Is financial reporting quality related to corporate social responsability practices? Evidence from family firms

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ABSTRACT

The aim of this research is to highlight the relationship between financial reporting quality and corporate social responsibility (CSR) on the family firm sphere. Using a database of 1275 companies for the period 2002–2010 and the GMM estimator of Arellano and Bond (1991) for panel data, our results show that those companies that report high-quality financial statements promote more CSR practices. However, this relationship is weaker in family firms which support the existence of an entrenchment effect that associates greater family ownership with poor-quality information. We argue that family firms differ from non-family regarding the effect of financial reporting quality on the level of CSR practices.

KEYWORDS

1. Introduction

This study investigates the relation between the quality of financial statements and the level of corporate social responsibility (CSR) practices internationally, aims to highlight if a firm´s CSR strategy could be influenced by how financial information is presented to its stakeholders (Andersen et al., 2011). This association has its possible reason for being in the following: a higher quality of information facilitates greater transparency and a greater concern to issues relevant for stakeholders, and this concern could promote the adoption of CSR practices. So, if a company's accounting information is to be consistent with its level of social commitment, it may reflect company behavior through a corresponding level of transparency, reliability and quality. Thus, we expect that high-quality financial information could play a decisive role in setting business strategy in the CSR commitment, since both aim to satisfy the needs and interests of stakeholders.

In addition, the possible FRQ-CSR association is analyzes in the context of family firms, since family members hold fundamental positions in management and on the board (Arshad and Razak, 2011), and then they affect corporate decisions as CSR and FRQ (Chua et al., 1999; Déniz and Cabrera, 2005). Compared to others, family shareholders have a long-term orientation, better access to information and more concentrated ownership (Chen et al., 2008). Thereon, it is crucial to understand the role that family control may exercise in determining not only their CSR strategy, but also the quality of financial information reported in their statements because of financial reports may present different levels of quality in family and non-family firms when taking their respective incentives into account.

Based on all of these reasons, in this study we focus on family versus non-family firms to examine the effect of ownership structure on the relationship between FRQ and CSR, and more concretely, between earnings quality as proxy of FRQ and CSR. Our empirical analysis is based on a large sample of internationally listed companies from 20 countries between 2002 and 2010. Methodologically, we use Arellano and Bond's (1991) generalized method of moments (GMM) estimator for panel data, which allow us to control for unobservable heterogeneity and to correct endogeneity problems.

We hypothesize that financial information quality is positively linked with the level of CSR practices. Companies that report financial statements with better earnings quality will tend to promote CSR practices to a greater extent. However, when we analyzed previous relationships in the family firms´ context, our results support the entrenchment

effect proposed by Wang (2006): family shareholders tend to promote several actions for their own benefit, such as the reporting of earnings with lower quality, thereby expropriating minority shareholders. Accordingly, family ownership negatively impacts on FRQ, and thus modifies the positive link between FRQ and CSR. This is consistent with the traditional view that family firms are less efficient because family owners tend to provide greater incentives for the expropriation of wealth from other shareholders, increasing information asymmetries (Fama and Jensen, 1983; Francis et al., 2005). Finally, based on CSR as a multidimensional construct, we evidence different orientations of family firms to CSR depending on the nature of each practice, concretely between socio-labor and environmental practices.

In section 2, we develop the hypotheses proposed in this study, using several theoretical arguments. Section 3 shows the methodological aspects, such as the sample, variables and models used for the analysis. Section 4 shows the empirical results, as well as some complementary analyses and a robustness check. Finally, we conclude our paper with the main conclusions, practical implications and some ideas for future researches.

2. Literature review and hypothesis

2.1. Financial reporting quality (FRQ) and the level of corporate social responsibility (CSR) practices

Nowadays, companies show a tendency to voluntarily engage in the development of society and the preservation of the environment, reflecting responsible behavior towards people and social groups. Specifically, the aim of companies that carry out socially responsible practices is to contribute to sustainable development and to achieve a threefold impact: social, economic and environmental (Adams and Zutshi, 2004). In this regard, CSR is presented as an emerging alternative model of management, and defines the company as a set of relationships that not only involve owners and managers, but also those parties or groups who are interested in the company.

Viewing companies as social institutions, good management should only take into account economic efficiency if it meets the ethical restrictions to reconcile the objectives of shareholders and other stakeholders (Salas, 2009). Carroll defined CSR as "corporate integrated responsibilities encompassing the economic, legal, ethical and discretionary expectations that the society has of organizations" (Carroll, 1979, p. 500). In general, CSR describes how firms manage business processes to produce an overall positive impact on society, which refers to actions that impact on people, the community and the environment above and beyond what is legally and financially required of them (Jo and Harjoto, 2011).

Meanwhile, FRQ is a broad construct. According to Choi and Pae (2011), the fundamental goal of financial reporting is to provide useful information for decision-making processes. FRQ has been defined as the faithfulness of the information conveyed by the reporting process. For Jonas and Blanchet (2000), financial reporting is not only a final output: the quality of this process depends on each part of the process, including disclosure of the company's transactions, information about the selection and application of accounting policies, and knowledge of the judgments made.

According to leading authorities (such as the FASB, SEC or Jenkins Committee), the main characteristics required for financial reports are relevance, reliability, transparency and clarity (Jonas and Blanchet, 2000; Lu et al., 2011). It has been asserted that high-quality financial information is a valuable means of counteracting information asymmetry (Chen et al., 2011). FRQ requires companies to voluntarily expand the scope and quality

of the information they report so as to ensure that market participants are fully informed, and thereby able to make well-grounded decisions on investment, credit, etc. This high-quality information facilitates greater transparency.

Once described the main aspects of CSR and FRQ, we propose the following question: is there any association between the two both?. Andersen et al. (2011) pointed out that a firm´s CSR strategy could be influenced by how financial information is presented to its stakeholders. Higher quality of information facilitates greater transparency and a greater concern to issues relevant for stakeholders. From a demand point of view, companies report financial information with the aim of satisfying the information demands of their investors, customers, suppliers, etc. So, managers may have a greater incentive to disclose high-quality financial information because it is more informative, transparent, and minimizes the negative effects of earnings management (EM) actions (Sun et al., 2010)[1]. This concern can promote the adoption of CSR practices. Both FRQ as CSR aim to satisfy stakeholders' needs and interests, and therefore, by promoting CSR firms can achieve a positive valuation of their strategies and actions, and ensure a strong alliance with stakeholders (Choi et al., 2011). So, it could be expected that if a company's accounting information is to be consistent with its level of social commitment, it should reflect company behavior through a corresponding level of transparency, reliability and quality. Thereon, it is to be expected that firms should act ethically when they report and provide financial information, without forgetting that it is not only their shareholders who are affected by the company, but also other stakeholders. This basis idea is supported by Choi and Pae (2013) who note that high-quality financial information could play a decisive role in setting business strategy in the CSR commitment, since both aim to satisfy the needs and interests of stakeholders.

Based on the possible association between FRQ and CSR, some previous studies have analyzed the impact of this quality on social business commitment. Theoretically, Verrecchia (1990) and Penno (1997) pointed out that companies with high earnings quality as proxy of FRQ were more predisposed to promote CSR strategies. Empirically,

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[1] According to Garcia-Osma et al. (2005), EM as "any practice intentionally carried out by company managers, for opportunistic and/or information purposes, to report accounting results that do not correspond to those really achieved". Note that EM is considered to be the inverse of FRQ (Dechow and Dichev, 2002): a higher degree of EM is associated with a lower earnings quality (EQ) as one of the proxies of FRQ, and thus a lower quality of information (Raman et al., 2012).

these arguments were supported by several studies (e.g. Gelb and Strawser, 2001; Chi et al., 2008; Choi and Pae, 2011), which have shown that FRQ to be positively related to the implementation of social and ethical actions – i.e. those firms that provide more extensive financial statements with a greater quality of information tend to promote more CSR practices.

For example, Chih et al. (2008) for an international sample for the period 1993-2002, and Gelb and Strawser, (2001) and Hope et al. (2012) for US firms, report a positive association between the quality of the reported accounting results and these socially business practices (Shleifer, 2004; Shen and Chih, 2005; Kim et al., 2011). Applying the argument of Moser and Martin (2012), managers have an incentive to be honest and ethical in their business and thereon, those companies that present financial statements with better quality tend to be more socially responsible. Others like Yip et al. (2011) employing a US firms´ sample for 2006, reported a positive relationship between CSR and FRQ - proxied by the inverse of EM - in the oil and gas industry and a negative relationship in the food industry. These differing results point to the influence of political considerations, in addition to ethical ones.

At the same and expanding previous studies, Choi and Pae (2011) analyzed the relationship between business ethics and FRQ for Korean companies in the period 2002-2008, finding that companies with a high level of ethical commitment have incentives to improve FRQ. They are more conservative in reporting earnings and predict future cash flows more accurately. Companies with a higher level of ethical commitment show better FRQ than others, and are therefore less likely to abuse accounting standards flexibility. Andersen et al. (2012) for US firms showed that socially responsible companies have higher accruals quality as a proxy of financial reporting transparency.

Based on these previous evidence focused in single countries, we expand the study of the impact of the quality of information provided on the promotion of CSR practices analyzing it internationally. As Choi and Pae (2011) note, differences in legal, institutional, and accounting systems could lead to differences in the relationship between FRQ and CSR in other countries. At this respect, we suggest that those companies that report more transparent, reliable, relevant and clear financial statements tend to be more disposed to implement a CSR strategy:

H1. *There is a positive relationship between FRQ and the level of CSR practices.*

2.2. The effect of FRQ on CSR practices in family firms

Despite there is no universal definition of family firm, in general, authors focus on management, ownership and succession (Chrisman et al., 2004; Chen et al., 2008). Kashmiri and Mahajan (2010) conceive family firms as a homogeneous group with similar patterns of behavior, who hold fundamental positions in management and on the board (Arshad and Razak, 2011). Family business is the predominant form of business worldwide (Bammens et al., 2011). This has boosted studies of these companies' behaviour and characteristics. The main question for most scholars is whether family firms behave differently from non-family firms. Previous studies have focused on corporate governance, leadership, ownership, and succession-related topics, but they overlook other topics such as quality of information reported, relationships among stakeholders, and corporate social responsibility (CSR) (Benavides-Velasco et al., 2013; Materne et al., 2013). Thus, this study contributes at this respect, analysing the role that family control in determining not only their CSR strategy, but also the quality of financial information reported in their statements.

On the one hand, regarding the CSR commitment, family firms usually assign a higher priority to certain non-financial goals, such as identity, reputation, longevity, extent of resources and the preservation of a positive image (Berrone et al., 2010; Block, 2010). They show their preference for altruistic aspects and not just for economic issues (Graafland, 2002; Déniz and Cabrera, 2005), which would favor the perceptions of stakeholders. Since family firms are easily identifiable by society, they tend to pursue the interests of several stakeholders (Testera-Fuertes and Cabeza-García, 2013; Zellweger et al., 2013), thereby addressing societal demands (Block and Wagner, 2013).

Accordingly, in order to gain a positive image, and create opportunities for future family generations which will ensure the survival of the firm, family firms may carry out actions approved by society, covering stakeholders' demands such as CSR strategies (Casson, 1999; Block, 2010). Because of its commitment to corporate reputation and popularity (McVey and Draho, 2005), it is to be expected that family firms choose CSR investment decisions to a greater extent, with the aim of being catalogued as "responsible" so as to improve their prestige and social image. Dyer and Whetten (2006) argue that family shareholders are more aware of sustainable commitment, and therefore have a greater incentive to develop social, economic, and environmental practices, as well as to prevent damaging practices that threaten the survival and reputation of the company.

Nonetheless, CSR orientation could be affected by FRQ (such as we proposed previously in hypothesis 1), since high-quality financial reports can play a decisive role in achieving CSR goals. This relationship could be special in family firms due to information asymmetries that may appear. For it, one of the reasons for conducting this analysis is focused on the special agency problem that appears in family owned firms where family members are majority shareholders and are usually involved in management (Chen et al., 2008).

In general, family firms are characterized by a high ownership concentration among family owners, who are very involved in the daily activities of the company, have access to more information and control managers in a better way. As such, the classic agency problem is not usual in this context. Shareholders and managers are used to being connected by family ties, thus their interests tend to be similar (Songini et al., 2013); this concurrence of interests reduces the agency problem between owners and managers, resulting in less informative asymmetries between them (Chau and Gray, 2002; Chrisman et al., 2004; Chen et al., 2008; Young et al., 2008; Hu et al., 2009). Hence, the classical agency problem between managers and shareholders is reduced since they have more information and controlling managers in a better way than shareholders in non-family businesses (Chau and Gray, 2002; Chen et al., 2008; Chrisman et al., 2004).

However, a particular agency problem may occur in family firms when information asymmetries exist between majority shareholders (family) and minority shareholders (Chau and Gray, 2010). Family owners may behave opportunistically, acting on their own behalf and promoting discretionary practices (e.g. EM) to expropriate minority shareholders (La Porta et al., 1999). This effect is based on the incentive of family shareholders to control and obtain a private gain (Sheifer and Vishny, 1997), resulting in lower FRQ (DeAngelo and DeAngelo, 2000). Fan and Wong (2002) support the existence of this entrenchment effect on family firms and its consequences on earnings quality. Along the same lines, Prencipe et al. (2008) show that family firms engage in EM in order to ensure the family's majority interest and long-term benefits.

In view of the above arguments, we hypothesize that the positive relationship between FRQ and CSR practices could be moderated in family firms.

H2. *The impact of FRQ on CSR practices vary between family and non family firms.*

3. Method

3.1. Population and sample

The data source was formed using two databases: (i) Thomson One Analytic, for the accounting and financial information provided in consolidated financial statements; (ii) the Ethical Investment Research Service (EIRIS), for data on corporate social responsibility. The first database contains company and stock market information, covering over 38,000 companies worldwide. Company information includes overviews, financials (reports and charts), and accounting results (standardized to facilitate cross-country comparison) and market data. Includes data from Worldscope (12,000 companies), SEC (28,000 companies), Extel Cards and Edgar. Meanwhile, EIRIS is a foundation established in the UK in 1983 with the mission to provide independent assessments of environmental, social, and governance performances. EIRIS research covers, from 2003 to 2012, about 3,500 firms from 40 different countries on more than 110 different environment, social, and governance areas. For the study population, first, we selected the 2000 largest international companies identified in the Forbes Global. We then, removed the firms belonging to the financial and insurance sectors, because there are significant differences in the valuations of their assets and in their corporate structures. Second, financial and accounting data for these 2,000 companies are obtained from the use of Thomson One Analityc. The financial information corresponds to the consolidated data of the analyzed companies. In order to analyze CSR practices and data, we fusion information from Thomson One (for the initial 2,000 firms) with the information provided by EIRIS. Due to the availability of data, our final sample consist on 1,275 international non-financial companies listed for the period 2002–2010. The sample is unbalanced, consisting of 9594 observations obtained from 20 countries (the USA, the United Kingdom, Canada, Australia, Germany, the Netherlands, New Zealand, Austria, Denmark, Finland, Sweden, Switzerland, France, Italy, Spain, Belgium, Japan, Singapore, South Korea and Hong Kong).

3.2. Measures of CSR practices. Dependent variable

CSR practices should be measured using a multidimensional construct addressing all the actions that have been carried out, especially in social and environmental contexts (Carroll, 1979). In this case, **CSR** variable is represented by using information collected from the EIRIS database[2]. This database is widely used in academic research (for instance see Brammer et al., 2006; Scholtens and Dam, 2007; Louche et al., 2012; Dam and Scholtens, 2012; Fabrizi et al., 2013). The EIRIS process starts with information disclosed by the companies. Then, targeted questionnaires are sent to companies regarding areas where public data are unclear. These results in considerable focused dialogue with companies that help clarify any concerns and refine their opinion. Sector specialists within each team review the research before the score is released.

EIRIS gathers data annually through questionnaires and surveys across six different areas: environment, governance, human rights, positive products and services, stakeholders' issues, and ethical concerns. EIRIS assigns grades on specific attributes in such different areas. This procedure involves some subjective assessment of relevant practices of the firms but the topics and questions are designed in a way to give a reasonable assessment of the relevant activities. Moreover, EIRIS research is based on a fully transparent and holistic research methodology which is certified according to external industry quality standards. EIRIS combine the broadest range of environmental and socio labour data points to assess how companies are responding to the various sustainability challenges they face. It looks for corporate leadership in tackling environmental and social challenges through policies, systems, reporting and demonstrated performance improvements. Their ratings also consider how companies deal with public controversies when they arise – companies with a higher score will have taken steps to mitigate impacts. Ratings also take into account each company's sector, business activities and geographical location.

CSR variable is broken down into a wide range of relevant activities or policies and each item is assigned a value between -3 and +3. The first grade is major positive and has a

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[2] EIRIS as a member of Global Reporting Initiative is an independent research organization and a leading provider of non-financial information on companies' environmental, social and ethical policy and practice. It provides comprehensive research on over 3,000 companies globally. It offers consistent, comparable data on over 110 different ESG areas, including board practice, bribery and corruption, managing environmental and climate change impacts, human rights and supply chain labor standards - See more at: http://www.eiris.org/

value of 3. The second is minor positive and has the value of 1. On the contrary, major negative has a value of -3 and minor negative, of -1. Companies are considered socially responsible when the score is above the threshold of 0 and are otherwise not considered socially responsible. Finally, CSR is determined from the non-weighted sum of these items. We use this scoring criterion for two reasons: firstly, we think that negative values represent non-socially responsible behaviours in a better way; furthermore, we do not use the value 2 (and -2) with the aim of strongly discriminating among socially and non-socially responsible behaviours.

First of areas of the CSR variable concerns items such as the company's environmental management system and policy, its impact on the environment, and whether the company has published reports on this. For example, issues taken into account by the EIRIS assessment model are: environmental impact and risk management; environment performance; environmental solution companies; climate-change impact and risk management; biodiversity impact and risk management; water scarcity and risk management; sector-specific issues, e.g. chemicals, timber, tar sands; and allegations of environmental pollution or damage to biodiversity, among others. We also use the general scope of the company's strategy, policy, system and reporting in the field of human rights. We also use the company's policy; management systems; quantitative information or general level of commitment with stakeholders; policy and practices to support equal opportunities and diversity; health systems and safety at work procedures; support to employee training and development; relationships with customers and suppliers; and the level of commitment with the community or social projects. For example, issues taken into account by the EIRIS assessment model are: human rights; supply-chain labor standards; relations with customers and suppliers; relations with employees; stakeholder engagement; community involvement; sector-specific issues, e.g. access to medicines; and allegations of breaches of human rights norms and labour standards, among others. Appendix 1 shows the composition of the CSR index in detail.

3.3. Measures of FRQ: Independent variable

There is no universally accepted and single best measure for FRQ (Dechow et al., 2010). Authors such as Hope et al. (2012), Choi and Pae (2011) and Garrett et al. (2012) have used diverse alternative measures, such as accruals quality, accounting conservatism, the likelihood of misstatements, the likelihood of material weaknesses in internal control or audit fees. Given the existence of several FRQ measures - as substitutive metrics (Dechow et al., 2010; Martínez-Ferrero, 2014) -, in this study we focus on the concept of earnings quality (hereinafter EQ). According to Dechow et al. (2010), "higher quality earnings provide more information about the features of a firm's financial performance that are relevant to a specific decision made by a specific decision-maker". Under Dechow et al. (2010) assumptions, EQ is meaningless by itself because it needs to be located within a model of decision-relevance of information. In addition, EQ depends on certain unobservable factors related to its informative capacity about firms´ performance.

In this paper EQ will be measured by the absolute value of EM practices, which represent the inverse of FRQ. This is an accepted methodology in accounting to capture managerial discretion (Wang, 2006; Ali et al., 2007; Choi et al., 2013). Although there exists a wide range of possibilities by which managers can discretionarily alter accounting results, most studies have sought to estimate the incidence of such practices by examining accruals (Prior et al., 2008; Surroca and Tribó, 2008). This measure aims to isolate the managed or discretion component of accruals. So, the key element of this methodology consists in decomposing accruals into two unobservable components, a discretionary and a non-discretionary part. Appendix 2 sets out the EQ and so, FRQ proxy, exercised in the inverse of EM practices.

Nonetheless, it is necessary to point out that this measure has some weakness for this EQ indicator summarized by Dechow et al. (2010) in the following: (i) analysis of the consequences of EM are joint analysis of the theory and discretionary accruals metric as a proxy of EM; and (ii) there are correlated omitted variables linked to fundamentals (e.g., performance) which question the dependence of ordinary accruals on fundamentals and the existence of an endogeneity problem of the hypothesized consequences with the fundamentals.

3.4. Family firms: Moderating variable

There are several definitions of family firms in the previous literature, and several representations of those definitions (Uhlaner, 2005). In general, most definitions conclude that family firms are characterized by large investments in capital and frequently executive representation (Maury, 2006). In this study, we use a dummy variable (called *FAMILY*) that takes the value 1 if the largest shareholder is an individual or a family with more than 10% of the ownership, and 0 otherwise, following previous authors such as Mok et al., 1992; Lam et al., 1994; Chen and Jaggi (2000), Maury (2006), Dayha et al., 2008; Pindado et al., 2008; Aoi et al., 2012; Cuadrado-Ballesteros et al., 2015).

Although this is one of the most common approaches, other authors have used different percentages, ranging from 5% (e.g. Villalonga and Amit, 2006; Chen et al., 2008; Berrone et al., 2010) to 25% (e.g. Andres, 2008; Chau and Leung, 2006). Furthermore, there are several definitions of family firms, for instance some consider the presence of family on boards (Ho and Wong, 2001; Anderson & Reeb, 2003; Wan-Hussin, 2009; Darus et al., 2013); others as Block and Wagner (2013) define family firms as companies in which at least two members of the founding family are active in the firm as owners; Testera Fuertes and Cabeza-García (2013) require that the largest shareholder be a family member; and Chau and Gray (2002, 2010) use the percentage of common shares held by the founding family or their relatives as the measure of family ownership. Regarding the controversial measure of family business, it could be interesting for future studies to check our findings by using other definitions of family businesses.

3.5. Control variables

To avoid biased results, we included several control variables, taking into account their effect on CSR practices. In our analysis, we used: firm size, leverage, risk, industry and R&D intensity. Company size (*SIZE*) is measured by the logarithm of the total assets. It is a common practice to use the firm size as a determinant variable of economic, social and environmental practices. Larger firms are likely to have more sustainable behavior and carry out more CSR practices (Hillman and Keim, 2001; Prior et al., 2008; Surroca et al., 2010). Meanwhile, another variable widely used in previous studies is the level of firm leverage (*DEBT*). It represents the debt or non-compliance risk (Prior et al., 2008; Surroca et al., 2010; Lourenço et al., 2012). For this variable, Kim et al. (2012) evidenced

that the most socially responsible companies have lower debt levels than less socially engaged companies. **RISK** represents the level of systematic risk, represented by the beta of the market model. Most studies have used this variable, since it is believed that companies carry out social practices as a means of reducing their risk perception. **R&D** is measured by the ratio of R&D expenditure to total revenue. Some studies, like McWilliams and Siegel (2001), prove that CSR is also dependent on R&D costs. Finally, it is necessary to consider the effect of the industry (**INDUSTRY**) in which the company operates, due to the different characteristics of each economic activity (Waddock and Graves, 1997: Margolis and Walsh, 2003). In order to represent it, a multinomial variable is created in accordance with the Compustat economic sector code (Business Materials; Consumer Discretionary; Consumer Staples products; Health Care; Industrial Field; Information Technology; and Utilities). Moreover, we control by year and country.

3.6. Model and analysis technique

To test the proposed hypotheses, we estimated different models for panel data by applying the estimator proposed by Arellano and Bond (1991). Using panel data enables an assessment of companies' performance in the sample over time by analyzing observations from several consecutive years for the same companies. Moreover, the fact of considering the temporal dimension of data, particularly in periods of great change, enriches the study. In this regard, the panel data enable us to control the effects that may affect sustainable practices each year.

More concretely, we have estimated our models by using the generalized method of moments (GMM), since, unlike within-groups or generalized least squares estimators, it accounts for endogeneity. Although the endogeneity issue can also be controlled by using a simultaneous-equations estimator, such as maximum likelihood and two-or three-stage least squares estimators, the choice is based on consistency concerns (de Miguel et al., 2005). This is so because the above-mentioned estimators are more efficient than GMM; however, they are less consistent and generate biased results since they do not eliminate unobservable heterogeneity, i.e. firms' own specificity that gives rise to a particular behavior. The differences between individuals are potentially correlated with the explanatory variables (also called individual specific effects), as well as being invariant over time and having a direct influence on corporate decisions (entrepreneurial capacity,

corporate culture, etc.). In order to control unobservable heterogeneity, the GMM decomposes the random error term (ε_{it}) into two parts: the classic error term (μ_{it}), which varies between individuals and periods of time; and the individual effect (η_i), which is characteristic of the company and constant over the time.

Taking into account previous studies, we propose the following relation to test our hypotheses:

CSR practices = f (FRQ, Family firm, Control Variables)

This relation is empirically tested using the following dependence models:

In the first model (Model A), we analyze the relationship between FRQ and CSR practices. So, **CSR** is the dependent variable (at the same that in the rest of models) and it is explained by *EQ* as a proxy of FRQ (explanatory variable).

$CSR_{it} = \beta_1 EQ_{it} + \beta_2 Size_{it} + \beta_3 Debt_{it} + \beta_4 Risk_{it} + \beta_5 Industry_{it} + \beta_6 R\&D_{it} + \eta_{Ai} + \mu_{Ait}$ (Model A)

In the second model (Model B), we test the relationship between CSR and FRQ, but include the variable that represents family firms, *FAMILY*, as an explanatory variable.

$CSR_{it} = \alpha_1 EQ_{it} + \alpha_2 FAMILY_{it} + \alpha_3 Size_{it} + \alpha_4 Debt_{it} + \alpha_5 Risk_{it} + \alpha_6 Industry_{it} + \alpha_7 R\&D_{it} + \eta_{Bi} + \mu_{Bit}$ (Model B)

Finally, in Model C, we include the interaction between **EQ** and **FAMILY** to represent the financial reporting quality in family firms.

$CSR_{it} = \phi_1 EQ_{it} + \phi_2 FAMILY_{it} + \phi_3 EQ*FAMILY_{it} + \phi_4 Size_{it} + \phi_5 Debt_{it} + \phi_6 Risk_{it} + \phi_7 Industry_{it} + \phi_8 R\&D_{it} + \eta_{Ci} + \mu_{Cit}$ (Model C)

> where, **i**, represents the company and **t** represents the time period; **β, α** and **ø** represent estimated parameters; **η_i**, represents the unobservable heterogeneity; **μ_{it}**, represents the classical error term;

Finally, with the aim of achieving a complementary analysis to the previous ones, we test the effect of FRQ on the level of CSR practices in family firms for the three dimensions of CSR index (Human rights, Stakeholders and Environmental). Concretely, we combined the first two dimensions into one variable, called **SOCIO-LABOR**; the third dimension we called **ENVIRONMENTAL**. Accordingly, we estimate the following two

models:

$$\text{SOCIO-LABOR}_{it} = \delta_1 EQ_{it} + \delta_2 FAMILY_{it} + \delta_3 EQ*FAMILY_{it} + \delta_4 Size_{it} + \delta_5 Debt_{it} + \delta_6 Risk_{it} + \delta_7 Industry_{it} + \delta_8 R\&D_{it} + \eta_{Di} + \mu_{Dit} \qquad \text{(Model D)}$$

$$\text{ENVIRONMENTAL}_{it} = \lambda_1 EQ_{it} + \lambda_2 FAMILY_{it} + \lambda_3 EQ*FAMILY_{it} + \lambda_4 Size_{it} + \lambda_5 Debt_{it} + \lambda_6 Risk_{it} + \lambda_7 Industry_{it} + \lambda_8 R\&D_{it} + \eta_{Ei} + \mu_{Eit} \qquad \text{(Model E)}$$

where, **δ** and **λ,** represents estimated parameters; and the other variables are as defined in previous models (A, B and C).

4. Results

4.1. Descriptive statistics and correlations

The descriptive statistics for the main variables in the study are summarized in Table 1, which considers family and non-family firms. The mean values of the *CSR* for non-family firms is -20.97156, which means that non-family firms tend to be socially irresponsible. The mean value for family firms is -18.48929, so they tend to be more socially responsible than non-family firms, although they are also not very responsible.   This higher commitment of family firms is similar for the two kinds of CSR actions (the mean values of *SOCIO-LABOR* and *ENVIRONMENTAL*). The mean value of *EQ* is 91.49664 for non-family firms and 9.034106 for family-firms. This indicates that family firms tend to report financial information with lower quality than non-family firms, as we had expected. With respect to control variables, the mean value of *SIZE* is higher in family firms while the mean value of *DEBT* is higher for non-family firms, meaning that family firms are larger but less indebted than non-family ones on average. Based on this preliminary evidence, family firms are relatively bigger than non-family firms, contrary to most of previous literature which evidence that family firms tend to be smaller on average (e.g. Bennedsen et al., 2006; Lussier and Sonfield, 2006). Nonetheless, it is necessary to note that our sample is focused on the 2,000 largest companies included in Forbes Index. So, this evidence can be biased by corporate size.

Table 1 also shows the frequency of the dummy variable *FAMILY*. Regarding the mean values, we can see that 1261 observations (13.14% of the total) are considered family firms, with the rest of the observations (8333; 86.86% of the total) belonging to non-family firms.

<center><Insert Table 1></center>

However, these family firms are from different countries (see Table 2). We note that all companies from South Korea in the sample are family firms. Among the countries with the highest percentage of family firms are France, Spain and Switzerland– countries of Western Europe with a strong concentration of ownership and voting rights in the hands of families. Meanwhile, the analyzed countries with the lowest presence of family firms are Singapore and Japan.

<Insert Table 2>

Table 3 summarizes the bivariate correlation coefficients of the main variables used in this study. The coefficients are not very high between the different independent variables, indicating that there are no multicollinearity problems that might confound the estimation.

<Insert Table 3>

4.2. Results obtained by dependency models

Focusing on the main goal of this study, Table 4 shows the effect of FRQ on CSR practices in the context of family firms. Specifically, three models were estimated to test this effect.

In MODEL A, the level of CSR practices is explained by **EQ**. Concretely, the coefficient of this explanatory variable shows that FRQ positively impacts on the level of CSR (**EQ** coef. -0.0000253; significant at a 99% confidence level). It is necessary to note that, as we detailed in the method section, the lower the degree of **EQ,** the higher the FRQ. In light of this result, as we proposed in hypothesis H1, the increase of FRQ results in more CSR practices. Therefore, those companies that report earnings of better quality tend to carry out more CSR actions. This evidence supports the previous findings of Verrecchia (1990), Yip et al. (2011), Choi and Pae (2011) and Martínez-Ferrero et al. (2013b), among others, who show that those companies with high EQ are more predisposed to promote CSR within their corporate strategies. Managers will have an incentive to be honest and ethical in their business provide information of greater quality, especially when this will satisfy the needs of stakeholders. According to Shleifer, (2004) Shen and Chih (2005), Kim et al. (2011) and Martínez-Ferrero et al. (2013a, 2013b), higher-quality information is associated with greater transparency, quality and reliability. These companies tend to be ethical from an accounting point of view, but also from an ethical one, which is reflected in their greater social commitment.

In MODEL B, the dummy variable of family firms (**FAMILY**) is included as an explanatory variable. The aim of this model is to analyze the orientation of family firms to CSR practices. Specifically, results show a positive link between FRQ and the level of CSR practices (**EQ** coef. -0.0000255; significant at a 99% confidence level), as well as a positive association between family firms and CSR (**FAMILY** coef. 3.474421; significant at a 99% confidence level). This finding means that family firms are more oriented to

CSR practices than non-family firms, because they are more aware of using sustainable commitment as a mean to preserve their reputation and good image (Dyer and Whetten, 2006; Berrone et al., 2010). Our results support the idea that family organizations are aimed to promote CSR practices, since they are strategies that benefit all parties in the long term, as they tend to support altruistic actions and not just economic goals (Graafland, 2002; Déniz and Cabrera, 2005).

Finally, in MODEL C, we enter the interaction between FRQ and family firms (***EQ*FAMILY***) with the aim of representing the quality of financial information reported by family firms. Similarly to previous models (A and B), the results confirm the positive link between FRQ and CSR (***EQ*** coef. -0.0000303; significant at a 99% confidence level), i.e. companies that provide earnings with better quality have a trend to be more responsible and ethical, and thus promote more CSR practices. The family firms dummy variable has a positive value (***FAMILY*** coef. 3.302557; significant at a 99% confidence level), which again indicates that family firms tend to promote more CSR actions than non-family firms. Nonetheless, the positive coefficient of interaction term ***EQ*FAMILY*** (coef. 0.00048645; significant at a 99% confidence level) indicates the positive association of FRQ and CSR is lower in family firms, which is consistent with hypothesis H2. Therefore, the positive link between FRQ and CSR is moderated in the case of family firms (-0.0000303 + 0.00048645 = 0.0048342). Thus, those family firms report earnings with lower quality, but this lack of quality nullifies the positive relationship with CSR practices.

Our evidence supports the existence of the entrenchment effect proposed by Wang (2006). According to this effect, family owners, as larger shareholders, may act opportunistically for their own benefit, providing earnings with lower quality. This lack of quality increases information asymmetries between majority and minority shareholders, leading to expropriate minority shareholders. Entrenchment of family owners links family firms with a poor FRQ, and thus with a lower degree of CSR practices.

In conclusion, our findings show the positive association between high-quality earnings and the level of CSR practices. In this sense, family firms are usually linked to an ethical commitment and responsible behavior. Nonetheless, this business group is characterized by higher information asymmetries, and the risk of expropriation of minority shareholders' wealth. In turn, according to DeAngelo and DeAngelo (2000) and Preincipe et al. (2008), these family-controlled companies engage in EM practices which negatively

affect FRQ. Thus, the positive relationship between FRQ and CSR is weaker (or even negative) in family firms, since they tend to report earnings with lower quality.

With respect to control variables, their effect is maintained for the three proposed models. Concretely, *SIZE*, *DEBT* and *RISK* are associated with a lower level of CSR practices. The coefficients *SIZE* and *RISK* are significant at a 99% confidence level, while coefficient *DEBT* is at 95%. Larger, more highly indebted companies and those that operate in capital markets with a higher risk promote CSR practices to a lesser extent. So, according to Prior et al. (2008) and Surroca and Tribó (2008), CSR practices depend on company size and debt, as well as on the level of systematic risk. Meanwhile, *INDUSTRY* and *R&D* show a positive link with social, economic and environmental actions, being significant at a 99% confidence level. According to Margolis and Walsh (2003), the effect of the industry in which the company operates may affect the level of CSR commitment, as would the intensity of R&D (McWilliams and Siegel, 2001).

<center><Insert Table 4></center>

4.3. Complementary analysis

We conduct a complementary analysis to test whether our findings vary when we consider different CSR areas. Concretely, the dependent variable (*CSR*) is broken into two indicators: (i) SOCIOLABOR, which represents the CSR practices with a human component; and (ii) ENVIROMENTAL, which represents the CSR practices with a special purpose in environmental issues. Appendix 1 shows items included in each indicator. Results from the complementary analysis are shown in Table 5.

In MODEL D, the dependent variable represents CSR practices with a human component. In this case, results show a positive association between the quality of financial information and the level of socio-labor practices (*EQ* coef. -0.0000217; significant at a 95% confidence level). Similarly to previous results, family ownership is related with a more responsible and ethical commitment to their strategies, and thus, with higher levels of CSR practices (*FAMILY* coef. 4.132232; significant at a 99% confidence level). This positive relationship between FRQ and socio-labor practices is strengthened in family firms, as the coefficient of the interaction *EQ*FAMILY* shows (coef. -0.0024418; significant at a 95% confidence level). In this regard, as Ali et al. (2007), Ebihara et al. (2012) and Jirapond and DaDalt (2009) advocated, family firms who are more orientated

towards socio-labor practices tend to report high-quality financial information. These authors find that compared with non-family firms, our analysis group report financial statements with better EQ, and enjoy of a greater ability of earnings component to predict cash flows, so therefore promote more CSR practices.

Nonetheless, this reinforced positive relationship between FRQ and CSR practices in family firms only supports for socio-labor issues. In the case of environmental practices, the results of MODEL E support the moderated (even negative) link between FRQ and CSR in family firms, since these companies tend to report earnings with lower quality (***EQ*FAMILY*** coef. 0.0029315; significant at a 99% confidence level). Despite it not being significant, the coefficient ***FAMILY*** in MODEL E shows how the trend toward environmental aspects in the context of family firms is lower than in the case of socio-labor issues.

In this regard, CSR is a multidimensional construct composed of several aspects of different orientation. According to Block and Wagner (2013), the effect of family ownership can differ in relation to CSR dimensions or activities. As these authors propose, our results support the idea that a family firm can be ethical and unethical from several CSR dimensions at the same time. In addition, the previous research of Berrone et al. (2010) evidenced that family firms promote environmental compromise CSR practices to a lesser extent that non-family ones.

With this in mind, it is necessary to note the previous study of Gargouri et al. (2010), who advocated that the association FRQ-CSR depends on the kind of CSR dimension analyzed. They report a negative association between EQ and corporate social performance related to the environment and employees. In part, it is explained by the high costs of environmental activities, which reduce financial performance and create an incentive for managers to provide lower quality information.

In summary, our evidence shows which stakeholders are most important for family firms, and how they may influence their decisions and strategies, such as their financial reporting and their social approach.

<center><Insert Table 5></center>

4.4. Robustness check

We conducted a robustness check in relation to the kind of dependent variable used in previous models. ***CSR*** takes values in the range of -60 to +60. Therefore, our analysis may suffer from a censoring problem. To ensure that such a problem does not bias our results, we conduct an alternative methodology that takes this into consideration (Hillier et al., 2010). An appropriate econometric methodology is the Tobit model for panel data, which allows us to use dependent variables that are left and right-side censored. Tobit models are used to estimate efficiency and provide coefficients using the maximum likelihood method. Concretely, results obtained using the Tobit methodology are summarized in Table 6. We can see that previous results are robust after correcting for censoring problems.

Specifically, in all models (A, B and C), the findings show that CSR practices are positively related to high-quality earnings (***EQ*** MODEL A: coef. -0.0000779 ; MODEL B: coef. -0.0000773; MODEL C: coef. -0.0000779; all are statistically significant at a 95% of confidence level in all models). We have to remember that FRQ is represented by EQ as a measure of EM, which is inversely related to FRQ. Thus, the higher the level of ***EQ*** variable, the lower the level of FRQ (and vice versa).

In addition, from MODELS B and C, the results show that family firms tend to promote more CSR actions (***FAMILY*** MODEL B: coef. 2.363969; MODEL C: coef. 2.378834; all are statistically significant at a 99% of confidence level in both models). Finally, MODEL C includes the interaction ***EQ*FAMILY***; its estimated coefficient represents a moderated (even negative) association between FRQ and CSR in family firms, since these companies report earnings with lower quality (***EQ*FAMILY*** coef. 0.005143; significant at a 90% confidence level).

So, in summary, despite the fact that the dependent variable is left and right-side censored, the results obtained after applying the GMM estimator for panel data are robust.

<center><Insert Table 6></center>

5. Concluding Remarks

This article analyzes the association between FRQ (understood as the relevance, reliability, transparency and clarity of information) and CSR practices, and more concretely, the impact of family ownership on this association. Compared to other shareholders, family shareholders have a long-term orientation, better access to information and more concentrated ownership (Chen et al., 2008). Therefore, it can be expected that the relationship between the quality of financial information and the level of CSR practices can be moderated by the presence of family owners.

Our empirical analysis is based on a large sample of internationally listed companies during 2002–2010. Using EQ as a proxy of FRQ, our findings support a positive association between CSR practices and the level of quality of financial information. Furthermore, our evidence shows that this relationship is moderated in family firms which provide lower-quality financial information according to the existence of an entrenchment effect –as proposed Wang (2006). He based on the idea that family owners have incentives and opportunities to expropriate minority shareholders wealth, thereby extracting private benefits. Hence, majority shareholders (family members) report poor-quality earnings in financial statements due to their tendency to manage earnings and obtain private benefits, subsequently increasing information asymmetries. Our complementary analysis shows that these findings are especially important in the case of environmental practices. In addition, previous results are robust employing a methodology that correct the censoring problem for our dependent variable, the CSR index. In sum, this research concludes that ownership structure plays a fundamental role in determining CSR practices.

The main contribution of this paper is its analysis of the moderating role of family firms in the relationship between CSR-FRQ. Regarding family control, considerable research has been conducted on the question of how family firms behave and, particularly, whether they behave differently from non-family firms. Significant differences have been identified in terms of corporate governance, leadership, performance, and succession (e.g. Brenes et al., 2011; Klein et al., 2005). However, the literature until now has overlooked other topics, such as CSR (Benavides-Velasco et al., 2013; Materne et al., 2013) and FRQ. This research contributes to previous studies by providing new insights on the relationship between CSR practices and quality of financial information in the family business

literature. Thereon, our paper is the first attempt (as far as we know) to study the possible relationship between FRQ and CSR practices in the context of family firms.

This paper also contributes to previous literature by expanding the study of the impact of the quality of information provided on the promotion of CSR practices. As Andersen et al. (2011) pointed out, a firm´s CSR strategy could be influenced by how financial information is presented to its stakeholders. At this respect, in contrast to the most of studies focused on one specific country (e.g. Choi and Pae, 2011, and 2013 focused on Korean firms; Gelb and Strawser, 2001, Hong and Andersen, 2011, and Andersen et al., 2012 focus on US firms), we use an international panel database. This leads to potentially more powerful and generalized results. In addition, our paper is the first attempt (as far as we know) to study the possible relationship between FRQ and CSR practices in the context of family firms. Moreover, in many cases we offer updated results extending the time period of analysis (from 2002-2010). For example, Hong and Andersen (2011) analyzed from 1995 to 2005; Yip et al. (2011) only 2006; Prior et al. (2008) between 2002 and 2004; Gargouri et al. (2010) between 2004 and 2005; and Chih et al. (2008) despite using a database of 46 countries, the period of analysis is 1993-2002.

Finally, this paper improves on the previous literature methodologically by analysing simultaneous equations for panel data, based on the generalised method of moments (GMM) estimator proposed by Arellano and Bond (1991) to correct for problems of endogeneity. GMM is more consistent than other simultaneous equation estimators because it not only corrects endogeneity but also controls for the unobservable heterogeneity, which arises because the CSR disclosure decision is made by specific individuals within a firm, thus generating a particular behaviour pattern. These individual characteristics usually remain constant over time, but are unobservable to the researcher (Chi, 2005). Moreover, in order to correct the censoring problem of the dependent variable, we carried out a robustness test by applying a Tobit method for the proposed models that analyze the CSR-FRQ relationship. Moreover, the study's consideration of the temporal dimension of data, particularly in periods of great change, enriches its perspective. In this regard, the panel data obtained enable us to control for year-on-year effects that may affect sustainable practices.

The findings of the present study could be of particular interest to company owners who may wish to determine the effects of information reporting on stakeholders, investors, public authorities and society in general. On the basis of these findings, directors could assess the positive impact of providing higher-quality information on the level of CSR

practices. The findings also provide the market with an alternative means of assessing the quality of the information provided by companies, which may lead to it modifying its perception of CSR practices. Our findings suggest that regulators can promote CSR practices by enhancing FRQ. Furthermore, this study suggests that the ownership structure and the grater agency conflicts between family and minority shareholders influence the quality of financial information provided, as well as in promoting CSR strategies. These findings could be of assistance to policy makers and regulators, who could make use of them to improve market transparency by introducing new requirements to constrain managerial discretion in the decision-making process.

The results of this study should be interpreted carefully, since this research is subject to certain limitations. Firstly, this analysis, conducted in an international context, is focused on countries with different systems of corporate governance and different legislative and legal frameworks. At this regard, it would be the inclusion of new variables related to CSR and the family business, such as: media coverage, diversification, internalization, etc. Furthermore, it would be ideal to consider family ownership and family management in greater detail to better characterise the evidence discussed. The variable of family firm was dichotomised into family controlled and non-family controlled firms. As Chen and Jaggi (2000) ad Sharma (2004) note, without a continuous measure of this variable, the moderating effect of family firm on the association between managerial discretion and entrenchment may not have been properly and fully evaluated. In this respect, a precise measure of family management, such as the percentage of family members in senior management positions, could be a good measure. Thus, future research could improve upon the measurement of the degree of family control.

Taking into account these limitations, a useful area for further research would be to analyse the impact of the quality of financial information in the context of family ownership by taking into consideration the legislation, values and culture which could influence this behaviour. In addition, future studies could relate this aspect with the value of a company, showing how markets assess the quality of financial information provided by each company.

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Appendix 1. CSR measure

SOCIO-LABOR INDEX	ENVIRONMENTAL INDEX
HUMAN RIGHTS INDICATORS: Extent of policies addressing human rights issues Extent of systems addressing human rights issues Extent of reporting addressing human rights issues	Environmental policies and commitment Environmental management systems Environmental reporting Level of environmental impact improvement
STAKEHOLDERS INDICATORS: Policies towards stakeholders overall Management systems for stakeholders overall Quantitative reporting for stakeholders overall Level of engagement with stakeholders overall Policies on equal opportunities and diversity issues Systems and practices to support equal opportunities and diversity issues Health & Safety systems Systems and practices to advance job creation and security Systems to manage employee relations Systems to support employee training and development Policies on maintaining good relations with customers - suppliers Systems to maintain good relations with customers - suppliers Level of commitment with community or charitable work	

Source: The authors based on EIRIS database

Appendix 2. Financial Reporting Quality measure

The discretionary component of accruals adjustment could be used as a measure of managerial discretion or EM. As observed by Garcia-Osma et al. (2005), accruals are not all discretionary; hence it is necessary to separate the discretionary component from the non-discretionary one in order to determine the presence and extent of EM. The discretionary accruals adjustment (DAA) is obtained by subtracting the non-discretionary accruals adjustment (NDAA) from the total accruals adjustment (TAA). DAA represents the abnormal accruals that constitute the variable taken as a measure of EM. Following Jones (1991) and Dechow et al. (1995), TAA are defined as:

$$\text{TAA}_{it} = [(\Delta \text{CA}_{it}) - (\Delta \text{CASH}_{it})] - [(\Delta \text{CL}_{it}) - (\Delta \text{RLTP}_{it})] - \text{DA}_{it} \quad \textbf{[1]}$$

where $\Delta\textbf{CA}_{it}$ represents the change in the current assets; $\Delta\textbf{CASH}_{it}$ reflects the change in the cash held and short-term financial investments; $\Delta\textbf{CL}_{it}$ is the change in current liabilities; $\Delta\textbf{RLTP}_{it}$ is the change in reclassified long-term obligations; $\textbf{DA}_{it}$ is the depreciation and amortization; and **i** represents the company and **t** represents the year.

Based on equation (1), accruals are calculated using an explanatory model. The difference between actual and expected accrual adjustments represents the discretionary or unexplained component of accrual adjustments (DAA), and acts as a measure of management discretion in the reporting of results.

In this study, we use the modified Jones model (Dechow et al., 1995) to separate the non-discretionary component of accruals from the discretionary one. We employ this model since it is one of the most used in previous studies (Warfield et al., 1995; Chih et al., 2008; Prior et al., 2008). It requires the previous estimation of the standard Jones' model (Jones, 1991), which uses the following procedure to separate the discretionary component from the non-discretionary one:

$$\frac{\text{TAA}_{it}}{A_{i,t-1}} = \alpha_{1,t}\left(\frac{1}{A_{i,t-1}}\right) + \alpha_{2,t}\left(\frac{\Delta \text{Sales}_{it}}{A_{i,t-1}}\right) + \alpha_{3,t}\left(\frac{\text{PPE}_{it}}{A_{i,t-1}}\right) + \varepsilon_t \quad \textbf{[2]}$$

where $\frac{\textbf{TAA}_{it}}{A_{i,t-1}}$ are the total accrual adjustments; $\textbf{A}_{i,t-1}$ represents the total assets (it is used as a deflator to correct possible problems of heteroskedasticity); $\textbf{PPE}_{it}$ represents the property, plant and equipment; $\Delta\textbf{Sales}_{it}$ is the change in sales; **i** represents each firm and **t** refers to period time.

This model is estimated using ordinary least squares. Values of coefficients are then used in the modified Jones' model (Dechow et al., 1995), defined as:

$$\frac{\text{TAA}_{it}}{A_{i,t-1}} = \alpha_{1,t}\left(\frac{1}{A_{i,t-1}}\right) + \alpha_{2,t}\left(\frac{\Delta(\text{Sales}-A*R)_{it}}{A_{i,t-1}}\right) + \alpha_{3,t}\left(\frac{\text{PPE}_{it}}{A_{i,t-1}}\right) + \varepsilon_t \quad \textbf{[3]}$$

Where, **A*R** represents accounts receivable, and the other variables are as defined in equation (2). TAA uses the variation in sales minus accounts receivable (used to measure the growth of the company, as its working capital is closely linked to sales), and minus the item property, plant and equipment, which is used to measure the depreciation costs contained in the discretionary adjustments. It is assumed that not all sales are necessarily non-discretionary, and that this will depend on the item to be received. We have included

dummies in this equation that identify the country of origin, because the sample size does not allow us to estimate models by sector and country. Authors such as Prior et al. (2008) and Chih et al. (2008) have used this procedure using samples from international companies.

Note that in this model, the coefficients are calculated using the original Jones model (1991), and that the modification is made only for the calculation of the non-discretionary adjustments. Concretely, from modified Jones' model we obtain:

$$\text{NDAA} = \alpha_{1,t}\left(\frac{1}{A_{i,t-1}}\right) + \alpha_{2,t}\left(\frac{\Delta(\text{Sales} - \text{A*R})_{it}}{A_{i,t-1}}\right) + \alpha_{3,t}\left(\frac{\text{PPE}_{it}}{A_{i,t-1}}\right) \qquad \textbf{[4]}$$

$$\text{DAA} = \varepsilon_t \qquad \textbf{[5]}$$

Finally, we employ the absolute value of the DAA estimated by the modified Jones' model as proxy (inverse) of FRQ, because EM may involve either income-increasing or income-decreasing accruals (Warfield et al., 1995; Klein, 2002). Specifically, our independent variable used to represent FRQ is called **EQ**; it is calculated as the absolute value of DAA. Thus, a lower value of **EQ** represents a lower level of EM practices associated with a higher FRQ:

$$\textit{EQ} = \text{ABS (DAA)} \qquad \textbf{[6]}$$

Table 1. Descriptive Statistics

	Non Family Firms		Family Firms	
	Mean	**Std. Dev.**	**Mean**	**Std. Dev.**
CSR	-20.9715	28.0722	-18.4892	28.6298
SOCIO-LABOR	-18.8932	21.8739	-16.3013	22.1494
ENVIRONMENTAL	-2.07836	7.95438	-2.18794	7.96960
EQ	91.49664	3495.37	9.03410	109.878
SIZE	8.084222	1.87137	8.63414	1.74760
DEBT	2.02613	9.85098	1.60459	2.30319
RISK	1.30348	10.6812	1.00961	0.61828
INDUSTRY	3.0096	1.76	2.87073	1.64941
R&D	0.165479	5.09467	0.196229	2.65664
	Frequencies			
	Absolute	**Relative (%)**	**Absolute**	**Relative (%)**
FAMILY	8,333	86.86%	1,261	13.14%

Table 2. Family Firms per country

	Non Family Firm		Family Firm	
	Absolute	**Relative (%)**	**Absolute**	**Relative (%)**
Australia	292	94.5%	17	5,5%
Austria	59	95.2%	3	4.8%
Belgium	79	83.2%	16	16.8%
Canada	339	79.2%	89	20.8%
Denmark	89	90.8%	9	9.2%
Finland	70	88.6%	9	11.4%
France	208	57.8%	152	42.2%
Germany	281	77.0%	84	23.0%
Hong Kong	335	83.8%	65	16.2%
Italy	127	70.6%	53	29.4%
Japan	1822	96.1%	73	3.9%
Netherlands	108	91.5%	10	8.5%
New Zealand	85	91.4%	8	8.6%
Singapore	258	97.7%	6	2.3%
South Korea	0	0%	16	100%
Spain	135	69.2%	60	30.8%
Sweden	133	89.9%	15	10.1%
Switzerland	120	70.2%	51	29.8%
UK	1417	92.0%	124	8.0%
USA	2376	85.6%	401	14.4

Table 3. Bivariate Correlations

		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1.	CSR	1							
2.	EQ	0.012	1						
3.	FAMILY	0.0217	-0.0081	1					
4.	SIZE	0.3396	-0.0151	0.0942	1				
5.	DEBT	0.0126	0.0017	-0.0219	0.0412	1			
6.	RISKS	-0.0365	-0.0014	-0.0102	-0.0096	0.0063	1		
7.	INDUSTRY	-0.1338	0.0127	-0.0211	-0.1401	0.0038	-0.0001	1	
8.	R&D	-0.0191	0	0.002	-0.0561	-0.0012	0.0007	0.0431	1

CSR reflects the sustainable practices; *EQ* is a numerical variable that represents the quality of financial information (measured by earnings quality through earnings management measure); *FAMILY* is a dummy variable that takes the value 1 for family firms and 0, otherwise; *SIZE* represents the size of company measured by the logarithm of total assets; *DEBT* reflects the debt of company calculated as the ratio of debt to equity; *RISK* represents the risk faced measured by the beta; *INDUSTRY* represents the

Table 4. The effect of FRQ on the level of CSR practices in family firms

	MODEL A		MODEL B		MODEL C	
	Dependent variable: *CSR*		Dependent variable: *CSR*		Dependent variable: *CSR*	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
EQ #	-0.0000253***	8.64E-06	-0.0000255***	8.67E-06	-0.0000303***	9.45E-06
FAMILY	-	-	3.474421***	0.7370015	3.302557***	0.7040592
EQ*FAMILY #	-	-	-	-	0.0048645***	0.0017785
SIZE #	-0.4615494***	0.0363713	-0.4604504***	0.0363689	-0.4631278***	0.0358939
DEBT #	-0.0063805**	0.0030584	-0.0063123**	0.0030548	-0.0063657**	0.0030521
RISK #	-0.0137764***	0.0008401	-0.0137924***	0.0008401	-0.0138839***	0.0008252
INDUSTRY	7.671327***	2.461248	7.645507***	2.460582	6.946428***	2.424962
R&D #	0.0265849***	0.0007737	0.0266123***	0.0007731	0.0263714***	0.0007658
Year	Yes		Yes		Yes	
Country	Yes		Yes		Yes	
Z	5555.65		5577.99		5845.94	
m1	0.08		-0.04		0.11	
m2	-0.22		-0.23		-0.2	
Hansen	118.84		118.7		138.26	

\# Lags t-1 to t-2 are used as instruments in order to avoid endogeneity problems for all numerical variables, including interaction variables.

Notes:

i) *, ** and *** indicate significance at a level of 10%, 5% and 1% respectively.

ii) *z* is a Wald test of the joint significance of the reported coefficients, asymptotically distributed as χ^2 under the null hypothesis of no relationship, degrees of freedom and significance in parentheses.

iii) m_i (*m_1 and m_2)* is a serial correlation test of order *i* using residuals in first differences, asymptotically distributed as *N(0,1)* under the null hypothesis of no serial correlation.

iv) **Hansen** is a test of over-identifying restrictions, asymptotically distributed as χ^2 under the null hypothesis of non-correlation between the instruments and the error term; degrees of freedom and significance in parentheses.

CSR reflects the sustainable practices; *EQ* is a numerical variable that represents the quality of financial information (measured by earnings quality through earnings management measure); *FAMILY* is a dummy variable that takes the value 1 for family firms and 0, otherwise; *EQ*FAMILY* is the interaction between *EQ* and *FAMILY*; *SIZE* represents the size of company

measured by the logarithm of total assets; **DEBT** reflects the debt of company calculated as the ratio of debt to equity; **RISK** represents the risk faced measured by the beta; **INDUSTRY** represents the economic sector of the company; **R&D** represents the ratio of R&D expenditure to total sales.

MODEL A: $CSR_{it} = \beta_1 EQ_{it} + \beta_2 Size_{it} + \beta_3 Debt_{it} + \beta_4 Risk_{it} + \beta_5 Industry_{it} + \beta_6 R\&D_{it} + \eta_{Ai} + \mu_{Ait}$

MODEL B: $CSR_{it} = \alpha_1 EQ_{it} + \alpha_2 FAMILY_{it} + \alpha_3 Size_{it} + \alpha_4 Debt_{it} + \alpha_5 Risk_{it} + \alpha_6 Industry_{it} + \alpha_7 R\&D_{it} + \eta_{Bi} + \mu_{Bit}$

MODEL C: $CSR_{it} = \o_1 EQ_{it} + \o_2 FAMILY_{it} + \o_3 EQ^*FAMILY_{it} + \o_4 Size_{it} + \o_5 Debt_{it} + \o_6 Risk_{it} + \o_7 Industry_{it} + \o_8 R\&D_{it} + \eta_{Ci} + \mu_{Cit}$

Table 5. Complementary Analysis.

The effect of FRQ on the level socio-labor and environment practices in family firms

	MODEL D		MODEL E	
	Dependent variable:		Dependent variable:	
	SOCIO-LABOR		*ENVIRONMENTAL*	
	Coef.	Std. Err.	Coef.	Std. Err.
EQ #	-0.0000217**	3.78E-06	-5.88E-06***	8.07E-07
FAMILY	4.132232***	0.9003295	-0.1405508	0.5422947
EQ*FAMILY #	-0.0024418**	0.0011718	0.0029315***	0.0002552
SIZE #	-0.3836432***	0.0269118	-0.0352476***	0.007518
DEBT #	-0.0062198***	0.0016677	-0.0008627	0.0014467
RISK #	-0.0161168***	0.0006791	0.0018687***	0.0002358
INDUSTRY	7.819648***	2.062658	-0.8490544***	0.8242086
R&D #	0.0119059***	0.000665	0.0146923***	0.0001637
Year	Yes		Yes	
Country	Yes		Yes	
Z	6011.61		79619.36	
m1	-0.92		-1.87	
m2	-0.69		-2.26	
Hansen	176.46		187	

Lags t-1 to t-2 are used as instruments in order to avoid endogeneity problems for all numerical variables, including interaction variables.

Notes:

i) *, ** and *** indicate significance at a level of 10%, 5% and 1% respectively.

ii) *z* is a Wald test of the joint significance of the reported coefficients, asymptotically distributed as χ^2 under the null hypothesis of no relationship, degrees of freedom and significance in parentheses.

iii) m_i (***m₁*** *and* ***m₂***) is a serial correlation test of order *i* using residuals in first differences, asymptotically distributed as *N(0,1)* under the null hypothesis of no serial correlation.

iv) **Hansen** is a test of over-identifying restrictions, asymptotically distributed as χ^2 under the null hypothesis of non-correlation between the instruments and the error term; degrees of freedom and significance in parentheses.

SOCIO-LABOR reflects the CSR practices in relation to human and social dimensions; *ENVIRONMENTAL* reflects the CSR practices with an environmental purpose; *EQ* is a numerical variable that represents the quality of financial information (measured by earnings quality through earnings management measure); *FAMILY* is a dummy variable that takes the value 1 for family firms and 0, otherwise; *EQ*FAMILY* is the interaction between *EQ* and *FAMILY*; *SIZE* represents the size of company measured by the logarithm of total assets; *DEBT* reflects the debt of company calculated as the ratio of debt to equity; *RISK* represents the risk faced measured by the beta; *INDUSTRY* represents the economic sector of the company; *R&D* represents the ratio of R&D expenditure to total sales.

MODEL D: SOCIO-LABOR$_{it}$= δ_1EQ$_{it}$ + δ_2FAMILYit + δ_3EQ*FAMILY$_{it}$ + δ_4Size$_{it}$ + δ_5Debt$_{it}$ + δ_6Risk$_{it}$ + δ_7Industry$_{it}$ + δ_8R&D$_{it}$ +η_{Di} + μ_{Dit}

MODEL E: ENVIRONMENTAL$_{it}$= λ_1EQ$_{it}$ + λ_2FAMILYit + λ_3EQ*FAMILY$_{it}$ + λ_4Size$_{it}$ + λ_5Debt$_{it}$ + λ_6Risk$_{it}$ + λ_7Industry$_{it}$ + λ_8R&D$_{it}$ +η_{Ei} + μ_{Eit}

Table 6. Robust analysis for correcting a censoring problem. Tobit model. The effect of FRQ on the level of CSR practices in family firms

	MODEL A		MODEL B		MODEL C	
	Dependent variable: **CSR**		Dependent variable: **CSR**		Dependent variable: **CSR**	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
EQ	-0.0000779**	0.0000365	-0.0000773**	0.0000365	-0.0000779**	0.0000364
FAMILY	-	-	2.363969***	0.5088251	2.378834***	0.5064698
EQ*FAMILY	-	-	-	-	0.0051453*	0.0030281
SIZE	1.290828***	0.1015459	1.264752***	0.0970163	1.253742***	0.0968699
DEBT	-0.0201238*	0.0119448	-0.0194822	0.0119429	-0.0195088	0.0119407
RISK	-0.0284923**	0.0145544	-0.0282727**	0.0145472	-0.0282698*	0.014545
INDUSTRY	-1.101712***	0.1111723	-1.095259***	0.1059081	-1.091233***	0.1056922
R&D	0.0067709	0.0236255	0.0065355	0.0236154	0.0063725***	0.0236107
Year	Yes		Yes		Yes	
Country	Yes		Yes		Yes	
Sigma _u	26.70077***	0.3353894	26.76663***	0.2863494	26.74405***	0.2821933
Sigma_e	9.992668***	0.0877365	9.988038***	0.0876491	9.985788***	0.0876319
rho	0.8771465	0.0033546	0.877776	0.0029983	0.8776431	0.0029764

Notes: *, ** and *** indicate significance at a level of 10%, 5% and 1% respectively.

CSR reflects the sustainable practices; **EQ** is a numerical variable that represents the quality of financial information (measured by earnings quality through earnings management measure); **FAMILY** is a dummy variable that takes the value 1 for family firms and 0, otherwise; **EQ*FAMILY** is the interaction between **EQ** and **FAMILY**; **SIZE** represents the size of company measured by the logarithm of total assets; **DEBT** reflects the debt of company calculated as the ratio of debt to equity; **RISK** represents the risk faced measured by the beta; **INDUSTRY** represents the economic sector of the company; **R&D** represents the ratio of R&D expenditure to total sales.

MODEL A: $CSR_{it} = \beta_1 EQ_{it} + \beta_2 Size_{it} + \beta_3 Debt_{it} + \beta_4 Risk_{it} + \beta_5 Industry_{it} + \beta_6 R\&D_{it} + \eta_{Ai} + \mu_{Ait}$

MODEL B: $CSR_{it} = \alpha_1 EQ_{it} + \alpha_2 FAMILY_{it} + \alpha_3 Size_{it} + \alpha_4 Debt_{it} + \alpha_5 Risk_{it} + \alpha_6 Industry_{it} + \alpha_7 R\&D_{it} + \eta_{Bi} + \mu_{Bit}$

MODEL C: $CSR_{it} = \phi_1 EQ_{it} + \phi_2 FAMILY_{it} + \phi_3 EQ^*FAMILY_{it} + \phi_4 Size_{it} + \phi_5 Debt_{it} + \phi_6 Risk_{it} + \phi_7 Industry_{it} + \phi_8 R\&D_{it} + \eta_{Ci} + \mu_{Cit}$