Corporate Social Performance and Taxation: A Swedish Perspective

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Abstract

In this thesis we investigate the correlation between the level of social responsibility of firms (CSP) and taxation. Further on, we study corporate hypocrisy regarding taxation in corporate social responsibility and the incentives for tax avoidance for high versus low performing CSP firms in an environment in which the corporate tax rate decreases. We find strong evidence that CSP and taxation is positively correlated. We do not find significant results when testing for a relationship between CSP and corporate hypocrisy. Neither are we able to provide any definite results as to how low versus high performing CSP firms respond to a decreasing corporate tax rate. However, our study still implies that such relationships exists, both regarding CSP and corporate hypocrisy, and the responsiveness of differently rated CSP firms to decreasing tax rates.

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Key words: CSR, CSP, corporate social responsibility, corporate social performance, taxation, corporate hypocrisy.

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1. Introduction

1.1 Purpose of the study

The purpose of this study is to explore the relationship between taxation and corporate social responsibility. We wish to investigate if there is any relationship between the CSR (*Corporate Social Responsibility*) of firms and taxation. If such a relationship exists, we want to expand our scope to explore the characteristics of it.

To help us fulfil this purpose, our research question is as follows:
What are the characteristics of the relationship between CSR and taxation, if any such relationship exists?

1.2 Background

The motives for doing business are various and have been changing over time. Many people are doing business for the sole purpose of increasing their own wealth and thus improving their standard of living, while others might see doing business as their way of contributing to society.

Certainly, there has always been people of different opinions as to what the responsibility of business includes, arguing that business should not only benefit the owners, but all interest groups that are affected by it. Today, there are various opinions which often differ only by minute details that express various views of what a firm's responsibility to society is, if there even is one. Even though the spectrum of opinions is wide, it seems to us as though there is a general consensus that most can agree to, that the very basic responsibility of a firm is to comply with current legislation.

The next level of responsibilities that could be attributed to a firm is of ethical nature. These are issues that the legislator have not enacted laws regarding, leaving it up to the firm to either embrace them or leave them be. There is a multitude of areas in which a firm might do more to benefit society to a greater extent than what is required by law. Such areas are generally thought to include discretionary, ethical, legal and economic responsibilities (Carroll 1979). We argue that taxation could fit into this broadly defined map. Whatever personal opinions on taxation and public welfare one might have, taxes are the foundation upon which the current version of our democratic society is built. They are essential for the government to provide health care, schools and infrastructure. Since Sweden is a democracy and has been so during

the time that the current tax system has been developed, the current tax system can be seen as having support from the population. Thus, it would be considered ethical in the eyes of the public not to engage in tax planning, but instead pay ones "fair share" of taxes to the government. Of course, we realize that details in the systems such as specific taxes might not be accepted by the general public, but rather a result of purely political work. However, we think that this view holds for the system at large.

Within the Swedish tax law, firms face several options how to report their earnings or losses. This can be done in order to minimize the tax that has to be paid. In other words, a firm can stay within the borders of the law and still engage in tax avoidance. This creates an interesting dilemma for firms as they comply with national law, but at the same time may appear unethical. The fact that the population often is the customer of the company, or at least the end consumer, makes this issue even more delicate. From a profit-maximizing perspective, tax avoidance becomes a trade-off between the risk of losing customers and the economic benefits of tax planning.

In a recent study by Davis et al. (2016) published in *The Accounting Review*, the issue of taxation and corporate social responsibility is examined. The authors analyse the relationship between a firm's CSP (*Corporate Social Performance*) and its effective cash tax rate. Their findings contradict our intuitive conception. They find a negative correlation between CSP and effective cash tax rates, indicating that companies that are more devoted to CSR pay a lower tax rate than others. The authors suggest that this might be because these firms do not see paying tax as the best way to engage in CSR, basing this suggestion on the reasoning of Porter and Kramer (2006).

Due to these intriguing results, we wish to further increase the understanding of this field of research by applying the principles from Davis et al. (2016) to the Swedish market. In doing so, we aim to shed light on a new set of companies in a different cultural environment. Also, we want to further increase the understanding of how firms might resolve to hypocrisy to handle the balance between shareholders and other stakeholders.

Also, over the last ten years, the corporate tax rate in Sweden has been changed twice. In 2009 the tax rate was changed from 28 % to 26.3 %, and in 2012 to 22 %, which is also the current level. This change in corporate tax rate provides us with a possibility to study the effect on taxation and CSR under changing tax rates, bringing a new dimension to our study.

2. Definitions and delimitations

Due to the resemblance in some of the terminology frequently used in the coming sections, a clear distinction of them is essential for the understanding of the thesis.

CSP (Corporate Social Performance): The actual CSR performance of a firm measured by a rating institution.

Tax avoidance: The attempts of a firm to minimize the taxes it needs to pay, while staying within the boundaries of the law.

Tax evasion: The attempts of a firm to minimize the taxes it needs to pay, going beyond the boundaries of the law.

In this study, we will limit our scope of focus to Swedish firms. In addition to this, we do not consider any unlisted firms in this study, and focus our study on companies listed on *Nasdaq OMX Stockholm*, *First North* or *Aktietorget*. In combination, these delimitations leads to the exclusion of any observations for foreign firms listed on Swedish stock exchanges. The reason for excluding such firms is that they are not subject to the same tax legislation as firms registered in Sweden.

3. Previous Research

As a contribution to what previous research has done in this field, our study focuses on what implications the tax rate may have on the correlation between taxation and CSP. Further on, we study how corporate hypocrisy in CSR is connected to taxation. Where previous studies have limited themselves to a one dimensional approach of studying the relationship of CSP and taxation for stable conditions, the changing tax rates approach provides us with a new dimension.

3.1 Corporate social responsibility

The field of corporate social responsibility is very wide with regards to different theories and opinions as to what CSR entails. CSR is commonly subdivided into *discretionary, ethical, legal* and *economic* responsibilities (Carroll 1979). Economic responsibilities constitute the foundation of CSR, the most basic responsibility of business. Adding another layer, the legal responsibilities set the boundaries for how firms are allowed to act. Ethical responsibilities are abstract in nature, not decided by law but rather reflected in the expectations of society. The

top level of CSR is discretionary, relating to subjects where society has no clear expectations. This area is left to individual firms to deal with at their volition.

One of the early modern adoptions of the concept, although not of the term CSR itself, is found in Howard Bowens classical work *Social Responsibilities of the Businessman* (1953). Bowen argues that business does have social obligations that, in some cases, actually need to obtain higher priority than the obligations to shareholders. He defines the term "*social responsibilities of businessmen*" (equivalent to corporate social responsibility) as "*…to pursue those policies, to make those decisions, or to follow those lines of action which are desirable in terms of the objectives and values of our society*" (1953, p. 6). In his view, the freedom of doing business is dependent on businessmen and firms considering the social influence of corporate activity, as society otherwise will force them to comply through regulations thus limiting the freedom of the business.

Trying to decide what the core of CSR really is soon becomes an existential dilemma on the firm level. When studying CSR, scholars need to ask themselves the question; *for what ultimate goal does business exist*? Garriga and Melé (2004) provide a summary of the different main theories and views on CSR that are prominent among scholars. The authors divide all CSR theories into four different categories; (1) instrumental theories, (2) political theories, (3) integrative theories and (4) ethical theories.

3.1.1 Instrumental theories

The instrumental theorists see the firm as a mere instrument in the hands of businessmen, an instrument for the purpose of maximizing shareholder wealth within the limits of the law. Activities which contribute to society should only be conducted if they at the same time help increase the value to shareholders from an economic point of view. Managers are seen as agents acting on behalf of the shareholders and are in fact spending other people's money when engaging in CSR activities which does not align with the above criteria (Friedman, 1970). CSR activities inside the firm are seen as unnecessary since any shareholder wanting to engage in such activities is free to do so with his/her own money once distributed to shareholders (Friedman 1970). Another branch of instrumental theories see CSR itself as an instrument for creating a competitive advantage (Porter & Kramer 2006), which of course is meant to benefit shareholders in the end.

3.1.2 Political theories

Political theorists who see corporations in light of the social power they possess are said to express a view of *corporate constitutionalism* (Garriga & Melé 2004). Davis (1960) argues that the two extremes of either seeing CSR as something toxic or suggesting that companies should be socially responsible simply because they have the economic means are both equally irrelevant. Instead he suggests that the "*... social responsibilities of businessmen need to be commensurate with their social power"* (Davis 1960, p. 71). More specifically, he argues that firms should take responsibility in the area of society in which they do business. He also suggests that firms which do not accept the responsibility assigned to them will eventually lose their power. These two rules are referred to as *the Social Power Equation* and *the Iron Law of Responsibility* (Garriga & Melé, 2004).

Another niche of political theory is *corporate citizenship*, a perspective which implies that firms are citizens who should take responsibility for the "neighbourhood" in which they operate (Matten et al. 2003). This way of seeing CSR argues that the responsibility should be directed towards the local community.

3.1.3 Integrative theories

Integrative theories deal with the dependence upon society for the survival of the firm. Scholars adhering to this view argue that firms should take social issues into account and integrate them into the regular corporate activities. Since all firms need society to survive, it is only reasonable that business help keep society in good shape. However, as the values of society shift throughout time, there are no specific activities that companies can take to. Rather, they need to understand their environment to comply with the current idea of what society deems to be desirable.

3.1.4 Ethical theories

Finally, the fourth set of theories that Garriga and Melé (2004) presents are the ethical theories of CSR. The foundation of these theories is that there is a "right thing" that can and should be done and that these actions are necessary to uphold a desirable society. A common way of expressing this view in a more practical way is that management of a firm need to keep the interests of all stakeholder as a top priority, not only working in the interest of the shareholders. This point of view is often simply referred to as the *stakeholder perspective*. Scholars such as Bowie (1991), Evan and Freeman (1988) and Donaldson and Preston (1995) have all argued for this point of view based on different philosophical basis.

3.1.5 CSP and financial performance

Trying to decide if CSP and financial performance is negatively, positively or not at all correlated has generated numerous theoretical arguments and empirical studies for various ideas. However, in conducting a meta-study of 52 previous studies, Orlitzky et al. (2003) find a positive correlation between CSP and financial performance. They also find that the most important effect of CSP seems to be the reputation that a firm acquires through its CSP. This indicates that the disclosure of a firm's CSP might be just as important as actual performance.

Making the firms stakeholders aware of the firms CSP can also work as an insurance protection against future negative events (Godfrey, Merrill and Hansen 2009). This point of view suggests that CSP, as a form of goodwill, can preserve financial performance of a firm when a negative event occurs, rather than being a leading factor in generating financial performance.

3.2 Tax Avoidance

Allingham and Sandmo (1972) develop a theoretical model of tax avoidance in which the tax rate, risk of control from authorities, extent of punishment if detected doing tax evasion and the risk aversion of the tax payer are important components. Increases in tax rate will lead to the tax payer being more prone to avoiding taxes, or even tax evasion. The argument is that the higher the tax rate is, the more there is to gain for the tax payer in decreasing the taxes he/she pays. On the other end, factors such as risk aversion, risk of control and punishments all have negative effects on the extent of tax avoidance a tax payer wants to engage in. In their model, the authors assume that the tax payer is amoral and is only interested in the rational choice for which tax payments will be minimized.

While the model developed by Allingham and Sandmo (1972) focuses of the individual tax payer, much can be analogously transferred to the actions of firms. However, due to the dispersion between control and ownership in many publicly traded firms, a few factors need to be changed. Slemrod (2004) argues that risk aversion should not affect the demand for tax avoidance from shareholders in such firms since shareholders are (or at least should be) well diversified, and therefore risk-neutral. This means that investors will continue to demand that management engages in tax avoidance, even if this might result in legal or reputational repercussions to the firm.

What might seem more interesting in the case of tax avoidance at the firm level is the agency problem (Jensen & Meckling 1976) which might arise. In general, it is the shareholders that

reap the economic benefits of tax avoidance, while management take on the risk of bearing the consequences if the tax avoidance, or tax evasion, is detected. Crocker and Slemrod (2005) develop a framework to enhance the understanding of tax avoidance in the public firm and find that penalties directed towards individual managers are among the most effective tools to decrease tax avoidance in firms, as this increases the conflict of interest between management and shareholders. Due to the evident agency problem at play here, shareholders need to align the incentives for management in practicing tax avoidance if they are seeking to maximize their own return. However, the incentives need not be so powerful that management decides to engage in tax evasion as this may hurt the entire company if detected. In addition to fines and other penalties which might be a result from authorities from not complying with current legislation, the effect of disappointing one's customers should not be underestimated, especially not for a firm catering to the end consumer.

3.3 Corporate social responsibility and taxation

The question of whether or not taxation should be viewed as a part of CSR has long been one without clear consensus, although recent development has led to increased advocacy that it should be included (Christensen and Murphy 2004; Friedman 1970).

3.3.1 Taxation as a component of CSR

Taxation could be argued to be part of both legal and ethical responsibilities (Carroll 1979). Pioneering the issue of why taxation has not entered the CSR debate earlier and why it should be part of CSR, Christensen and Murphy (2004) argue that the current state of firms doing tax avoidance is not in line with CSR. They argue that it is not feasible to be ethical in one area of business and not all, claiming tax avoidance to be unethical.

3.3.2 Taxation and corporate hypocrisy

Sikka (2010) applies the framework of organized hypocrisy (Brunsson 1989) to emphasize why firms claim to engage in CSR while still doing tax avoidance. He argues that there is a gap between the corporate talk and the actions of many firms with regards to tax avoidance and ethics and find that companies have a tendency to claim being transparent and ethical while limiting the disclosure of tax payment to a large degree.

3.3.3 The relationship between CSP and taxation

Trying to distinguish any relationship between CSP and taxation or tax avoidance is a quite recent development in the research field of CSR. Different approaches among scholars have been seen when studying this relationship. Scholars studying this issue have found that firms with high CSP are less prone to tax avoidance (Lanis & Richardson 2014) while also providing evidence in showing that those with an irresponsible approach to CSR are more likely to do tax avoidance (Hoi, Wu and Zhang 2013).

A recent paper by Davis et al. (2016) conducts a study of CSP and taxation. Contradictory to what might have been expected in the light of previous studies in this field; a negative relationship between the two measurements was found, indicating that socially responsible firms actually pay less tax than others. Even though the approach of this study is different from previous ones, the question as to how high CSP firms both do less tax avoidance and simultaneously pay less taxes remains.

4. Hypothesis development

4.1 Hypothesis 1: The correlation between CSP and taxation

Taxation can be seen as being part of CSR (Christensen & Murphy 2004). The most obvious one is the legal aspect. Any firm doing business needs to keep within the frames of the law also with regards to taxation. However, the law leaves room for interpretation and firms have many different options as to how and in which jurisdiction they should report their earnings, each option giving cause to different tax expenses. This may of course leave firms wandering in an ethical grey area regarding their tax reporting. Finally, not trying to minimize one's tax payments may seem uneconomical, as the return to investors is likely to decrease.

Using the social contract between business and society as a starting point (Donaldson & Dunfee 1994), we argue that on a scale of being more or less ethical, paying a higher tax rate, in line with current corporate tax rate, is to be regarded as a higher ethical standard. Based on this, and previous findings that firms with high CSP do less tax avoidance (Lanis & Richardson 2014), such firms should be paying a tax rate more similar to the corporate tax rate than low CSP firms.

In contrast to the results found by Davis et al. (2016), we expect the relationship between CSP and taxation to be positive for Swedish companies. The reason for this is, firstly, the US general top marginal corporate income tax rate at 39 %, placing the US in third place for the

world's highest corporate income tax (Pomerleau 2015). In comparison, the Swedish corporate income tax rate is at 22 %, indicating that the relative incentive of doing tax avoidance is larger in the US than in Sweden (Allingham & Sandmo 1972). Secondly, we consider previous research such as Lanis and Richardson (2014) and Hoi, Wu and Zhang, (2013) to support this view.

Thus, the first hypothesis that we will test is that a relationship exists between CSP and taxation for Swedish public firms.

$$H_0: \beta_{CSP} \leq 0$$

$$H_1: \beta_{CSP} > 0$$

4.2 Hypothesis 2: The responsiveness to a decrease in tax rate dependent on CSP

In line with the classical model developed by Allingham and Sandmo (1972), we assume that a firm's level of tax avoidance will, among other factors, depend on the difference between what the tax expense would have been if no tax avoidance was done and what the tax expense would be if some tax avoidance strategy was implemented. The more there is to gain, the more likely the action becomes.

There are a few different factors that highly influence this difference between a non-avoidance and an avoidance strategy. Firstly, the flexibility of the tax system is important as a flexible system leaves room for interpretation and creates a grey morale area. A rigid tax system on the other hand forces firms to succumb to tax evasion if large gains in tax expenses are to be made. Secondly, a higher corporate tax rate is likely to increase the incentive for tax avoidance as there is a wider gap between the efficient tax rate that can be achieved by doing tax avoidance, and the non-avoidance tax rate.

By including the reasoning of high CSP firms not being as prone to tax avoidance as low performing CSP firms (Lanis & Richardson 2014), we argue that it is likely that, as the corporate tax rate decreases over time, we should be able to observe a significant difference in how two groups of low and high CSP firms respond to such a change, with regards to their effective tax rate.

Conducting this study on the Swedish market gives us the opportunity to test this hypothesis as the corporate tax rate has changed twice in Sweden over the last years, moving from 28 % to 26.3 % in 2009 and from 26.3 % to 22 % in 2013.

Thus, our second hypothesis is that there is a difference in how low and high CSP firms respond to a decrease in the corporate tax rate.

$$H_0: \mu_{ETR\_LOW\_CSP} = \mu_{ETR\_HIGH\_CSP}$$
$$H_1: \mu_{ETR\_LOW\_CSP} \neq \mu_{ETR\_HIGH\_CSP}$$

4.3 Hypothesis 3: Corporate Hypocrisy in taxation and CSP

Further on, we aim to expand the research conducted by Sikka (2010) regarding the hypocrisy of corporate talk and CSP. We agree with Sikkas suggestions that there is a widespread difference between the corporate talk and the corporate walk, that is, the difference between the actions communicated to stakeholders and the actions actually implemented. In contrast to Sikka we will take on this issue in a quantitative way, thus building upon previous findings and increasing the understanding of corporate hypocrisy in CSR.

Thus, our third hypothesis is that firms which disclose more CSP than they actually do, labelled *Underperformers*, report lower ETR than those which disclose less than they actually do, labelled *Overperformers*.

$$H_0: \mu_{Underperformer\_ETR} = \mu_{Overperformer\_ETR}$$
$$H_1: \mu_{Underperformer\_ETR} \neq \mu_{Overperformer\_ETR}$$

5. Method

In this section we will 1) develop our model, 2) define and describe our dataset and 3) develop the methodology used in acquiring the results of our study.

5.1 The model

The model that we will use is based on the model used by Davis et al. (2016) with a few adjustments to fit our sample to the Swedish market. We follow the basic model for construction a regression model as pictured below.

$$Dependent\ Varible_{i,t} = \beta_0 + \beta_1 \sum \beta_k Independent\ Varibles_k + \epsilon_{i,t}$$

Due to limited data availability and differences between firms in the US and Sweden, we chose to exclude some of the independent variables that Davis et al. (2016) use. *Tax benefit of stock options, Electoral College* and *Capitol* are excluded since these items are not applicable to the Swedish market. *Foreign income* is excluded due to restricted data availability as Swedish firms are not required to separately disclose this item. *NOLCF_Amount* and *NOLCF_Indicator* are not included in our study due to data unavailability and time restrictions. *Governance, Lobby(0/1)* and *Lobby_Exp* are excluded due to data unavailability.

An important change regarding the dependent variable in out model is that we chose to use a standardized five year average effective tax expense rate (*5YETR*) rather than a five year average effective *cash* tax rate. Using a five year average provides us with a harmonized tax expense for each observation. Over time, these two measurements will converge as the intention of the legislator is that reported tax expense will lead to equivalent tax payments. Of course, the fact that these two measurements are likely to differ over as short a period as a five year period, it is important to note that we are using reported tax expense in calculating five year ETR rather than cash taxes paid when comparing this study to similar ones.

$$5YETR = \frac{\sum_{t-4}^{T} Tax\ Expense}{\sum_{t-4}^{T} Pretax\ Income - \sum_{t-4}^{T} Special\ Items}$$

This leaves us with *5YETR* as our dependent variable. The independent variables that will be used are two separate measurements of CSR/CSP (*GES and MSCI), Size, Leverage,* intangible assets *(Intang),* pre-tax profitability *(PTROA),* market-to-book *(MTB),* selling, general and administrative expense *(SG&A),* research and development *(R&D),* property, plant and equipment *(PPE), Cash*, *Excess Cash* and *Financial Constraints*. *Excess Cash* is calculated

following Frésard and Salva (2010) (see Table 2) and *Financial Constraints* is calculated using the HP-Index (Hadlock & Pierce 2010).

We utilize industry and time fixed effects to control for unobserved heterogeneity. All our regressions use robust and clustered standard errors to correct for heteroscedasticity and serial correlation. The final model that is used for testing our first hypothesis is specified below.

$$\begin{aligned} 5YETR = \beta_0 \; &+ \beta_1 CSR\ Rating_{i,t} + \beta_2 Size_{i,t} + \beta_3 Leverage_{i,t} + \beta_4 Intang_{i,t} + \beta_5 PTROA_{i,t} \\ &+ \beta_6 MTB_{i,t} + \beta_7 SG\&A_{i,t} + \beta_8 R\&D_{i,t} + \beta_9 PPE_{i,t} + \beta_{10} Cash_{i,t} \\ &+ \beta_{11} Excess_{Cash_{i,t}} + \beta_{12} Financial\ Constraits_{i,t} + \sum \beta_j Industry_j \\ &+ \sum \beta_t Year_t \end{aligned}$$

Table 1

Variables	Description of variable
5YETR	The sum of five year tax expense (t-4 to t) reported divided by pre-tax income less by special items for the same five year period
GES	Rating of actual CSP, indexed to values 0-1
MSCI	Rating of disclosed CSP, indexed to values 0-1
Size	The log of total assets
Leverage	Long term liabilities plus short term-debt divided by lagged total assets (t-1)
Intang	Intangible assets divided by lagged total assets
PTROA	Pre-tax income divided by lagged total assets
MTB	Market value of the firm divided by common equity
SG&A	Sales, general and administrative expenses divided by lagged total assets
Cash	Cash and cash equivalents divided by lagged total assets
R&D	Research and development expenses divided by lagged total assets
PPE	Net property plant and equipment divided by lagged total assets
Financial Constraints	Calculated using HP-index (Hadlock & Pierce 2010)
Excess Cash	Calculated using the index developed by Frésard and Salva (2010)

5.1.1 Excess Cash

The *Excess Cash* variable is calculated using the model developed by Frésard and Salva (2010). A regression is conducted for calculating normal cash holdings. The residual is then used as a proxy for excess cash holdings.

Table 2

Variables	(1) Excess Cash Regression *ln(Cash)*
ln(TA)	0.852***
	(15.34)
CF	1.834***
	(6.751)
MV	0.120
	(1.156)
Capex	-0.329
	(-0.434)
NWC	-1.575***
	(-8.346)
Leverage	-4.45e-05
	(-0.253)
RD	1.724**
	(2.003)
DIV	0.0104
	(0.699)
Constant	-1.795***
	(-4.127)
Observations	1,368
R-squared	0.259
Firm FE	Yes
Industry FE	Yes
Year FE	Yes

Regression statistics following Frésard & Salva (2010). The residuals for each observation in the regression are assigned to be the value of *Excess Cash*. T-statistics are displayed in parentheses under each independent variables coefficient value.
*** p<0.01, ** p<0.05, * p<0.1

5.1.2 Hadlock & Pierce Index

The *Financial Constraints* variable is calculated using the HP-Index for financial constraints. The index is based on the size and age of each firm at time t as shown below.

$$Hadlock\ \&\ Pierce\ Index_t = -0{,}737 * Size_t + 0{,}043 * Size^2{}_t - 0{,}040 * Age_t$$

All observations each year is divided into terciles, providing the value assigned to *Financial Constraints* at time $t + 1$.

$$Financial\ Constraints_t = \begin{bmatrix} 1\ if\ HP_{t-1} is\ in\ bottom\ tercile \\ 0.5\ if\ HP_{t-1} is\ in\ middle\ tercile \\ 0\ if\ HP_{t-1} is\ in\ upper\ tercile \end{bmatrix}$$

5.1.3 The Gauss-Markov Theorem

In choosing the optimal regression model for our dataset, we need to review the different characteristics of our sample. The Gauss-Markov theorem will be the starting point of our model development (Wooldridge 2013). We start by assuming that (1) the dependent variable is a linear function of the independent variables and a random error component, (2) none of the independent variables is perfectly collinear with any other independent variable, nor a constant, (3) the expected value of the error term at each time period is zero for all observations, (4) the error terms are homoscedastic and (5) there is no serial correlation among the error terms. If these conditions are assumed to be coherent with our dataset, the *Ordinary Least Squares Regression Model* (OLS) is the best linear unbiased estimator (BLUE) (Wooldridge 2013).

To check that the use of the OLS is reasonable given the dataset that we have, we need to perform a control of the strength of these assumptions. Even though a scatter of the residuals do not show obvious signs of heteroscedasticity, a more refined test indicates that our dataset might have this characteristic (see Graph 4 *Scatter plot of 5YETR and residuals* and Breusch-Pagan/Cook-Weisberg test, Table14 in the appendix). To ensure robustness, we will assume that our dataset is heteroscedastic and correct for it using robust standard errors. Another assumption from the Gauss-Markov theorem which our sample is inconsistent with is serial correlation, as found by conducting a Wooldridge test (see Table 11 in appendix). This is corrected for by using robust standard errors and clustering the data by firm and year. We perform a Hausman test and find that our model should use fixed effects rather than being a random effects model (see Table 10 in the appendix).

5.1.4 T-tests

In testing hypothesis 2 and 3, we need to conduct t-tests to check for equality of means.

Hypothesis 2 demands a new variable to be calculated which will be denoted *Change in period ETR*. This variable is defined as the percentage point difference between the average ETR of the corresponding tax periods. For example, it captures how the ETR changes for a

certain firm as the tax rate moves from 26.3 % to 22 %. The part of our sample for which we are able to compute this variable is split in two groups based on their CSP (*GES*) score. High scoring firms are labelled *High CSP firms* and low scoring firms are labelled *Low CSP firms*.

The third hypothesis demands the sample to be split into two groups based on their difference in CSP (*GES*) and disclosure (*MSCI*) ratings. The split is made in two steps, first grouping the firms by corporate tax rate applicable at the time of the observation, and thereafter splitting each such group in half, assuming the top 50 % to be *Overperformers* (CSP > Disclosure) and the bottom 50 % to be *Underperformers* (CSP < Disclosure). *Over-* and *Underperformers* of all tax rates are put together, constituting the final groups used in testing the hypothesis.

5.2 Data collection

5.2.1 Dependent variable and control variables

The main database that we have used to extract data for the dependent and control variables needed in our model is *Compustat*, provided by Wharton Research Data Services (WRDS). In cases where Compustat was not able to provide us with data on certain firm years for different variables, we have complemented our dataset using Thompson Reuters Datastream and manual browsing in annual reports.

For those cases where we were not able to collect the data omitted by Compustat elsewhere, we have assumed these values to be missing rather than assigning them a value of zero in order to achieve a more robust dataset. R&D is the exception to this rule for which we have assigned a value of zero for those firms not reporting R&D (Davis et al., 2016). The final dataset used for the study is presented in Table 3.

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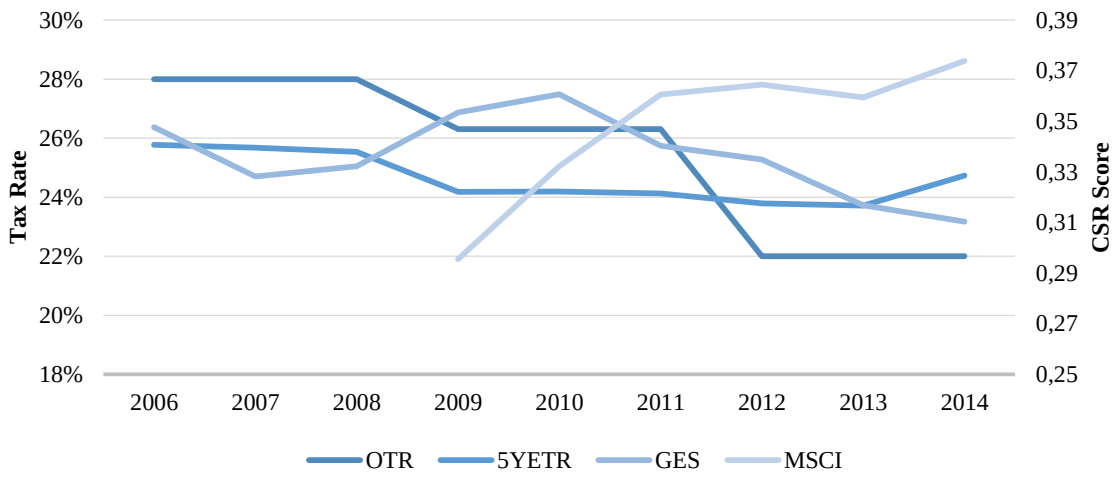
Graph 1. Taxation and CSR trends across the years



Graph 2. Number of observations per year

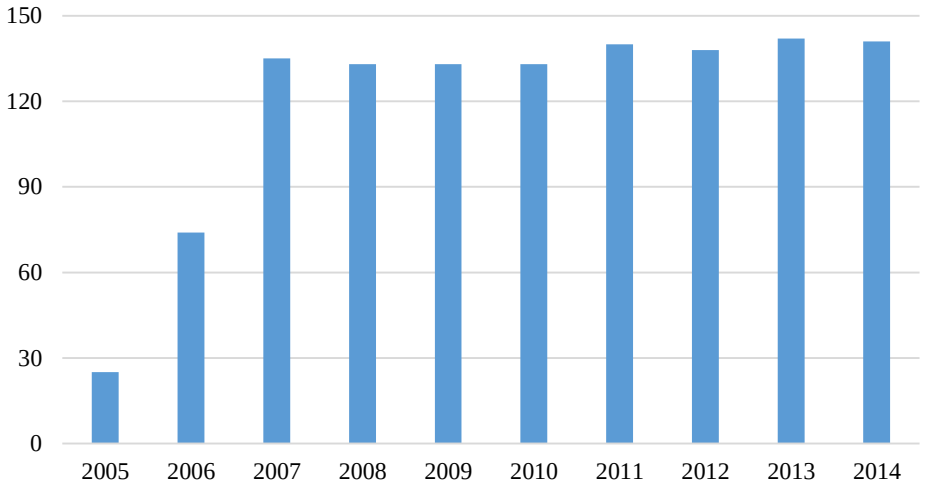


Table 3

Summary statistics of dependent and independent variables

Variables	N	Mean	SD	P75	P50	P25	Max	Min
5YETR	1194	0,246	0,128	0,291	0,259	0,197	1,000	0,000
GES	1191	0,338	0,194	0,474	0,312	0,178	0,826	0,012
MSCI	261	0,350	0,136	0,450	0,351	0,227	0,731	0,099
Size	1194	3,438	0,870	4,025	3,312	2,765	5,448	1,726
Leverage	1194	0,186	0,177	0,292	0,149	0,028	0,796	0,000
Intang	1194	0,259	0,240	0,385	0,213	0,062	1,279	0,000
PTROA	1194	0,068	0,153	0,142	0,081	0,028	0,445	-0,587
MTB	1194	3,462	5,067	3,638	2,206	1,286	38,717	0,256
SG&A	1194	0,293	0,221	0,410	0,232	0,123	1,133	0,000

Cash	1194	0,140	0,184	0,167	0,081	0,037	1,260	0,003
R&D	1194	0,046	0,108	0,034	0,005	0,000	0,729	0,000
PPE	1194	0,177	0,185	0,252	0,122	0,038	0,846	0,001
Financial Constraints	1194	0,466	0,410	1,000	0,500	0,000	1,000	0,000
Excess Cash	1166	-0,031	1,031	0,629	-0,010	-0,594	2,403	-3,023

Size, Leverage, Intang, PTROA, MTB, SG&A, Cash, R&D, PPE and Excess Cash are winsorized at the 5th and 95th percentile.

5.2.2 Corporate Social Responsibility Ratings

Two separate ratings have been used in conducting our study. They are the *GES Risk Rating* provided by *Global Engagement Services* (GES) and *MSCI ESG Disclosure Index* which has been collected from a Bloomberg terminal and is assembled by *MSCI*.

5.2.3 GES Investment Services and ESG ratings

GES Investment Services is an independent analytics company focused on CSR. They were founded in 1992 and are today the market leader for risk ratings in the Nordics. They apply international ESG guidelines in their ratings.

The GES Risk Rating is a three dimensional analysis of the present and future preparedness of firms in dealing with the environment, human rights and corporate governance. However, as the part based on corporate governance was introduced in the rating as late as 2013, we have decided to exclude this area for all observations in order to have comparable scores for the entire timespan in which we conduct our study. For some years, GES have rated certain firms twice. In these cases, we have used the rating that is closest to each year's end.

The environmental analysis is based on a combination of industry specific key indicators as well as international standards. The human rights analysis is based on UN conventions and ILO Core Labor Conventions. In addition all analysis is based on a combination of publicly disclosed company data, dialogue with companies, media, NGOs and GES partners.

The companies are rated on a scale from *Aa-Cc* on all three dimensions which is then translated into an absolute numeric score. The GES ratings have different ratings scales for the different rating areas over our time of study. In 2005-2008, *Human Rights* was rated on a scale between 0-7 and from 2009 onwards, it was rated between 0-2. *Environmental* was rated between 1-3 in 2005, 0-7 between 2006 and 2008, and 0-3 from 2009 onwards. *Corporate Governance* was introduced in the rating in 2013 and was rated between 0-2 in 2013 and

2014. To achieve the final rating used in our study we first convert the scale to 0-1 (where 1 is max) and then use the average score of human rights and environmental.

5.2.4 MSCI Disclosure Index

This disclosure index created by MSCI provides us with a rating that maps the level of CSR that companies communicate engagement in.

The time period that we will use ranges from 2009-2014 and includes 51-80 companies per year, giving us a total of 331 observations. We convert all scores from its original range of 0-100 to 0-1 (where 1 is max) in order to increase the measurability with the CSR ratings provided by GES.

5.2.5 Data exclusion

The focus of our study is specifically on Swedish conditions which is why we exclude all firms in which Compustat's *Country Code* is anything different than *SWE*. This will exclude all foreign firms listed on the different Swedish stock exchanges.

To perform our analysis we require objective measures of CSR so we are further restricted to firms which are rated by an independent rating agency. In our case that is GES investment services which rate CSP, and MSCI which rate the level of CSR disclosure. In order to obtain meaningful results, we drop all observations for which *5YETR* deviate outside the range of 0-1 (Davis et al. 2016).

After this we are left with a panel data sample of 189 firms and a total of 1194 observations. Of these, we have GES ratings for 211 firms 1191 observations and MSCI ratings for 58 firms and 261 observations (see Table 3 and Table 13). The time range of our study is 2005 to 2014 as these are the years for which we have been able to obtain ratings with regards to CSR and CSP. Due to the presence of extreme outliers we winsorize all variables not limited to a range of 0-1 at the 5^{th} and 95^{th} percentile.

Table 4

Number of firms and observations by industry

Industry	Firms	Observations	%
Consumer Discretionary	36	207	19,05
Consumer Staples	5	41	2,65
Energy	4	11	2,12
Financials	2	16	1,06
Health Care	23	131	12,17

Industrials	64	454	33,86
Information Technology	41	232	21,69
Materials	10	73	5,29
Telecommunication Services	3	25	1,59
Utilities	1	4	0,53
Total	189	1,194	100

6. Results

6.1 Hypothesis 1

We find that CSP is significantly correlated with five-year ETR at a coefficient of approximately 0.0897 for our model, which is regressed using robust standard errors and clustered on industry and year. This indicates that a one percentage point increase in *GES* corresponds to a 0.0897 percentage point increase in *5YETR*.

Starting the analysis with the baseline model as a regular OLS regression model uncorrected for serial correlation and heteroscedasticity provides us with a significant coefficient of 0.0897. The coefficient for GES does not change when correcting for heteroscedasticity and serial correlation, as is evident from column 2 in Table 5. However, the t-statistic decreases slightly, giving us a marginally lower significance, although still significant at the 1% level. Column 3 shows the same regression using a balanced panel dataset, resulting in a smaller sample size. In addition to this, r2 increases as the model is refined.

This leads us to reject our null hypothesis for Hypothesis 1 and accept the alternative hypothesis stating that there is a positive correlation between firm CSP and taxation.

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Table 5

VARIABLES	(1) Baseline model	(2) Robust and clustered unbalanced panel	(3) Robust and clustered balanced panel
	5YETR	*5YETR*	*5YETR*
GES	0.0897***	0.0897***	0.0735**
	(3.100)	(2.900)	(2.213)
Size	-0.0124	-0.0124	-0.00932
	(-1.340)	(-1.168)	(-1.002)
Leverage	0.0166	0.0166	-0.0677**
	(0.606)	(0.608)	(-2.493)
Intang	-0.0256	-0.0256	0.00502
	(-1.127)	(-1.073)	(0.196)
PTROA	0.177***	0.177***	0.230***
	(4.824)	(4.514)	(4.775)
MTB	0.00117	0.00117	0.00433
	(0.631)	(0.478)	(1.426)
SG&A	0.0261	0.0261	-0.00899
	(1.258)	(1.167)	(-0.292)
Cash	-0.101*	-0.101*	-0.151**
	(-1.918)	(-1.764)	(-2.433)
R&D	-0.489***	-0.489***	-0.384***
	(-6.024)	(-6.113)	(-4.586)
PPE	-0.0468	-0.0468	-0.0394
	(-1.395)	(-1.405)	(-1.120)
Financial Constraints	0.0230*	0.0230	0.0285*
	(1.648)	(1.573)	(1.910)
Excess Cash	-0.00643	-0.00643	-0.00612
	(-1.056)	(-0.933)	(-0.755)
Constant	0.297***	0.297***	0.266***
	(6.668)	(7.298)	(7.940)
Observations	1,164	1,164	574
R-squared	0.110	0.205	0.341
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Winsorized	(5, 95)	(5, 95)	(5, 95)

The table displays the coefficients of the all independent variables used in three different regressions. *Size, Leverage, Intang, PTROA, MTB, SG&A, R&D, PPE* and *Excess Cash* are winsorized at the 5th and the 95th percentile. T-statistics are displayed in parentheses under each independent variables coefficient value. The regression using balanced panel only covers the years 2007-2014 due to limited numbers of observations for GES in earlier years. See Graph 2 specification of observations per year.

*** p<0.01, ** p<0.05, * p<0.1

6.2 Hypothesis 2

We test the hypothesis that there is no difference between the mean percentage point change in ETR between periods of different corporate tax rates over three different periods using a t-test. The first change in corporate tax rate is between the periods 2005-2008 and 2009-2012 when the tax rate changes from 28 % to 26.3 %. For this change, we are unable to reject the null hypothesis. Hence, we cannot provide any evidence about how high versus low scoring CSP firms respond, with regards to their 5-year ETR, at this decrease in corporate tax rate. A slight difference in the sample means of 0.1 percentage points can be observed, where high scoring CSP firms increase their ETR slightly less than low scoring CSP firms at this change of tax rate.

Table 6

Two-sample t test with equal variances when CTR moves from 28 % to 26.3 %

Variable	N	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
High CSP firms	63	0,061	0,061	0,485	-0,061	0,183
Low CSP firms	61	0,062	0,066	0,512	-0,069	0,193
Combined	124	0,061	0,045	0,496	-0,027	0,150
diff		-0,001	0,090		-0,179	0,176

diff = mean(*High CSP firms*) - mean(*Low CSP firms*) t = -0,015
Ho: diff = 0 degrees of freedom = 122

Ha: diff < 0	Ha: diff != 0	Ha: diff > 0
Pr(T < t) = 0,494	Pr(T > t) = 0,988	Pr(T > t) = 0,506

The variable tested is C*hange in period ETR* which is the percentage point difference between the average ETR of the corresponding periods. The sample containing such a change is split in two groups based on their CSP score. High scoring firms are labelled *High CSP firms* and low scoring firms are labelled *Low CSP firms*.

The second change of tax rates used to test this hypothesis is for the periods 2009-2012 and 2013-2014 when the corporate tax rate changes from 26.3 % to 22 %. We are not able to reject the null hypothesis that high and low CSP firms respond the same to a change in the corporate tax rate with regards to their ETR for this change of tax rate. The mean change in 5-year ETR for this sample is 1.1 percentage points lower for low CSP firms compared to high

CSP firms, but we are unable to provide significant evidence that this difference holds true for the population.

Table 7

Two-sample t test with equal variances when CTR moves from 26.3 % to 22 %

Variable	N	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
High CSP firms	67	-0,039	0,026	0,215	-0,091	0,014
Low CSP firms	66	-0,050	0,023	0,183	-0,095	-0,005
Combined	133	-0,044	0,017	0,199	-0,078	-0,010
diff		0,012	0,035		-0,057	0,080

diff = mean(*High CSP firms*) - mean(*Low CSP firms*) t = 0,3319
Ho: diff = 0 degrees of freedom = 131

Ha: diff < 0	Ha: diff != 0	Ha: diff > 0
Pr(T < t) = 0,630	Pr(T > t) = 0,741	Pr(T > t) = 0,370

The variable tested is C*hange in period ETR* which is the percentage point difference between the average ETR of the corresponding periods. The sample containing such a change is split in two groups based on their CSP score. High scoring firms are labelled *High CSP firms* and low scoring firms are labelled *Low CSP firms*.

6.3 Hypothesis 3

We are unable to draw any definite conclusions as to if the average period ETR of firms that disclose *less* than they perform (*Overperformers*) and the average period ETR of firms that disclose *more* than they perform (*Underperformers*) are different or not. In our sample, the average period ETR of *Overperformers* is 0.7 percentage points higher than the average period ETR of *Underperformers*. However, this difference is insignificant, making us unable to reject the null hypothesis.

Table 8

Two-sample t test with equal variances for groups of firms based on the difference in CSP rating and Disclosure rating

Variable	N	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
Underperformers	117	0,149	0,014	0,150	0,122	0,177
Overperformers	117	0,156	0,013	0,138	0,131	0,181
Combined	234	0,153	0,009	0,144	0,134	0,171
diff		-0,007	0,019		-0,044	0,030

diff = mean(*Overperformers*) - mean(*Underperformers*) t = 0,3541
Ho: diff = 0 degrees of freedom = 232

Ha: diff < 0 Ha: diff! = 0 Ha: diff > 0
Pr(T < t) = 0.362 Pr(T > t) = 0.724 Pr(T > t) = 0.638

The variable tested is *Period ETR* which is defined as the sum of tax expense divided by the sum of pre-tax income less the sum of special items for the each tax period. Where not all years in the period were covered by our sample, those years that were covered constitutes the variable. *Period ETR* is required to have a value between 0 and 1. The two groups (*Overperformers* and *Underperformers)* were generated by dividing the sample containing values for both *MSCI* and *GES* into two groups based on the corporate tax rate applicable for the observation. The tax groups were then each split into two groups, equal in size, based on the difference between their *GES* and *MSCI* values. The top 50 % from each tax group are grouped in *Overperformers* and the bottom 50 % are grouped in *Underperformers*.

6.4 Sensitivity analysis and robustness tests

6.4.1 Serial Correlation

Serial correlation, or lagged correlation, is when the error terms in one period is correlated with error terms in later periods, which means that over- or underestimates in one year carries over to the next (Wooldridge 2013).

We perform a Wooldridge test for serial correlation in panel data and find that the null hypothesis of no serial correlation is rejected for our regression used in Hypothesis 1 (see Table 11 appendix)

While serial correlation does not affect the unbiasedness or consistency of our OLS estimators, it does affect their efficiency. In order to measure efficiently we cluster the standard errors for GES at firm and year level and are left with standard errors which are robust to both heteroscedasticity and within-group correlation.

6.4.2 Heteroscedasticity

In order for the OLS to be the best linear unbiased estimator (BLUE) the Gauss-Markov assumption of homoscedasticity needs to be fulfilled. We perform a Breusch-Pagan/Cook-Weisberg test for homoscedasticity and reject the null hypothesis that the error variance is constant (χ^2=36.57 p=0.000) (see Table 14)

While the presence of heteroscedasticity does not cause bias or inconsistency of the estimators or affect the goodness of fit, it skews the estimators of the variance. We thus adjust our model by using robust standard errors.

6.4.3 Multicollinearity

To check for multicollinearity, which would mean that some of our independent variables are overlapping and distort our findings, we perform a Variance Inflation Factor (VIF) test (see Table 15).

For the VIF test to indicate that multicollinearity could distort the results, Wooldridge (2013) recommends a threshold of 10. None of our variables exceeds 5, which is why we conclude that multicollinearity is not something we need to account for in our study.

7. Conclusions

7.1 Contradictory results to Davis et al. (2016)

Our first hypothesis that CSP is positively correlated with taxation is found to be true for our sample, and significantly positive for the population at the 1 % level. These results are coherent with the study by Lanis & Richardson (2014), supporting their findings that high scoring CSP firms are less prone to tax avoidance. However, our results are contradictory to the more similar study by Davis et al. (2016) of American firms and the correlation between CSP and taxation. There are a few key differences between our studies which might be cause to these differences in results.

Firstly, we use different proxies to measure taxation. While Davis et al. (2016) use five year *cash* ETR, we use an equivalent measure calculated on tax *expense*. However, as reported taxes and paid taxes reasonably will converge over time, other explanations than differing proxies seem more likely in explaining the difference.

Secondly, the studies are conducted in different countries, causing country specific effects to play their role. Cultural differences not the least are likely to play a large role regarding CSP

among firms. Where Davis et al. (2016) suggest that firms do not see paying tax as the best way to engage in CSR, it might be the case that Swedish firm do consider paying tax a good way to do so. The trust that firms have in the government to spend the money collected through taxes in an efficient way could have a large impact on the relationship between CSP and taxation.

The differing levels of corporate tax rate between the US and Sweden are also likely to contribute to these contradictory results. The higher corporate tax rate in the US as compared to Sweden is likely to increase the incentives for tax avoidance in the US in relation to Sweden (Allingham & Sandmo 1972).

Thirdly, the measurements of CSP that are used in the two studies are not the same. Since CSP is an arbitrary measurement, two different agencies rating the same set of companies might come to different conclusions regarding the rating of a firm. As CSP is a key component in both studies, we cannot exclude the possibility that the different results are due to different CSP ratings used.

7.2 Incentives for tax avoidance, CSP and changing tax rates

Even though we are not able to draw any definite conclusions for the population regarding how ETR of mean high and low CSP firms respond to a decrease in the corporate tax rate, we find implications for the direction of the relationship. For the two tax changes that we have studied, the high scoring CSP firms of our sample show a larger decrease (for the 26.3 % to 22 % change) than the low scoring CSP firms.

A cursory glance at the means shows that high CSP firms, in comparison to low CSP firms respond to a lowered tax rate by decreasing their paid taxes less than low CSP firms. While this difference is not significant enough to draw any general conclusions from, the results indicate that the theory that we presented with regards to decreasing incentives for tax avoidance, following a lowered tax rate, might be true (Allingham & Sandmo 1972). We suggest that the reason for high CSP firms decreasing their taxes less when the tax rates decreases, is that as they did less tax avoidance to begin with (Lanis & Richardson 2014), the changing incentive does not affect them as much as low CSP firms. They do not cut the extent of tax avoidance as much as low CSP firms, as they had less tax avoidance at the start (Hoi, Wu and Zhang 2013).

7.3 Corporate hypocrisy in CSR

Our study of the corporate hypocrisy in CSR provides us with non-significant suggestions that our hypothesis that *Underperformers* might have lower taxation than *Overperformers*. However, as with the study of incentives for tax avoidance, we are not able to draw any conclusions for the population based on our study in this matter.

8. Reliability, validity and generalizability

In order to address the research question, the scope of the study is limited to Sweden. National tax law is unique to the country of origin and tax rates and deductibles deviate depending on the purpose of the tax code and the political ideology of the country. Studies performed on companies which adhere to different tax laws could result in substantially different findings which are partially or entirely attributable to the aforementioned differences in tax codes.

With this in mind, other studies should be able to replicate our findings by following the outline described in this paper.

This study intends to study the relationship between corporate social performance and taxation. We are able to provide increasing understanding of the research field, while raising a few questions as well.

However, our results are highly dependent on the choice of proxies for CSP and taxation. Our proxy of choice is the GES risk rating and though they use an objective grading methodology the intangibility of CSP provides a certain degree of subjectivity to the grading. Altering the choice of proxy for CSP is likely to affect the end result even if the observations in the sample are identical to ours.

Due to data limitations we were not able to include all control variables which has shown significance in previous studies. We especially believe that *Foreign Income* would have been prudent to include if it was available.

Wooldridge (2013) suggests that the assumption of exogenous explanatory variables actually being endogenous and thus correlated with the error term, through a combination of omitted variables and measurement error is a cause of autocorrelation. It is possible that an explanatory variable in our model is actually endogenous, which could be corrected by using an instrumental variable which has not been done in this study. We have only employed industry and time fixed effects in order to handle omitted variable bias since it was not

possible for us to find a suitable instrumental variable. It is possible that unobserved heterogeneity persists in our study which would make our estimators biased and inconsistent.

The methodology employed in our study is consistent with previous research (Davis et al. 2016) but we do not rule out the possibility of measurement error on our side. The data is collected from a number of sources, namely Compustat provided by Wharton Research Data Services (WRDS) and Datastream which is provided by Thompson Reuters. In order to complete series with a few missing observations we have manually collected the information from annual reports. To reduce the risk of data errors, observations which deviated strongly from the general population has been checked against annual reports. We also performed spot checks of the data against the actual numbers in the annual reports and as we found some inconsistencies between the values given by the data providers and the actual values in the annual report we do not rule out data errors. However, it was not feasible to manually verify every observation against the annual reports. The risk of mismeasurements due to data errors severely affecting our findings is to some extent alleviated by winsorizing all observations not in a span of 0-1 at the 5th and 95th percentile.

Further on, our findings match previous research (Richardson & Lanis 2014; Hoi, Wu and Zhang 2013), the perception of taxation as a CSR activity (Christensen & Murphy 2004) and the idea of corporate hypocrisy in CSR (Sikka 2010).

While all our hypotheses provide us with indications of what we intend to study, only the findings of Hypothesis 1 are strong enough to enable us make general statements about the population. While being able to draw conclusions regarding the correlation between taxation and CSP, we do not attempt to establish any causation. In addition to this and as previously implied, the applications of the findings are limited and should not be considered generalizable outside of Sweden partly due to the unique configuration of national taxation laws and cultural differences. Our findings are also only applicable to past data and while they may provide guidance for the future, other circumstances affecting the results may change as well, causing differing findings in the future. We make no attempt at predicting future behaviour.

9. Contribution and further research

This thesis has contributed to enhancing the understanding of CSR and taxation in different areas. We have been able to show that the findings of Davis et al. (2016) are not necessarily true for all countries, or sets of firms. Further research with regards to what might be causing these differing results is necessary to understand CSP and its relationship with taxation. We suggest that these differing results might be due to cultural reasons, or perhaps a result from different taxation systems.

The limited conclusions that we draw with regards to the effects on 1-year ETR on groups of firms with different CSP provide support to the findings of Allingham & Sandmo (1972) and the view that the corporate tax rate affects the extent of tax avoidance a firm engages in. While not focusing specifically on tax avoidance, we see a non-significant difference in responsiveness between low and high CSP firms as stemming from the differences in tax avoidance (Lanis & Richardson 2014; Hoi, Wu and Zhang 2013).

Studying the cultural differences between countries that yield different results for the relationship between CSP and taxation, would be an intriguing extension of our study. The effect of cultural differences, expressing themselves in issues such as government trust, are components that could, if quantified, add value to models explaining the relationship between CSP and taxation.

The non-significant indications of our studies in incentives for tax avoidance and corporate hypocrisy in CSR are topics that are intriguing for further studies. The tests that we have performed indicate that high and low CSP firms respond differently to a decrease in corporate tax rate, although not claiming to be significant for the population. Replicating this approach for a larger sample of firms, adopting other ways of measuring the difference or using a different methodology may provide results that could further increase the understanding of the situation. The reverse, to study the responsiveness of ETR for high and low scoring CSP firms when the corporate tax rate increases would also be an interesting study to conduct.

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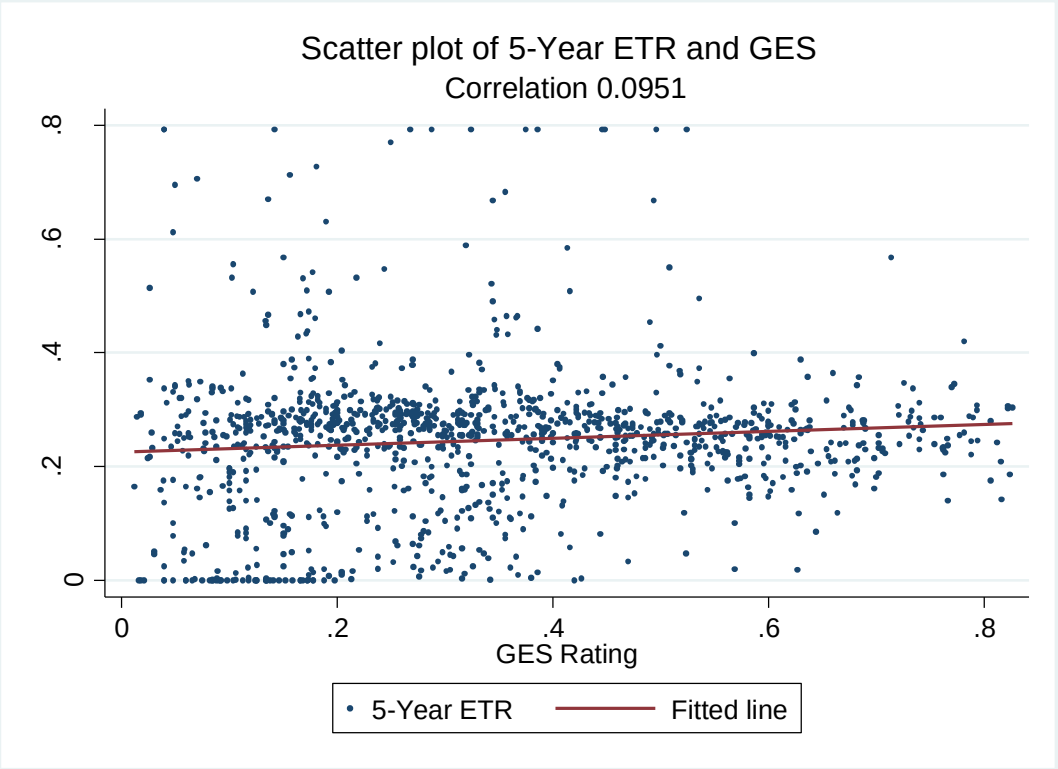
10. Appendix

Graph 3



Graph 4

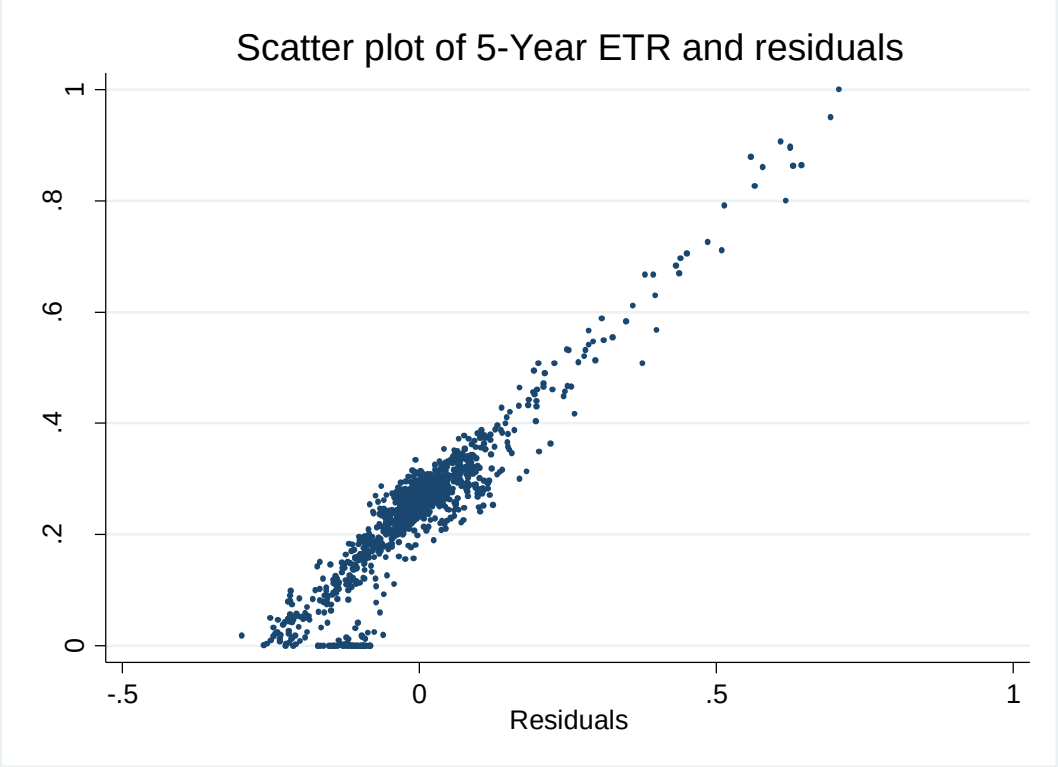


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Table 9

Formulas and detailed descriptions of variables

Variables		Formula with Compustat denotations	Description
5YETR	=	$\frac{\sum_{t-4}^{T} TXT}{\sum_{t-4}^{T} PI - \sum_{t-4}^{T} SPI}$	The sum of five year tax expense (t-4 to t) reported divided by pre-tax income less by special items for the same five year period
GES	=	-	Rating of actual CSP, indexed to values 0-1
MSCI	=	-	Rating of disclosed CSP, indexed to values 0-1
Size	=	$\log(AT_t)$	The log of total assets
Leverage	=	$\frac{DLTT_t + DD1_t}{AT_{t-1}}$	Long term liabilities plus short term-debt divided by lagged total assets (t-1)
Intang	=	$\frac{INTAN_t}{AT_{t-1}}$	Intangible assets divided by lagged total assets
PTROA	=	$\frac{PI_t}{AT_{t-1}}$	Pre-tax income divided by lagged total assets
MTB	=	-	Market value of the firm divided by common equity
SG&A	=	$\frac{XSGA_t}{TA_{t-1}}$	Sales, general and administrative expenses divided by lagged total assets
Cash	=	$\frac{CHE_t}{TA_{t-1}}$	Cash and cash equivalents divided by lagged total assets
R&D	=	$\frac{XRD_t}{TA_{t-1}}$	Research and development expenses divided by lagged total assets
PPE	=	$\frac{PPENT_t}{TA_{t-1}}$	Net property plant and equipment divided by lagged total assets
Financial Constraints	=	-	Calculated using HP-index (Hadlock & Pierce, 2010)
Excess Cash	=	-	Calculated using the index developed by Frésard and Salva (2010)

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Table 10

Hausman test

Variables	---- Coefficients ----			
	(b) fixed	(B) random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
GES	0,104	0,092	0,013	0,008
Size	-0,016	-0,019	0,002	0,002
Leverage	0,027	0,034	-0,007	0,005
Intang	-0,031	-0,012	-0,019	0,006
PTROA	0,205	0,184	0,020	0,006
MTB	0,001	0,001	0,000	0,000
SG&A	0,026	0,010	0,016	0,004
Cash	-0,107	-0,097	-0,010	0,009
R&D	-0,488	-0,469	-0,019	0,020
PPE	-0,050	0,008	-0,058	0,013
Financial Constraints	0,028	0,031	-0,003	0,003
Excess Cash	-0,005	-0,002	-0,003	0,001

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(12) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 46.61
Prob>chi2 = 0.0000

The Hausman model tests the null hypothesis that a random effects model should be used for the data at hand. The test performed on our sample strongly rejects the null hypothesis. Following this result, we use a fixed effects model for our entire study.

Table 11

Wooldridge test for autocorrelation in panel data

H0: no first order autocorrelation

F(1, 159) = 41,417
Prob > F = 0,000

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Table 12

VARIABLES	(1) Original Values	(2) Winsorized
GES	0.0750**	0.0897***
	(2.337)	(2.900)
Size	-0.00234	-0.0124
	(-0.240)	(-1.168)
Leverage	-0.00545	0.0166
	(-0.266)	(0.608)
Intang	-0.00704	-0.0256
	(-0.391)	(-1.073)
PTROA	0.0876***	0.177***
	(3.400)	(4.514)
MTB	0.000278*	0.00117
	(1.755)	(0.478)
SG&A	0.0421**	0.0261
	(2.329)	(1.167)
Cash	-0.00222	-0.101*
	(-0.0732)	(-1.764)
R&D	-0.221***	-0.489***
	(-5.200)	(-6.113)
PPE	-0.0482*	-0.0468
	(-1.759)	(-1.405)
Financial Constraints	0.0276*	0.0230*
	(1.926)	(1.573)
Excess Cash	-0.0125***	-0.00643
	(-2.643)	(-0.933)
Constant	0.249***	0.297***
	(6.420)	(7.298)
Observations	1,164	1,164
R-squared	0.208	0.205
Industry FE	Yes	Yes
Year FE	Yes	Yes
Winsorized	No	(5, 95)

Robust t-statistics in parentheses
*** p<0.01, ** p<.05, * p<0.1

Comparison between the winsorized and unwinsorized main regression (*clustered at firm and year combined with industry and year fixed effects*).

Erik Bergstrand
Fredrik Moregård

Table 13

Number of firms and observations by industry and separated by CSR rating

	GES			MSCI		
Industry	Firms	Observations	%	Firms	Observations	%
Consumer Discretionary	38	207	17,4	14	63	24,1
Consumer Staples	6	41	3,4	5	23	8,8
Energy	5	11	0,9	0	0	0,0
Financials	2	16	1,3	0	0	0,0
Health Care	28	129	10,8	4	16	6,1
Industrials	67	453	38,0	22	98	37,6
Information Technology	49	232	19,5	4	21	8,1
Materials	11	73	6,1	6	27	10,3
Telecommunication Services	4	25	2,1	2	11	4,2
Utilities	1	4	0,3	1	2	0,8
Total	211	1,191	100	58	261	100

Table 14

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: fitted values of YTE

chi2(1) = 6.05

Prob > chi2 = 0.0139

Table 15

Variable	VIF	1/VIF
Size	4,5	0,222
Cash	3,4	0,294
Financial Constraints	2,77	0,361
Excess Cash	2,62	0,382
GES	2,44	0,410
PPE	1,89	0,528
R&D	1,75	0,573
Intang	1,7	0,589
Leverage	1,62	0,615
PTROA	1,35	0,740

MTB	1,3	0,770
SG&A	1,28	0,779
Mean VIF	2,22	

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