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Thesis

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The relationship between corporate social responsibility and tax avoidance: a European case study

Author:
Stevens, Tamara, 371478

Supervisor:
D. L. Urban
T. Eisert

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Abstract

The primary objective of this thesis is to investigate the relationship between corporate social responsibility (CSR) and tax avoidance on an European scale and the influence of market competition on this relationship. Four different subgroups of CSR performance are also exploited in this thesis. Currently, there are several different ways companies could view CSR and tax avoidance. On the one hand, companies can view both CSR investments and paying taxes as contributions towards society. On the other hand, companies can see tax payments as a detraction from social welfare — firms that avoid taxes have a greater capacity to invest in CSR — or view CSR investments as a form of risk management when tax avoidance is employed. In line with these different visions, both a negative or positive relationship can exist between CSR and tax avoidance. Furthermore, due to advantages that can be gained over competitors by accommodating market demand, market competition could have its influence on this relationship.

This study is based on observations from 657 European companies between 2005 – 2017, of which the data is retrieved from Worldscope database, OECD database, Compustat and ASSET4. A fixed effects model, with year and firm fixed effects, is used for the main analyses, followed by several robustness checks such as country fixed effects and the instrumental variable (IV) method. To apply the IV method, the one-period lagged CSR performance is the used as the instrument. Little evidence is found that supports a relation between CSR and tax avoidance, and a potential influence of market competition. Only when country fixed effects are used or when the IV method is applied, some results show a negative significant relationship between CSR performance and tax avoidance, which suggests that companies that invest more in CSR are also more likely to avoid tax. With regard to the effect market competition has on this relationship, only the IV method suggest that an increase in market competition makes the relation weaker.

Foreword

Before you lies the final product of my master thesis for the master Economics and Business, with a specialism on Financial Economics. One year ago, I had to choose a subject for my thesis. Since taxation has been an interest of mine throughout the years and plays a significant role in finance as well, I wanted to let this topic come back in this thesis. Corporate social responsibility (CSR), on the other hand, was some what new for me. On both topics, society has a pretty strong opinion, on the latter more positive than on the former. Reading the newspapers, it seems that companies that avoid taxation obviously do not care about the society and companies that invest in CSR clearly do. Although most situations are not as clear-cut as that, following this line of reasoning, both the topics may say something about a company's ethical standard. Furthermore, if companies invest in CSR and thus are ethical, you would expect that they do not avoid tax, or the other way around. The strong opinion of society triggered me in wanting to find out more about the relationship between CSR and tax avoidance, as most of the company's decisions take more into consideration than just the ethical side of the story. Also I wanted to see what the influence of market competition was on this relationship. Since society has such a strong opinion about both topics, it could influence the relationship in markets in which consumers have a higher demanding power.

I could not have written this thesis without the support of a lot of family and friends. However, there are a few I would like to thank in specific. First of all, my supervisor, Daniel Urban, thank you for letting me write the thesis in complete independence, while providing guidance whenever I needed. Secondly, Carolien and Jonathan, thank you for offering a sympathetic ear and sharing all the writing tips. Furthermore, the many discussions I had with the both of you were very helpful. Thirdly, a big thanks to my parents and brother who have been my biggest cheerleaders throughout my whole study and student life. Due to their support I was not only able to finish two masters, but also to develop myself on a personal level.

I hope you enjoy your reading.

Tamara Stevens

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1 Introduction

In the recent years, society is demanding companies to act in an ethical considering way, for example by putting pressure on their corporate social responsibility (CSR) and their tax avoidance practices. The effect of this pressure on CSR can be seen in several initiatives undertaken by companies. Bosch, for example, invests half of its research and development budget in supporting universities and research programs that focus on environment, energy and mobility. Moreover, Spotify offers more benefits to employees and families, such as a longer period of parental leave. Furthermore, Unilever's Ben & Jerry's committed to their shareholders that 7.5% of the pre-tax profits will be used for philanthropic work and TOMS donates over 60 million pairs of shoes to children in need. Contrary, the effect of demanding companies to pay their fair share of taxes is more difficult to see. However, through 'tax shaming' and use of the justice system it is shown that tax-avoidance behaviour is no longer accepted. Starbucks, for example, had to deal with consumer boycotts in the United Kingdom after reporting zero corporate tax payments (Graham et al., 2014). Furthermore, several multinationals, such as Ikea, Fiat and Apple, are facing cases in court due to their tax structures.

Due to the increasing amount of attention for CSR and tax avoidance, these two phenomena flourish as study fields. Both phenomena are investigated on several research topics including the performance of the company (Scholtens, 2008; Desai & Dharmapala, 2005), management decisions (Windsor, 2009; Desai & Dharmapala, 2006; Armstrong et al., 2015; Dyreng et al., 2010) and the effects on reputation (Minor & Morgan, 2011; Godfrey et al., 2009; Dyreng et al., 2016; Austin & Wilson, 2017; Hardeck & Hertl, 2014). For CSR, studies show that making the decision to invest in CSR mostly follows good financial results. However, a conflict is created for management when such a decision has to be made, since they have to choose between short-term and long-term results. Furthermore, CSR investments can be used as a reputation protection. For tax avoidance, studies show that characteristics of managers and their compensation can affect the firm's tax-avoidance practices. Moreover, when management does not make the decision out of self-interest, avoiding tax could increase the firm value. When the tax-avoidance behaviour of a company becomes public knowledge, it negatively affects the reputation.

So far CSR and tax avoidance have mostly been separate research topics. Besides for a few studies such as Lanis & Richardson (2012), Huseynov & Klamm (2012), Hoi et al. (2013), Lanis & Richardson (2015) and Watson (2015), the relationship between CSR and tax avoidance has not yet been researched in great detail. CSR, with its corporate governance, social and environmental dimensions, reflects a substantial number of stakeholders. Tax avoidance of companies, as tax being a big part of governmental income, affects a lot of stakeholders. Since both are linked to stakeholders, further examination of the relationship between CSR and tax avoidance is interesting, since the outcome of the study could potentially provide more background on the reasoning behind employing CSR investments or tax avoidance. The extent to which companies choose to engage in CSR and tax avoidance likely indicates in what manner engaging in one activity affects the costs and benefits of the other (Davis et al., 2015). When a negative relation between CSR and tax avoidance is found, companies likely view both CSR investments and paying taxes as contributions towards society. Contrary, when a positive relation exists, paying taxes is likely seen as a distraction from social welfare — firms that avoid taxes have a greater capacity to invest in CSR — or CSR investments might be used for risk management purposes. Studies investigating the relationship

between CSR and tax avoidance mostly find that companies with higher CSR performance are less likely to avoid tax (Lanis & Richardson, 2012; Huseynov & Klamm, 2012; Hoi et al., 2013; Lanis & Richardson, 2015; Watson, 2015). So far most of the studies are conducted on US data. In Europe, CSR and tax avoidance are also important topics. This can be seen in the substantial amount of negative attention for the Volkswagen scandals and effort of the European commission to take down tax structures of for example Ikea. Therefore, in this thesis the relationship between the overall CSR performance and tax avoidance will be examined based on European companies. Currently, studies concentrate on the three dimensions of CSR — corporate governance, society and environment — however, additionally four different subgroups of these dimensions — management performance, shareholder performance, strategy performance and community performance — will be exploited further in this thesis.

A factor that could affect the relationship between CSR and tax avoidance is market competition. Market competition can force management to make tactical decisions in line with a certain competitive strategy, and therefore have effect on the relationship between CSR and tax avoidance. It is apparent that this has not yet been researched. Therefore, the effect of competition on this relationship will also be examined in this thesis.

A number of contributions are made in this thesis. First of all, a contribution to science is made as there is almost no research on the relationship between CSR and tax avoidance at an European scale. Moreover, it is apparent that, the relationship between the subgroups of CSR and tax avoidance, and the effect of competition on the relationship between the overall CSR and tax avoidance has not been examined at all. Secondly, this study will provide managers with insights on CSR and tax avoidance in certain market environments. Managers could incorporate this knowledge in their decision making. Thirdly, this study is relevant for stakeholders and policy makers, since CSR and tax avoidance are phenomena that have a high social value. Stakeholders benefit from companies that have a high CSR and/or do not avoid tax. Moreover, this study could give more insight on the relationship of CSR and tax avoidance and the effect of competition, which could be used for regulation purposes, for example, in order to reduce tax avoidance.

This thesis uses a fixed effects model at the firm and year level to capture the relation between (the subgroups of) CSR and tax avoidance. To assess the effect of competition on the relationship, an interaction term between CSR performance and competition is added to the model. The data needed for the performances concerning CSR is retrieved from the ASSET4 database (owned by Thompson Reuters), which gives the (overall) CSR performance and divides the CSR performance into multiple subgroups. The Worldscope database and OECD database are used to calculate three different proxies to capture a company's tax avoidance: effective tax rate, long-term effective tax rate and the book-tax difference. The effective tax rate is defined as the total tax expense divided by the pre-tax book income. The long-term effective tax rate is defined as the five-year average total tax expense divided by the five-year average total pre-tax book income. The book-tax difference measure is defined as the difference between the pre-tax book income and the taxable income. Furthermore, to capture the market competition the Herfindahl-Hirschman Index (HHI) will be calculated, using data retrieved from the Worldscope database.

Contrary to earlier studies, no significant effects were found between the CSR performance and tax avoidance using the firm and year fixed effects. The insignificance is presumably a result of existing

endogeneity in the model. The model, with firm and year fixed effects, might not have captured all the omitted variable bias. Upon further investigation into the robustness of the results, a negatively significant relationship is shown between CSR performance and the effective tax rates when the firm fixed effects are replaced by country fixed effects or when the instrumental variable (IV) method is applied (using the one-period lagged CSR performance as an instrument). Surprisingly, the relation between the management performance and tax avoidance is significant throughout the main analysis (using firm and year fixed effects). This was supported by a robustness check, an IV method using the one-period lagged management performance as an instrument. The other subgroups of CSR performance — shareholder performance, the strategy performance, and the community performance — show no significant results in the main analysis (using firm and year fixed effects). Furthermore, in the main analysis market competition has an insignificant effect on the relationship between CSR and tax avoidance. However, when the IV method is applied as a robustness check, a positive significant result is shown suggesting that market competition makes the relation weaker.

The remainder of this thesis is structured as follows: the next section provides an overview of related literature on CSR, tax avoidance, competition, and combinations of these concepts. Section 3 elaborates on the data and the methodology, after which, in section 4, the results and robustness tests, such as the country fixed effects and the IV method, will be presented. Section 5 concludes and discusses the findings, implications, limitations and possible future research.

2 Literature review

2.1 Corporate social responsibility

Given the wider societal context of today (Damgaard et al., 2003; Porter & Kramer, 2006; Avi-Yonah, 2008), non-financial performance, such as CSR, is widely considered along with financial performance as an essential quality of successful companies (Avi-Yonah, 2008). This is supported by the idea that ordinary companies intrinsically offer nothing of value to the society (Barrett, 2009). While philanthropic values may be a reason for companies to care about their CSR performance, investing in CSR can also be a part of the corporate strategy. CSR investments for instance can be used as management tool to strengthen the organizations' performance through the creation of a better image in the stakeholder's mind by showing their responsible behaviour towards society. (Barnett & Salomon, 2006; Orlitzky et al., 2003). The positive influence of CSR as a management tool can be seen in the impact of CSR investments on brand evaluations, choice recommendations, customer satisfaction and loyalty (Sen & Bhattacharya, 2001; Luo & Bhattacharya, 2006; Werther Jr & Chandler, 2005). A study conducted by Sen & Bhattacharya (2001) suggest that consumers evaluate the company favourable when they are supporting CSR activities, this effect is even stronger when the CSR activity is relevant to the company's already existing product. Luo & Bhattacharya (2006) show that CSR investments positively affects consumer satisfaction. Research by Werther Jr & Chandler (2005) found that CSR can be used as a brand insurance, due to its direct positive effect on brand loyalty. Whether CSR also has a direct effect on the financial performance of a

company is still a debate amongst researchers (Lu et al., 2014), as mixed results on the relationship are found (Reverte et al., 2016; Huatuco et al., 2013; Barnett & Salomon, 2012). CSR can, however, be used to reduce a negative reaction of the market on the stock price in face of a negative events (Godfrey et al., 2009); CSR can function as an insurance to limit value loss.

Although CSR has evolved for many years (Carroll, 1979), and several empirical and case studies have examined various factors relating to the CSR performance of companies, there has been no research consensus on the definition of CSR. In 1991, Carroll et al. (1991) developed the well-known pyramid of corporate social responsibility, asserting that companies not only have economic and legal obligations towards society, but also ethical and discretionary responsibilities (Carroll et al., 1991). In the more recent research, environment and governance responsibility have been - next to the social responsibility — included in the CSR definition. Van Marrewijk (2003), for example, refers to CSR as "activities, voluntary by definition, demonstrating the inclusion of social and environmental concerns in business operations and in interactions with stakeholders". Dahlsrud (2008) summarizes all the different CSR definitions used and concludes that basically all the papers refer to one or more of the so-called CSR dimensions – voluntariness, stakeholder, social, environmental, and economic. Given these different definitions and dimensions, the overall CSR performance is defined broadly in this thesis as *a company's performance regarding three dimensions namely the corporate governance, society and the environment*.

It should be acknowledged that specific regulation on CSR investments has — in Europe — not yet occurred, meaning that companies need other motives to consider CSR a valuable investment (Avi-Yonah, 2008). No distinction will be made, however, between CSR conducted by a company for altruistic or selfish motives (Lanis & Richardson, 2015), since many companies act with both motives in mind (Lanis & Richardson, 2012).

2.2 Tax avoidance

Corporate income taxes, the direct taxes paid on income by corporate entities, often have a large impact on decisions made by managers (Princen, 2012). Managers take extensive actions, such as reallocation of the company headquarters (Voget, 2011), to reduce the corporate taxes that must be paid (Graham, 2013).[1] Reduction of the taxes paid can be done either by avoidance or by evasion. Tax avoidance is a practise that uses disruptions and loopholes in the tax systems to lower taxation costs.[2] Tax evasion, on the other hand, is mostly established by purposely misrepresenting or hiding financial information from the tax authorities, such as a lower taxable income or higher deprecation, causing lower tax payments. Although tax avoidance is legal and evasion is not (OECD, 2019), much negative attention recently has been drawn to companies that participate in tax avoidance,[3] mainly due to economic crisis of 2008 during which this tax-avoiding behaviour of multinationals became more public known (Pegg, 2017; Bender, 2017). Making the idea that everyone, including companies, must pay their fair share of taxes, to become more broadly carried.

[1] See also corporate decisions made by companies such as Google, Fiat, Ikea, Apple and the use of the Double Irish Dutch Sandwich.

[2] However, when taxpayers try to find loopholes with the intentions to pay less tax, even if technically legal, their actions may be against the spirit of the law and in this sense considered noncompliant (James et al., 2001).

[3] This attention is not only created by media but also by the European Commission by for example releasing a list with companies that avoid taxation (European Parliament, 2015) or by challenging multinationals in court about their behaviour.

Assuming that there is a tight relationship between the state and the society, the fair share thought can be extended further to state that the payment of corporate tax can be considered as a payment to the community (Lanis & Richardson, 2015). The payment of corporate taxes has community and societal implications because it is partly financing the provision of public goods in society (Prichard et al., 2015). Implying that if companies do not pay taxes, the government is losing revenue and needs to cut expenses (Lanis & Richardson, 2015). For this reason, payments of corporate taxes by a company could have a relationship with their CSR performance.

Following Hanlon & Heitzman (2010) and Dyreng et al. (2010), tax avoidance is defined broadly as a reduction of corporate income taxes. Meaning that, there is no distinction made between reductions accomplished legally (avoidance) or illegally (evasion). In this thesis, tax avoidance is represented by three different proxies: effective tax rate (ETR), long-term effective tax rate (LETR), and book-tax difference (BTD). The ETR is the total tax expense divided by total pre-tax book income (Hanlon & Heitzman, 2010; Guenther, 2014; Dyreng et al., 2010). The LETR is the five-year average total tax expense divided by the five-year average total pre-tax book income based on the idea of Dyreng et al. (2010) and Davis et al. (2015). Companies that avoid taxes by reducing their tax expenses, while maintaining the same total pre-tax book income, should have lower ETR's and LETR's. Overall, a lower ETR or LETR would suggest more tax avoidance. The BTD is the difference between the reported pre-tax book income to shareholders and the reported taxable income to the tax authorities (Manzon Jr & Plesko, 2001; Desai & Dharmapala, 2006). Companies that avoid taxes would have a lower taxable income, while maintaining their pre-tax book income. This implies that a higher book-tax difference would suggest more tax avoidance. These proxies are further explained and discussed in Section 3.

2.3 Corporate social responsibility and tax avoidance

Existing theories and empirical evidence have suggested different views and found mixed results on the relationship, negative or positive, between a company's CSR performance and tax avoidance. A negative relationship, which will be discussed first, implies that companies with higher (lower) CSR performance, would be less (more) likely to avoid taxes. A positive relationship, discussed second, implies that companies with a higher (lower) CSR performance are more (less) likely to avoid taxes.

2.3.1 Arguments suggesting a negative relationship

The negative relationship between CSR performance and tax avoidance is ingrained into two contrary theories about the purpose of management — the shareholder and the stakeholder (Moser & Martin, 2012). The shareholder theory states that the purpose of management is to realise the specified ends of shareholders, with the assumption that the ends are legal and basically non-deceptive (Smith, 2003; Schaefer, 2008). Those ends are, in practise, mostly the maximisation of the company's profit. In contrast, the stakeholder theory states that it is the company's duty to balance the shareholders' financial interest against the interest of other stakeholders, such as employees, customers, and the community, even if this entails reducing profit (Carroll, 1979; Gass & Mackey, 2007; Smith, 2003; Schaefer, 2008).

Connecting these two theories with the relationship between CSR performance and tax avoidance, it could be argued that — from a shareholders' point of view — limited CSR investments must be made,

and tax-avoidance behaviour should be stimulated. Since this is causing a reduction of costs, profits will be maximised. Economist Milton Friedman's argument might be the most influential one in support of this line of reasoning. He states that a manager is hired by the shareholders with the general duty to follow the shareholders' directions. This duty will be most of the time to maximise the profit (Friedman, 1970), implying that companies will only invest in CSR and pay their taxes if it increases the profit. From a stakeholders' perspective, CSR investments must be stimulated, and tax avoidance should be decreased since it harms the society. Porter & Kramer (2006) and Avi-Yonah (2008) support the stakeholder theory with the view that companies have a major impact that extends beyond maximising shareholder wealth. Companies must survive the rigours of a competitive business environment, thus need to deal with many other entities and individuals, and care about CSR (Avi-Yonah, 2008). Furthermore, investing in CSR or paying tax may also maximise profit (Schaefer, 2008), for example due to competitive advantages it might bring (Jones, 1995). Therefore, the theories do not necessarily exclude each other.

Several studies also suggested a negative relationship between CSR and tax avoidance (Lanis & Richardson, 2012; Huseynov & Klamm, 2012; Hoi et al., 2013; Lanis & Richardson, 2015; Watson, 2015). Lanis & Richardson (2012) researched the relationship between CSR and tax aggressiveness in Australia. Their study suggests that Australian firms with a high level of CSR disclosures have higher ETRs. Therefore, the firms are likely to be less tax aggressive. A study conducted by Huseynov & Klamm (2012) finds evidence for a positive relationship between low CSR performance ratings and lower ETRs. This suggests that firms that invest less in CSR, avoid more taxes. Lanis & Richardson (2015) indicate, based on self-reported tax disputes, that more socially responsible firms are likely to employ less tax avoidance. Hoi et al. (2013) findings suggest that firms with excessive irresponsible CSR activities have a higher likelihood of engaging in tax-sheltering activities and a greater BTD, which suggests more tax avoidance. Watson (2015) investigates the relationship between CSR, tax avoidance, and earnings performance. The study shows that a lack of CSR is positively associated with tax avoidance of firms with low current or future earnings performance.

2.3.2 Arguments suggesting a positive relationship

Regarding the shareholder and stakeholder theory and several studies, CSR and tax avoidance are likely negatively associated. However, the contrary — a positive relationship — can also be argued; firms with a higher CSR performance might avoid more taxes (Davis et al., 2015). From a company's point of view, paying taxes detracts from social welfare since tax payments reduce economic development, job growth, and innovation by the company (Davis et al., 2015). This argumentation is supported by several studies (Hines Jr, 2005; Djankov et al., 2010; Ljungqvist & Smolyansky, 2014). Hines Jr (2005) implies that there is a significant amount of evidence showing that investments in the country and tax avoidance are strongly influenced by tax policies due to the mobility of capital. Furthermore, Djankov et al. (2010) find a consistent and large adverse impact of corporate taxes on investments and entrepreneurship. Moreover, Ljungqvist & Smolyansky (2014) conclude that an increase in corporate tax rates leads to a reduction in employment and wage income, and that when implemented during recessions, corporate tax cuts boost economic activity. More generally, when a firm has a relatively higher after-tax profit, its impact on social welfare through investments may increase, which both improves the income level of the community and increases other sources of tax revenue (Ljungqvist & Smolyansky, 2014). In other words, firms that avoid

taxes have a greater capacity to invest in CSR.

Another theory that would suggest a positive relationship is the risk management theory. In general, risk management refers to a practice of identifying, analysing and reducing potential risk. Godfrey et al. (2009) finds that participation in CSR activities could be a method to reduce risk, since in the face of certain types of negative events, for example an adverse event (Minor & Morgan, 2011), a lesser negative reaction on the stock price occurs for companies that participated in more CSR activities. This implies that CSR can create an insurance-like protection (Godfrey et al., 2009). Linking this theory to the relationship between CSR and tax avoidance, it could be reasoned that CSR investments can be used as an insurance to limit value loss in case the tax-avoidance behaviour of a company becomes public. This effect gives incentives to invest more in CSR, when more tax avoidance is employed.

There are some studies that have found results which are suggesting a positive relationship between CSR and tax avoidance (Sikka, 2010; Lanis & Richardson, 2013; Davis et al., 2015; Col & Patel, 2019). Sikka (2010) provides a few examples of companies that claim through their CSR reporting to be ethical, while employing tax avoidance. Moreover, in contrast to other research conducted by Lanis & Richardson, discussed in Section 2.3.1, they also provide evidence for a positive relationship Lanis & Richardson (2013). Their small sample study of 40 Australian corporations accused of tax aggressive activities, show a positive and significant relationship between CSR disclosure and tax aggressiveness, and thus suggest a positive relation between CSR and tax avoidance. Furthermore, Davis et al. (2015) argue that CSR and tax payments can act as substitutes since they find a consistent negative relation between CSR and the LETR. These results provide empirical evidence that firms with higher CSR performances are more likely to avoid more tax. That risk management can also play a role when deciding to invest in CSR is shown by Col & Patel (2019). They found out that companies affected by a new controlled foreign corporations look-through rule, a signal that firms make use of tax heavens, are responding with increasing their CSR practices.

Overall, theoretical background is provided for both the negative and positive relationship. The negative relation is supported by the shareholder and stakeholder theory. The positive relation is substantiated by the idea that paying taxes detracts from social welfare or the risk management theory. The majority of the empirical studies, however, find a negative relation between CSR and tax avoidance of firms, suggesting that companies that invest more (less) in CSR are less (more) likely to avoid taxation.

2.3.3 Hypothesis development

Although evidence for both relationships (negative and positive) is found, the majority of the empirical research implies that the relationship between the general CSR performance and tax avoidance is negative. Furthermore, the proxies used for tax avoidance and the research framework of the studies that show a negative relation, corresponds with the proxies and framework used for this thesis. Moreover, research also indicates a worldwide trend to offer more weight to stakeholders due to developments such as the Enron and WorldCom scandals (Martin et al., 2009). Against this background and in combination with the rise of the fair share thought, it is expected that companies that value the (overall) CSR performance would be less likely to participate in corporate tax avoidance. Based on this reasoning, the following hypothesis is created:

H1: Ceteris paribus, the CSR performance and the tax avoidance of a firm are negatively related

As mentioned in Section 2.1, CSR performance can be split into three different dimensions: corporate governance, society and environment. These three dimensions are defined as follows. Firstly, corporate governance performance is defined as the management performance, shareholder performance and the CSR strategy. Secondly, societal performance is defined as the influence on the workforce, human rights, community and product responsibility. Thirdly, environment performance is defined as the factors that determine resource usage, emissions and innovation. Thus far, not much research has been conducted on the relationship between these subgroups of CSR performance and tax avoidance for European companies. Due to the rising availability of information on CSR performance, the subgroups can now be researched. In this thesis further research will be conducted on the subgroups of corporate governance since the decision to invest in CSR and/or to avoid taxes is linked to the corporate governance of a company. This makes the relationship between the different subgroups and tax-avoidance behaviour interesting and useful. One subgroup of the societal dimension, the community, is also further researched. Community performance measures the company's commitment towards being a good citizen, protecting public health and respecting business ethics, which seems contradicting values for companies that avoid taxation. Therefore, it would be interesting to see the relationship between this subgroup and tax avoidance. The scope of the thesis will extend to the management, shareholder, strategy and community subgroups only. This is due to missing links within the other subgroups of the societal dimension and tax avoidance, and other studies conducted by Lanis & Richardson (2015); Laguir et al. (2015) who found an insignificant relationship between environmental performance and tax avoidance.

With the following sub-hypotheses, the research advice offered by Lanis & Richardson (2015) is cited. The hypothesis development regarding the relationship between the subgroups of governance performance and tax avoidance will be discussed first, followed by the hypothesis development regarding the relationship between the subgroup of social performance and tax avoidance.

The management performance measures a company's commitment and effectiveness towards following best practice corporate governance principles. The corporate governance principles differ among European countries and companies, but the Organization for Economic Cooperation and Development (OECD) is publishing guidelines every several years with key building blocks for a good corporate governance framework and practical guidance. The guidelines state that a well-functioning corporate governance system should embrace a high level of transparency, accountability, board oversight, and respect for the rights of shareholders and the role of key stakeholders (OECD, 2015). Following the same line of reasoning for the relationship between the overall CSR performance and tax avoidance, it could be argued that when a company values the corporate governance principles, especially the role of key stakeholders, it would perform higher on the management performance and should also be less likely to avoid taxes. Based on this reasoning, the following hypothesis is created:

H1a: Ceteris paribus, the CSR-management performance and the tax avoidance of a firm are negatively related

Furthermore, the relationship between shareholders performance — the company's effectiveness towards equal treatment of shareholders and the use of anti-takeover devices — and tax avoidance has also not yet been researched. Equal treatment of the shareholders — domestic and foreign, government and private or minority and majority — is viewed as good corporate governance and, in some situations, even demanded by law (OECD, 2000, 2015; Mucciarelli, 2010). Anti-takeover devices are means to counteract external corporate governance as they help shelter managers from the forces of the takeover market. Managers, who might be insufficiently competent or qualified to manage a company, could use these devices to prevent a hostile takeover or to maintain their positions when a takeover occurs (Meade & Brown, 1995). On the one hand, this could result in managers showing more risky or aggressive behaviour without carrying the negative effects of their actions. On the other hand, if managers are protected, they can apply a more long-term vision of the company since they are safer in their position, and having a negative revenue in the short term will likely hurt them less.

The relationship between shareholders performance and tax avoidance, in itself a less obvious one, can be based on a company's awareness towards their own corporate governance. Unequal treatment of shareholders, for example, is a sign of bad corporate governance (OECD, 2000). Following the same line of reasoning as used before, companies that care about their corporate governance are more likely to have a higher shareholder performance and lower tax avoidance. For this reason, it is anticipated that a negative relationship between the shareholders performance measure and tax avoidance exists. The following hypothesis is created:

H1b: Ceteris paribus, the CSR-shareholders performance and the tax avoidance of a firm are negatively related

The strategy performance measure captures the company's practices to communicate the involvement of CSR in their daily decision-making processes. The reasons why companies allow CSR to be a part of their decision-making processes differ and are therefore affecting the extent of communication about this involvement. On the one hand, companies can use participation in CSR activities as an insurance-like protection, explained in Section 2.3.2 (Godfrey et al., 2009; Col & Patel, 2019). In this case, the participation must be public knowledge to reduce the negative market reaction in the face of a negative event (Godfrey et al., 2009). When this protection is implemented due to the tax-avoidance behaviour of the company, a positive relationship will exist between the strategy performance measure and tax avoidance.

On the other hand, when the investments in CSR are used to respond to legitimate expectations of stakeholders, explained in Section 2.3.1, a company will also highly promote their CSR integration to inform their stakeholders that their expectations are taken into account (Kemper et al., 2013). In that case, it would be contrary to also participate in an increasing amount of tax avoidance due to the damage it can induce to the relationship with the stakeholders, when the tax-avoidance behaviour becomes public (Hanlon & Slemrod, 2009). In addition, an increasingly prominent element of CSR implementation is partnerships between companies and nongovernmental organisations (NGOs), which are mostly highly promoted (Seitanidi & Crane, 2009). Poret (2014) determines that during such partnerships, NGOs are

carrying the risk of losing credibility and legitimacy. Intuitively, NGOs would not enter a partnership with firms that, to their knowledge, are employing an increasing amount of tax avoidance due to the potential reputation damage. Therefore, these partnerships would force companies to limit or decrease their tax avoidance. In conclusion, when companies implement CSR in their daily decision-making process to satisfy their stakeholders, the strategy performance measure and tax avoidance would have a negative relationship.

Due to research indicating a worldwide trend to offer more weight to stakeholders (Martin et al., 2009), it is expected that a negative relationship exists between strategy performance and tax avoidance. The following hypothesis is created:

H1c: Ceteris paribus, the CSR-strategy performance and the tax avoidance of a firm are negatively related

Investing in CSR and/or avoiding tax has (positive and negative) consequences for the society. The community performance measure is based on the company's commitment towards being a good citizen, protecting public health and respecting business ethics. Due to the connection between tax payments and government spending, explained in Section 2.2, it could be argued that if a company cares about the community by being a good citizen, protecting public health and respecting ethics, it would also employ less tax avoidance. Following this argumentation, community performance and tax avoidance should be negatively associated. Based on this reasoning, the following hypothesis is created:

H1d: Ceteris paribus, the CSR-community performance and the tax avoidance of a firm are negatively related

2.4 Competition

As discussed in Section 2.3.1, the negative relationship between CSR performance and tax avoidance can be explained by the shareholder theory or the stakeholder theory. Following these theories, companies would either invest (disinvest) in CSR and decrease (increase) their tax avoidance when their revenue increases, or when the stakeholders demand it. In other words, the behaviour of the company is influenced by market demand. However, the influence of the demand itself depends on the amount of competition within the company's market since in markets that are highly competitive, advantage can be gained over competitors by accommodating market demand.

Economist Michael E. Porter states that two main strategies can be applied to gain the advantages: the cost leadership strategy or the differentiation strategy (Porter & Advantage, 1985).[4] In the cost leadership strategy, companies aim to become the low-cost producer in their industry (Porter & Advantage, 1985). In the differentiation strategy, companies seek to be unique in their industry through dimensions that are highly valued by buyers (Porter & Advantage, 1985). Regarding the strategies, Porter stated: "A firm that engages in each generic strategy but fails to achieve any of them is 'stuck in the middle.' It possesses no competitive advantage" (Porter & Advantage, 1985). In other words, to achieve a competitive advantage,

[4] Both the strategies can also be done in a narrow competitive scope within a industry, Porter calls that the focus strategy (Porter & Advantage, 1985). This could be seen as the third strategy but is basically the application of the cost leadership strategy or differentiation strategy on a smaller scope.

you need to choose between these strategies.

2.5 Corporate social responsibility, tax avoidance and competition

When a company applies the cost leadership strategy due to market competition, it could have implications for the CSR performance and the tax-avoidance behaviour. To lower the costs, the company could disinvest in CSR and/or will likely avoid more tax, as taxes are mostly viewed as a cost (Sikka, 2010; Cai & Liu, 2009). Cai & Liu (2009) found evidence that within the Chinese industrial markets, companies in more competitive market environments are implementing such a strategy by engaging in more tax-avoidance activities. Notably, due to the weak enforcement of the corporate income tax in China, tax avoidance there, compared to Europe, is likely easier to employ (Cai & Liu, 2009).

When applying the differentiation strategy, a company can use CSR investments as a competitive advantage (Porter & Kramer, 2006), since relationships with the stakeholders are based on trust and cooperation (Jones, 1995; Ruf et al., 2004). Flammer (2015)) and Fernández-Kranz & Santaló (2010) researched the relationship between CSR investments and competition. Flammer (2015) finds support for the view of CSR as a competitive strategy by showing that U.S. domestic companies increase their engagement in CSR in response to tariff reductions. Furthermore, Fernández-Kranz & Santaló (2010) find that firms have a higher CSR performance when they are in more competitive markets. Considering this study, it could be said that CSR can be used through positive reputation branding to obtain a certain market position.

Tax avoidance is generally viewed as a reputation destroyer (Desai & Dharmapala, 2008), and prior research shows that the reputation effects are relevant in a company's decision on whether to engage in tax avoidance (Dyreng et al., 2016; Austin & Wilson, 2017). Hanlon & Slemrod (2009) find that when a company's involvement in tax shelters becomes public, its stock price, on average, declines due to a potential consumer backlash. Several experimental researches support this reasoning (Hardeck & Hertl, 2014; Antonetti & Anesa, 2017; Asay et al., 2018). Following the results of these studies, it is less likely that companies that are in highly competitive markets and have chosen to apply the differentiation strategy, will engage in tax avoidance.

2.5.1 Hypothesis development

As mentioned in the section above, companies that employ the cost leadership strategy are more likely to disinvest in CSR and increase tax avoidance. In contrast, companies that employ the differentiation strategy are more likely to invest in CSR and decrease tax avoidance. Therefore, for both strategies a negative relationship seems to occur, implying that companies with higher (lower) CSR performance would be less (more) likely to avoid taxes. Based on this reasoning, the following hypothesis is created:

H2: Ceteris paribus, CSR performance and tax avoidance are stronger negatively related in more competitive markets

3 Research design

3.1 Sample description

In order to analyse the relationship between the (subgroups of) CSR performance and tax avoidance, and the influence of competition, an initial sample with European companies is retrieved from ASSET4 (owned by Thompson Reuters, available via Datastream). The sample is reduced by the following exclusions: (1) all the companies that do not have all the data for calculation of the tax-avoidance proxies; (2) all the financial companies because of government regulation, which likely affects their tax avoidance (companies with a Standard Industrial Classification (SIC) code of 6000–6900); and (3) all the Turkish companies since the largest part of the country is in Asia, which leaves them out of the scope. The final sample consists of 657 European companies, based in Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, Norway, Poland, Portugal, Slovenia, Spain, Sweden, Switzerland, The Netherlands and United Kingdom, and active in seven different industries.[5]

Table 1: The sample: construction

Sample construction steps	*N*
ASSET4 World	8049
ASSET4 Europe	1570
(1) Excluded companies due to missing data for tax avoidance proxies	- 400
(2) Excluded companies due to industry	- 381
(3) Excluded companies due to scope	- 132
Total sample	657

This table presents the construction of the total sample. The sample contains 657 European companies with observations between 2005 and 2017. Excluded from the sample are companies that have missing data for the calculation of the tax-avoidance proxies, are active in the financial industry (SIC-code: 6000-6900) or are based in countries outside the scope.

To investigate the relationship, three tax-avoidance proxies will be constructed. The first proxy, effective tax rate, is based on data from 2005–2017. The second proxy, long-term effective tax rate, is based on data from 2001–2017. The third proxy, book-tax difference, is based on data from 2005–2017. The required data is retrieved from the Worldscope database (available via Datastream) and the OECD database. The CSR performance and its subgroups are obtained from ASSET4 (owned by Thompson Reuters, available via Datastream, also used by Chen et al. (2010); Ioannou & Serafeim (2012); Gomes (2019)). For analysing the effect of market competition on the relationship, the Herfindahl-Hirschman Index is used as the competition measure and will be calculated based on data from 2005–2017, retrieved from the Worldscope database.

In the upcoming paragraphs, the dependent variable (proxies for tax avoidance), the independent variables (CSR and competition), the control variables and the base regression model will be discussed.

[5] The representation of countries in the sample can be found in Table 19 of the Appendix. The representation of industries in the sample can be found in Table 20 of the Appendix.

3.2 Dependent variable

Analysing tax avoidance of companies is challenging due to the confidentiality of financial information on tax returns (Hanlon & Heitzman, 2010). In order to conduct research on the avoidance — despite the lack of information — proxies must be created based on public information. As a result, no proxy is without limitations (Hanlon & Heitzman, 2010). Therefore, multiple proxies will be generated and employed in this thesis. The three proxies applied — effective tax rate, long-term effective tax rate and book-tax difference — are widely used in tax research (Gupta & Newberry, 1997; Desai & Dharmapala, 2006; Adhikari et al., 2006; Cai & Liu, 2009; Chen et al., 2010; Dyreng et al., 2010). To control for the effect of potential outliers, the sample is winsorized at the 1st and 99th percentiles (Shevlin, 2001; Lanis & Richardson, 2015). The construction and meaning of the proxies will be explained in the following paragraphs.

3.2.1 Effective tax rate

Following Dyreng et al. (2010) and Guenther (2014), the first proxy that will be used is the effective tax rate (ETR). The ETR measures the average tax rate that is paid by the company on its income. Although the ETR can fluctuate significantly from year-on-year, it is the most commonly used proxy due to the simplicity of the calculation and easily understandable meaning. The ETR will be calculated as follows.

$$ETR_{it} = TTE_{it}/PI_{it}, \tag{1}$$

where the effective tax rate (ETR) for a firm (i) in year (t) is defined as the total tax expense (TTE, current and deferred) divided by the pre-tax book income (PI).[6]

The ETR is negatively correlated to tax avoidance. In other words, when companies are more (less) engaged in tax avoidance, the ETR should be lower (higher). In the final sample used for calculation of the proxy, a measurement issue occurs for companies that reported either a negative pre-tax book income or a tax refund. Following Gupta & Newberry (1997) and Adhikari et al. (2006), these observations will remain in the sample. The proxy is, however, distorted in certain situations. For example, when a firm has a negative pre-tax book income and a tax refund (negative total tax expense), the ETR will be positive even though no taxes are paid. Furthermore, when a firm did pay taxes (positive total tax expense) but reported a negative pre-tax book income, the proxy will be negative even though the company did pay tax. To account for this problem, the recoding scheme recommended by Gupta & Newberry (1997) is used by setting the proxy: (1) to zero for firms with a tax refund and (2) to one for firms with positive taxes and negative/zero pre-tax book income.

3.2.2 Long-term effective tax rate

Based on the idea of Dyreng et al. (2010) and Davis et al. (2015), a long-term effective tax rate (LETR) based on five years will be used as the second proxy. Using a long-term proxy, an effective tax rate is calculated that is closer to the company's tax costs over the long run. This proxy should also be less affected by accrual-based management activities[7] than annual effective tax rate measures, such as the

[6] The pre-tax income is defined as all income/loss before any federal, state or local taxes. Also the extraordinary items that reported net of taxes are excluded.

[7] These are activities done by the management to achieve a desired financial reporting result.

ETR, since the longer time period should capture the reversals of the accruals (Dyreng et al., 2008). Ideally, the five-year cash effective tax rate would have been calculated. This proxy is based on the cash flow instead of the profit and loss statement, and is even better able to take into account the situation that a significant part of tax avoidance consists of accelerating tax deductions and postponing taxable income, which causes a lower current taxable income but a higher taxable income in the future. These situations are only partly taken into account when using the LETR (Dyreng et al., 2008). Due to data limitations of Worldscope, the cash effective tax rate unfortunately can not be calculated. The LETR will be calculated as follows.

$$LETR_{it} = \sum_{t=1}^{N} TTE_{it} / \sum_{t=1}^{N} (PI_{it}), \tag{2}$$

where the long-term effective tax rate ($LETR$) for a firm (i) in year (t) is defined as the sum of five years of total tax expense (TTE) divided by the sum of five years of pre-tax book income (PI). The LETR is also negatively correlated to tax avoidance. This means that when companies are more (less) engaged in tax avoidance, the LETR should be lower (higher). During the creation of the LETR, the measurement issue for firms that reported either negative income or tax refunds — explained in Section 3.2.1 — also occurs. To account for this problem, the same recoding scheme is applied as used for the ETR.

3.2.3 Book-tax difference

The book-tax difference (BTD), the third proxy, is based on the gap between the pre-tax book income reported by the company to its shareholders and the taxable income reported to the tax authorities on which the company actually pays its taxes. The ideal tax shelter will create a permanent, rather than temporary, difference (Shevlin, 2001). Companies that are relatively successful in avoiding taxes should be able to maintain significant permanent differences. The BTD proxy attempts to capture these permanent differences between the book and taxable income (Shevlin, 2001).

Following Manzon Jr & Plesko (2001), Gupta & Newberry (1997) and Shevlin (2001), in order to calculate the BTD, the taxable income has to be calculated first, as this information is non-excluded. The taxable income is estimated based on the current tax expense minus the deferred taxes divided by the statutory tax rate. Deferred taxes refers to a negative or positive post on the balance sheet of the company from taxes that still must be paid or were overpaid, and are subtracted due to their temporary character. The taxable income will be calculated as follows.

$$TI_{it} = (TTE_{it} - DEF_{it}) / STR_{ct}, \tag{3}$$

where the taxable income (TI) for a firm (i) in year (t) is defined as the current tax expenses (TTE) minus the deferred taxes (DEF) divided by the (top marginal) statutory tax rate (STR) per country c in year t.

After estimating the taxable income, the difference will be calculated with the following equation:

$$BTD_{it} = (PI_{it} - TI_{it}) / ASSET_{it}, \tag{4}$$

where the book-tax difference (BTD) for a firm (i) in year (t) is defined as the pre-tax book income (PI) minus the taxable income (TI), scaled by the total assets ($ASSET$). The BTD is positively correlated to tax avoidance. In other words, when companies are more (less) engaged in tax avoidance, the BTD should be higher (lower) since the difference between the income communicated to shareholders, pre-tax book income, and to the tax authorities, taxable income, is larger (smaller).

Regarding the calculation of the BTD, a measurement error also arises for companies that reported a negative pre-tax book income. A problem occurs, for example, when there is a loss according to the pre-tax book income and revenue according to the taxable income. In that case a (large) negative gap is calculated with the BTD. Blackburne & Blouin (2016) argue that (large) negative BTDs are a proxy for the overall level of noise in accounting systems. This, therefore, suggests that these BTDs are causing a measurement error when calculating a tax-avoidance proxy. An second measurement issue arises when the pre-tax book income and the taxable income both present a loss, and no taxes are paid nor should be paid, based on these two measures. However, when the negative taxable income is higher than the negative pre-tax book income, a positive BTD will be calculated. The higher the taxable income, the higher the gap, insinuating that the company is avoiding tax. Companies could, in theory, attempt to maximize their negative taxable income to create a loss that they can use in another year. However, companies that are making a book loss likely have different priorities than avoiding taxes (Desai & Dharmapala, 2006). To account for these two measurement issues, the proxy is set at zero for firms with a negative pre-tax book income.

3.3 Independent variable

3.3.1 Corporate social responsibility

The data for performances concerning CSR is subtracted from ASSET4. The ASSET4 database of Thomson Reuters provides comparable CSR data covering more than 7000 public companies going back to 2002, with the aim to provide an up-to-date, objective and comprehensive global coverage. The recently extended database has an overall environmental, social, and governance (ESG) score which is measuring the company's ESG performance based on public-reported data. In this thesis, this score will be seen as the CSR performance measure. The CSR performance measure is an combination of the ten subgroups weighted proportionately and will have a value between 0 and 100, of which 0 means low performance and 100 means high performance. The ten subgroups are: resource use, emissions, innovation, workforce, human rights, community, product responsibility, management, shareholders, CSR strategy (Eikon, 2018). In an other study (Ioannou & Serafeim, 2012), a combination of scores on the CSR dimensions — governance, environmental and social — was used to calculate the overall CSR performance due to the lack of a general score. With the new ESG score, this is not needed anymore.

For the sub-hypotheses, the management, shareholders, CSR strategy and community scores will be used as the performance measures. The subgroups are based on a percentile rank scoring methodology, which makes the outcome insensitive to outliers. Each subgroup's score is the equally weighted sum of all relevant indicators used to create the subgroup (Eikon, 2018) and will have a value between the 0 and 100, of which 0 means low performance and 100 means high performance. The subgroups' performance have a positive influence on the CSR performance. In other words, a higher (lower) subgroup performance causes

a higher (lower) CSR performance.

3.3.2 Competition

For the second hypothesis, the market competition — for which several measures can be used — must be calculated. Following Cai & Liu (2009), the Herfindahl-Hirschman Index (HHI) will be used. The HHI accounts for the number of firms in a market by incorporating the relative size of all firms in the market. In other words, it shows the level of market concentration. HHI will be calculated as follows.

$$HHI_{jt} = \sum_{i=1}^{N} (S_i)^2, \tag{5}$$

where the Herfindahl-Hirschman Index (HHI) is calculated for an industry (j) in year (t) by squaring the market share (S) of each company (i) that is part of the industry. This is followed by summing up all the market shares. The HHI is negatively correlated with competition since it gives heavier weight to firms with large market shares than to firms with small shares due to the squaring of the shares. This coincides with the theoretical concept that competition is relatively strong in an industry with a low concentration of sales in a large number of firms (low HHI). In contrast, a high HHI corresponds to a high concentration of sales in an industry spread over a small number of firms with larger market shares, and thus a less competitive market. When there are more than 50 firms in the sample of a specific industry, the 50 largest firms — based on sales — are used to calculate the competition. When there are fewer than 50, all the firms available are used. The HHI will be a number between 0 and 1.

Table 2 presents the summary statistics for the competition measure, HHI. The results show that most competition is present in the manufacturing industry, with a HHI of 0.048, and the least competition is present in the mining industry, with a HHI of 0.215.

Table 2: Competition

Industry	SIC CODE	N	Mean	Std. dev
Mining	10-14	44	0.215	0.02
Construction	15-17	32	0.098	0.006
Manufacturing	20-39	50	0.048	0.004
Utilities	40-49	50	0.066	0.004
Wholesale trade	50-51	24	0.116	0.006
Retail trade	52-59	49	0.111	0.014
Services	70-89	50	0.078	0.01

This table presents the summary statistics for the competition measure per industry in Europe between 2005 - 2017. The level of competition is calculated via the HHI and scaled between 0 and 1. When the HHI is closer to 0, there is more competition in the market. When the HHI is closer to 1, there is less competition in the market. Financial firms (SIC code 6000 - 6999) are excluded. See Table 18 in the appendix for further elaboration on the HHI.

3.3.3 Control variables

Since numerous variables could determine a company's tax avoidance, a set of control variables is included in to the model to ensure that the results are robust. The control variables applied, are frequently used in research focused on tax avoidance. Six control variables are added: leverage (LEV), inventory intensity (INVENT), the market-to-book ratio (MKTB), return on assets (ROA), firm size (SIZE) and Big 4 auditor (BIG4). The data is retrieved from the Worldscope database and Compustat, Capital IQ. The following paragraph discusses the selected control variables and how they are determined.

The LEV is included as a control variable due to the tax deduction of the interest payments. More leveraged firms might benefit from their debt financing, which makes them less likely to avoid corporate taxes (Gupta & Newberry, 1997; Hope et al., 2013). LEV is measured by dividing the long-term debt by the total assets. INVENT is included to control for firms that are more inventory intensive; compared to capital-intensive firms, they should be less likely to avoid corporate taxes (Stickney & McGee, 1982). The INVENT is calculated by dividing the total inventory by the total assets, and is set to 0 if missing. The MKTB is a ratio that is included to control for the extent of growth of the firm, and is set to 1 if missing. Chen et al. (2010) discuss that dividing the market value of equity by the book value of equity creates an effective measure for the growth of the company. Furthermore, Loebbecke et al. (1989) argued that when a firm has more growth opportunities, management may engage in more risky behaviour to maintain the growth. This risky behaviour could increase the likelihood of engaging in tax avoidance. The ROA is included to control for the profitability of firms. Intuitively, firms with a higher profit are subject to a higher tax rate, which could offer them more incentive to avoid taxes. However, research shows conflicting results for this measure on tax avoidance behaviour (Gupta & Newberry, 1997; Adhikari et al., 2006). The ROA is measured as the pre-tax income divided by the total assets. SIZE controls for the size of the firm. Based on prior research (Zimmerman, 1983), it is expected that larger firms are more likely to avoid taxes than smaller firms due to their economic influence and their international presence, which make it easier to reduce their tax burden. This measure is calculated by taking the natural log of total assets. The sixth control variable is the BIG4. This controls for firms that are using a Big 4 auditing firm. Prior research by Matsumura & Tucker (1992); Rezaee (2005) shows that firms that are controlled for Big 4 auditors are positively associated with audit quality and the probability of detecting financial statement fraud. Therefore, it is expected that firms engaged with a Big 4 auditor are less likely to avoid corporate taxes. BIG4 is a dummy variable, coded 1 if the firm uses a Big 4 external auditor and 0 if it does not. The variables, except for BIG4, are winsorized at the 1st and 99th percentiles.

3.4 Multiple regression model

The main statement in this thesis concerns the relationship between CSR performance and tax avoidance on a company level. To examine this relationship, an ordinary least squares (OLS) regression will be applied. While using the OLS, two effects — multicollinearity and endogeneity, both common problems in economic research — have to be diminished.

3.4.1 Multicollinearity

Multicollinearity occurs when the explanatory variables (independent and control variables) are themselves related. An increase of multicollinearity makes it more difficult to determine the effect of single variables due to their interrelationships (Hair. et al., 2014). By using panel data for this study, the observed sample size increases, thereby diminishing the multicollinearity (Wooldridge, 2015). Although panel data is used, the variables will be tested on their level of multicollinearity in Section 4.2.

3.4.2 Endogeneity

Endogeneity, broadly stated, occurs when explanatory variables are correlated with the error term and can arise, for example, from omitted variables. This issue can appear in this thesis, first of all, because of the potential jointly determination of a company's tax-avoidance behaviour and their CSR performance. Although control variables are added for the observable firm characteristics, the unobservable determinants can result in an omitted variables problem. Secondly, firms engaging in tax avoidance may choose to invest more in CSR performance. This will lead to a reserve causality problem.[8] Endogeneity causes a wrong estimation of the relationship between CSR and tax avoidance.

By applying a fixed or random effects model, the time invariant omitted variable bias in particular can be decreased (Wooldridge, 2015). The fixed effects model, a conventional method to analyse panel data (Wooldridge, 2015), is based on the idea that an unobserved effect is correlated with (an) explanatory variable(s) of the sample. The random effects model is based on that same assumption plus the assumption that there is an unobserved effect that is independent of all explanatory variables in all time periods (Wooldridge, 2015). To decide which model should be used, the Hausman test needs to be conducted. The concept of the test is that the null hypothesis — stating that the random effects model should be used — gets rejected when the p-value is less than 0.05 (Wooldridge, 2015). While applying the Hausman test on the regressions used for all the (sub)hypotheses in this thesis, it rejects the use of the random effects model in favour of the fixed effects model for all the (sub)hypotheses (Prob>chi2 = 0.0001 and Prob>chi2 = 0.0000). The fixed effects model is used by adding firm-specific effects[9] and year-specific effect. Therefore, dummies for each of the 657 firms and the different years in the sample are created, which have to control and capture systematic differences in risk and performance across firms and the influence of aggregate (time-series) trends. As a robustness check, in Section 4.4.4 the firm fixed effects will be replaced by country fixed effects. In Section 4.4.5, it will be discuss how the endogeneity can be handled by applying an additional method, the instrumental variable method.

[8] When testing for model specifications via the linktest and ovtest (stata), it shows that there is a problem with misspecification which could suggest that there is omitted variable bias in the sample.

[9] The firm-specific effects subsume the industry effects, since the industry is time invariant within the firms of the sample.

3.4.3 Regression model

To research the relationship between (the subgroups of) CSR performance and tax avoidance, the following base regression model will be estimated:[10]

$$\begin{aligned} TA_{it} = \alpha + \beta_1 CSR_{it} + \beta_2 LEV_{it} + \beta_3 INVENT + \beta_4 MKTB_{it} \\ + \beta_5 ROA + \beta_6 SIZE + \beta_7 BIG4 + \beta_{8-21} YEAR + \beta_{22-679} FIRM + \epsilon_{it}. \end{aligned} \tag{6}$$

In the model, i is the firm 1–657; t the period 2005–2017; TA the firm's ETR, $LETR$ or BTD; CSR the firm's overall CSR performance ($CSRPERF$), management performance ($CSRMAN$), shareholder performance ($CSRSHAR$), strategy performance ($CSRSTRAT$) or community performance ($CSRCOM$); LEV the debt divided by total assets; $INVENT$ the inventory divided by total assets; $MKTB$ the market value of equity divided by the book value of equity; ROA the pretax income divided by total assets; $SIZE$ the natural logarithm of total assets; BIG4 a dummy variable, coded 1 if the firm uses a Big 4 auditor and 0 otherwise; $YEAR$ a year dummy variable for year-specific effects; $FIRM$ a firm dummy variable for firm-specific effects; and ϵ the error term.

To account for competition in the regression model, the HHI and a two-way interaction term for the relationship between CSR performance and HHI ($CSRPERF \times HHI$) are added to the equation.[11] Via this interaction term, the simultaneous effect of the two independent variable on the dependent variable is taken into account.

$$\begin{aligned} TA_{it} = \alpha + \beta_1 CSRPERF_{it} + \beta_2 HHI_{it} + \beta_3 CSRPERF \times HHI + \beta_4 LEV_{it} \\ + \beta_5 INVENT_{it} + \beta_6 MKTB_{it} + \beta_7 ROA_{it} + \beta_8 SIZE_{it} + \beta_9 BIG4_{it} \\ + \beta_{10-23} YEAR + \beta_{24-682} FIRM + \epsilon_{it}, \end{aligned} \tag{7}$$

4 Results

4.1 Descriptive statistics

Table 3 presents the descriptive statistics of all the variables used in the sample. The values that are reported are the mean, standard deviation, minimum, median and maximum of the tax-avoidance proxies, the CSR performance and its subgroups, competition measure (HHI) and control variables. Table 3 shows that the ETR and the LETR have a mean (median) of 0.295 (0.260) and 0.318 (0.274), respectively, suggesting that, on average, companies in the sample pay less taxes on the shorter term than on the longer term. The BTD has a mean (median) of 0.017 (0.002), which indicates that, on average, the estimated taxable income is lower than the reported pre-tax book income for the entire sample. Out of the CSR performance and its subgroups, the table also shows that, on average, companies score the highest on the community performance (51.701) and the lowest on the overall CSR performance (51.065). However, the differences between the means of the performances is rather small. According to the summary statistics, the average HHI is 0.105.

[10] The other assumptions of the OLS regressions are met (linearity, normality).

[11] The main effect of HHI is also included regardless of its significance to prevent cofounding between the main and interaction effects.

Table 3: Descriptive statistics - full sample

	Obs.	Mean	Std. dev	Min	Median	Max
ETR	8541	0.295	0.251	0.000	0.260	2.254
$LETR$	8541	0.318	0.266	0.000	0.274	3.857
BTD	8541	0.017	0.171	-0.632	0.002	0.669
$CSRPERF$	7037	51.065	15.656	7.82	48.690	93.62
$CSRCOM$	7024	51.701	29.531	0.250	51.000	99.820
$CSRMAN$	7019	51.067	28.509	0.470	51.090	99.880
$CSRSHARE$	7019	50.163	28.924	0.130	50.000	99.870
$CSRSTRAT$	7019	54.197	27.634	0.160	56.380	99.880
HHI	3887	0.105	0.052	0.042	0.094	0.244
LEV	8541	0.192	0.143	0.000	0.179	0.682
$INVENT$	8541	0.112	0.120	0.000	0.087	0.712
$MKTB$	8541	2.744	2.735	-2.450	2.030	18.100
ROA	8541	0.078	0.084	-0.178	0.068	0.376
$SIZE$	8541	15.346	1.766	11.507	15.227	19.607
$BIG4$	8541	0.865	0.342	0	1	1

This table presents the descriptive statistics for the 657 European companies between 2005 and 2017. Variable definitions: ETR is the tax expenses divided by pre-tax income; $LETR$ is the sum of five year tax expenses divided by the sum of five year pre-tax income; BTD is the difference between the pre-tax income and the taxable income scaled by total assets; $CSRPERF$ is the CSR performance of the company; $CSRCOM$ is the community performance of the company; $CSRMAN$ is the management performance of the company; $CSRSHARE$ is the shareholders performance of the company; $CSRSTRAT$ is the strategy performance of the company; HHI is the sum of the squared market shares in the industry; LEV is the debt divided by total assets; $INVINT$ is the inventory dividend by total assets; $MKTB$ is the market value of equity divided by the book value of equity; ROA is the pre-tax income divided by total assets; $SIZE$ is the natural logarithm of total assets; and $BIG4$ is a dummy variable, coded 1 if the firm uses a big-four auditor, otherwise 0. The tax-avoidance proxies and the control variables, except BIG4, are winsorized at the 1st and 99th percentiles. See Table 18 in the appendix for further elaboration on the composition and the meaning of the different variables.

4.2 Correlation results

To research if a multicollinearity problem occurs, discussed in Section 3.4.1, the Pearson pairwise correlation test is applied. The results are reported in Table 4. The highest correlation occurs between the community performance and the strategy performance, two measures that will not be used within the same regression. The coefficient, however, has a value of 0.454, which is considered as a moderate level of collinearity (Hair. et al., 2014).[12] The other correlation coefficients have such low values that it is reasonable to assume that multicollinearity will not be a problem. Moreover, while estimating the base regression model, the variance inflation factors (VIFs) are calculated as well, as an additional test for signs of multicollinearity among the explanatory variables. The (unreported) results confirm that no VIFs exceed 1.5 for any of the explanatory variables, thus multicollinearity is not problematic in the model.[13]

Table 4 shows that both ETR and LETR are significantly negatively associated with the BTD ($p<0.01$), which is in line with the explanation of the proxies. The ETR, LETR and BTD are all significantly negatively associated with the following control variables: leverage (LEV), inventory intensity ($INVENT$), the market-to-book ratio ($MKTB$), return on assets (ROA). The proxies all have a positive significant relation with the firm size ($SIZE$).

[12] According to Hair. et al. (2014), a correlation coefcient that is equal or higher than 0.90 is the first indication of substantial collinearity.

[13] Hair. et al. (2014) suggest that a VIF value above ten corresponds with a high level of multicollinearity amongst the explanatory variables.

Table 4: Pearson pairwise correlation results

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
$ETR(1)$	-														
$LETR(2)$	0.383***	-													
$BTD(3)$	-0.099***	-0.084***	-												
$CSRPREF(4)$	-0.028**	-0.026**	0.014	-											
$CSRCOM(5)$	0.017	0.009	-0.072***	0.368***	-										
$CSRMAN(6)$	-0.003	-0.009	0.011	0.406***	0.301***	-									
$CSRSHAR(7)$	0.011	0.040***	-0.016	0.124***	0.043***	0.085***	-								
$CSRSTRAT(8)$	-0.001	-0.032***	0.016	0.328***	0.454***	0.256***	0.022*	-							
$HHI(9)$	0.084***	0.076***	0.076***	0.001	-0.043***	0.043***	0.017	0.005	-						
$LEV(10)$	0.027**	0.024**	0.151***	0.062***	0.079***	0.026**	-0.007	0.072***	-0.027**	-					
$INVENT(11)$	-0.034***	-0.032***	-0.128***	-0.015	-0.070***	-0.099***	-0.025**	-0.038***	0.039***	-0.297***	-				
$MKTB(12)$	-0.065***	-0.065***	-0.126***	0.012	-0.015	0.027**	-0.031***	-0.023*	0.052***	-0.014	-0.019*	-			
$ROA(13)$	-0.208***	-0.197***	-0.070***	-0.009	-0.049***	0.039***	-0.014	-0.051***	0.144***	-0.301***	0.092***	0.414***	-		
$SIZE(14)$	0.040***	0.036***	0.069***	0.135***	0.418***	0.204***	-0.019	0.441***	0.026**	0.140***	-0.124***	-0.133***	-0.141***	-	
$BIG4$ (15)	-0.052***	-0.050***	0.012	0.041***	0.034***	-0.009	-0.003	0.058***	-0.024**	0.012	0.023**	0.056***	-0.001	-0.006	-

This table presents the Pearson pair-wise correlation coefficients between the dependent variables, the CSR performance and the sub-groups of CSR, and the control variables for the 8541 European firm-year observations between 2005 - 2017. See Table 18 in the appendix for further elaboration on the composition and the meaning of the different variables.
* Significant at the 0.10 level
** Significant at the 0.05 level
*** Significant at the 0.01 level

4.3 Regression results

4.3.1 Corporate social responsibility and tax avoidance

The results of the fixed effects model, with firm and year fixed effects, for hypothesis 1 and its sub-hypotheses are depicted in Table 5, Table 6, and the Tables 21, 22 and 23 in the Appendix. Since heteroscedasticity and autocorrelation are found to be present, robust standard errors are used.[14]

The results of the model with control variables included, indicate an insignificant negative relationship between the effective tax rates and the CSR performance, and an insignificant positive relationship between the book-tax difference and the CSR performance. Although these results are insignificant and nothing can be stated about the relationship, the (negative and positive) signs suggests a relationship contrary to what was anticipated. The results suggest that firms that are investing more in CSR, are more likely to avoid tax.[15] Furthermore, a negatively significant relation is found between management performance and the long-term effective tax rate (Table 6) ($p < 0.01$), which is contrary to my expectations which anticipated that companies who are more committed and effective towards following best corporate governance principles would be less likely to participate in tax avoidance. However, the result suggests that companies that value management performance are more likely to avoid taxes. The other sub-hypotheses, presented in the Tables 21, 22 and 23 in the Appendix, only show insignificant results. Regarding the control variables, several significant relations are documented. These results suggests that companies that are likely to have a lower return on assets (ROA) and to be larger in size (SIZE), are less likely to employ tax avoidance. Moreover, it shows that companies that are likely to avoid more taxes are less likely to be inventory-intense (INVENT).

In conclusion, for the main hypothesis and the sub-hypotheses 1b, 1c and 1d, no evidence has been found for a relationship. For sub-hypothesis 1a, only one of the proxies, LETR, shows a significant negative effect that contradicts the hypothesis.

[14] Autocorrelation is detected via the Wooldridge test. By making use of the robust option, the standard errors are being clustered at a firm level. This allows the regression errors to have an arbitrary autocorrelation within an firm, but treat the errors as uncorrelated across firms. They allow for hetroskedasticity and autocorrelation in a way that is consistent with the fixed effects assumption (Stock & Watson, 2015).

[15] When companies are more (less) engaged in tax avoidance, the effective tax rates should be lower (higher) and the BTD should be higher (lower).

Table 5: CSR performance and tax avoidance

	ETR	LETR	BTD
CSRPERF	-0.001	-0.001	0.000
	(-1.96)	(-1.85)	(1.22)
LEV	-0.083	0.024	0.004
	(-1.37)	(0.33)	(0.12)
INVENT	-0.119	-0.169	-0.303***
	(-0.99)	(-1.23)	(-3.67)
MKTB	0.001	-0.001	-0.002
	(0.46)	(-0.32)	(-1.50)
ROA	-0.826***	-0.653***	0.098
	(-8.11)	(-6.63)	(1.72)
SIZE	0.029**	0.049***	0.000
	(2.68)	(3.40)	(0.05)
BIG4	-0.004	-0.046	0.001
	(-0.20)	(-1.63)	(0.12)
Constant	-0.018	-0.254	0.039
	(-0.10)	(-1.10)	(0.42)
N	7035	7035	7035
adj. R^2	0.049	0.053	0.040
Firm Effects	yes	yes	yes
Year Effects	yes	yes	yes

This table presents the results from regressing the proxies of tax avoidance on the CSR performance and the control variables over the 2005-2017 period for 657 European firms in the sample. The control variables are leverage (LEV), inventory intensity (INVENT), the market-to-book ratio (MKTB), return on assets (ROA), firm size (SIZE) and Big 4 auditor (BIG4). The model includes firm and year fixed effects. Robust t statistics corrected for clustering at the firm level are presented in parentheses.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 6: Management performance and tax avoidance

	ETR	LETR	BTD
CSRMAN	-0.000	-0.001**	0.000
	(-1.77)	(-3.08)	(0.81)
LEV	-0.083	0.026	0.004
	(-1.35)	(0.36)	(0.13)
INVENT	-0.117	-0.170	-0.303***
	(-0.97)	(-1.24)	(-3.68)
MKTB	0.001	-0.001	-0.002
	(0.43)	(-0.36)	(-1.46)
ROA	-0.829***	-0.652***	0.099
	(-8.11)	(-6.65)	(1.75)
SIZE	0.029**	0.050***	0.000
	(2.69)	(3.44)	(0.06)
BIG4	-0.004	-0.048	0.001
	(-0.23)	(-1.71)	(0.12)
Constant	-0.031	-0.257	0.043
	(-0.18)	(-1.12)	(0.46)
N	7017	7017	7017
adj. R^2	0.048	0.055	0.039
Firm Effects	yes	yes	yes
Year Effects	yes	yes	yes

This table presents the results from regressing the proxies of tax avoidance on the management performance and the control variables over the 2005-2017 period for 657 European firms in the sample. The control variables are leverage (LEV), inventory intensity (INVENT), the market-to-book ratio (MKTB), return on assets (ROA), firm size (SIZE) and Big 4 auditor (BIG4). The model includes firm and year fixed effects. Robust t statistics corrected for clustering at the firm level are presented in parentheses.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

4.3.2 Competition

The results of the fixed effects model, with firm and year fixed effects, for hypothesis 2 are depicted in Table 7. In this model, the robust standard errors are also used to counter the effects on the model caused by autocorrelation and heteroskedasicity.

In the model, tax avoidance is regressed on the CSR performance, competition (HHI) and the interaction term (CSRPERF x HHI) with the control variables included. The results show insignificant coefficients for the CSR performance, competition and the interaction term. Currently, nothing can be concluded about the influence of competition on the relationship between CSR performance and tax avoidance. However, it is notable that the interaction term, in combination with the effective tax rate, is negative and, in combination with the long-term effective tax rate, positive. This suggests that, based on the effective tax rate, the effect of CSR performance on tax avoidance will increase when less competition exists in the market (higher HHI). Contrarily, the results for the long-term effective tax rate suggest that the effect of

CSR performance on tax avoidance will decrease in a lesser competitive market (higher HHI). Regarding the control variables, the same variables show a significant relationship as shown and explained in Section 4.3.1.

Table 7: CSR performance and tax avoidance, and the influence of market competition

	ETR	LETR	BTD
CSRPERF	-0.000	-0.001	0.001
	(-0.33)	(-1.03)	(1.89)
HHI	0.337	-0.958	-0.397
	(0.51)	(-1.41)	(-1.17)
CSRPERF x HHI	-0.005	0.001	-0.005
	(-0.58)	(0.11)	(-1.71)
LEV	-0.083	0.023	0.004
	(-1.37)	(0.32)	(0.11)
INVENT	-0.117	-0.182	-0.311***
	(-0.97)	(-1.31)	(-3.72)
MKTB	0.001	-0.001	-0.002
	(0.45)	(-0.25)	(-1.41)
ROA	-0.828***	-0.641***	0.106
	(-8.14)	(-6.55)	(1.87)
SIZE	0.029**	0.049***	0.000
	(2.67)	(3.41)	(0.06)
BIG4	-0.003	-0.047	0.000
	(-0.18)	(-1.67)	(0.05)
Constant	-0.041	-0.182	0.071
	(-0.23)	(-0.77)	(0.72)
N	7035	7035	7035
adj. R^2	0.048	0.054	0.042
Fixed effects	yes	yes	yes
Year dummies	yes	yes	yes

This table presents the results from regressing the proxies of tax avoidance on the CSR performance, competition and the interaction term of CSR performance and competition, and the control variables over the 2005-2017 period for 657 European firms in the sample. The control variables are leverage (LEV), inventory intensity (INVENT), the market-to-book ratio (MKTB), return on assets (ROA), firm size (SIZE) and Big 4 auditor (BIG4). The model includes firm and year fixed effects. Robust t statistics corrected for clustering at the firm level are presented in parentheses.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

4.4 Robustness check

To examine the validity of my results additional robustness tests are conducted. These tests evaluate the sensitivity of the results to the change over time, an alternative measure of CSR, the difference between low and high CSR performance groups, country fixed effects, and a different approach to address endogeneity.

4.4.1 Change of time

Although the main model mostly shows insignificant effects, the strength of the effect might still have increased over time. As mentioned before, the CSR and tax avoidance have increased in importance over the years. This could have led to a significant effect in the latest year(s), which is currently overshadowed by a long time frame of insignificance. To test whether the strength of this relationship has increased, an interaction term is added to the main model, which is the standardised value of change over time multiplied by the standardised values of the performance. The results for the CSR performance and its subgroups are presented in Table 8. The interaction variable of the CSR performance (CSRPERF int.) shows an insignificant relationships. A significantly negative relationship is shown between the interaction term for management performance and the effective taxes rates ($p < 0.01$ and $p < 0.05$). Table 8 also shows that the relationship between the interaction term for strategy performance and the book-tax difference is significantly negative at a 5% level. These results imply a contrary effect than discussed; the relationship between the management and strategy performances, and tax avoidance became less strong over time.

The strength of the effect also may have increased over time when researching the influence of competition, especially due to the globalisation, which has increased the market competition. The results of adding an interaction of the standardised value of change over time, multiplied by the standardised values of CSR, HHI and CSR x HHI, are shown in Table 9. The interaction variable CSRPERF int. and CSR x HHI int. show only insignificant effects. The interaction variable HHI int. shows a positive significant effect in relation to the LETR, which implies that the relationship between tax avoidance and competition became stronger over time. Furthermore, a significantly positive result is presented between CSR performance and the book-tax difference. However, as Williams (2015) points out, this effect can not be interpreted as main effects in a model with interaction terms may have little meaning, or could be misleading.

Table 8: Performances and tax avoidance: change in time

	ETR	LETR	BTD
CSRPERF	-0.001	-0.001	0.000
	(-1.93)	(-1.75)	(1.20)
CSRPERF int.	-0.002	-0.006	0.001
	(-0.64)	(-1.13)	(0.30)
N	7035	7035	7035
CSRMAN	-0.000	-0.001**	0.000
	(-1.84)	(-3.12)	(0.85)
CSRMAN int.	-0.011**	-0.011*	0.004
	(-3.01)	(-2.20)	(1.43)
N	7017	7017	7017
CSRSHAR	-0.000	-0.000	0.000
	(-1.59)	(-0.36)	(0.15)
CSRSHAR int.	0.004	0.008	-0.003
	(1.07)	(1.76)	(-1.37)
N	7017	7017	7017
CSRSTRAT	0.000	-0.000	0.000
	(0.74)	(-0.26)	(0.75)
CSRSTRAT int.	-0.002	0.001	-0.006*
	(-0.69)	(0.09)	(-2.29)
N	7017	7017	7017
CSRCOM	0.000	0.000	-0.000
	(1.17)	(0.24)	(-1.22)
CSRCOM int.	-0.002	-0.003	-0.003
	(-0.53)	(-0.53)	(-1.17)
N	7022	7022	7022
Firm Effects	yes	yes	yes
Year Effects	yes	yes	yes

This table presents the results for regressing the proxies of tax avoidance on the performance — CSR performance, management performance, shareholder performance, strategy performance or community performance — including the interaction term for the performance with time and the non-reported control variables over the 2005-2017 period for 657 European firms in the sample. CSRPERF int. is the interaction term of the standardized value of CSR performance with time. CSRMAN int. is the interaction term of the standardized value of management performance with time. CSRSHAR int. is the interaction term of the standardized value of shareholder performance with time. CSRSTRAT int. is the interaction term of the standardized value of strategy performance with time. CSRCOM int. is the interaction term of the standardized value of community performance with time.All the models include firm and year fixed effects. Robust t statistics corrected for clustering at the firm level are presented in parentheses.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 9: CSR performance and tax avoidance, and the influence of market competition: change in time

	ETR	LETR	BTD
CSRPERF	-0.000	-0.000	0.001*
	(-0.15)	(-0.54)	(2.02)
HHI	1.188	0.266	-0.341
	(1.48)	(0.34)	(-0.86)
CSRPERF x HHI	-0.006	-0.002	-0.006
	(-0.72)	(-0.34)	(-1.86)
CSRPERF int.	-0.002	-0.005	0.000
	(-0.52)	(-1.09)	(0.19)
HHI int.	0.012	0.015*	-0.000
	(1.84)	(2.23)	(-0.00)
CSRPERF x HHI int.	0.004	-0.001	-0.003
	(0.88)	(-0.19)	(-1.04)
Constant	-0.098	-0.262	0.068
	(-0.54)	(-1.11)	(0.70)
N	7035	7035	7035
Fixed effects	yes	yes	yes
Year dummies	yes	yes	yes

This table presents the results from regressing the proxies of tax avoidance on the CSR performance, competition, the interaction term of CSR performance and competition, the interaction term for CSR performance with time, HHI with time, CSR x HHI with time and the non-reported control variables over the 2005-2017 period for 657 European firms in the sample. CSRPERF int. is the interaction term of the standardized value of CSR performance with time. HHI int. is the interaction term of the standardized value of HHI with time. CSR x HHI int. is the interaction term of the standardized value of CSR and HHI with time. All the models include firm and year fixed effects. Robust t statistics corrected for clustering at the firm level are presented in parentheses.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

4.4.2 Dichotomous dummy

The absence of a significant relationship could be a result from the performance distribution as well. As is shown in Table 3, a mass of the CSR performance and its subgroups score around 51. For a test of robustness, the sample will be segmented into corporate social responsible firms (the top quartile of the performance) and noncorporate social responsible firms (the bottom quartile of the performance). Considering only these two groups the following regression is performed:

$$\begin{aligned} TA_{it} = \alpha + \beta_1 CSRdummy\epsilon_{it} + \beta_2 LEV_{it} + \beta_3 INVENT + \beta_4 MKTB_{it} \\ + \beta_5 ROA + \beta_6 SIZE + \beta_7 BIG4 + \beta_{8-21} YEAR + \beta_{22\ -6\ 79} FIRM + \epsilon_{it}. \end{aligned} \tag{8}$$

$$\begin{aligned} TA_{it} = \alpha + \beta_1 CSRPERFdummy\epsilon_{it} + \beta_2 HHI_{it} + \beta_3 CSRPERFdummy \times HHI \\ + \beta_4 LEV_{it} + \beta_5 INVENT + \beta_6 MKTB_{it} + \beta_7 ROA + \beta_8 SIZE + \beta_9 BIG4 \\ + \beta_{10-23} YEAR + \beta_{24-682} FIRM + \epsilon_{it}. \end{aligned} \tag{9}$$

In equation 8, which tests hypothesis 1 and its sub-hypotheses, the CSRdummy can be replaced by a dummy for the CSR performance, management performance, shareholder performance, strategy performance or community performance. Equation 9 tests the second hypothesis. The dummy variable takes the value of 0 for low performance rating (bottom 25%) and the value of 1 for high performance rating (top 25%).

Table 10 and 11 presents the results for the regressions with a replacement of the performances with the dummy variables. The replacement does not produce significance in any of the variables of interest.

Table 10: Performances and tax avoidance: dichotomous dummy

	ETR	LETR	BTD
D.CSRPERF	-0.031	-0.024	-0.001
	(-1.95)	(-1.51)	(-0.14)
N	3517	3517	3517
D.CSRMAN	-0.008	-0.029	0.003
	(-0.45)	(-1.80)	(0.30)
N	3508	3508	3508
D.CSRSHAR	-0.029	-0.006	0.005
	(-1.89)	(-0.34)	(0.60)
N	3520	3520	3520
D.CSRSTRAT	0.052	0.026	-0.004
	(1.55)	(0.67)	(-0.26)
N	3499	3499	3499
D.CSRCOM	0.046	0.035	-0.004
	(1.52)	(1.11)	(-0.29)
N	3511	3511	3511
Firm Effects	yes	yes	yes
Year Effects	yes	yes	yes

This table presents the results from regressing the proxies of tax avoidance on the dummy for the performance and the non-reported control variables over the 2005-2017 period for 657 European firms in the sample. The independent variables — D.CSRPERF, D.CSRMAN, D.CSRSHAR, D.CSRSTRAT, D.CSRCOM — are a dummy variables, coded 1 if the firm is belongs to the top 25% of the sample based on performance, and coded 0 if the firm is part of the bottom 25% of the sample. The model include firm and year fixed effects. Robust t statistics corrected for clustering at the firm level are presented in parentheses.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 11: CSR performance and tax avoidance, and the influence of market competition: dichotomous dummy

	ETR	LETR	BTD
D.CSRPERF	-0.018	-0.043	0.018
	(-0.49)	(-1.57)	(1.08)
HHI	-0.068	-0.690	-1.187**
	(-0.08)	(-0.95)	(-2.94)
D.CSRPERF x HHI	-0.176	0.272	-0.244
	(-0.35)	(0.80)	(-1.33)
N	3517	3517	3517
Firm Effects	yes	yes	yes
Year Effects	yes	yes	yes

This table presents the results from regressing the proxies of tax avoidance on the dummy for overall CSR performance and other control variables over the 2005-2017 period for 657 European firms in the sample. The independent variable, D.CSRPERF, is a dummy variable, coded 1 if the firm is belongs to the top 25% of the sample based on CSR performance, and coded 0 if the firm is part of the bottom 25% of the sample. The model include firm and year fixed effects. Robust t statistics corrected for clustering at the firm level are presented in parentheses.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

4.4.3 Sub-sample analysis: low and high level performance

The sample that is used in this thesis contains companies that perform either worse or better than average based on their performance. The relationship between tax avoidance and the performance could differ between these two groups. For example, companies that perform better than average might be more actively aware of their tax avoidance behaviour. To test if this is the case, the sample will be divided into two sub-samples. The first sub-sample is containing companies with lower than average performance (bottom 50% of the sample). The second sub-sample is containing the companies with a higher than average performance (top 50% of the sample).

Table 12 presents the results for the sub-sample analyses. Insignificant coefficients between the tax avoidance proxies and the CSR performance are found. Regarding the sub-hypotheses, only the strategy performance shows some significant relations. First of all, there is a significant negative relation between

the long-term effective tax rate and the low level strategy performance at a 0.01% level. This suggests that companies who perform below the average based on strategy performance and invest in strategy performance (higher performance score, but below the average) are more likely to avoid tax (lower LETR). Secondly, a positively significant relation between book-tax difference and the high level strategy performance is found (p <0.01), suggesting that companies who perform above average based on strategy performance are more likely to avoid tax.

Table 12: Performances and tax avoidance: low and high level performance

	ETR		LETR		BTD	
	LOW CSR <mean	HIGH CSR >mean	LOW CSR <mean	HIGH CSR >mean	LOW CSR <mean	HIGH CSR >mean
CSRPERF	-0.000	-0.000	-0.001	-0.001	-0.000	0.001
	(-0.79)	(-0.07)	(-1.29)	(-1.14)	(-0.52)	(1.94)
N	3516	3519	3516	3519	3516	3519
CSRMAN	-0.000	-0.000	-0.001	0.000	-0.000	0.000
	(-1.27)	(-0.14)	(-1.75)	(0.46)	(-0.60)	(0.68)
N	3506	3511	3506	3511	3506	3511
CSRSHAR	-0.000	-0.000	0.000	-0.000	0.000	0.000
	(-1.00)	(-0.92)	(1.21)	(-1.02)	(0.97)	(0.51)
N	3470	3547	3470	3547	3470	3547
CSRSTRAT	-0.001	-0.001	-0.001*	-0.000	-0.000	0.000*
	(-1.43)	(-1.95)	(-2.00)	(-0.49)	(-0.37)	(1.98)
N	3505	3512	3505	3512	3505	3512
CSRCOM	-0.000	0.000	-0.000	0.000	-0.000	0.000
	(-0.51)	(0.42)	(-0.35)	(0.19)	(-1.21)	(0.27)
N	3511	3511	3511	3511	3511	3511
Firm Effects	yes	yes	yes	yes	yes	yes
Year Effects	yes	yes	yes	yes	yes	yes

This table presents the results from regressing the proxies of tax avoidance on either the low or high performance and the non-reported control variables over the 2005-2017 period for 657 European firms in the sample. The independent variables — CSR performance, management performance, shareholder performance, strategy performance, community performance — are divided into two groups, the bottom 50% of the sample (LOW) and the top 50% of the sample (HIGH). The model includes firm and year fixed effects. Robust t statistics corrected for clustering at the firm level are presented in parentheses.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

4.4.4 Country fixed effects

It is discussed in Section 3.4.2 that in order to deal with endogeneity a fixed effects model is used with firm and year fixed effects. Models including these fixed effects are used throughout the main analyses and the first three robustness tests. In the study sample, however, different countries are represented. By making use of country fixed effects, systematic differences in the financial environment across countries (such as tax laws) can be captured. As a robustness test, country fixed effects will be implemented in the model instead of firm fixed effects. Controlling for systematic differences between countries may deal correctly with the endogeneity in the model.

The results of the fixed effects model with country and year fixed effects for hypothesis 1 and its sub-hypotheses are depicted in Table 13. The results for hypothesis 2 are presented in Table 14. In the models, the robust standard errors are used to counter the effects on the model caused by autocorrelation and heteroskedasticity. Furthermore, error term is clustered at a country level.

The results presented in Table 13 indicate a significant negative relationship between the effective tax rate and the CSR performance, and between long-term effective tax rate and strategy performance. These results however do contradict the hypotheses, as the results suggest that firms that are investing more in the performances concerning CSR, are more likely to avoid tax. However, a positive relation is found between the shareholder performance and the long-term effective tax rate, and a negative relation is found between book-tax difference and community performance. These results are in line with the hypotheses, suggesting that companies that are investing more in performances concerning CSR, are less likely to avoid tax.

Thus the results suggest that companies that invest more in CSR performance and strategy performance, are more likely to avoid tax. Contrary to this, companies that invest more in shareholder performance and community performance are less likely to avoid tax. For management performance, however, no evidence for an effect is found.

The results in Table 14 presents no significant effects for the interaction term of CSR performance and competition. Positive significant effects are show between the effective tax rates and the competition proxy, however, this effect cannot be interpreted as main effects in a model with interaction terms may have little meaning, or could be misleading (Williams, 2015).

Using country fixed effects as a robustness check, suggest that the main model with firm fixed effects has omitted variable bias.

Table 13: Performances and tax avoidance: country fixed effects

	ETR	LETR	BTD
CSRPERF	-0.001**	-0.001	0.000
	(-2.85)	(-1.48)	(0.79)
N	7035	7035	7035
CSRMAN	-0.000	-0.000	-0.000
	(-0.17)	(-0.16)	(-0.52)
N	7017	7017	7017
CSRSHAR	0.000	0.000**	-0.000
	(0.70)	(2.99)	(-1.09)
N	7017	7017	7017
CSRSTRAT	-0.000	-0.000*	-0.000
	(-0.26)	(-2.30)	(-0.63)
N	7017	7017	7017
CSRCOM	0.000	0.000	-0.001***
	(1.10)	(1.11)	(-3.86)
N	7022	7022	7022
Country Effects	yes	yes	yes
Year Effects	yes	yes	yes

This table presents the results from regressing the proxies of tax avoidance on the performance — CSR performance, management performance, shareholder performance, strategy performance or community performance — and the non-reported control variables over the 2005-2017 period for 657 European firms in the sample. The models include country and year fixed effects. Robust t statistics corrected for clustering at the country level are presented in parentheses.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 14: CSR performance and tax avoidance, and the influence of market competition: country fixed effects

	ETR	LETR	BTD
CSRPERF	-0.000	0.000	0.000
	(-0.08)	(0.54)	(0.51)
HHI	1.114***	1.349*	0.045
	(4.24)	(2.38)	(0.20)
CSRPERF x HHI	-0.008	-0.013	-0.001
	(-1.51)	(-1.53)	(-0.17)
N	7035	7035	7035
Country Effects	yes	yes	yes
Year Effects	yes	yes	yes

This table presents the results from regressing the proxies of tax avoidance on the CSR performance, competition and the interaction term of CSR performance and competition, and the non-reported control variables over the 2005-2017 period for 657 European firms in the sample. The model includes country and year fixed effects. Robust t statistics corrected for clustering at the country level are presented in parentheses.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

4.4.5 Instrumental Variable Method

In this section, the fifth and last robustness check will be conducted by applying another commonly used technique: the instrumental variable (IV) method via a two-stage least squares (2SLS) regression. This is done since potential endogeneity, even though the fixed effects model is applied, could still have biased the results and causing the insignificance. By using the IV method, missing or unknown variables that vary with time and are correlated with the explanatory variables can also be considered (Angrist & Pischke, 2008; Wooldridge, 2015). The IV approach requires an instrument, which will be added to the equation, that is correlated to a firm's CSR performance but not correlated to its tax-avoidance behaviour (Wooldridge, 2015). A good instrument, z, has to satisfy the following three conditions:

1. The relevance assumption: z has a causal effect on the exposure X.
2. The independence assumption: z does not share common causes with the outcome Y.
3. The exclusion restriction: z affects the outcome Y only through X (Lousdal, 2018; Hernán, Miguel A., 2008).

The first condition is the only assumption that is verifiable, and it requires that the proposed instrument and the performances concerning CSR are associated. Simply the existence of an association is required

to meet the assumption, but a weak association may lead to a vulnerability of the analysis due to weak instrument's bias.[16] Therefore, strong IVs are generally preferred over weak instruments (Labrecque & Swanson, 2018). The satisfaction of the other two conditions can only be examined by analysing information on the subject matter (Wooldridge, 2015; Labrecque & Swanson, 2018).

In line with prior studies (Cui et al., 2018; Liu et al., 2019), the one-period lagged CSR performance is used as the IV for the 2SLS regression.[17,18] To ensure that the applied IV is a strong instrument, the three conditions have to be tested.

The first condition, the relevance assumption, is present if there is an association between the IV and the independent variable. It can be assumed that a lagged variable has a causal effect on the present variable, since the former variable is based on the latter one. Therefore, it is likely that this assumption will be validated. During the application of the IV, it will be possible to verify if the relevance assumption holds and if the IV is a weak or strong instrument.

The second condition, the independence assumption, is met when there is no confounding of the effect of the one-period lagged CSR performance on tax avoidance. Therefore, the instrument has to be random. These variables occur in different time frames, therefore enough randomization between these two variables exists to accept this assumption.

To satisfy the exclusion restriction, often the most difficult one to prove, the lagged IV should affect tax avoidance only through the CSR performance variable; in other words, the lagged IV can not have a direct influence on the CSR performance variable (Lousdal, 2018; University of Manitoba, n.d.). In the first instance, since the lagged variable occurred in the past, and thus should not be correlated with the error term in the present, it seems that the lagged variable is exogenous (Hyndman, 2010) and therefore meets this restriction. However, the present performance may be influenced by the past performance. This is a potential weakness of the instrument that could influence the results of the 2SLS regression, and it implies that the results should be carefully interpreted.

When performing the IV method, the sample, the tax-avoidance proxies, and the control variables used in the main regression (Section 3.4.3) are used for this method as well. Moreover, the firms and year fixed effects are also included. The IV method is applied via the 2SLS regression which entails two stages. In the first stage, predicted values for the performances concerning CSR will be calculated with the use of the IV, the one-period lagged performance. For hypothesis 1, its sub-hypotheses, and hypothesis 2, the first stage will be estimated as follows.

$$\begin{aligned} CSR_{it} = \alpha + \beta_1 L.CSR\epsilon_{it} + \beta_2 LEV_{it} + \beta_3 INVENT + \beta_4 MKTB_{it} \\ + \beta_5 ROA + \beta_6 SIZE + \beta_7 BIG4 + \beta_{8-21} YEAR + \beta_{22-679} FIRM + \epsilon_{it}, \end{aligned} \tag{10}$$

[16] Either through finite-sample limitations or by increasing biases due to violations of other assumptions.

[17] In some studies (Jo & Harjoto, 2011; Akben-Selcuk, 2019; El Ghoul et al., 2011; Benlemlih & Bitar, 2018; Kim et al., 2014) firm age or the industry-year average of overall CSR scores are used as an instrument. The variable, firm age, failed the relevance assumption, and thus could not be used in this thesis. The industry-year average of the performances, based on the 48 Fama-French industries, fails the over-identification test (Hansen J statistics) and thus not used.

[18] The application of a lagged explanatory variable as an IV is a commonly used approach (Reed, 2015; Wang & Bellemare, 2019). Research using a lagged instrument often appear in top journals including *the Journal of Finance* and *the Economic Journal* (Reed, 2015).

$$CSRPERF_{it} = \alpha + \beta_1 L.CSRPERF\epsilon_{it} + \beta_2 HHI_{it} + \beta_3 CSRPERF \times HHI + \beta_4 LEV_{it} + \beta_5 INVENT + \beta_6 MKTB_{it} + \beta_7 ROA + \beta_8 SIZE + \beta_9 BIG4 + \beta_{10-23} YEAR + \beta_{24-682} FIRM + \epsilon_{it}, \quad (11)$$

In the model regarding hypothesis 1 and its sub-hypotheses presented in equation 10, CSR is the firm's predicted values for the CSR performance ($CSRPERF$), management performance ($CSRMAN$), shareholder performance ($CSRSHAR$), strategy performance ($CSRSTRAT$) or community performance ($CSRCOM$), and $L.CSR$ is the one-period lagged performance concerning CSR performance ($L.CSRPERF$), management performance ($L.CSRMAN$), shareholder performance ($L.CSRSHAR$), strategy performance ($L.CSRSTRAT$) or community performance ($L.CSRCOM$). In the model regarding hypothis 2 presented in equation 11, $CSRPERF$ is the firm's predicted value for the CSR performance, and $L.CSRPERF$ is the one-period lagged CSR performance of the firm.

In the second stage, the predicted values calculated in the first stage will be used to run the base regression. For hypothesis 1, its sub-hypotheses and hypothesis 2, the second stage will be estimated as follows.

$$TA_{it} = \alpha + \beta_1 CSR_{it} + \beta_2 LEV_{it} + \beta_3 INVENT + \beta_4 MKTB_{it} + \beta_5 ROA + \beta_6 SIZE + \beta_7 BIG4 + \beta_{8-21} YEAR + \beta_{22-679} FIRM + \epsilon_{it}, \quad (12)$$

$$TA_{it} = \alpha + \beta_1 CSRPERF_{it} + \beta_2 HHI_{it} + \beta_3 CSRPERF \times HHI + \beta_4 LEV_{it} + \beta_5 INVENT + \beta_6 MKTB_{it} + \beta_7 ROA + \beta_8 SIZE + \beta_9 BIG4 + \beta_{10-23} YEAR + \beta_{24-682} FIRM + \epsilon_{it}, \quad (13)$$

In equation 12, testing hypothesis 1 and its sub-hypotheses, CSR is the firm's predicted values, calculated in the first stage (equation 10), for the CSR performance ($CSRPERF$), management performance ($CSRMAN$), shareholder performance ($CSRSHAR$), strategy performance ($CSRSTRAT$) or community performance ($CSRCOM$). In equation 13, testing hypothesis 2, $CSRPERF$ is the firm's predicted values, calculated in the first stage (equation 11), for the CSR performance.

The results of the first and second stage for hypothesis 1, its sub-hypotheses and 2 are predicted in the Tables 15, 16 and 17, and the Tables 24, 25 and 26 in the Appendix. In these models the robust option is included. The results for hypothesis 1 and its sub-hypotheses will be discussed first, followed by a discussion on the results for hypothesis 2.

The first model (1) of Table 15 presents the results of the first stage and shows that the relation between CSR performance and the one-period lagged CSR performance is positive and highly significant at an 0.001% level, which shows that the first assumption, the relevant assumption, is met (Angrist & Pischke, 2008). The second (2), third (3) and fourth (4) model show the results of the second stage. While performing this regressions, several tests are conducted to be sure that no underindentification (Kleibergen-Paap

rk LM test), weak identification (Cragg-Donald Wald test and the Kleibergen-Paap rk Wald F test)[19] or overindentification (Hansen J statistic) exists. All the three models pass these tests, which suggest that the IV is a strong instrument. The results show a negative significant relationship between the effective tax rates and the CSR performance. This is suggesting that, contrary to my hypothesis, firms that are investing more in CSR are more likely to avoid taxes. More contradicting results are found in Table 16 for the management performance, which has a negative significant relation with the long-term effective tax rate. This suggests that firms with higher invests in management performance, are more likely to avoid taxation. Regarding the rest of the sub-hypotheses, no significant results are found as shown in Tables 24, 25 and 26 in the Appendix.

In the first model (1) of Table 17, the results show that the relevance assumption is met as the relation between CSR performance and the one-period lagged CSR performance is (positive) highly significant at an 0.001% level (Angrist & Pischke, 2008). The second (2), third (3) and fourth (4) model show the results of the second stage. The several tests, done to be sure that no underindentification, weak identification or overindentification exists, are passed, suggesting that the IV is a strong instrument. A significantly positive relation is presented between the effective tax rates and the interaction term, suggesting that the relationship - contrary to my hypothesis - between CSR and tax avoidance gets stronger (the effect of CSR on tax avoidance increases) as the competition decreases (HHI gets higher). The results show a negative significant relationship between the effective tax rates and the CSR performance as well as with competition. However, as mentioned in Section 4.4.1, no conclusion can be draw from these results.

[19] As the results show, the Kleibergen-Paap rk Wald F statistic is, however, substantially higher for the subgroup performances than for the CSR performance.

Table 15: CSR performance and tax avoidance: instrumental variable method

	CSRPERF	ETR	LETR	BTD
	(1)	(2)	(3)	(4)
CSRPERF		-0.004*	-0.006***	-0.000
		(-2.57)	(-3.72)	(-0.47)
LEV	0.617	-0.090	-0.013	0.007
	(0.26)	(-1.49)	(-0.18)	(0.20)
INVENT	-7.856	-0.107	-0.229	-0.303***
	(-1.26)	(-0.88)	(-1.69)	(-3.77)
MKTB	-0.005	0.001	-0.000	-0.002
	(-0.06)	(0.57)	(-0.15)	(-1.46)
ROA	10.789***	-0.819***	-0.657***	0.109
	(3.67)	(-8.04)	(-6.69)	(1.91)
SIZE	0.132	0.026*	0.054***	0.002
	(0.25)	(2.40)	(3.60)	(0.30)
BIG4	0.483	-0.011	-0.042	0.003
	(0.62)	(-0.61)	(-1.50)	(0.42)
L.CSRPERF	0.173***			
	(11.07)			
Constant	35.145***	0.186	-0.064	0.033
	(4.20)	(0.98)	(-0.27)	(0.34)
N	6840	7034	7034	7034
adj. R^2	0.086	0.051	0.062	0.037
Firm Effects	yes	yes	yes	yes
Year Effects	yes	yes	yes	yes
Kleibergen-Paap rk Wald F statistic			122.55	

This table presents the results of the IV method to correct for endogeneity. The results are shown from the Instrumental Variable (IV) method that control for the endogeneity of CSR performance. One instrument is employed: the one-period lagged CSR performance. Model (1) shows the first stage regression (where the dependent variable is the overall CSR performance). In models (2), (3) and (4) presents the results of the second stage regression (2SLS). The model includes firm and year fixed effects. Also the Kleibergen-Paap rk Wald F statistic is shown in this table. Robust t statistics corrected for clustering at the firm level are presented in parentheses.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 16: Management performance and tax avoidance: instrumental variable method

	CSRMAN	ETR	LETR	BTD
	(1)	(2)	(3)	(4)
CSRMAN		-0.000	-0.001**	-0.000
		(-0.17)	(-2.97)	(-0.54)
LEV	2.412	-0.092	-0.010	0.008
	(0.62)	(-1.51)	(-0.14)	(0.25)
INVENT	-7.890	-0.077	-0.194	-0.303***
	(-1.11)	(-0.63)	(-1.44)	(-3.76)
MKTB	-0.105	0.001	-0.001	-0.002
	(-0.80)	(0.53)	(-0.27)	(-1.45)
ROA	12.772**	-0.858***	-0.703***	0.106
	(2.72)	(-8.37)	(-7.15)	(1.88)
SIZE	0.468	0.026*	0.054***	0.002
	(0.48)	(2.34)	(3.59)	(0.31)
BIG4	-1.082	-0.013	-0.049	0.003
	(-0.74)	(-0.68)	(-1.72)	(0.34)
L.CSRMAN	0.363***			
	(25.61)			
Constant	22.946	0.022	-0.258	0.022
	(1.47)	(0.12)	(-1.09)	(0.23)
N	6821	7016	7016	7016
adj. R^2	0.165	0.050	0.061	0.037
Firm Effects	yes	yes	yes	yes
Year Effects	yes	yes	yes	yes
Kleibergen-Paap rk Wald F statistic			655.910	

This table presents the results of the IV method to correct for endogeneity. The results are shown from the Instrumental Variable (IV) method that control for the endogeneity of management performance. One instrument is employed: the one-period lagged management performance. Model (1) shows the first stage regression (where the dependent variable is the management performance). In models (2), (3) and (4) presents the results of the second stage regression (2SLS). The model includes firm and year fixed effects. Also the Kleibergen-Paap rk Wald F statistic is shown in this table. Robust t statistics corrected for clustering at the firm level are presented in parentheses.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 17: CSR performance and tax avoidance, and the influence of market competition: instrumental variable method

	CSRPERF	ETR	LETR	BTD
	(1)	(2)	(3)	(4)
CSRPERF		-0.013*	-0.021***	-0.001
		(-2.24)	(-3.60)	(-0.37)
HHI	-472.391***	-5.790*	-10.556***	-1.093
	(-18.06)	(-2.09)	(-3.77)	(-0.80)
CSR x HHI	10.608***	0.131*	0.219***	0.012
	(21.95)	(2.14)	(3.58)	(0.39)
LEV	0.058	-0.089	0.019	0.005
	(0.05)	(-1.44)	(0.26)	(0.14)
INVENT	-2.807	-0.168	-0.264	-0.310***
	(-0.98)	(-1.37)	(-1.84)	(-3.68)
MKTB	-0.004	0.001	-0.000	-0.002
	(-0.10)	(0.49)	(-0.19)	(-1.31)
ROA	3.201	-0.783***	-0.593***	0.100
	(1.62)	(-7.56)	(-5.96)	(1.72)
SIZE	0.219	0.031**	0.058***	-0.000
	(0.91)	(2.83)	(3.80)	(-0.05)
BIG4	-0.187	-0.011	-0.055	0.000
	(-0.45)	(-0.60)	(-1.85)	(0.02)
L.CSRPERF	0.044***			
	(5.57)			
Constant	39.287***	0.507	0.606	0.147
	(9.97)	(1.66)	(1.86)	(0.99)
N	6840	6840	6840	6840
adj. R^2	0.784	0.048	0.058	0.040
Firm Effects	yes	yes	yes	yes
Year Effects	yes	yes	yes	yes
Kleibergen-Paap rk Wald F statistic			31.013	

This table presents the results of the IV method to correct for endogeneity. The results are shown from the Instrumental Variable (IV) method that control for the endogeneity of CSR performance. One instrument is employed: the one-period lagged CSR performance. Model (1) shows the first stage regression (where the dependent variable is the overall CSR performance). In models (2), (3) and (4) presents the results of the second stage regression (2SLS). The model includes firm and year fixed effects. Also the Kleibergen-Paap rk Wald F statistic is shown in this table. Robust t statistics corrected for clustering at the firm level are presented in parentheses.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

5 Conclusion

5.1 Conclusion and discussion

In this thesis, one of the first attempts is provided to investigate the relationship between CSR and tax avoidance on a European scale, and the influence of market competition on this relation. The relationship between CSR and tax avoidance is supported on the one hand by the shareholder and stakeholder theory when assuming a negative relation, and on the other hand, when a positive relation is assumed, by the idea that tax payments detract from social welfare and risk management. Furthermore, due to advantages that can be gained over competitors by accommodating market demand, market competition could have its influence on this relationship. In this study, the CSR performance has been tested, as well as four subgroups: management performance, shareholder performance, strategy performance and community performance. To perform the study, a fixed effects model with year and firm fixed effects is applied on a sample of 657 firms with observations over a time period of 2005 - 2017. To capture the effect of competition, an interaction term between CSR and competition is added to the model. Moreover, several tests are done to check the robustness of the results such as country fixed effects and the instrumental variable (IV) method. When applying the IV method, the one-period lagged performance is used as the instrument.

Using the main model with firm and year fixed effects, there is no evidence found for a relationship between the CSR performance and tax avoidance as the results are insignificant. However, when country fixed effects and the IV method are used as robustness checks, a negative significant relationship is shown. This suggests that a model with firm fixed effects has omitted variable bias. Upon further investigation into CSR, a positive relationship is found between the management performance and tax avoidance. The robustness of this result is shown when using the IV method as well. The shareholder performance, the strategy performance, and the community performance mainly show insignificant results in combination with tax avoidance. When tested for robustness, these performances do show significant results when the country fixed effects are included. Furthermore, in the main analysis, including firm and year fixed effects, market competition has an insignificant effect on the relationship between CSR and tax avoidance. However, when the IV method is applied as a robustness check, a positive significant result is shown suggesting that market competition makes the relation weaker.

While conducting the model with firm and year fixed effects, mainly insignificant results are found. These results should not be misinterpreted; insignificant results do not prove that no relationship exists between tax avoidance and CSR, or that the competition has no influence on this relationship. The relationship and influence are simply not found in this study. A significant result might come up when, for example, a bigger sample is used, or another methodology is applied. For example using country fixed effect and an IV model.

Interestingly, the only relationship that shows significant results throughout the main analysis, is the relation between the management performance and the long-term effective tax rate.The result suggests that, contrary to the hypothesis, companies who are more committed and effective towards corporate governance principles, are more likely to avoid tax. This result can be explained by the theory, discussed in Section 2.3.2, that paying taxes can actually detract from social welfare. Companies may argue that

avoiding taxes has a positive influence on its stakeholders, as it allows the company to invest in, for example, job growth and innovation.

To deal with potential endogeneity after using the fixed effects model, the IV method is applied via a 2SLS regression. The results show more significant effects than the main analyses. However, it can not be concluded that a relationship is present, as it is uncertain if the exclusion restriction is satisfied by the used instrument, the one-period lagged performance. To meet the exclusion restriction, the present performance can not be influenced by the past performance. In general, companies set out a certain strategy that they want to follow, also regarding CSR investments. This strategy is mostly linked to the company's profit. When a company, such as Nike who highly values their CSR, earns the profit they need to continue their strategy, there might be a link between, for example, the CSR performance of past year(s) and the current year. Contrary to this, when a company does not earn the needed profit to pursue their strategy or earns more, the CSR investment strategy might change and a link with the past might be non existing. Due to the potential weakness of the instrument, the results should be carefully interpreted. This means that even though a significant result is shown, this could also be the result of more missing or unknown variables.

5.2 Limitations and future research

As with any study, this thesis is prone to certain limitations. The first limitation is the data availability. In this thesis, only the ASSET4 database is used to retrieve data on CSR. This database receives its information of European companies on a voluntarily bases. This could give a sample bias, since mostly big firms that probably care about CSR have this information and would be willing to share it. Moreover, from the 8049 firms in the ASSET4 database only 1570 are European. The used sample consist of 657 companies, since several firms did not share the data needed to calculate the tax avoidance proxies. Therefore, the study is applied on a relatively small sample and with more simplified tax avoidance proxies. Secondly, each tax avoidance proxy has its limitations. Even though different proxies have been used, performing this study with alternative tax avoidance proxies might change the results. The third limitation of this study is that no explicit distinction is made between the different European countries in the sample. Within these countries tax and CSR policies could differ. Although, country fixed effects may partially capture these differences, a case study per country would be more thorough. This limits the conclusions that can be drawn from this study, since nothing can be said about about a country in specific or the tax-avoidance behaviour of a specific firm. Finally, there is relatively little prior research on this topic, which complicates the reliance on scientific literature.

Future research on the relationship between tax avoidance and CSR could look into a number of areas. First of all, the scope of the research can be changed. Research could be conducted on the relationship per European country, since each European country has its own policies regarding CSR investments and taxation. It could be interesting, for example, to look more into European countries that are qualied as tax heaven. Moreover, instead of looking at European countries, studies could also focus on emerging countries, such as South Africa, which has a lot of regulation on CSR contrary to the European countries. Secondly, the subgroups of CSR can be more extensively examined. In this thesis, signicant results are found for the management performance. In future research, this relation could be more exploit. Furthermore, analyses could be conducted on the other subgroups as well. Thirdly, a fixed effects model and an IV method are applied in this thesis. However, another methodologies, such as a matching approach, or a dierent

instrumental variable — when available — could also be used. Fourthly, only the inuence of market competition on this relationship has been researched, however, more phenomena could potentially have an inuence. For example, characteristics of CEO's. Future research could look into these other phenomena. In other words, still a lot is unknown about the relationship between CSR and tax avoidance.

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7 Appendix

Table 18: Overview of the variables

Dependent variables	Source		Definition
Effective tax rate	Worldscope	ETR	Calculated by dividing the tax expenses by pre-tax book income. The variable is winsorized at the 1st and 99th percentiles.
Long-term effective tax rate	Worldscope	$LETR$	Calculated by dividing the five-year average total tax expense by the five-year average total pre-tax book income. The variable is winsorized at the 1st and 99th percentiles.
Book tax difference	Worldscope	BTD	Calculated by difference between the pre-tax book income and the taxable income scaled by total assets. The taxable income is calculated by dividing the the current tax expense by the statutory tax rate per country per year. The variable is winsorized at the 1st and 99th percentiles.
Independent variables		**Definition**	
CSR Performance	ASSET4	$CSRPERF$	The overall CSR performance of the company is a proportionately weighted measure of ten subgroups: resource use, emissions, innovation, workforce, human rights, community, product responsibility, management, shareholders, CSR strategy. This measure has a value between the 0 and 100.
Management performance	ASSET4	$CSRMAN$	The management performance measures a company's commitment and effectiveness towards following best practice corporate governance principles. This measure has a value between the 0 and 100.
Shareholder performance	ASSET4	$CSRSHAR$	The shareholder performance measures a company's commitment and effectiveness towards equal treatment of shareholders and the use of anti-takeovers devices. This measure has a value between the 0 and 100.
Strategy performance	ASSET4	$CSRSTRAT$	The CSR strategy performance reflects a company's practices to communicate that it integrates the economic (financial), social and environmental dimensions into its day-to-day decision-making process. This measure has a value between the 0 and 100.
Community performance	ASSET4	$CSRCOM$	The community performance measures the company's commitment towards being a good citizen, protecting public health and respecting business ethics. This measure has a value between the 0 and 100.
Competition	Worldscope	HHI	Herfindahl-Hirschman Index is calculated per industry by summing up the squared market shares of the companies in the market. The HHI will be a number between 0 and 1.
Control variables		**Definition**	
Leverage	Worldscope	LEV	Leverage is calculated by dividing debt by total assets. The variable is winsorized at the 1st and 99th percentiles.
Inventory intensity	Worldscope	$INVENT$	Inventory intensity is calculated by dividing inventory by total assets, and set to 0 if missing. The variable is winsorized at the 1st and 99th percentiles.
Market-to-book ratio	Worldscope	$MKTB$	Market-to-book ratio is calculated by dividing market value of equity by book value of equity, and set to 1 if missing. The variable is winsorized at the 1st and 99th percentiles.
Return on Assets	Worldscope	ROA	Return on assets is calculated by dividing pre-tax income by total assets. The variable is winsorized at the 1st and 99th percentiles.
Size	Worldscope	$SIZE$	Size is the natural logarithm of total assets. The variable is winsorized at the 1st and 99th percentiles.
Audited by a big-four firm	Compustat	$BIG4$	Audited by a big-four firm is a dummy variable, coded 1 if the firm uses a big-four auditor; otherwise 0.
Year fixed effects		$YEAR$	A year dummy to control for systematic differences that exist over time.
Firm fixed effects		$FIRM$	A firm dummy to control for systematic differences that exist at a firm level.

Table 19: The sample: countries

Country	*N*
Austria	11
Belgium	18
Czech Republic	2
Denmark	23
Finland	22
France	81
Germany	73
Greece	12
Hungary	3
Ireland	10
Italy	34
Luxembourg	3
Norway	19
Poland	5
Portugal	10
Slovenia	1
Spain	29
Sweden	48
Switzerland	41
The Netherlands	24
United Kingdom	188
Total sample	657

This table presents the countries in which the companies of the sample are based. The sample contains 657 European companies based in 21 different countries. Firms based in Turkey are excluded from the sample.

Table 20: The sample: industries

Industry	SIC CODE	*N*
Mining	10-14	33
Construction	15-17	30
Manufacturing	20-39	315
Utilities	40-49	114
Wholesale trade	50-51	19
Retail trade	52-59	49
Services	70-89	97
Total sample		657

This table presents the industries in which the companies of the sample are active in. The sample contains 657 European companies active in 7 industries. Firms active in the financial industry (SIC codes 6000-6999) are excluded from the sample.

Table 21: Shareholder performance and tax avoidance

	ETR	LETR	BTD
CSRSHAR	-0.000	-0.000	0.000
	(-1.59)	(-0.36)	(0.14)
LEV	-0.085	0.023	0.005
	(-1.38)	(0.33)	(0.14)
INVENT	-0.107	-0.163	-0.304***
	(-0.88)	(-1.17)	(-3.68)
MKTB	0.001	-0.001	-0.002
	(0.41)	(-0.33)	(-1.47)
ROA	-0.830***	-0.658***	0.100
	(-8.10)	(-6.69)	(1.76)
SIZE	0.029**	0.049***	0.000
	(2.67)	(3.38)	(0.07)
BIG4	-0.004	-0.047	0.001
	(-0.21)	(-1.66)	(0.10)
Constant	-0.033	-0.275	0.045
	(-0.19)	(-1.18)	(0.48)
N	7017	7017	7017
adj. R^2		0.048	0.052
0.028			
Firm Effects	yes	yes	yes
Year Effects	yes	yes	yes

This table presents the results from regressing the proxies of tax avoidance on the shareholder performance and other control variables over the 2005-2017 period for 657 European firms in the sample. The control variables are leverage (LEV), inventory intensity (INVENT), the market-to-book ratio (MKTB), return on assets (ROA), firm size (SIZE) and Big 4 auditor (BIG4). The model includes firm and year fixed effects. Robust t statistics corrected for clustering at the firm level are presented in parentheses.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 22: Strategy performance and tax avoidance

	ETR	LETR	BTD
CSRSTRAT	0.000	-0.000	0.000
	(0.75)	(-0.27)	(0.81)
LEV	-0.083	0.024	0.005
	(-1.36)	(0.33)	(0.15)
INVENT	-0.110	-0.167	-0.301***
	(-0.90)	(-1.22)	(-3.64)
MKTB	0.001	-0.001	-0.002
	(0.43)	(-0.32)	(-1.48)
ROA	-0.831***	-0.659***	0.101
	(-8.13)	(-6.70)	(1.77)
SIZE	0.029**	0.049***	0.000
	(2.66)	(3.37)	(0.08)
BIG4	-0.004	-0.047	0.001
	(-0.22)	(-1.65)	(0.06)
Constant	-0.051	-0.272	0.039
	(-0.28)	(-1.15)	(0.42)
N	7017	7017	7017
adj. R^2	0.048	0.052	0.039
Firm Effects	yes	yes	yes
Year Effects	yes	yes	yes

This table presents the results from regressing the proxies of tax avoidance on the strategy performance and other control variables over the 2005-2017 period for 657 European firms in the sample. The control variables are leverage (LEV), inventory intensity (INVENT), the market-to-book ratio (MKTB), return on assets (ROA), firm size (SIZE) and Big 4 auditor (BIG4). The model includes firm and year fixed effects. Robust t statistics corrected for clustering at the firm level are presented in parentheses.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 23: Community performance and tax avoidance

	ETR	LETR	BTD
CSRCOM	0.000	0.000	-0.000
	(1.16)	(0.23)	(-1.24)
LEV	-0.082	0.023	0.004
	(-1.34)	(0.32)	(0.12)
INVENT	-0.116	-0.165	-0.304***
	(-0.96)	(-1.20)	(-3.70)
MKTB	0.001	-0.001	-0.002
	(0.44)	(-0.32)	(-1.46)
ROA	-0.831***	-0.658***	0.099
	(-8.11)	(-6.70)	(1.75)
SIZE	0.029**	0.049***	0.001
	(2.64)	(3.38)	(0.09)
BIG4	-0.004	-0.047	0.001
	(-0.24)	(-1.64)	(0.15)
Constant	-0.050	-0.279	0.050
	(-0.28)	(-1.19)	(0.54)
N	7022	7022	7022
adj. R^2	0.048	0.052	0.040
Firm Effects	yes	yes	yes
Year Effects	yes	yes	yes

This table presents the results from regressing the proxies of tax avoidance on the community performance and other control variables over the 2005-2017 period for 657 European firms in the sample. The control variables are leverage (LEV), inventory intensity (INVENT), the market-to-book ratio (MKTB), return on assets (ROA), firm size (SIZE) and Big 4 auditor (BIG4). The model includes firm and year fixed effects. Robust t statistics corrected for clustering at the firm level are presented in parentheses.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 24: Shareholder performance and tax avoidance: instrumental variable method

	CSRSHAR	ETR	LETR	BTD
	(1)	(2)	(3)	(4)
CSRSHAR		0.000	-0.000	0.000
		(0.26)	(-0.52)	(0.69)
LEV	-3.248	-0.092	-0.016	0.008
	(-0.82)	(-1.50)	(-0.23)	(0.25)
INVENT	23.817**	-0.080	-0.174	-0.308***
	(2.66)	(-0.65)	(-1.28)	(-3.77)
MKTB	-0.198	0.001	-0.001	-0.002
	(-1.39)	(0.54)	(-0.22)	(-1.41)
ROA	7.672	-0.860***	-0.714***	0.104
	(1.57)	(-8.38)	(-7.29)	(1.86)
SIZE	0.916	0.026*	0.053***	0.002
	(1.08)	(2.33)	(3.54)	(0.28)
BIG4	-1.476	-0.012	-0.046	0.003
	(-0.95)	(-0.67)	(-1.62)	(0.41)
L.CSRSHAR	0.348***			
	(25.07)			
Constant	16.198	0.016	-0.303	0.012
	(1.19)	(0.09)	(-1.27)	(0.13)
N	6821	7016	7016	7016
adj. R^2	0.135	0.050	0.059	0.037
Firm Effects	yes	yes	yes	yes
Year Effects	yes	yes	yes	yes
Kleibergen-Paap rk Wald F statistic			628.345	

This table presents the results of the IV method to correct for endogeneity. The results are shown from the Instrumental Variable (IV) method that control for the endogeneity of shareholder performance. One instrument is employed: the one-period lagged shareholder performance. Model (1) shows the first stage regression (where the dependent variable is the shareholder performance). In models (2), (3) and (4) presents the results of the second stage regression (2SLS). The model includes firm and year fixed effects. Also the Kleibergen-Paap rk Wald F statistic is shown in this table. Robust t statistics corrected for clustering at the firm level are presented in parentheses.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 25: Strategy performance and tax avoidance: instrumental variable method

	CSRSTRAT	ETR	LETR	BTD
	(1)	(2)	(3)	(4)
CSRSTRAT		0.000	0.000	-0.000
		(0.96)	(0.57)	(-0.44)
LEV	-2.426	-0.092	-0.015	0.008
	(-0.79)	(-1.50)	(-0.21)	(0.23)
INVENT	-21.825**	-0.063	-0.174	-0.306***
	(-2.91)	(-0.51)	(-1.30)	(-3.76)
MKTB	0.056	0.001	-0.001	-0.002
	(0.60)	(0.50)	(-0.21)	(-1.43)
ROA	-1.160	-0.855***	-0.713***	0.104
	(-0.27)	(-8.34)	(-7.26)	(1.85)
SIZE	-0.637	0.026*	0.053***	0.002
	(-1.09)	(2.36)	(3.53)	(0.29)
BIG4	2.465*	-0.013	-0.046	0.003
	(2.49)	(-0.73)	(-1.63)	(0.41)
L.CSRSTRAT	0.420***			
	(26.94)			
Constant	38.694***	-0.012	-0.334	0.025
	(4.12)	(-0.06)	(-1.36)	(0.27)
N	6821	7016	7016	7016
adj. R^2	0.242	0.050	0.059	0.037
Firm Effects	yes	yes	yes	yes
Year Effects	yes	yes	yes	yes
Kleibergen-Paap rk Wald F statistic			725.852	

This table presents the results of the IV method to correct for endogeneity. The results are shown from the Instrumental Variable (IV) method that control for the endogeneity of strategy performance. One instrument is employed: the one-period lagged strategy performance. Model (1) shows the first stage regression (where the dependent variable is the strategy performance). In models (2), (3) and (4) presents the results of the second stage regression (2SLS). The model includes firm and year fixed effects. Also the Kleibergen-Paap rk Wald F statistic is shown in this table. Robust t statistics corrected for clustering at the firm level are presented in parentheses.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 26: Community performance and tax avoidance: instrumental variable method

	CSRCOM	ETR	LETR	BTD
	(1)	(2)	(3)	(4)
CSRCOM		0.000	0.000	-0.000
		(0.51)	(0.21)	(-1.23)
LEV	-2.916	-0.091	-0.015	0.006
	(-0.87)	(-1.49)	(-0.21)	(0.17)
INVENT	0.131	-0.077	-0.183	-0.300***
	(0.02)	(-0.64)	(-1.35)	(-3.74)
MKTB	-0.005	0.001	-0.000	-0.002
	(-0.06)	(0.53)	(-0.19)	(-1.43)
ROA	-2.565	-0.858***	-0.716***	0.104
	(-0.63)	(-8.36)	(-7.29)	(1.85)
SIZE	0.208	0.026*	0.052***	0.002
	(0.33)	(2.32)	(3.53)	(0.34)
BIG4	0.930	-0.013	-0.045	0.003
	(0.89)	(-0.72)	(-1.60)	(0.41)
L.CSRCOM	0.387***			
	(26.37)			
Constant	21.708*	0.011	-0.315	0.027
	(2.19)	(0.06)	(-1.31)	(0.28)
N	6827	7021	7021	7021
adj. R^2	0.268	0.050	0.059	0.037
Firm Effects	yes	yes	yes	yes
Year Effects	yes	yes	yes	yes
Kleibergen-Paap rk Wald F statistic			695.222	

This table presents the results of the IV method to correct for endogeneity. The results are shown from the Instrumental Variable (IV) method that control for the endogeneity of community performance. One instrument is employed: the one-period lagged community performance. Model (1) shows the first stage regression (where the dependent variable is the community performance). In models (2), (3) and (4) presents the results of the second stage regression (2SLS). The model includes firm and year fixed effects. Also the Kleibergen-Paap rk Wald F statistic is shown in this table. Robust t statistics corrected for clustering at the firm level are presented in parentheses.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$