	0.0101***	0.00391***	0.0144***	0.00348***	-0.00848	-0.0385***	0.00626***	0.00255***	0.0148***	0.00830***	-0.00720***	-0.0161***
	(0.000931)	(0.000544)	(0.00140)	(0.000808)	(0.00569)	(0.00358)	(0.000478)	(0.000318)	(0.000690)	(0.000483)	(0.00260)	(0.00169)
Firm Growth	0.0664***	0.0464***	-0.0805***	-0.0654***	-0.365***	-0.328***	0.0945***	0.0560***	-0.0764***	-0.0571***	-0.315***	-0.259***
	(0.00380)	(0.00283)	(0.00435)	(0.00350)	(0.0232)	(0.0204)	(0.00250)	(0.00176)	(0.00230)	(0.00192)	(0.0112)	(0.0107)
Operating ROA	0.137***	0.144***	0.0975***	0.0915***	-0.439***	-0.557***	0.222***	0.210***	0.0395***	0.0180***	-0.418***	-0.647***
	(0.00725)	(0.00621)	(0.00592)	(0.00508)	(0.0270)	(0.0260)	(0.00477)	(0.00381)	(0.00308)	(0.00276)	(0.0130)	(0.0135)
Change in Revenue	-0.00263**	-0.00562***	-0.00289**	0.00229**	-0.0629***	-0.0671***	-0.00790***	-0.00882***	0.00276***	0.00309***	-0.0665***	-0.0757***
	(0.00129)	(0.000858)	(0.00146)	(0.00112)	(0.00801)	(0.00695)	(0.000731)	(0.000485)	(0.000742)	(0.000593)	(0.00396)	(0.00345)
Loss Carryforward	0.00780***	0.00742***	0.0228***	0.0181***	0.0582***	0.0383***	0.0168***	0.0122***	0.0207***	0.0210***	0.0355***	0.0417***
	(0.00187)	(0.000984)	(0.00256)	(0.00158)	(0.0134)	(0.00826)	(0.000851)	(0.000503)	(0.00130)	(0.000843)	(0.00623)	(0.00408)
Change in Loss Carryforward	3.178***	2.897***	-1.613***	-1.556***	4.480***	6.351***	3.557***	3.190***	-2.006***	-1.910***	3.837***	5.115***
	(0.0510)	(0.0441)	(0.0790)	(0.0704)	(0.303)	(0.316)	(0.0265)	(0.0229)	(0.0416)	(0.0377)	(0.135)	(0.143)
Liquidity	-0.00342***	-0.0120***	-0.0100***	-0.00570***	0.00479	0.0309***	0.00109***	-0.00337***	-0.0101***	-0.00871***	-0.00214	0.000517
	(0.000840)	(0.000960)	(0.00125)	(0.00154)	(0.00655)	(0.00795)	(0.000266)	(0.000381)	(0.000371)	(0.000535)	(0.00184)	(0.00251)
Risk	-0.00690***	-0.00351***	-0.00476**	-0.00608***	0.0702***	0.107***	-0.0103***	-0.00480***	-0.00434***	-0.000867	0.0684***	0.0850***
	(0.00150)	(0.00100)	(0.00199)	(0.00149)	(0.00965)	(0.00831)	(0.000826)	(0.000632)	(0.000988)	(0.000800)	(0.00467)	(0.00388)
Industry Leverage	0.273***	0.122***	-0.00130	0.0856***	-1.525***	-0.280**	0.0651***	0.0542***	0.00553	0.0521***	-0.557***	-0.177***
	(0.0339)	(0.0167)	(0.0529)	(0.0278)	(0.242)	(0.123)	(0.00880)	(0.00667)	(0.0122)	(0.00930)	(0.0516)	(0.0369)
Leverage Ratio	-0.0697***	-0.0998***	-0.124***	-0.120***	-0.486***	-0.605***	-0.0389***	-0.0605***	-0.0986***	-0.108***	-0.373***	-0.447***
	(0.00453)	(0.00430)	(0.00466)	(0.00481)	(0.0231)	(0.0242)	(0.00205)	(0.00205)	(0.00214)	(0.00208)	(0.00923)	(0.00921)
Firm Age	0.000907***	0.000616***	-0.000826***	-0.000898***	-0.00325***	-0.00267***	0.000652***	0.000395***	-0.00101***	-0.000813***	-0.00247***	-0.00284***
	(8.64e-05)	(4.34e-05)	(0.000151)	(7.97e-05)	(0.000614)	(0.000348)	(4.35e-05)	(2.80e-05)	(6.79e-05)	(4.65e-05)	(0.000291)	(0.000188)
Operating Accruals	-0.312***	-0.259***	0.207***	0.192***	0.134***	0.354***	-0.305***	-0.295***	0.168***	0.189***	0.0445***	0.182***
	(0.00730)	(0.00616)	(0.00642)	(0.00531)	(0.0306)	(0.0282)	(0.00474)	(0.00384)	(0.00387)	(0.00332)	(0.0151)	(0.0155)
Financial Accruals	-0.322***	-0.279***	0.231***	0.228***	0.416***	0.700***	-0.320***	-0.304***	0.174***	0.195***	0.170***	0.288***
	(0.00770)	(0.00680)	(0.00686)	(0.00601)	(0.0316)	(0.0316)	(0.00462)	(0.00385)	(0.00380)	(0.00334)	(0.0144)	(0.0155)
Fraction of Institutional Owners	-0.00952**	-0.00997***	-0.0278***	-0.0135***	-0.0306	-0.0436***	-0.00378***	-0.00287***	-0.00438**	-0.00149**	-0.0131	0.00325
	(0.00437)	(0.00256)	(0.00557)	(0.00396)	(0.0339)	(0.0142)	(0.00126)	(0.000520)	(0.00186)	(0.000719)	(0.00859)	(0.00349)
Property, Plant & Equipment	0.0236***	0.0211***	-0.0277***	-0.00609	-0.229***	-0.239***	0.0233***	0.0238***	-0.0529***	-0.0260***	-0.220***	-0.241***
	(0.00330)	(0.00230)	(0.00520)	(0.00392)	(0.0247)	(0.0192)	(0.00190)	(0.00145)	(0.00275)	(0.00228)	(0.0123)	(0.0103)
Intangible Assets	0.271***	0.187***	-0.0684*	-0.111***	-1.074***	-0.785***	0.148***	0.113***	0.0749***	0.0273	-0.847***	-0.805***
	(0.0235)	(0.0205)	(0.0384)	(0.0384)	(0.202)	(0.204)	(0.00964)	(0.00868)	(0.0173)	(0.0168)	(0.0630)	(0.0592)
Research & Development Ratio	-0.399***	-0.296***	0.108*	0.161***	0.732**	0.331	-0.215***	-0.136***	-0.0884**	-0.0466*	0.685***	0.461***
	(0.0378)	(0.0285)	(0.0617)	(0.0533)	(0.311)	(0.283)	(0.0210)	(0.0135)	(0.0354)	(0.0247)	(0.141)	(0.0936)
Adult Population	0.0855	-0.0960	0.159	-0.262*	0.383	1.306*	-0.0411	-0.0361	0.0909	0.0203	1.234**	1.199***
	(0.174)	(0.0940)	(0.258)	(0.159)	(1.170)	(0.747)	(0.0761)	(0.0470)	(0.117)	(0.0795)	(0.520)	(0.356)
Median Income	0.282*	0.379***	-0.462*	-0.506***	-1.317	-1.691**	0.120**	0.0566	-0.127	-0.0216	-0.0756	-0.00950
	(0.159)	(0.0915)	(0.238)	(0.155)	(1.154)	(0.772)	(0.0598)	(0.0352)	(0.0909)	(0.0602)	(0.441)	(0.296)
Income Inequality	-0.149	0.0460	0.0345	-0.186**	-0.204	-1.789***	0.00263	-0.0319**	-0.0465	0.00240	0.147	-0.0322
	(0.0959)	(0.0520)	(0.142)	(0.0939)	(0.657)	(0.459)	(0.0259)	(0.0156)	(0.0374)	(0.0249)	(0.177)	(0.121)
GVA per Adult	0.00554	-0.0317**	0.0188	0.0598**	0.275	0.600***	-0.0203***	-0.0141***	-0.00676	0.0184**	-0.0744	0.0147
	(0.0283)	(0.0152)	(0.0425)	(0.0287)	(0.194)	(0.138)	(0.00715)	(0.00465)	(0.0108)	(0.00741)	(0.0459)	(0.0327)
GVA Growth							-0.0263	0.00868	-0.00853	0.000275	-0.00732	-0.0814
							(0.0169)	(0.00890)	(0.0236)	(0.0147)	(0.136)	(0.0915)
Unemployment Rate	0.778**	0.665***	-1.471***	-0.435	-7.470***	-1.991	-0.0139	0.0688	-0.603**	0.203	-0.435	0.779
	(0.347)	(0.191)	(0.527)	(0.340)	(2.599)	(1.657)	(0.194)	(0.115)	(0.283)	(0.182)	(1.434)	(0.944)
Higher Education	-0.0365	-0.0829*	-0.0769	0.182**	0.369	0.741**	-0.0192	-0.0134	0.142**	-0.0433	0.314	0.416**
	(0.0906)	(0.0477)	(0.126)	(0.0756)	(0.559)	(0.363)	(0.0409)	(0.0276)	(0.0581)	(0.0426)	(0.257)	(0.183)
Poverty Rate	0.851**	0.887***	-1.187**	-1.061***	-3.247	-3.125*	0.376**	0.211**	-0.334	-0.109	-0.738	-0.463
	(0.384)	(0.220)	(0.572)	(0.370)	(2.813)	(1.884)	(0.147)	(0.0855)	(0.225)	(0.147)	(1.092)	(0.729)
Constant	-4.064*	-5.187***	6.271*	7.426***	20.15	25.77**	-1.789**	-0.810*	1.848	0.489	1.527	0.735
	(2.151)	(1.242)	(3.237)	(2.110)	(15.59)	(10.43)	(0.818)	(0.482)	(1.242)	(0.824)	(6.015)	(4.053)
Observations	45,298	79,931	31,353	60,807	31,353	60,807	159,793	269,709	110,423	205,656	110,423	205,656
Number of ID	17,338	26,892	14,737	23,981	14,737	23,981	37,313	49,235	32,800	44,897	32,800	44,897
Time effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm specific effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Despite efforts to challenge the unexpected results from our initial model, we do not observe any significant differences compared to our expanded model, which shows consistent results. Although the expanded model captures a few differences between coefficients of small firms and others in terms of significance, the overall interpretation of these results supports those we obtained in the initial model. We do, however, acknowledge that the effect of the 2006 Norwegian tax reform and firm size exist, but it is simply not reflected through our empirical results.

Table 12: The effect of trust (WVS/EVS 2007) on BTD, ETR, and CETR

This table shows the results of regressing *book-tax difference* (BTD), *effective tax rate* (ETR), and *cash effective tax rate* (CETR) on *trust WVS/EVS 2007* , a set of firm-specific control variables, and a set of county-specific control variables over the sample period 2001-2017. Detailed definitions of the variables are provided in the appendix. All firm-specific, continuous variables are winsorized at the 1st and 99th percentiles. All values with an asterisk are significant at a 5% level. Columns (1), (2), and (3) are estimated with pooled OLS and cluster robust standard errors. Columns (4), (5), and (6) are estimated with random effects and cluster robust standard errors. The standard errors are reported in parentheses. (*** p<0.01, ** p<0.05, * p<0.1).

	(1)	(2)	(3)	(4)	(5)	(6)
	Pooled OLS	Pooled OLS	Pooled OLS	Random effects model	Random effects model	Random effects model
VARIABLES	WVS 2007 on BTD	WVS 2007 on ETR	WVS 2007 on CETR	WVS 2007 on BTD	WVS 2007 on ETR	WVS 2007 on CETR
WVS/EVS 2007	0.0306***	-0.00898	-0.386***	0.0425***	-0.00631	-0.437***
	(0.00507)	(0.00797)	(0.0438)	(0.00763)	(0.0122)	(0.0502)
Firm Size	0.00328***	0.00769***	-0.0131***	0.00474***	0.0114***	-0.0130***
	(0.000138)	(0.000213)	(0.00100)	(0.000231)	(0.000336)	(0.00118)
Firm Growth	0.0787***	-0.0773***	-0.326***	0.0699***	-0.0662***	-0.291***
	(0.00117)	(0.00128)	(0.00676)	(0.00132)	(0.00133)	(0.00698)
Operating ROA	0.167***	0.0676***	-0.428***	0.201***	0.0403***	-0.552***
	(0.00193)	(0.00151)	(0.00748)	(0.00274)	(0.00190)	(0.00872)
Change in Revenue	-0.00754***	0.00346***	-0.0703***	-0.00814***	0.00251***	-0.0705***
	(0.000363)	(0.000427)	(0.00229)	(0.000372)	(0.000416)	(0.00237)
Loss Carryforward	0.00991***	0.0258***	0.0445***	0.0120***	0.0198***	0.0408***
	(0.000310)	(0.000499)	(0.00286)	(0.000424)	(0.000660)	(0.00312)
Change in Loss Carryforward	3.242***	-1.893***	5.052***	3.292***	-1.872***	4.716***
	(0.0142)	(0.0227)	(0.0872)	(0.0159)	(0.0249)	(0.0930)
Liquidity	-0.00177***	-0.0102***	-0.00339***	-0.000820***	-0.00983***	-0.00415***
	(0.000159)	(0.000234)	(0.00128)	(0.000210)	(0.000294)	(0.00143)
Risk	-0.00716***	-0.00350***	0.0780***	-0.00717***	-0.00279***	0.0817***
	(0.000354)	(0.000439)	(0.00254)	(0.000476)	(0.000602)	(0.00279)
Industry Leverage	0.0624***	0.0519***	-0.267***	0.0533***	0.0556***	-0.255***
	(0.00356)	(0.00499)	(0.0254)	(0.00511)	(0.00727)	(0.0287)
Leverage Ratio	-0.0481***	-0.101***	-0.428***	-0.0562***	-0.103***	-0.427***
	(0.00111)	(0.00118)	(0.00538)	(0.00136)	(0.00143)	(0.00625)
Firm Age	0.000472***	-0.000633***	-0.00222***	0.000509***	-0.000965***	-0.00272***
	(1.37e-05)	(2.27e-05)	(0.000121)	(2.28e-05)	(3.72e-05)	(0.000146)
Operating Accruals	-0.322***	0.218***	0.173***	-0.300***	0.183***	0.121***
	(0.00239)	(0.00203)	(0.00915)	(0.00257)	(0.00223)	(0.00976)
Financial Accruals	-0.339***	0.231***	0.339***	-0.313***	0.194***	0.280***
	(0.00243)	(0.00208)	(0.00910)	(0.00261)	(0.00228)	(0.00981)
Fraction of Institutional Owners	-0.00580***	-0.00603***	-0.00497	-0.00399***	-0.00171**	-0.00185
	(0.000460)	(0.000654)	(0.00303)	(0.000501)	(0.000692)	(0.00323)
Property, Plant & Equipment	0.0194***	-0.0220***	-0.234***	0.0229***	-0.0344***	-0.239***
	(0.000703)	(0.00117)	(0.00617)	(0.00109)	(0.00166)	(0.00721)
Intangible Assets	0.109***	-0.0294***	-0.824***	0.145***	0.0364***	-0.816***
	(0.00482)	(0.00961)	(0.0387)	(0.00617)	(0.0114)	(0.0428)
Research & Development Ratio	-0.211***	0.00912	0.540***	-0.202***	-0.0135	0.491***
	(0.00876)	(0.0161)	(0.0677)	(0.0102)	(0.0181)	(0.0726)
Adult Population	0.0274	-0.0367	0.231	0.104**	0.0453	0.176
	(0.0278)	(0.0434)	(0.239)	(0.0407)	(0.0639)	(0.267)
Median Income	0.153***	-0.191***	-0.342	0.158***	-0.127***	-0.319
	(0.0230)	(0.0369)	(0.208)	(0.0299)	(0.0483)	(0.225)
Income Inequality	-0.0308***	-0.0185	-0.131	-0.00569	-0.0194	-0.168*
	(0.0110)	(0.0162)	(0.0872)	(0.0133)	(0.0201)	(0.0924)
GVA per Adult	-0.0162***	0.00973**	0.0812***	-0.0265***	0.00385	0.106***
	(0.00307)	(0.00481)	(0.0260)	(0.00439)	(0.00693)	(0.0292)
GVA Growth	0.00289	-0.00742	-0.111	0.00785	-0.00676	-0.0903
	(0.00859)	(0.0134)	(0.0748)	(0.00834)	(0.0125)	(0.0746)
Unemployment Rate	0.279***	-0.260**	-0.773	0.286***	-0.379***	-0.628
	(0.0739)	(0.116)	(0.638)	(0.0880)	(0.134)	(0.673)
Higher Education	-0.0435***	0.0555***	0.853***	-0.104***	0.0702**	0.944***
	(0.0148)	(0.0214)	(0.118)	(0.0225)	(0.0327)	(0.134)
Poverty Rate	0.444***	-0.491***	-1.119**	0.443***	-0.342***	-1.095**
	(0.0567)	(0.0915)	(0.515)	(0.0728)	(0.119)	(0.557)
Constant	-2.187***	2.850***	6.078**	-2.356***	1.886***	5.879*
	(0.313)	(0.501)	(2.831)	(0.408)	(0.659)	(3.061)
Observations	554,731	408,239	408,239	554,731	408,239	408,239
R-squared	0.502	0.129	0.087			
Time effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm specific effects	No	No	No	Yes	Yes	Yes
Number of ID	78,382	73,702	73,702	78,382	73,702	73,702

In addition, table 12 shows the effect of trust measured by EVS and WVS in 2007 on all measures of tax avoidance. Similar to our main model, we provide both the pooled OLS and random effects model. However, we will focus on the random effects model if not stated otherwise. Due to the similarities, the results from the robustness test are expected to be like and related to the main model, including the effect of trust measured by WVS in 1990. In regard to the relationship between trust and tax avoidance, the coefficients share similar signs, whereas the coefficient of trust on *BTD* is, in this case, significant at the 1% level. Still, trust on *CETR* is negative and significant at a 1% level, and trust on *ETR* is non-significant negative. Overall, the coefficients from the robustness test are similar to our main model using trust measured in 1990, except that the effect of trust in 2007 on *BTD* is now significant, with the same sign. Given the similar nature between trust measured in 1990 and 2007, the results provided here can be linked with trust measured by crime rate and donations in the same manner. In conclusion, the results from the robustness tests are consistent with our main model and support our main results.

Conclusion

This thesis extends the prior research and explores how different components of social capital relate to corporate tax avoidance by examining the effect of trust and altruism on corporate tax avoidance at the county level in Norway. Using a dataset of Norwegian firms from 2001 to 2017 provided by CCGR with additional regional data from SSB and NSD, we construct a pooled OLS and random effects model. Generalized trust are through a survey conducted by WVS in 1990 and county crime rates, while altruism is measured by donations to TV-aksjonen per capita in the respective county. Finally, tax avoidance is measured by estimating book-tax differences, effective tax rates, and cash effective tax rates.

Using the random effects model, our results show that firms located in counties with higher measures of trust, lower crime rates, or higher donations per capita have a lower cash effective tax rate. The overall effect of trust, crime rates, and donations on the other measures of tax avoidance are not significant. Due to the relatively high and consistent level of trust in Norway, we argue that examining trust and altruism itself is insufficient to explain differences in corporate tax avoidance. However, we find a positive effect of regional trust and altruism on tax avoidance, which contradicts the negative relation found in previous research. We argue that civic perception of firms and their reputation possibly provide strong incentives to withstand tax-avoiding activities. Firms located in counties with lower levels of trust may have strong incentives to strengthen reputation through tax payments since they will have a higher marginal benefit of increasing firm reputation. Extending the argument of reputation, we argue that firms may compensate for tax avoidance by contributing to society through charity donations, which may further increase firm reputations as donations are more visible to society than ordinary tax compliance. However, we do acknowledge that with such a relationship, charity donations and tax avoidance may reinforce each other through tax deductions. Lastly, corporate structure and performance may have a more significant influence on tax avoidance as social capital levels are relatively high and stable across Norwegian counties.

Limitations and future research

We acknowledge that our paper has several limitations that should be considered for further research. Firstly, using trust (WVS 1990 and WVS/EVS 2007) measured one specific point of time may not be ideal since the data will not reflect any differences or trends over a longer period. However, this should not be a major issue in a county such as Norway, where social capital is considered relatively stable, but it should be considered for future research in regions where this is not the case. Secondly, the probability is high that the proxies for tax avoidance (BTD, ETR, and CETR) do not reflect what is truly paid in taxes by the firms. Here, tax avoidance measures are estimated based on firms' financial statements due to difficulties in obtaining tax reports for the respective firms. Nevertheless, several papers discuss the issues around the lack of disclosure in financial statements about taxable income and the actual cash taxes paid or to be paid (Hanlon & Heitzman, 2010). Other commonly used proxies for tax avoidance that can be considered for future research are tax-shelter activity, among others.

As our study only captures the effect of two social capital components, it would be interesting for future researchers to investigate the effects sociability may have alongside trust and altruism on high-trust regions such as Norway. Further, we urge future researchers to research the relationship between tax avoidance and civic perception of firm reputation in smaller economies, as our results indicate that this relationship may exist.

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Appendix

Variables definitions

Variable	Description	Source
Book-Tax Difference (BTD)	We use Kim et al. (2011)'s book-tax differences (BTD) definition, which equals pre-tax book income less estimated taxable income. We estimate taxable income by dividing tax on income on the statutory tax rate and then subtracting the change in net loss carryforward. The change in net loss carryforward is the change in deferred tax assets divided by lagged total assets.	CCGR
Effective Tax Rate (ETR)	Effective tax rate (ETR) is the tax on income divided by pre-tax book income. ETR is set as missing when the denominator is non-positive.	CCGR
Cash Effective Tax Rate (CETR)	Cash effective tax rate (CETR) is cash taxes paid divided by pre-tax book income. The estimated cash taxes paid is calculated as the tax on income less change in tax liabilities, change in deferred tax less, and the tax shield. CETR is set as missing when the denominator is non-positive.	CCGR
WVS 1990	Index of generalized trust, based on responses to the WVS 1990 question: "Regarding trust of other Norwegians, would you say that you generally have (5) high trust in them, (4) have some trust in them, (3) neither trust or distrust them, (2) distrust them, (1) highly distrust them?". The responses were ranked by numerical code and inverted, similarly done in Guiso et al. (2004) and Ostergaard et al. (2009). Then, using the ranked values, the average score was calculated in each county.	1990 World Value Surveys (WVS)
WVS/EVS 2007	Index of generalized trust, based on responses to the WVS/EVS 2007 question: "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?". The two possible answers were "Most people can be trusted" and "Can't be too careful". The responses were coded to the numerical value of 1 for "Most people can be trusted" and 0 otherwise.	2017 joint World Value Survey and European Value Survey
Donations	Donations are the mean charity donations raised from door-to-door collections per county per capita. The data was obtained from NRK's TV-Aksjonen, one of the world's largest charitable fundraising events in volunteers and funds collected by each volunteer.	NSD
Crime Rate	The number of offenses reported to the police in a year in a county, divided by the county population.	SSB
Firm Size	The natural logarithm of the total assets.	CCGR
Firm Growth	The change in the natural logarithm of the total assets.	CCGR
Operating ROA	Calculated as the operating income before taxes divided by lagged total assets.	CCGR
Change in Revenue	The change in revenue divided by lagged total assets.	CCGR
Loss Carryforward	A dummy variable coded as 1 if net loss carryforward is positive, 0 otherwise.	CCGR
Change in Loss Carryforward	The change in net loss carryforward scaled by lagged total assets.	CCGR
Liquidity	Calculated as the current assets less inventory divided by current liabilities.	CCGR
Risk	The standard deviation of the change in revenue.	CCGR
Industry Leverage	The median of the liabilities-to-assets ratio per industry at the SIC 2 digit level.	CCGR
Leverage Ratio	Calculated as the total liabilities divided by total assets.	CCGR
Firm Age	The number of years since the firm was founded.	CCGR
Operating Accruals	The change in operating assets less operating liabilities, then divided by total assets.	CCGR
Financial Accruals	The change in financial assets less financial liabilities, then divided by total assets.	CCGR
Fraction of Institutional Owners	The aggregated fraction of the firm held by institutional owners.	CCGR
Property, Plant & Equipment	Calculated as property, plant & equipment divided by total assets.	CCGR
Intangible Assets	Calculated as intangible assets divided by total assets.	CCGR
Research & Development Ratio	Calculated as the research & development assets divided by total assets.	CCGR
Adult Population	The fraction of a county's population between 17 and 67 years of age.	SSB
Median Income	The median houshold income in a county.	SSB
Income Inequality	Calculated as the mean household income divided by the median household income in a county.	SSB
GVA per Adult	Calculated as the gross value added (GVA) per county divided by the county's adult population.	SSB
GVA Growth	The change in gross value added (GVA).	SSB
Unemployment Rate	The fraction of a county's workforce who are unemployed in a given year.	SSB
Higher Education	The fraction of the county's population above 16 years of age who hold a university-level degree.	SSB
Poverty Rate	The fraction fo households below the EU's relative poverty line of 60% of the median income.	SSB

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Master Thesis

Preliminary thesis report

Social Capital: The effect of generalized trust on tax avoidance in Norway

Navn:	Hao Vy Tran, Lars Sondre Klepp Thorbjørnsen

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1. Introduction

1.1 Area of study

Economic growth has been a pillar of increasing quality of life in today's society, and without the expansion of different economic sectors and the emergence of new firms, this would not have been possible. In order for firms to survive, they rely on a certain level of profitability, and as more companies emerge and different sectors become more saturated, the competition increases, and the firm's profit margins decrease. As a result, the importance of how companies handle their expenses have increased in recent years. Today, one of the biggest expenses both companies and people face is tax expenses. Whether it is a private person or a company, one could benefit strictly economically from trying to minimize these expenses. However, looking at society as a whole, this concept is somehow contradicting with how today's economic system works in many countries and the purpose of taxes. Using Norway's "welfare state" as an example, it is dependent on sufficient tax payments and the trust of its population to work, which is fundamental to the societal network.

In society today, there is an underlying expectation that every actor that receives common goods should contribute equally to society. Paying taxes is seen as one of the most fundamental ways to engage with society and show solidarity with fellow citizens. With this in mind, companies often face a dilemma when determining their tax strategies.

News regarding the ethical and legal actions of corporations has always been in focus. Their tax strategies and how some try to minimize their tax expenses is one of them. The matter has gained more attention in recent years, where some large corporations intentionally located their headquarters in low-tax regions to reduce tax expenses. By conducting tax avoidance, these corporations have been subject to criticism from surrounding communities and organizations arguing that it is socially irresponsible to deviate from such a fundamental action of contributing to society.

In the past decades, research has examined tax avoidance in relation to different social concepts. In this paper, we seek to extend the prior research and explore how trust within a society, more specifically social capital, relates to corporate tax avoidance.

2. Literature Review

2.1 Social capital

The term social capital was first popularized by Putnam et al. (1993)'s Making a democracy work, and its relation to economic factors has since been subject to research in several papers over the past decades. When interpreting prior research, several variations of defining social capital occur. Both Wintrobe and Gerxhani (2004) and Kanagaretnam et al. (2018) use the terms social capital and societal trust, respectively, and have a mutual definition, viewing social capital as informal institutional trust, referring to the trust that follows a set of shared and established unwritten rules, communicated through informal channels. Further, Wintrobe and Gerxhani (2004) distinguish this trust in two different manners. The first one being trust between the citizens within society and secondly, the trust between citizens and their government.

In addition to Wintrobe and Gerxhani (2004), López (2014) identifies that there is a link between generalized trust and the trust of the government. Using Giddens (1990)'s definition of generalized trust as "confidence in the reliability of a person or system, regarding a given set of outcomes or events", López (2014) argues that higher levels of generalizable trust increase firm owners likelihood of contributing to the common good in society, using participation in taxation arbitrage opportunities as the determinant. This ties with Portes (1998)'s definition of social capital as the ability of actors to secure benefits through membership in social networks or other social structures, which supports López (2014)'s argument that firm owners are less inclined to engage in tax-arbitrage behavior when they believe their tax money is being put to proper use, which in turn serves as a benefit to the firm owner.

Other research also supports Giddens (1990)'s definition of social capital, such as Coleman (1988). He simplified the definition by labeling the term social capital as a set of networks that would benefit those who participated. With increased social interaction and more dense networks between people, the efficiency of information sharing increases, which in turn helps shape, communicate, and enforce civic norms. Coleman (1988)'s definition relates to both Wintrobe and Gerxhani (2004) and Kanagaretnam et al. (2018)'s definition of institutional trust and social capital mentioned above.

Several studies have pointed out how trust within social groups and networks can vary depending on the level of social capital in the surrounding social environment. In societies with higher levels of social capital, people tend to trust each other more. According to Chircop et al. (2018), a reason for this is that communities with such networks have a greater opportunity to punish deviants who do not conform to civic norms. This is also in line with the prior findings of Coleman (1988) on how high levels of social capital help enforce civic norms in communities, and how higher levels of trust cause managers to conform more with social norms (Kanagaretnam et al., 2018).

Given the review of prior research on the matter of social capital, defining a concrete measurement for the level of social capital in a region is found difficult. Similar to Guiso et al. (2004), we believe there are underlying complications when measuring levels of social capital. The concept of social capital is complicated, where most measurements in prior research are outcome-based and contaminated by other factors. As discussed and presented by Guiso et al. (2004), is economic action from an individual built upon the level of social capital or the level of legal enforcement in the region? Prior research uses several variables in measuring the level of social capital, where some are more commonly used than others. López (2014) and Kanagaretnam et al. (2018) based their measure of social capital on the level of trust measured by World Value Surveys (WVS). WVS is a database that explores individuals' values and beliefs, how they change over time, and what social and political impact they may have. Guiso et al. (2004) characterize areas with high levels of generalized trust with high levels of social capital. In addition to WVS, crime rates in countries are taken into consideration in López (2014). Messner et al. (2004) show that there is a link between the level of trust and crime rate in the respective region. Knowing that corporations are usually run by a group of individuals, we find it reasonable that the same indicators of trust and social capital can be used for corporations.

Several indexes can be used to measure a region's level of social capital, depending on available data in that region. Chircop et al. (2018) used a social capital index as their measure of social capital. The higher the social capital index in a county, the higher the trust in that particular county. The authors of the index use two measures

of civic norms, voter turnout in presidential elections and census response rate, and two measures of social networks, number of social and civic associations and number of governmental organizations. Similarly, the study by Hasan et al. (2017) measure social capital by the density of social networks, defined as the number of non-profit organizations, social organizations and the strength of civic norms. They also include organ donation as an alternative proxy for social capital. Guiso et al. (2004), which use electoral participation and blood donation as proxies for social capital, argue that these proxies are free from criticism since there are neither legal nor economic incentives to donate blood or to vote. "Both decisions are driven only by social pressure and internal norms, i.e., the fundamental components of social capital" (Guiso et al., 2004).

2.2 Tax avoidance

When addressing tax strategies in companies, the general concept concerns how companies can utilize different strategies to reduce their tax expense. Whether we talk about tax aggressiveness, tax planning or any other similar term, it is covered by the concept of tax avoidance (Hanlon & Heitzman, 2010). Hanlon and Heitzman (2010) defined tax avoidance as strategies companies use to create a temporary or permanent difference in book-value of tax and a reduction of explicit taxes.

According to Shackelford and Shevlin (2001), previous literature on the effects of minimizing tax are ambiguous in terms of how it affects organizational goals. However, companies that participate in and practice tax avoidance strategies can generate extensive economic benefits (Lanis & Richardson, 2012). Motivated by profit logic (Christensen & Murphy, 2004), the application of tax avoidance strategies in companies have been increasingly more common throughout the world economic landscape (Lanis & Richardson, 2012). Allingham and Sandmo (1972) found that taxpayers are prone to maximizing their utilities, and with increasingly more complex tax rules and difficulties practicing tax enforcement, companies are enabled to participate in tax avoidance (Kanagaretnam et al., 2018).

Despite the possible economic benefits a company can gain from tax avoidance, Lanis and Richardson (2012) pointed out that this behavior could negatively impact society, as tax payments are one of the most fundamental ways for a company to interact with society (Christensen & Murphy, 2004).

Given the broader specter and depth of research papers regarding tax, compared to social capital, measures around corporations' tax avoidance are found to be more concretized. Hanlon and Heitzman (2010) examine theoretical models of corporate tax avoidance and identifies 12 empirical measures of tax avoidance. However, not all measures are appropriate for all research questions. Proxies such as effective tax rate measures, probability of tax sheltering, and book-tax differences are also found in other research papers. Measures of effective tax rate is the most frequent proxy used in the reviewed literature. Hasan et al. (2017) used effective tax rates and cash effective tax rates "to capture consequences of broad tax avoidance practices that reduce the firm's taxes relative to its pre-tax accounting income" (Hasan et al., 2017). Here, the effective tax rate is defined as total expenses, including both current and deferred tax expenses, divided by pre-tax book income before special items. Cash effective tax rate is defined as cash taxes paid divided by pre-tax book income before special items. However, Chircop et al. (2018) used the aforementioned measures and book-tax differences as alternative proxies of tax avoidance. Hanlon and Heitzman (2010) find evidence that book-tax differences capture some element of tax avoidance. Their main proxy of tax avoidance is the probability of a firm conducting tax-sheltering activities. A model developed by Wilson (2009) predicts the degree to which firms engage in tax sheltering using several values that can be found and calculated based on public information of the firms. Lastly, in the research conducted by López (2014), dividend payouts before and after a taxation reform in 2006 are examined to uncover indications of tax arbitrage behavior to minimize taxes paid on labor.

2.3 Knowledge gap in prior research

To extend the research on the concept of social capital, Kanagaretnam et al. (2018) reason that corporate tax avoidance is a setting in which the concept is likely to play an important role. Based on our review and interpretation of prior research in the area of social capital and tax avoidance, we believe that there is a negative relationship between the level of social capital and the occurrence of tax avoiding activities in a region. This assumption is consistent with several papers in the area of study. López (2014), Hasan et al. (2017), Chircop et al. (2018), and Kanagaretnam et al. (2018) all show that there is a negative relationship between levels of social capital and tax avoidance in a region.

López (2014) studies the effect of generalized trust on tax avoidance by using the taxation reform that happened in Norway in 2006. Tax avoidance is measured through the occurrence of reclassification of wages as dividends to minimize a firm's tax expenses. The study shows that there is a moderating effect of trust levels on dividend payouts of Norwegian closely-held firms located in the respective regions, in the period when dividends were exempt from taxes. López (2014) argues that high levels of trust imply fewer incentives to avoid paying taxes since the taxpayer believes that the government uses tax money efficiently to benefit society as a whole. Besides, incentives of conducting tax avoidance decrease in regions with high levels of social capital due to the risk of reputational loss that can occur if the violation is discovered (López, 2014).

In a study conducted by Hasan et al. (2017), using the density of social networks and strength of civic norms in US counties where firms are headquartered as a proxy of social capital, they find negative and statistically significant relations between the levels of social capital and three tax avoidance measures. The study also finds a negative association between social capital and the probability that a firm undertakes tax-sheltering activities.

Chircop et al. (2018) examine the relation between the level of social capital in regions where a firm is headquartered and the occurrence of tax avoidance in US counties. The probability of a firm to undertake tax-sheltering activities and a US county social capital index are used as proxies for the level of tax avoidance and social capital in a region, respectively. Similar to Hasan et al. (2017), the study found robust evidence that firms headquartered in high-social-capital areas engage significantly less in tax avoidance activities.

Contrasting to the studies mentioned above, Kanagaretnam et al. (2018) conducted an international study on the effect of societal trust on tax avoidance. Using a large sample from 25 countries, evidence of a negative relationship is found. In line with López (2014), the study resonates that the relationship is negative because the costs of violating social norms increase with the level of trust. Also, the negative relationship is less considerable when there is a high level of legal enforcement and more significant in areas with stronger capital market pressure. The results imply

that the effect of high levels of social capital and legal enforcement substitute each other, which is harmonious with Atwood et al. (2012) stating that tax avoidance is lower for firms with home countries with stronger perceived tax enforcement.

To summarize, several studies in the areas of social capital and tax avoidance conclude with similar results. However, we do find several gaps our paper possibly can fill to extend the research in the field. Few papers examine the concept and relationship in a small, economic region like Norway. Except López (2014). In other selected papers mentioned above, they examine the relationship between social capital and tax avoidance in much larger regions, like Hasan et al. (2017) and Chircop et al. (2018) which focuses their study in the US at a county-level. Kanagaretnam et al. (2018) includes a sample from 25 countries in their study. Besides, the use of proxies between the studies differs tremendously. We find measures regarding effective tax rates and book-tax differences as more generalizable between regions, either between countries or counties. These proxies were not used in López (2014)'s study, where reclassification of wages as dividends was used.

3. Methodology

3.1 Research question

We want to explore the relationship between social capital and corporate tax avoidance. We want to limit our study to different regions in Norway. Hanlon and Heitzman (2010) argued that corporate tax evasion is one of the four most important topics for further tax research within the field of accounting. Prior research has already been conducted on the relationship between social capital and tax avoidance. However, the amount of research on corporate tax evasion in relation to social capital in Norway seems to be inadequate, hence, why we find it important to explore this topic further. The research question for our Master thesis is, therefore: "How does the level of regional social capital influence corporate tax avoidance in Norway?".

3.2 Hypothesis

H: The regional level of social capital is negatively correlated to the level of a firm's tax avoidance in the respective region.

3.3 Objective of the thesis

Most of the previous literature on the research focuses on the relationship between tax avoidance and social capital in larger regions than Norway. Hasan et al. (2017) and Chircop et al. (2018) focus their studies on the US, while Kanagaretnam et al. (2018) used a sample consisting of 25 countries. The objective of our thesis is to provide more insight and fill the knowledge gap on how regional social capital influences corporate tax avoidance in smaller regions, in this case, Norway. López (2014) examines this relation by studying dividend payouts before and after the 2006 tax reform in Norway. However, we seek to generate more generalizable findings by using different proxies to explore the relationship after the tax arbitrage opportunities proposed in López (2014) diminished in the Norwegian tax reform in 2006.

4. Data collection and analysis

4.1 Empirical model

To test and verify our research question, we are set to use multivariate ordinary least squares. Our baseline model will comprise variables of interest, proxies regarding the level of social capital and tax avoidance. To proxy the level of social capital, data from World Value Surveys will be used. Tax avoidance is going to be measured by firms' effective tax rates and book-tax differences. Firm-related, accounting, and regional control variables will be added to take into account factors that are found to be associated with tax-avoiding activities. Such variables may be firm size, type of ownership, profitability, liquidity, foreign operations, leverage, etc. Chircop et al. (2018) include measures of corporate governance and CEO characteristics as well.

Tests of our model's robustness will be conducted to ensure that our result is not driven by our choices of proxies. These tests should be consistent with our baseline model. We will test and use alternative proxies for the level of social capital and tax avoidance. These may include, among others, crime rates (López, 2014), donations (Guiso et al., 2004; Hanlon & Heitzman, 2010), and electoral participation (Chircop et al., 2018; Guiso et al., 2004; Hasan et al., 2017). The probability of tax-sheltering activities is applicable as an alternative proxy for tax avoidance.

4.2 Data collection

We intend to collect data relevant to our research question from the Center for Corporate Governance Research (CCGR), WVS, and SSB. As previously mentioned, WVS provides insight and useful data for constructing our proxy of social capital. Similar to López (2014), we believe that company-related data regarding calculated tax and cash tax payment can be collected from the CCGR database, as well as supplemented by data from SSB's statistics on corporate tax. All in all, our data will come from secondary sources.

5. Plan to completion

We plan to collect and process our data by the end of March. Further investigation and regression analysis will be conducted through April and hopefully, we will be able to find feasible results sometime in May. In addition, we seek to supplement our literature review throughout the whole period so that all the necessary material needed to conclude the paper is obtained before June. Throughout June, we believe most of our time will be spent rewriting and reformulating the final version of the paper.

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