Instituto Superior de Economia e Gestão
UNIVERSIDADE TÉCNICA DE LISBOA
DESDE 1911

MESTRADO

CONTABILIDADE, FISCALIDADE E FINANÇAS EMPRESARIAIS

TRABALHO FINAL DE MESTRADO

DISSERTAÇÃO

GOVERNANCE AND TAX MANAGEMENT: DOES IT MATTER? EVIDENCE FROM SPAIN.

ANA ISABEL LOPES DOS SANTOS

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Abstract

This paper investigates the role of corporate governance devices on tax management. This is done by analysing 103 Spanish listed firms through four different regressions models, each associated with a different corporate governance mechanism: (1) board of directors' composition, (2) CEO's characteristics, (3) directors' compensation structure and (4) ownership structure. Extending existing literature on this subject, the results support the view that corporate governance has, in fact, an important impact on tax management. The conclusions also support the idea that shareholders (and not only managers) may be interested in reducing the firms' tax burden, as it is an opportunity to improve its performance and earn more money. The present study may provide insights into how legislators may reduce situations where taxes are managed in an excessive way and help define the firms' corporate policies.

Keywords: corporate governance; tax management; effective tax rate; Spanish listed firms.

Resumo

Este estudo tem por objectivo investigar o papel do governo das sociedades na gestão fiscal. Isto é feito analisando 103 empresas espanholas cotadas através de quatro regressões diferentes, cada uma associada a um mecanismo de governo das sociedades distinto: (1) composição do conselho de administração, (2) características do CEO, (3) estrutura compensatória dos directores e (4) estrutura de detenção. Os resultados obtidos confirmam a literatura existente sobre este tema, demonstrando que o governo das sociedades tem, de facto, um impacto importante na gestão fiscal. As conclusões mostram também que os accionistas (e não apenas os gestores) podem estar interessados em reduzir a carga fiscal das empresas, uma vez que esta é uma oportunidade para aumentar o desempenho destas e ganhar mais dinheiro. Este estudo pode ajudar a compreender como os legisladores podem reduzir as situações em que os impostos são geridos de forma excessiva e ajudar a definir as políticas corporativas das empresas.

Palavras-chave: governo das sociedades; gestão fiscal; taxa efectiva de IRC; empresas Espanholas cotadas.

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Acronyms

CEO – Chief Executive Officer

CNMV – Comisión Nacional del Mercado de Valores

ETR – Effective tax rate

MBA – Master of Business Administration

ROA – Return on assets

1. Introduction

This study aims to investigate the role of corporate governance devices on tax management. This analysis is interesting because tax planning generally requires complex operations that may be designed solely to hide its true intentions (tax avoidance), which may lead to managerial opportunism (Desai and Dharmapala, 2007). This type of behaviour can, in turn, reveal agency problems that may reduce shareholders value. On the other hand, tax management can be positively related to firm performance, since it reduces its tax burden. This is, therefore, a theme that affects several agents: the firm, its shareholders, its managers and its directors.

If the corporate governance mechanisms that influence these actions could be understood, new insights could be obtained concerning the means by which corporate governance influence firm performance.

To do this analysis, data from 103 Spanish listed firms was collected and examined through four different regressions models, each associated with a different corporate governance mechanism: (1) board of directors' composition, (2) CEO's characteristics, (3) directors' compensation structure and (4) ownership structure.

The results show that a larger board of directors and with more inside members is related to lower ETR, possibly due to less effective monitoring and more knowledge about the business. Conversely, the type of auditing firm is negatively associated with tax management. The education of the CEO also revealed to be important, since a law or MBA course appears to lead to more tax management, due to the higher knowledge of tax management devices and laws that CEOs have. The board compensation structure is another relevant issue, indicating that as directors earn more, they are less willing to take risks and engage in tax planning strategies. However, consistent with previous

literature (e.g., Desai and Dharmapala, 2006; Rego and Wilson, 2009; Armstrong, Blouin and Larcker, 2011) the variable portion of compensation has a negative relation with the ETR, showing that compensation contracts closely tied to firm performance lead to more aggressive tax management. Finally, the dispersion of ownership and the existence of restrictions to the market of corporate control are associated with lower ETR, suggesting that, as the Spanish market is not very active, the effect of these measures is not as strong as expected.

The way the relation between corporate governance and tax management is analysed here is innovative and contributes to the literature in several ways. First, as far as the author knows, there are no studies relating these variables in Spain. Some authors investigated the effect of several corporate governance variables on firm performance, but haven't focused on the fiscal aspect (Miguel, Pindado and Torre, 2003; García-Castro and Aguilera, 2012). Additionally, this study analyses a wide range of specific governance factors, while other authors have only used aggregate indices of governance and/or focused in a particular set of corporate governance devices (e.g. Desai and Dharmapala, 2006). Finally, this study extends a recent stream of empirical literature that analyses the role of corporate governance on tax planning (e.g. Minnick and Noga, 2010; Lanis and Richardson, 2011).

With respect to policy implications, the present study may help Spanish legislators to better understand the relations between corporate governance and tax planning within listed firms. This will possibly allow them to reduce situations where taxes are managed in an excessive way. This study is also important to the definition of the firm's corporate governance policies, since it identifies the mechanisms that potentially reduce the firm's tax burden.

The remaining of the study is organized as follows. Part 2 presents the literature review as well as the four different hypotheses proposed. In the third part, the contextual setting of the Spanish market is exposed. Part 4 shows the data and the methodology used and in part 5 the results are presented. Finally, in part 6 the results are discussed and the conclusions are presented.

2. Literature review and hypotheses

2.1. Governance and taxes

This study focus is on the relationship between tax management and corporate governance. Given this, it is important to define each of these concepts.

According to Wahab and Holland (2012), tax management can be defined as the activities designed to produce a tax benefit. In many cases, this is allowed by the legislator and the firm can choose how to design its transactions, so, when a company manages its taxes, it is not doing anything illegal (Dyreng, Hanlon and Maydew, 2008). Nevertheless, there are other types of actions that may be illegal (tax evasion) or fall in the "grey area" (tax avoidance).

Tax management can bring costs and benefits for shareholders. Lanis and Richardson (2011) argue that the benefits are associated with the tax savings that can be obtained, while the costs include implementation costs of the tax management strategies, potential sanctions from tax authorities and reputational and political costs. However, literature addressing the relationship between tax management and firm performance argue that tax planning is a value enhancing activity and that shareholders hold that belief (Graham and Tucker, 2006; Desai and Dharmapala, 2006; Minnick and Noga, 2010).

The concept of corporate governance includes the "procedures and processes according to which an organization is directed and controlled" (European Central Bank, 2004). It also incorporates the manner in which the rights of the shareholders and other stakeholders are taken into account, the distribution of rights and responsibilities in the organization and the rules and procedures for decision-making (European Central Bank, 2004). The main goal of corporate governance is to avoid the agency problems that result from the agency theory developed by Jensen and Meckling (1976). Agency problems occur because the agent (managers) will always have some incentives to act in his own interest, rather than in the interests of the principal (shareholders). A good corporate governance system can help align the interest of these two parties, avoiding agency problems.

If tax management improves firm performance then one should see a positive relationship between better corporate governance devices and tax management. However, as Desai and Dharmapala (2007) suggest, tax management often requires managers to perform complex transactions with some secrecy, which may cause managerial opportunism and diversion of rents from shareholders. When corporate governance is weak, managers have more opportunities to divert funds (Desai and Dharmapala, 2009).

Given this, the question of whether better governance leads to better tax management is puzzling. On the one hand, managing taxes may decrease tax burdens and increase firm value if the benefits of tax management more than offset its costs. However, better corporate governance devices may prevent managers from avoiding taxes, putting pressure on them to be more transparent and limiting firms from managing taxes (for more on this rational see Desai and Dharmapala, 2006, 2009).

Considering all the arguments presented above, the impact of various corporate governance mechanisms on tax management will be empirically analysed. First, the structure and characteristics of the board of directors, as well as various Chief Executive Officer's (CEO) attributes will be investigated. Finally, the impact of board's compensation on tax management and the way ownership structure influences this variable will also be analysed.

2.2. Hypotheses

2.2.1. Board of directors characteristics

The board of directors and its composition are considered the most important and effective corporate governance mechanisms and some tax authorities, accountants and investors have already recognized this (Fama and Jensen, 1983; Lanis and Richardson, 2011). One example of this acknowledgment is the inclusion of rules concerning the number of independent board members in the Spanish code of good corporate governance (Código unificado, 2006), where it is advised that independent directors represent, at least, one third of the total number of directors.

The board of directors' goal is to control managers to prevent them from harming shareholders. The board is, therefore, a system that separates management from control (Fama and Jensen, 1983). But one might ask: how many members should an effective board of directors have? Jensen (1993) argues that when the board is small it performs a better controlling function, because a larger board is more easily controlled by the CEO. Similarly, Beasley (1996) and Yermack (1996) show that small boards are more effective, even though larger boards can have more experience and more independent members, which are necessary to guarantee a good supervision of managers (Wahab and Holland, 2012).

Board members can be divided into inside and outside directors and outside directors can also be considered independent or grey directors. Inside directors are the managers of the corporation, while outside directors include all non-employee members of the board. An independent director has no relation with the firm, whereas a grey director has some relation other than being part of the board. Therefore, the last group can be a violation of independence rules, as they are not totally independent from management (Hermalin and Weisbach, 1988; Beasley, 1996; Klein, 2002; Uzun et al., 2004).

Fama (1980) and Fama and Jensen (1983) argue that the composition of the board is critical in establishing an effective supervision mechanism and emphasize the value of having both inside and outside members on the board. Inside directors have access to valuable information about the firm's activities that is necessary to control the decision-making process. However, outside members have more incentives to monitor management and guarantee that the firm is creating value to shareholders. Consequently, a higher proportion of independent directors may increase the board's monitoring effectiveness, avoiding excessive tax management (Fama, 1980; Fama and Jensen, 1983; Beasley, 1996; Cornett, Marcus and Tehranian, 2008; Lanis and Richardson, 2011). Nevertheless, some authors consider that there is no significant evidence that a highly independent board brings better performance (Bhagat and Black, 1999; Brown and Caylor, 2004). Even though the relation between board independence and tax management doesn't seem to be straightforward, a higher percentage of independent members is predicted to lead to higher ETR, because with more supervision, managers do not manage taxes so effectively by using opaque devices (Desai and Dharmapala, 2009). Further, because of their higher knowledge and

experience about the business, it is expected that the inclusion of more inside members in the board is responsible for a higher level of tax management, since they know better how to reduce the firm's ETR.

Directors' gender seems to be a relevant factor as well. Even though the majority of board members are men, Singh and Vinnicombe (2004) and Terjesen, Vinnicombe, and Freeman (2007) believe that gender diversity within the board improves management performance. Therefore, a negative relation between the percentage of female board members and the level of tax management can be inferred.

In some companies, the CEO and the president of the board are the same person (CEO duality). When this happens, the CEO can't perform his functions as president without taking into consideration his own interests, which reduces the effectiveness of the board as a monitoring tool and increases the probability of tax management (Jensen, 1993; Cornett, Marcus and Tehranian, 2008; Lanis and Richardson, 2012). Spanish corporate governance rules also consider this problem, recognizing that duality may have advantages and disadvantages. If function accumulation gives the firm a clear leader, internally and externally, reducing the costs of coordination, having too much power concentrated in only one person is dangerous and may cause conflict of interests (Código unificado, 2006). Given this, it is anticipated that the level of tax management will be higher in firms where CEO duality is present.

The board of directors should meet regularly to guarantee its effectiveness. The number of meetings can be related to firm's performance in two opposite ways: more frequent meetings increase the supervision made by directors, even though it represents higher costs associated with travel expenses, organization and managerial time (Vafeas,

1999). Consequently, it is expected that more frequent board meetings results in lower levels of tax management, due to higher monitoring from directors.

In an attempt to improve its control activities, the board of directors typically delegates some responsibility to an audit committee (Beasley, 1996; Agrawal and Chadha, 2005). This committee provides the board with knowledge about the firm's financial statements and other financial information that allow directors to make decisions in a more informed and efficient way. This also helps to reduce agency issues caused by manipulated financial statements (Klein, 2002). The size of this committee and the frequency of meetings may also be relevant, because larger committees are more efficient, even though they have higher associated costs, and more frequent meetings increase the accuracy of supervision, improving the performance of the firm (Aldamen et al., 2011). A similar argument can be made about the executive committee, which some firms have as a separate body from the board of directors that has some power to make and implement a few organizational decisions.

Another relevant issue is the quality of the external auditors, since with better auditing, managers are less likely to use less transparent devices to manage taxes. A common approach is to consider that the Big Four auditing firms (Deloitte Touche Tohmatsu, PricewaterhouseCoopers, Ernst & Young and KPMG) perform better than smaller firms, due to their higher experience. Although this may not be completely true, it will be considered that a firm audited by one of the Big Four tends to have a higher ETR. Given the above discussion the following hypothesis is developed:

H1: *Firm ETR is a function of the board of directors' structure.*

2.2.2. CEO characteristics

The CEO has an important role in a corporation's board of directors. He is appointed by the board and his responsibilities include managing the operations of the firm and making key corporate decisions. In some cases, entrenched CEOs may even have influence on new board members hiring and compensation policy. This means that, in some situations, the CEO has the ability to influence the board, compromising its independence and monitoring role.

Further, CEO's personal characteristics, namely his gender, age, tenure and education, may influence the level of tax management a firm engages in. According to Smith, Smith and Verner (2005) and Peni (2012), having a female CEO has a positive influence on firm's corporate governance and performance, therefore reducing its ETR. However, none of these studies states that a male CEO has a negative impact, so no sign will be predicted for the relation between these two variables.

Cornett, Marcus and Tehranian (2008) assert that an older CEO has more experience and knowledge about the company and the sector in which it operates, so firm's performance is improved. Given this, it is expected that tax management increases with the age of the CEO.

Concerning the years the CEO has been in that position, Beasley (1996) believes that a less senior CEO might be less effective in their duties, while a more senior one is likely to be less vulnerable to group pressure, acting in a more independent way. Nevertheless, a more experienced CEO may get entrenched within the firm and have more power to influence the board, which reduces his independence and willingness to control managers' actions (Hermalin and Weisbach, 1988). Since the relation between CEO tenure and tax management is not clear, no sign will be predicted.

A similar assumption will be made in relation to CEO education. A CEO that has a management or MBA course might be better prepared to deal with specific issues concerning the business of the firm. However, other types of courses may also be helpful, since the CEO becomes more aware of other possible problems. Considering these arguments, the following hypothesis is formulated:

H2: *Firm ETR is a function of CEO characteristics.*

2.2.3. Board compensation

The members of the board of directors are compensated through money and other benefits and the amount received might have some influence on their behaviour and, consequently, on the level of tax management. The monetary compensation may be classified into fixed, variable or other (subsistence allowance or stock options, for example). It can also be classified according to the type of directors who earn it (inside or independent directors).

The compensation topic has been considered a solution to agency problems, since it can align the interests of managers and shareholders (Jensen and Murphy, 1990; Wahab and Holland, 2012). For Desai and Dharmapala (2006), if managers' compensation is connected to the value of firm's equity, their interests will be similar to those of shareholders (both will want to increase firm value). However, in terms of tax management, this compensation policy may have two distinct effects. On the one hand, managers are more likely to increase firm value through tax evasion, because the results will be better, but, on the other hand, their behaviour will be less opportunistic, since any prejudice they cause to shareholders will harm them as well.

Given this, the impact of the compensation policy on tax management depends on the quality of the corporate governance system, being more visible when a firm has good governance. Following this discussion, the hypothesis to be tested is:

H3: *Firm ETR is a function of board compensation structure.*

2.2.4. Ownership structure

According to Desai and Dharmapala (2007), the ownership structure is influenced by the problems created by bad governance and can influence firm value by being associated with taxes and tax policy.

The majority of studies relate ownership concentration or insider ownership (shares hold by members of the board) to firm performance (Miguel, Pindado and Torre, 2003). Concerning the first variable, most authors believe that big shareholders (the ones with more than 5% of shares) have more incentives to monitor managers than small ones, not only because they have more power, but also due to what they might lose if managers don't act correctly (Shleifer and Vishny, 1986; Jensen, 1993; Cornett, Marcus and Tehranian, 2008). Consequently, one might expect that a firm with a more concentrated ownership has better performance and, therefore, a lower ETR.

As it was mentioned before, some companies pay board members with stock options. Therefore, part of the shares of the firm is owned by its directors, who become more motivated to increase its value. However, as pointed out, this can be accomplished though fraud or more aggressive strategies (Jensen and Meckling, 1976; Cornett, Marcus and Tehranian, 2008). Some authors argue that when independent directors own a substantial part of equity they are more likely to question and challenge managers' decisions and, therefore, their supervision is more effective (Jensen and Meckling,

1976; Jensen, 1993; Klein, 2002). Conversely, if board members have a large stake in the firm, which gives them enough voting power or influence, they may follow their own goals without taking into account what is best for the firm. Given this, higher insider ownership leads to worst firm performance, because the board of directors gets entrenched with management and does not perform an effective monitoring (Fama and Jensen, 1983; Jensen, 1993; Wahab and Holland, 2012). According to Miguel, Pindado and Torre (2003), what defines which effect will be stronger is the corporate governance system. For Spanish firms, it is assumed that higher insider ownership will lead to less tax management.

Besides the discussed variables, some other aspects might impact tax management. The general meeting is where shareholders can exercise their voting power and supervise managers' actions. Consequently, it is predicted that the bigger the participation of shareholders in the general meetings, the better the monitoring of managers will be and, thus, the less tax management will happen.

Related to this is the fact that some firms create voting restrictions or different classes of shares, meaning that only a shareholder with a minimum number or type of shares has the right to vote in the general meeting. This reduces the monitoring power of these agents, leaving more room for managers to act opportunistically. Another common situation is anti-takeover measures that have the objective of avoiding the acquisition of the firm by another corporation or increase the costs of this operation. According to Campbell et al. (2011), the managers of firms with these limitations have more opportunities to act according to their interests, since the market for corporate control becomes less effective. Despite creating inefficiencies, this type of limitations facilitates small shareholders participation, reducing the possible conflicts between them

and larger ones (Shleifer and Vishny, 1989). Finally, in some firms, shareholders create a pact to guarantee that their interests are taken into account. This also reduces market efficiency, since shareholders will act in a coordinated manner to avoid losing their power in the firm. Given this, in the presence of these four types of restrictions, it is anticipated higher tax management and, consequently, a lower ETR. The hypothesis developed according to the above discussion is:

H4: *Firm ETR is a function of the firm ownership structure.*

3. Contextual setting

In order to analyse Spanish firms' characteristics, it is necessary to understand its corporate governance system and fiscal context.

Regarding corporate governance, García-Castro and Aguilera (2012) found that Spain selects the best practices of Anglo-Saxon countries concerning transparency and independence of the board. Despite this, Spanish firms have excessively large boards with very powerful chairmen, with authority to appoint and dismiss directors, and CEO/chairman duality, which firms try to compensate by appointing independent directors with more power and responsibilities. However, there seems to be a lack of independent members in most of the boards.

Other corporate governance mechanisms are used more effectively by these firms, such as the disclosure of any conflict of interest among directors, the mandatory existence of an audit committee that guarantees the independence of external auditors and the use of stock options as an incentive system.

In terms of the Spanish market, these authors found recently privatized firms, a weak market for corporate control and growing internationalization. Several legislative

changes improved market efficiency, competition and transparency, creating corporate governance codes which increased the safety of financial markets.

García-Castro and Aguilera (2012) also found that the Spanish stock market is highly concentrated when compared to other European countries, having a reduced number of investors who dominate the transactions and market capitalization. Nevertheless, the number of institutional investors (those who trade in large quantities or monetary amounts, having preferential treatment and lower commissions, like pension funds) is lower than in other similar countries.

Another study about Spain tried to find a relation between ownership concentration and the value of the firm. Miguel, Pindado and Torre (2003) found that up to a certain level of ownership concentration (87% in their study), the value of the firm increases with this variable, as a consequence of better monitoring from big shareholders. From that level on, the value of the firm decreases, because small shareholders become expropriated by larger ones.

These authors also found a negative relation between firm value and its size, which means that larger firms tend to have more agency problems and asymmetric information that require a more concentrated ownership to achieve better performance.

To investigate if a firm is engaging in tax management or not, it is necessary to know how the Spanish tax system works. According to the legislation (*Real Decreto Legislativo 4/2004*), the corporate tax (*Impuesto sobre Sociedades*) has to be paid by all firms with headquarters in Spain. Small and medium-sized enterprises can benefit from a tax rate reduction during a 3 year period.

In terms of tax rates, Spain is composed of several regions, such as Basque Country and Navarra, which have fiscal autonomy to establish their own rates.

However, the general rule is that for a taxable income between 0 and 300.000 Euros the tax rate is 25%, being 30% for a taxable income above that amount. However, this rate changed over the period analysed in this study: before 2007, the tax rate was 30% for a taxable income up to 120.202 Euros and 35% for larger amounts. Given this, the existence of tax management strategies will be assumed when the ETR of a firm in a certain year is below 30%, which is the higher rate applicable in the majority of the years under analysis.

4. Data and Methodology

In order to test the hypotheses stated in part 2, several types of data from Spanish firms was collected. As Dyreng, Hanlon and Maydew (2008) state, larger firms tend to manage their taxes more effectively; therefore the focus of this study is on listed firms. The continuous market (SIBE), rather than the Spanish index (IBEX 35), was chosen, because that is where the most representative stocks are traded and it accounts for a higher trading volume.

4.1. Data

All the data related to corporate governance was hand collected from the corporate governance reports disclosed by firms at the CNMV website and their own websites, corresponding to the years between 2006 and 2010. The financial information was obtained from the Bloomberg database.

The initial sample comprised 126 firms, which represent all firms listed in SIBE in 2011. The availability of corporate governance reports was analysed to obtain a balanced panel data and 22 firms were eliminated due to the lack of reports in the relevant period. Another firm was removed from the sample because it was a savings

bank that followed slightly different corporate governance rules. The final sample comprised 103 firms, which correspond to 515 firm-years.

4.1.1. Dependent variable

To measure tax management, the effective tax rate (ETR) was used, computed as income tax expense, as shown in the financial statements, over pre-tax income (similar to Janssen and Buijink, 2000; Rego, 2003; Phillips, 2003). To assess the presence of tax management, it will be considered that a company has managed its taxes effectively when its ETR is below the statutory tax rate from the country where it operates (Minnick and Noga, 2010).

The way this rate is defined may have some problems, since the ideal would be to have the real value of taxes paid by the firm in each year. However, once that type of data is confidential and is not disclosed by companies, it is necessary to calculate it using available information. According to Dyreng, Hanlon and Maydew (2008), the rate calculated in this manner includes current and deferred taxes, which represent taxes to be paid or received in the future and not taxes from the current period. Additionally, tax expense is an accounting measure and may not represent the amount effectively paid as taxes, due to differences in the accounting and tax treatment of several situations (for example, to calculate depreciation, the accounting system allows managers some judgment to decide the useful life of equipment. However, the tax system has rigid rules, which may create differences in the amount of taxes determined through each method). Given this arguments, the idea that better tax management leads to lower ETR may be wrong, which is a possible limitation of this study.

Furthermore, the ETR doesn't take into account implicit taxes, which may be important as well (Janssen and Buijink, 2000). Implicit taxes appear when the rate of

return of an investment, before taxes, is lower after reducing the tax rate. This means that a tax strategy is effective only if implicit taxes are not higher than the saved explicit taxes (Sartori, 2009).

The ETR also brings some problems when pre-tax income is negative, because it causes the rate to become negative, which is difficult to interpret. Even when pre-tax income is positive, it is possible to obtain a meaningless rate if income tax expense is negative (the tax rate becomes negative) or if it is much higher than pre-tax income (the tax rate is above 100%). Most authors prefer to classify these observations as undefined and ignore them, while adjusting the rest of the observations between 0% and 100% (Dyreng, Hanlon and Maydew, 2008). Others try to calculate different measures of ETR, like Plesko (2003) or Gupta and Newberry (1997). However, a different approach will be taken in this study.

To avoid negative or higher than 100% ETRs some modifications were made to the collected rate. The ETR of all firm-years with negative pre-tax income and positive income tax expenses was set equal to 100%, which corresponds to 6,6% of the total sample. The observations with positive pre-tax income and negative income tax expenses were corrected to 0%, which happened 10,3% of the times. Finally, when both pre-tax income and income tax expenses were negative, the ETR was set equal to 0%, representing 12,6% of the sample. This means that 67,8% of the observations were not modified. The descriptive statistics for ETR are presented in Table A.I, in appendix.

4.1.2. Independent variables

As it was mentioned before, the analysis of the impact of the different corporate governance mechanisms on tax management was divided into four groups. The various independent variables are described in Table A.I in appendix.

Panel A describes the variables related to the structure and characteristics of the board of directors and the following variables were included: members, measured as the total number of board members; pct_independent and pct_inside, the percentage of independent and inside directors, respectively; pct_female, the percentage of women in the board; ceo_duality, a dummy variable equal to 1 if the CEO and chairman are the same person; board_meetings, measured by the number of meetings during the year; audit_meetings and audit_members, which give the number of meetings of the audit committee and its size; executive_com, a dummy variable that equals 1 if the firm has an executive committee; executive_meetings and executive_members, measuring the number of meetings and members of the executive committee; and audit_firm, which takes the value of 1 if the firm is audited by one of the Big Four auditing firms.

In Panel B, the various CEO attributes are described, including ceo_gender, which equals 1 if the CEO is a man; ceo_age, measured by the age of the CEO at the end of each year; ceo_tenure, which gives the number of years the CEO has been in that position; and a series of variables related to CEO education in law, engineering, MBA, management or other courses.

The variables associated with board compensation are presented Panel C, comprising compens_avrg, measured by the average compensation earned by each director; pct_comp_fix, pct_comp_var and pct_comp_other, which indicate the percentage of the total compensation that is considered fixed, variable or other, respectively; pct_comp_inside and pct_comp_indep, which measure the percentage of total compensation earned by inside and independent directors.

Finally, in Panel D there are the variables related to ownership structure, namely top_3, the percentage of shares hold by the 3 bigger shareholders; free-float, the

percentage of shares not hold by big shareholders; board_owner, measured by the percentage of shares owned by directors; votes_gm, which indicates the average percentage of voting rights present in the general meeting; voting_restriction, share_class, takeover and agreement, four dummy variables that equal 1 when there are voting restrictions, different classes of shares, anti-takeover measures or shareholders' agreements, respectively.

To test the correlation among all these variables, Table A.II in appendix presents the correlation matrix.

4.1.3. Control variables

Several firm characteristics seem to be related to tax management and can function as control variables. According to Dyreng, Hanlon and Maydew (2008), a lower ETR is associated with larger firms, located in tax heavens, with a high ratio of fixed assets and intangibles and high leverage.

Regarding the size of the firm, some studies found that larger corporations have higher ETR, because they have more visibility and reputational risks and, consequently, they don't manage taxes as much as smaller companies (Rego, 2003). Other authors believe that larger firms have more opportunities to reduce their tax burden due to their higher economic and political power (Richardson and Lanis, 2007). Given this, the way tax management is related to firm size is not clear.

Further studies focused on the relation between leverage and the agency theory and concluded that the financing decisions have impact on the agency problems, since the use of debt may cause debt holders to perform the monitoring activities instead of the shareholders (Jensen and Meckling, 1976). Moreover, the use of debt implies that part of the cash flow of the company needs to be paid out to debt holders, so managers

have less money to spend in an opportunistic way. This means that leverage can function as a corporate governance mechanism (Jensen, 1986). However, it is important to remember that too much debt can bring excessive costs, particularly bankruptcy costs, while creating reputational risks to the manager and the firm.

In what concerns the ETR, Janssen and Buijink (2000) found that leverage has a negative impact on it, since interest is tax deductible, reducing the amount of tax paid to the government. Also, the type of assets that the firm holds may influence its ETR, because some benefit from tax deductions, such as tax credits or accelerated depreciation (Gupta and Newberry, 1997; Mills, Erickson and Maydew, 1998).

The firm's performance is also associated to the level of tax management that it engages in. According to Lanis and Richardson (2012), when a company performs badly, its managers become more concerned about profitability, increasing the probability of tax management in order to maintain its reputation. This implies that the higher the profitability of the firm, the higher should its ETR be.

Following previous empirical analyses, the following control variables were included: log_assets, measured by the logarithm of total assets; debt_assets, the ratio between total debt and total assets; roa, calculated as net income divided by average total assets; and tobin, which represents the firms' Tobin's Q. These variables are described in table A.I – Panel E.

4.1.4. Model specifications

To study how corporate governance variables related to the firms' ETR, four different models with the ETR as the dependent variable were estimated, according to the four corporate governance mechanisms discussed in part 2. This process was chosen because it helps avoiding multicollinearity effects between variables, by avoiding the

inclusion of related variables into each of the models. All the models were estimated using the OLS method and heteroskedastic robust coefficients were estimated, controlling for sector and year effects.

In order to test the first hypothesis (H1) a first baseline model is estimated. This includes all independent variables described in Table A.I – Panel A and can be described as:

$$(1)\ ETR_{it} = \beta_0 + \sum_{j=1}^{6} \alpha_j \, (board)_j + \sum_{j=1}^{5} \gamma_j \, (committee)_j + \sum_{j=1}^{3} \delta_j \, (control)_j + \varepsilon_{it}$$

where *i* correspond to each of the 103 firms and *t* relates to years between 2006 and 2010. Here, *board* is a set of six board of director's variables: members, pct_independent, pct_inside, pct_female, ceo_duality and board_meetings.

The *committee* group of variables shows the existence, number of members and number of meetings of the audit and executive committees of each firm in each year. It is important to note that no dummy variable was created for the existence of an audit committee because it was present in all firms in the sample. This group also considers the type of auditing firm the company works with (audit_firm).

The model also uses three *control* variables: one for the size of the firm, other for the leverage and the final one to control for profitability.

In model (2), the variables used to test H2 are related to CEO's characteristics. This model can be expressed as:

$$(2)\ ETR_{it} = \beta_1 + \sum_{j=1}^{3} \zeta_j \, (CEO)_j + \sum_{j=1}^{5} \eta_j \, (education)_j + \varepsilon_{it}$$

Where *CEO* includes the variables related to CEO's gender, age and tenure and *education* represents 5 possible courses that were found as CEO's academic education.

The third model, used to test H3, includes variables associated with compensation structure. Model (3) can, then, be described as:

$$(3)\ ETR_{it} = \beta_2 + \sum_{j=1}^{6} \theta_j \, (earnings)_j + \varepsilon_{it}$$

where e*arnings* is a set of variables that includes the average compensation earned by each director (compens_avrg), as well as the percentage of the total compensation that is considered fixed, variable or other. It also comprises the percentage of compensation earned by independent and inside directors.

The final model includes the variables described in Table A.I – Panel D and is expressed as:

$$(4)\ ETR_{it} = \beta_3 + \sum_{j=1}^{8} \iota_j \, (ownership)_j + \varepsilon_{it}$$

In this model, *ownership* contains variables related to the ownership structure of the firms, including top_3, free_float, board_owner, votes_gm, voting_restriction, share_class, takeover and agreement.

5. Results

Table A.I shows the descriptive statistics of all the variables used to test the four proposed hypotheses. The independent variable, ETR, has an average of 26,4%, a value that is smaller than the threshold of 30% established in part 3. This indicates that the majority of firms analysed between 2006 and 2010 engaged in successful tax management, being able to reduce their ETR below the statutory tax rate applicable in Spain.

In Panel A it is observable that the boards of directors of the Spanish firms have between 4 and 24 members and, on average, they are composed of 11 directors, with 87,5% being independent, which complies with the one third rule established by the Spanish code of corporate governance, and 44,4% female. In 60,8% of the observations there is CEO/chairman duality, meaning that, in these firm-years, the power was concentrated in only one person. Concerning the frequency of meetings, on average, the board of directors meets 10 times a year, while the audit and the executive committees gather together less often (around 6 and 4 times a year, respectively). From the firm-years in the sample, 91,3% are audited by one of the Big Four auditing firms.

As shown in Panel B, about 99% of CEOs are men (there are only 5 observations with a female CEO) and their ages are between 37 and 77, with an average of 56 years. In terms of experience, the time CEOs have been in that position varies between 1 and 51 years, with an average of 9 years of tenure. Concerning the education of the CEO, all the courses are almost equally frequent, management being the most common one.

Panel C illustrates that, on average, each member of the board earns 382 thousand Euros and this compensation can be divided into fixed (44%), variable (17,1%) and other (38%). Concerning the type of members, 60% of the total compensation is earned by inside directors, while independent directors earn only 15,6% of the total.

Finally, Panel D shows that the top 3 shareholders of the Spanish firms have, on average, 35,7% of the shares, whereas board members own 25,08% of total equity. In terms of participation in the shareholders' general meetings, on average, 69% of the voting rights were present, which indicates that shareholders are concerned about the

decisions that are made in these meetings. Considering the different classes of shares and anti-takeover measures, only a small percentage of firms presented these features. However, in 26,8% of observations there are voting restrictions and in 25% shareholders created pacts to ensure the protection of their rights.

Table A.II shows the correlation matrix for the variables being analysed. In the first column it is observable that the dependent variable, ETR, has a linear relationship with members, pct_inside, log_assets, roa, pct_comp_var, pct_comp_inside, pct_comp_indep, votes_gm, voting_restriction and share_class. Among the explanatory variables, there are several statistically significant correlation coefficients, the most relevant being between members and log_assets, pct_independent and pct_comp_indep, pct_inside and pct_comp_inside, audit_meetings and log_assets, executive_com and both executive_members and log_assets, executive_meetings and both executive_members and log_assets, executive_members and log_assets , ceo_age and ceo_tenure, pct_comp_fix and pct_comp_other, pct_comp_inside and pct_comp_indep and, finally, between top_3 and free_float. The presence of these high correlations can cause high variance for the coefficient estimators when each pair of variables is included in the same regression model.

Concerning the regressions, several specifications were made in each of the four models, in order to analyse the impact of the different groups of variables in the firm's ETR. Table I shows the results for model (1), where five different specifications were created. Model (1.1) includes all variables associated with the composition of the board and its committees, using ROA as the control variable for profitability. Here, the number of members of the board has a statistically significant negative sign, indicating

that a larger board might be less effective in monitoring managers, leading to a small ETR as predicted, and supporting the view of Jensen (1993).

Table I
Board characteristics results

	Predicted Sign	Model (1.1)	Model (1.2)	Model (1.3)	Model (1.4)	Model (1.5)
members	-	-0.966**	-1.008**	-0.625	-0.622	
		(2.11)	(2.06)	(1.51)	(1.42)	
pct_independent	+	3.487	4.800	5.685	5.831	
		(0.45)	(0.60)	(0.74)	(0.73)	
pct_inside	-	-21.823*	-31.719**	-21.108*	-26.352**	
		(1.78)	(2.49)	(1.74)	(2.20)	
pct_female	+	-10.874	-15.662	-7.086	-7.938	
		(0.76)	(1.06)	(0.50)	(0.57)	
ceo_duality	-	-1.511	0.246	-1.751	-0.880	
		(0.57)	(0.09)	(0.68)	(0.35)	
board_meetings	+	-0.579	-0.190	-0.552	-0.475	
		(1.20)	(0.38)	(1.19)	(1.04)	
audit_meetings	+	0.217	-0.012			0.442
		(0.47)	(0.02)			(1.03)
audit_members	+	1.365	0.850			0.451
		(1.20)	(0.72)			(0.46)
executive_com	+	-3.779	-2.648	-0.703		-5.844*
		(1.08)	(0.72)	(0.22)		(1.79)
executive_meetings	+	0.068	0.151			-0.000
		(0.70)	(1.45)			(0.00)
executive_members	+	1.062*	1.119**			1.328**
		(1.96)	(1.99)			(2.57)
audit_firm	+	10.263**	6.958	12.071***		
		(2.13)	(1.30)	(2.62)		
log_assets	?	-1.219	-2.239**	-0.777	-0.444	-1.763**
		(1.15)	(2.01)	(0.81)	(0.54)	(2.02)
debt_assets	-	-0.067	0.091	-0.082	-0.112	-0.125
		(0.85)	(1.11)	(1.08)	(1.46)	(1.59)
roa	+	-0.832***		-0.847***	-0.796***	-0.818***
		(4.47)		(4.54)	(4.45)	(4.85)
tobin	+		0.102			
			(0.09)			
Constant		50.055***	51.308***	46.991***	55.957***	46.584***
		(5.21)	(4.57)	(5.16)	(6.78)	(6.65)
Industry dummy		Yes	Yes	Yes	Yes	Yes
Year dummy		Yes	Yes	Yes	Yes	Yes
R2		0.19	0.12	0.18	0.17	0.16
N		515	515	515	515	515
F		3.36	2.19	3.33	3.18	3.59
p-value		0.0000	0.0005	0.0000	0.0000	0.0000

Notes: The dependent variable is ETR, defined as income tax expense divided by pre-tax income. The independent variables are: number of members (members), percentage of independent and inside directors (pct_independent and pct_inside), percentage of female directors (pct_female), existence of CEO/chairman duality (ceo_duality), number of board meetings during the year (board_meetings), number of audit committee meetings and members (audit_meetings and audit_members), existence, number of meetings and number of members of the executive committee (executive_com,

executive_meetings and executive_members) and type of auditing firm (audit_firm). The control variables are: logarithm of total assets, as a proxy for firm size (log_assets), total debt over total assets, as a proxy for leverage (debt_assets) and ROA or Tobin-Q, as a proxy for profitability (roa or tobin). Heteroskedastic robust t-statistics are presented in parenthesis. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

The coefficient for the percentage of inside members is also significant and negative, according to H1, meaning that more inside members help reduce the firms' ETR through higher experience and knowledge of the business. The positive coefficient for the percentage of independent members also supports several authors' idea that a board with more independent directors has fewer opportunities to manage taxes (e.g. Lanis and Richardson, 2011). According to Adams and Ferreira (2009), women are better at monitoring and attend more board meetings, so a positive relation between the percentage of female directors and the ETR was expected. However, the results show that women might not be as effective supervisors as men, since a 1% increase in the percentage of women decreases the ETR by 10%. This may be due to their lack of visibility and power in the board (Singh and Vinnicombe, 2004).

Some other factors increase tax management, like the CEO/chairman duality and, contrary to what was expected, the frequency of board meetings. Supporting Lanis and Richardson (2012), the accumulation of functions in only one person reduces the monitoring effectiveness of the board, reducing the firm ETR by 1,5%. Concerning the number of board meetings, it is possible that boards are also engaging in tax management strategies to improve firm performance (Vafeas, 1999).

The number of meetings and size of the audit committee are positively related to firms' ETR, supporting Lanis and Richardson (2011) idea that the existence of this committee may indicate more effective supervision, reducing managers' opportunism.

Another significant result is the size of the executive committee, where an increase in the number of members leads to higher ETR, confirming the idea that this

committee is more effective in monitoring managers. The type of auditing firm seems to be relevant as well, indicating that firms audited by one of the Big Four auditing firms have an increase in their ETR of about 10%.

Finally, the coefficient for the control variable ROA is also significantly negative. This means that, the profitability of the firm is negatively associated with its ETR, which supports Miguel, Pindado and Torre (2003) findings. The level of leverage has a negative coefficient, indicating that higher debt leads to a decrease in ETR, which can be explained by the fact that interest is tax deductible (Janssen and Buijink, 2000).

The second specification (1.2) is similar to the first one, but the control variable for profitability is replaced by Tobin-Q. In this case, the number of members of the board is also significant and negative, as well as the percentage of inside members and the size of the executive committee. The size of the firm also has a significant coefficient, indicating that larger firms can reduce their tax burden more effectively (Richardson and Lanis, 2007).

Model (1.3) uses the variables that characterize the board of directors, but only analyses how the existence of an executive committee impacts the ETR. The results are similar to those of the first condition.

In specification (1.4) only board characteristics were considered, ignoring the existence of committees. Once again, the results are consistent with those of previous regressions.

Lastly, the final specification (1.5) simply considers the variables related to the audit and executive committees. Here, the coefficient for the existence of an executive committee is relevant and negative, meaning that when this committee is present the ETR is smaller by almost 6%. This is contrary to H1, which predicted a more effective

monitoring of management by this committee. However, since it replaces the board in some situations, it is possible that the power of that supervision mechanism is reduced (Lara, Osma and Penalva, 2005). Nevertheless, the coefficient for the number of members is positive, indicating that a larger committee becomes more effective, reducing the firm's opportunity to engage in tax management.

In the last row of Table I there is the p-value for the F statistic. Since all values are very close to zero, the hypothesis of all coefficients being equal to zero is rejected and the models can be considered adequate.

Table II presents the results for the four different regressions based on model (2), which include variables related to CEO's characteristics.

Table II
CEO characteristics results

	Predicted Sign	Model (2.1)	Model (2.2)	Model (2.3)	Model (2.4)
ceo_gender	?	-1.338	-3.938		-1.932
		(0.34)	(0.97)		(0.47)
ceo_age	-	-0.060	-0.017		-0.070
		(0.34)	(0.10)		(0.42)
ceo_tenure	?	-0.250	-0.240		-0.251
		(1.57)	(1.59)		(1.64)
ceo_law	?	-5.448		-6.489*	
		(1.43)		(1.73)	
ceo_engineering	?	-3.685		-4.164	
		(0.84)		(1.00)	
ceo_mba	?	-5.496*		-5.400*	-5.822*
		(1.85)		(1.83)	(1.89)
ceo_management	?	1.170		0.320	2.197
		(0.29)		(0.08)	(0.75)
ceo_other	?	-0.350		-2.059	
		(0.06)		(0.37)	
Constant		38.328***	35.481***	32.986***	37.095***
		(4.07)	(4.00)	(5.00)	(4.09)
Industry dummy		Yes	Yes	Yes	Yes
Year dummy		Yes	Yes	Yes	Yes
R2		0.08	0.07	0.08	0.08
N		515	515	515	515
F		2.40	1.85	1.91	2.19
p-value		0.0005	0.0232	0.0137	0.0033

Notes: The dependent variable is ETR, defined as income tax expense divided by pre-tax income. The independent variables are: CEO age, gender and experience in the function (ceo_age, ceo_gender and ceo_tenure) and CEO education in law, engineering, MBA, management or other. Heteroskedastic robust t-statistics are presented in parenthesis. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

As in the previous model, the first specification (2.1) contains all variables. From the results it seems that a male CEO helps reduce the ETR by 1,4%, even though this result is not statistically significant. As expected, an older CEO with more experience in that function also reduces the firm's tax burden, possibly because of his better understanding of the market and its rules (Beasley, 1996; Cornett, Marcus and Tehranian, 2008). In this model, only the variable related to MBA education has a statistically significant negative coefficient, indicating that when the CEO has this type of course, the ETR is lower, probably due to his higher knowledge about businesses and the way market functions. The same result is obtained when the CEO has a law, engineering or other courses, with management being the only type of education that increases firm's ETR.

Three more specifications were made, considering only CEO's characteristics and ignoring the type of education (2.2), only CEO education (2.3) and only education related to management (2.4), but a similar result was obtained in all of them. However, for the third regression, the coefficient for ceo_law is negative and significant, which means that this type of course may also help reduce firm ETR, by providing knowledge about the laws that allow the firm to reduce its tax burden.

Once again, analysing the p-value for the F statistic, all specifications can be considered adequate at the 5% or higher level.

The results for model (3) are presented in Table III, where three specifications were created.

Table III
Earnings results

	Predicted Sign	Model (3.1)	Model (3.2)	Model (3.3)
compens_avrg	?	0.001***		
		(4.59)		
pct_comp_fix	?	1.173	3.110	
		(0.13)	(0.46)	
pct_comp_var	?	-15.720	-13.953*	
		(1.58)	(1.88)	
pct_comp_other	?	0.406	6.953	
		(0.05)	(1.03)	
pct_comp_inside	?	-1.192		-5.592
		(0.19)		(1.06)
pct_comp_indep	?	25.041**		22.514**
		(2.23)		(2.15)
Constant		28.576***	27.228***	30.387***
		(4.82)	(4.58)	(5.51)
Industry dummy		Yes	Yes	Yes
Year dummy		Yes	Yes	Yes
R2		0.10	0.08	0.09
N		515	515	515
F		7.56	1.94	2.18
p-value		0.0000	0.0157	0.0063

Notes: The dependent variable is ETR, defined as income tax expense divided by pre-tax income. The independent variables are: average compensation earned by each director (compens_avrg), percentage of total compensation that is fixed, variable and other (pct_comp_fix, pct_comp_var and pct_comp_other) and percentage of total compensation earned by inside and independent directors (pct_comp_inside and pct_comp_indep). Heteroskedastic robust t-statistics are presented in parenthesis. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Specification (3.1) includes all variables related to compensation structure and the most relevant result is the average compensation of each director, which has a positive sign. This means that as the average amount rises, so does the firm ETR, something that can be associated with the fact that directors prefer not to risk their higher compensation by reducing the firm tax burden. Another variable with a significant positive coefficient is the percentage of total compensation earned by independent directors. As such, when these directors earn an additional 1% of total compensation, the ETR rises by 25%. This can indicate that when independent members earn more, they supervise managers in a more active and effective way, in order to reduce their opportunism. The opposite happens when the proportion earned by inside

directors increases, since the ETR is reduced by almost 2% with a 1% increase in compensation, possibly because inside members try to improve firm performance through tax management strategies.

In the second specification (3.2) only the composition of total compensation (fixed, variable or other) was considered and only one variable has a statistically significant coefficient: the variable compensation percentage of total compensation. Since this coefficient is negative, it shows that as the variable proportion of compensation rises by 1%, the ETR lowers by almost 14%, a result consistent with the fact that compensation contracts closely tied to firm performance lead to more aggressive tax management.

Regression (3.3) analyses how the division of compensation among different members of the board impacts the firm's ETR and the only relevant result is, once again, the percentage of total compensation earned by independent directors.

The p-value for the F statistic indicates that all specifications can be considered adequate at the 5% or higher level.

Finally, the results for the last group of regressions are shown in Table IV. The variables used in the first specification (4.1) include the amount of shares hold by the members of the board and by major shareholders, as well as the existence of voting restrictions created by companies and agreements among its shareholders. Here, most of the results have signs contrary to those that were expected.

The percentage of voting rights in the shareholders' general meeting has a significant negative sign, while it was expected to have a positive impact on ETR. This means that a higher level of participation in these meetings is associated with higher tax management, which may indicate that shareholders do not vote actively in these

meetings or they also believe that the tax burden of the firm is too high and needs to be reduced through tax management strategies.

Table IV
Ownership results

	Predicted Sign	Model (4.1)	Model (4.2)	Model (4.3)
top_3	-	-0.200	-0.257	
		(0.85)	(1.12)	
free_float	+	-0.276	-0.319	
		(1.24)	(1.45)	
board_owner	+	0.027		
		(0.55)		
votes_gm	+	-0.246**	-0.264**	
		(1.99)	(2.42)	
voting_restriction	-	6.881**		7.786**
		(2.04)		(2.54)
share_class	-	24.421*		27.483**
		(1.80)		(2.01)
takeover	-	9.192		2.425
		(1.16)		(0.31)
agreement	-	-6.077**		-6.864**
		(2.09)		(2.37)
Constant		67.291***	76.304***	26.652***
		(2.72)	(3.23)	(6.18)
Industry dummy		Yes	Yes	Yes
Year dummy		Yes	Yes	Yes
R2		0.11	0.08	0.09
N		515	515	515
F		2.63	2.14	2.41
p-value		0.0001	0.0062	0.0013

Notes: The dependent variable is ETR, defined as income tax expense divided by pre-tax income. The independent variables are: percentage of shares hold by the top 3 shareholders (top_3), percentage of shares not held by big shareholders (free_float), percentage of shares owned by directors (board_owner), average percentage of voting rights present in the general meetings (votes_gm) and existence of voting restrictions, different classes of shares, anti-takeover measures or shareholders' pacts (voting_restriction, share_class, takeover and agreement). Heteroskedastic robust t-statistics are presented in parenthesis.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Another variable with an unexpected sign is the one that analyses the existence of voting restrictions. The coefficient is positive, indicating that in the presence of these limits the ETR is higher by almost 7%. This may suggest that when shareholders have to comply with certain rules they feel more responsible and, consequently, they monitor managers more closely, avoiding excessive tax management. A similar result was obtained for the existence of different classes of shares, which can be explained by the

weakness of the Spanish market for corporate control that makes it less sensitive to these measures. However, the coefficient for the agreement variable is negative as predicted, meaning that when shareholders create pacts they reduce market efficiency even further, allowing managers to act in a more opportunist way and reducing the firms' ETR by 6%.

The second specification (4.2) ignores the existence of any type of restrictions and includes only the top 3 shareholders, the free-float and the voting rights present in the general meetings. Once again, the result for votes_gm is relevant and negative. The final regression (4.3), which has results similar to the first one, analyses the impact of the voting restrictions and agreements between shareholders.

Even though the coefficients are not significant, the results for the variables that measure the free-float and the existence of anti-takeover measures are also contrary to H4. In the first case, a positive impact was anticipated, but the result is negative, which indicates that when ownership is dispersed the ETR is lower, once again due to a lack of efficiency in the market for corporate control. This may also be the reason why, for anti-takeover measures, even though it was predicted a negative sign, the result is positive, meaning that when these procedures exist, the ETR rises 9%.

By analysing the p-value for the F statistic it is possible to conclude that all specifications can be considered adequate at the 1% or higher level.

6. Conclusion

The impact of corporate governance on tax management was investigated in the present study, through the analysis of 103 Spanish listed firms.

The results suggest that bigger boards are less effective, leading to lower ETRs. Additionally, the number of inside directors is also negatively related to ETR, indicating that this type of board members have more knowledge about the market in which the firm operates and more experience, being easier for them to reduce the tax burden of the firm. Another statistically significant result indicates that firms with an executive committee have lower ETRs. Given that the executive committee can replace the board of directors when immediate actions are needed, its decision-making power is high and this may lower the importance of independent directors as supervisors of management (Lara, Osma and Penalva, 2005). If these immediate decisions are related to tax management, this committee may act according to managers' interests, since there is less monitoring from other members of the board. However, the results are mixed, because a higher number of members in this committee seem to be related to higher ETR, confirming the monitoring theory associated with it. Further, firms audited by one of the Big Four auditing firms engage less in tax management strategies.

Regarding CEO characteristics, the results suggest that when the CEO has a law or a MBA degree the firm's tax burden is lower. An explanation for this may be the fact that a law course allows the CEO to know the rules that regulate the firm and the market where it operates and a MBA improves CEO understanding of the market and the business, making it easier for him to engage in tax management activities. Even though it was not statistically significant, the CEO's gender, age and tenure all had negative coefficients, indicating that when a firm has an older male CEO with more experience in that position its ETR is lower.

The results seem to corroborate the view that when directors earn more firms have higher ETRs, probably because they become less willing to engage in tax

management and put their compensation at risk if those actions are not accepted by tax authorities. Regarding the variable proportion of total compensation, it has a negative coefficient, which is consistent with the idea that variable compensation is tied to firm performance, so if a director earns more as part of his variable earnings, he will be willing to improve firm performance even further and engage in tax management.

Finally, higher levels of general meetings participation and the existence of shareholder agreements are associated with lower ETRs. This may be related to the free-riding problem (Strand, 2012) in the sense that if big shareholders are motivated to reduce taxes, small shareholder may follow them. In a similar line of thought, voting restrictions reduce the power of bigger shareholders and, therefore, the results reveal that firms with voting caps have higher ETRs.

Summing up, it appears that corporate governance is, in fact, related to tax management, at least at some dimensions. In spite of the relevance of the results, this study has also several limitations, mainly due to the data used. The sample includes only listed Spanish firms and the measure of tax management used (ETR) was based on financial statement data. This means that the results should be interpreted with some caution and within the scope of the sample. Future research can try to identify the impact of other variables, namely CEO compensation, which was not available for all the firms in this study. A similar analysis can also be made for other European countries, as a way to find similarities between them that may help improve corporate governance rules for the entire European Union.

7. References

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8. Appendix

Table A.I
Variables description

Variable	Description	Min	Max	Mean	Std. Dev.
ETR	Effective tax rate, calculated as income tax expense over pre-tax income	0	100	26,437	27,751
Panel A – Board characteristics					
members	Number of members of the board of directors.	4	24	11,369	3,634
pct_independent	% of independent members in the board of directors, An independent member is an outside director with no economic or familiar relationship with a shareholder.	0	0,875	0,332	0,175
pct_inside	% of inside members in the board of directors. An inside member is an employee of the company.	0	0,6	0,192	0,119
pct_female	% of female members in the board of directors.	0	0,444	0,082	0,09
ceo_duality	Dummy equal to 1 if the CEO and chairman are the same person and 0 otherwise.	0	1	0,608	0,489
board_meetings	Number of meetings made by the board of directors during the year.	3	27	9,994	3,461
audit_meetings	Number of meetings made by the audit committee during the year.	0	25	6,196	2,841
audit_members	Number of members of the audit committee.	2	8	3,682	0,968
executive_com	Dummy variable equal to 1 if the company has an executive committee and 0 otherwise.	0	1	0,466	0,499
executive_meetings	Number of meetings made by the executive committee during the year.	0	103	4,047	11,152
executive_members	Number of members of the executive committee.	0	11	1,56	2,803
audit_firm	Dummy variable equal to 1 if the auditing firm is one of the Big 4 and 0 otherwise.	0	1	0,913	0,283
Panel B – CEO characteristics					
ceo_gender	Dummy variable equal to 1 if the CEO of the firm is a man and 0 otherwise	0	1	0,99	0,098
ceo_age	CEO age at the end of the year	37	77	55,95	8,051
ceo_tenure	Number of years the CEO has been in that position	1	51	9,126	9,428
ceo_law	Dummy variable equal to 1 if the CEO has a law degree and 0 otherwise	0	1	0,225	0,418
ceo_engineering	Dummy variable equal to 1 if the CEO has an engineering degree and 0 otherwise	0	1	0,233	0,423
ceo_mba	Dummy variable equal to 1 if the CEO has a MBA degree and 0 otherwise	0	1	0,21	0,407
ceo_management	Dummy variable equal to 1 if the CEO has a management degree and 0 otherwise	0	1	0,375	0,485

ceo_other	Dummy variable equal to 1 if the CEO has other degree (not specified above) and 0 otherwise	0	1	0,212	0,409
Panel C – Compensation characteristics					
compens_avrg	Average compensation, in thousands of Euros, earned by each member of the board (Total compensation/Number of members)	0	54.782	382,47	2.428,8
pct_comp_fix	% of the total compensation that is fixed	0	1	0,439	0,272
pct_comp_var	% of the total compensation that is variable	0	0,854	0,171	0,186
pct_comp_other	% of the total compensation that is not fixed nor variable	0	1	0,38	0,28
pct_comp_inside	% of the total compensation earned by inside directors	0	1	0,6	0,278
pct_comp_indep	% of the total compensation earned by independent directors	0	1	0,156	0,155
Panel D – Ownership structure					
top_3	% of shares owned by the top 3 shareholders	0	99,496	35,69	24,321
free_float	% of shares not held by shareholders with more than 3% of equity	0,504	100	59,732	25,954
board_owner	% of capital owned by the members of the board of directors	0	99,497	25,08	24,925
votes_gm	Average % of voting rights present in the shareholders' general meetings during the year	10,17	100	69,485	15,674
voting_restriction	Dummy variable equal to 1 if there are restrictions to the voting rights of shareholders and 0 otherwise	0	1	0,268	0,443
share_class	Dummy variable equal to 1 if there are different classes of shares and 0 otherwise	0	1	0,012	0,107
takeover	Dummy variable equal to 1 if there are anti-takeover measures and 0 otherwise	0	1	0,006	0,076
agreement	Dummy variable equal to 1 if there is any agreement between shareholders and 0 otherwise	0	1	0,249	0,433
Panel E – Control variables					
log_assets	The logarithm of the total of all short and long-term assets as reported on the Balance Sheet.	3,513	14,012	7,443	2,195
debt_assets	Total debt divided by total assets.	0	100,742	34,214	20,701
roa	Return on Assets, calculated as (Net Income / Average Total Assets) * 100.	-66,217	95,141	2,159	10,38
tobin	Tobin's Q is measured as the sum of book value of assets plus market value of equity minus book value of equity divided by book value of total assets.	0,557	12,591	1,546	1,157

Table A.II
Pearson correlation matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1. etr	1									
2. members	-0.117**	1								
3. pct_independent	0.0618	-0.0175	1							
4. pct_inside	-0.0895*	-0.219***	-0.0759	1						
5. pct_female	-0.0181	0.0169	0.0361	0.0231	1					
6. ceo_duality	-0.0626	0.117**	0.134**	0.264***	0.0327	1				
7. board_meetings	0.00810	0.0289	0.145***	-0.132**	-0.0702	0.0700	1			
8. audit_meetings	-0.0222	0.289***	0.227***	-0.0443	0.0379	0.173***	0.304***	1		
9. audit_members	-0.0655	0.482***	0.0971*	-0.101*	-0.00292	0.130**	0.0471	0.152***	1	
10. executive_com	-0.0754	0.455***	0.160***	-0.0613	0.122**	-0.0308	0.158***	0.329***	0.263***	1
11. executive_meetings	-0.00448	0.338***	0.174***	0.0457	0.0799	0.0733	0.141**	0.297***	0.104*	0.389***
12. executive_members	-0.00909	0.465***	0.106*	-0.0774	0.141**	0.0269	0.0645	0.231***	0.150***	0.596***
13. audit_firm	0.0688	0.164***	0.0802	-0.113*	0.00166	0.104*	0.0810	0.298***	0.154***	0.0547
14. log_assets	-0.118**	0.641***	0.227***	-0.0484	-0.00106	0.233***	0.201***	0.525***	0.269***	0.509***
15. debt_assets	0.0344	0.159***	-0.00833	-0.0141	0.0314	0.111*	0.192***	0.129**	-0.128**	0.0928*
16. roa	-0.283***	0.0786	-0.0251	0.105*	0.0176	-0.0302	-0.209***	0.0606	0.122**	0.000493
17. tobin	0.0531	-0.128**	-0.0902*	0.0423	-0.0423	-0.0798	-0.109*	-0.0411	-0.00809	-0.0735
18. ceo_gender	-0.0170	-0.0554	-0.0739	-0.0883*	-0.0713	-0.0390	0.00556	-0.237***	-0.0121	-0.106*
19. ceo_age	-0.0382	0.145***	0.0221	-0.0357	-0.139**	0.221***	-0.102*	0.0432	0.108*	-0.0658
20. ceo_tenure	-0.0692	-0.0182	-0.0708	0.189***	0.00512	0.335***	-0.192***	-0.168***	0.0705	-0.191***
21. ceo_law	-0.0758	0.0643	-0.0462	-0.0823	-0.0241	0.214***	-0.0475	0.0332	0.0478	-0.00986
22. ceo_engineering	-0.0268	0.150***	-0.0561	-0.168***	-0.0374	-0.216***	0.160***	0.0347	0.124**	0.0283
23. ceo_mba	-0.0809	0.0383	-0.0423	-0.0520	0.00277	-0.123**	0.0271	-0.0104	-0.0720	0.0255
24. ceo_management	0.0490	0.116**	0.199***	0.00754	-0.0371	0.121**	0.0767	0.144**	-0.0313	0.153***
25. ceo_other	0.0387	-0.237***	-0.136**	0.178***	0.0204	-0.0608	-0.0885*	-0.193***	-0.0457	-0.170***
26. compens_avrg	0.0477	0.0315	0.0197	-0.0535	-0.0362	-0.0323	-0.0278	0.0273	0.00386	0.103*

27. pct_comp_fix	0.0323	-0.189***	-0.123**	0.291***	-0.0420	0.0920*	-0.121**	-0.113*	-0.191***	-0.160***
28. pct_comp_var	-0.123**	0.173***	0.198***	0.0786	0.0571	0.164***	0.0986*	0.239***	0.211***	0.124**
29. pct_comp_other	0.0525	0.0722	0.0304	-0.322***	-0.0117	-0.155***	0.0644	-0.0345	0.0698	0.0636
30. pct_comp_inside	-0.109*	0.0322	0.0474	0.566***	0.00367	0.309***	0.0651	0.122**	0.0228	0.138**
31. pct_comp_indep	0.164***	-0.106*	0.504***	-0.343***	0.0246	-0.0985*	0.0260	0.0652	-0.0204	-0.0425
32. top_3	-0.0333	0.0439	-0.162***	-0.0630	-0.0640	-0.179***	-0.0602	-0.0232	0.0137	0.0590
33. free_float	0.0165	-0.0231	0.172***	0.0984*	0.103*	0.171***	0.0494	0.0269	-0.0136	-0.0708
34. board_owner	-0.0264	-0.102*	-0.292***	0.109*	0.237***	-0.0396	-0.118**	-0.148***	-0.0946*	-0.122**
35. votes_gm	-0.177***	0.152***	-0.277***	-0.0448	0.0915*	-0.0407	-0.141**	0.0213	0.0765	0.0489
36. voting_restriction	0.157***	0.0412	0.0674	0.0404	-0.0485	0.217***	0.115**	0.130**	-0.0410	-0.0291
37. share_class	0.141**	0.0687	0.0497	-0.0175	-0.0465	-0.0610	-0.0103	0.0116	-0.00167	0.0437
38. takeover	0.00808	0.0203	-0.0989*	-0.0548	0.0685	-0.0953*	-0.0737	-0.0502	-0.0539	0.0819
39. agreement	-0.0777	0.205***	-0.170***	0.0260	0.00902	-0.0349	0.0348	-0.00175	-0.0197	0.0392

	(11)	**(12)**	**(13)**	**(14)**	**(15)**	**(16)**	**(17)**	**(18)**	**(19)**	**(20)**
11. executive_meetings	1									
12. executive_members	0.645***	1								
13. audit_firm	0.0828	0.165***	1							
14. log_assets	0.505***	0.507***	0.192***	1						
15. debt_assets	0.119**	0.150***	-0.166***	0.278***	1					
16. roa	-0.0313	0.00396	0.186***	0.0861	-0.388***	1				
17. tobin	-0.0757	-0.104*	0.0523	-0.194***	-0.245***	0.338***	1			
18. ceo_gender	-0.362***	-0.192***	-0.0306	-0.183***	-0.0496	0.0137	0.0449	1		
19. ceo_age	0.0836	0.0675	0.0331	0.0689	-0.0658	0.0283	-0.0167	0.0954*	1	
20. ceo_tenure	0.0293	-0.0917*	0.0326	-0.0589	-0.237***	0.0764	0.112*	0.0392	0.460***	1
21. ceo_law	-0.0386	0.0118	0.0681	0.0613	0.0134	0.00924	-0.0748	0.00598	-0.0619	0.0485
22. ceo_engineering	-0.0423	0.0211	0.0242	0.0695	0.0248	0.0247	-0.0301	0.0546	0.0132	-0.162***
23. ceo_mba	-0.0925*	-0.0535	-0.111*	0.00110	-0.00187	0.0159	-0.0416	0.0510	-0.160***	-0.135**
24. ceo_management	0.180***	0.118**	0.0975*	0.216***	0.00610	-0.0697	-0.107*	-0.0870*	0.0827	0.00198

25. ceo_other	-0.125**	-0.168***	-0.0922*	-0.338***	-0.129**	0.0829	0.209***	0.0513	0.0848	0.189***
26. compens_avrg	0.0485	0.0259	0.0362	0.0782	0.0309	0.0113	-0.0313	-0.00960	-0.0339	-0.0317
27. pct_comp_fix	-0.0976*	-0.0997*	-0.0276	-0.174***	0.0922*	-0.158***	-0.0716	0.0217	-0.0562	-0.0731
28. pct_comp_var	0.173***	0.106*	0.197***	0.376***	-0.0383	0.242***	0.0491	-0.114**	0.000917	0.0432
29. pct_comp_other	-0.0234	0.0235	-0.0660	-0.0637	-0.0718	-0.00857	0.0377	0.0513	0.0641	0.0508
30. pct_comp_inside	0.145***	0.0686	-0.0218	0.214***	0.153***	0.00408	-0.0715	-0.0914*	-0.0322	0.0914*
31. pct_comp_indep	-0.0451	-0.0526	0.0792	-0.105*	-0.103*	0.00307	0.0675	0.0390	0.0760	-0.0996*
32. top_3	-0.0478	0.0572	-0.0252	0.127**	-0.0419	0.108*	-0.000925	-0.188***	-0.121**	-0.0576
33. free_float	0.0754	-0.0386	0.00686	-0.0854	0.0357	-0.0984*	0.0266	0.159***	0.116**	0.0635
34. board_owner	-0.137**	-0.143**	-0.0899*	-0.249***	0.0708	-0.0560	-0.0423	0.0791	-0.0852	-0.0285
35. votes_gm	-0.00419	0.0972*	0.111*	0.128**	-0.0307	0.236***	-0.0468	-0.114**	-0.0416	-0.0251
36. voting_restriction	-0.00135	-0.116**	0.110*	0.0579	0.00199	-0.0682	0.0619	0.0152	0.0545	0.155***
37. share_class	-0.0281	-0.0152	0.0336	0.0255	0.0716	-0.0492	-0.00419	0.0108	-0.00832	-0.0187
38. takeover	0.0295	0.0485	0.0237	-0.00246	0.0388	-0.00160	-0.0342	0.00758	-0.0186	-0.00915
39. agreement	0.115**	0.119**	-0.0130	0.163***	0.0850	-0.0569	-0.129**	0.0569	-0.0590	0.0347

	(21)	**(22)**	**(23)**	**(24)**	**(25)**	**(26)**	**(27)**	**(28)**	**(29)**	**(30)**
21. ceo_law	1									
22. ceo_engineering	-0.297***	1								
23. ceo_mba	0.0762	0.201***	1							
24. ceo_management	-0.129**	-0.171***	-0.399***	1						
25. ceo_other	-0.279***	-0.286***	-0.267***	-0.401***	1					
26. compens_avrg	-0.0257	0.0762	-0.0263	0.0769	-0.0425	1				
27. pct_comp_fix	-0.129**	-0.116**	-0.00771	-0.0463	0.133**	-0.0879*	1			
28. pct_comp_var	0.0554	0.0748	0.0582	-0.0344	-0.0714	0.0162	-0.275***	1		
29. pct_comp_other	0.107*	0.0331	-0.0645	0.0947*	-0.0978*	0.0800	-0.732***	-0.365***	1	
30. pct_comp_inside	0.0269	0.00416	0.152***	-0.0892*	-0.0284	-0.0492	0.243***	0.322***	-0.375***	1
31. pct_comp_indep	-0.0209	-0.0420	-0.131**	0.153***	-0.00447	-0.00683	-0.168***	-0.0906*	0.258***	-0.539***
32. top_3	-0.0921*	0.0894*	0.0180	-0.0790	0.00493	0.0618	-0.0848	0.0573	0.0569	-0.0818

33. free_float	0.0871*	-0.0896*	-0.0264	0.0860	-0.00889	-0.0504	0.0858	-0.00882	-0.0940*	0.113*
34. board_owner	-0.0481	0.135**	0.155***	-0.169***	0.0324	-0.0836	0.182***	-0.221***	-0.0782	0.0275
35. votes_gm	0.122**	-0.00446	0.00293	-0.0409	-0.00354	0.0214	-0.0669	0.0108	0.0324	-0.0947*
36. voting_restriction	0.0306	-0.0949*	0.0222	0.0750	-0.0344	-0.0278	0.179***	0.00984	-0.160***	0.113*
37. share_class	-0.0585	0.0258	-0.0559	-0.00929	0.0323	-0.000820	0.0121	-0.00741	-0.00304	0.00299
38. takeover	-0.0413	0.139**	0.0859	-0.0593	-0.0397	-0.0111	0.0279	-0.0176	-0.104*	-0.00472
39. agreement	0.0771	-0.0300	0.156***	-0.0925*	-0.00100	-0.00664	0.0531	-0.0515	-0.0134	0.115**

	(31)	**(32)**	**(33)**	**(34)**	**(35)**	**(36)**	**(37)**	**(38)**
31. pct_comp_indep	1							
32. top_3	-0.0373	1						
33. free_float	-0.00837	-0.954***	1					
34. board_owner	-0.114**	-0.161***	0.151***	1				
35. votes_gm	-0.0815	0.409***	-0.414***	0.268***	1			
36. voting_restriction	-0.0307	-0.160***	0.159***	-0.00359	-0.189***	1		
37. share_class	-0.00832	0.0167	-0.0180	-0.0568	-0.135**	0.0569	1	
38. takeover	-0.0622	-0.0710	0.0800	0.147***	0.0988*	-0.0463	-0.00831	1
39. agreement	-0.179***	0.0328	-0.0110	0.0609	0.0633	0.0680	0.0632	-0.0440

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