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DOES BOARD COMPOSITION INFLUENCE CSR REPORTING? A META-ANALYSIS

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Abstract

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A variety of empirical studies analyzed the impact of board attributes on corporate social responsibility (CSR) reporting with mixed results during the last decade. In view of this heterogeneity and increased relevance, we conduct a meta-analysis on 51 empirical-quantitative studies and include board independence, the absence of CEO duality, gender diversity and board size as key board attributes. We find that board independence and gender diversity are positively linked with CSR reporting. Furthermore, we examine whether this relationship is moderated by country-specific governance aspects (shareholder protection, legal enforcement, and code law regime). We find that board independence and gender diversity are stronger related to CSR reporting in countries with a higher range of shareholder protection and higher legal enforcement strength. We do not find any evidence for a moderator effect of code law regimes. To analyze the sensitivity of our study, we differentiate between CSR reporting measures (individual disclosure scores versus external CSR disclosure ratings) and publication quality of our included papers (journals of the ABS ranking) and found robust results. Recommendations for future research practice and regulation will be discussed.

Keywords: Board Composition, CSR Reporting, Board Diversity, Board Independence, CEO Duality, Board Size, Gender Diversity

1. INTRODUCTION

Corporate social responsibility (CSR) reporting has been rapidly increasing by public interest entities (PIEs) since the financial crisis 2007-2008. In view of the heterogeneous use of the term “CSR”, we refer to the famous triple bottom line concept and the business case model, indicating that economic, environmental and social aspects are equal within sustainable and stakeholder-oriented management (Carroll, 1999). CSR reporting as a complement to traditional financial accounting (e.g. financial statements, management reports) represents the main element of stakeholder management (Hahn & Kühnen, 2013). The main goal of CSR reports is to increase stakeholder trust in order to analyze CSR performance (Murphy & McGrath, 2013). On the one hand, the literature states that the quality of CSR reports has increased because of stakeholder awareness and pressure (Moneva et al., 2006). On the other hand, information overload and greenwashing behaviour have decreased stakeholders’ trust in CSR reporting (Mahoney et al., 2013; Ramus & Montiel,

2005; Schaltegger & Zvezdov, 2015).

As stakeholders demand a reliable CSR reporting, (inter)national standard-setters (e.g., the European Commission; see Johansen, 2016) finished various regulations to strengthen the quality of board of directors (e.g. board diversity) on the one hand and CSR reporting on the other hand. Analyzing the impact of board attributes on CSR reporting is a growing topic of empirical research from an international perspective (Hahn & Kühnen, 2013). Board attributes as internal corporate governance variables and measures of CSR reporting have been included in empirical-quantitative research designs during the last decade (Sharif & Rashid, 2014). However, the results of these studies are characterized by a high level of heterogeneity, indicating both a positive and negative relationship, and some researchers also found insignificant results.

In view of the current relevance of the topic, we conduct a meta-analysis of 51 empirical-quantitative studies on board composition as internal corporate

governance and the degree of CSR reporting.⁹ In our meta-analysis, we assume that CSR reporting may be mainly influenced by: 1) board independence, 2) absence of CEO duality, 3) gender diversity, and 4) board size. We identify those four items as the most common board composition variables in empirical sustainable corporate governance research.¹⁰ As moderating country-specific governance variables, we include the strength of shareholder protection, legal enforcement, and code law systems. Furthermore, for sensitivity analyses, we compare two CSR reporting measures (individual disclosure scores versus external CSR disclosure ratings) and analyze publication quality (a reference to the ABS journal ranking). Our meta-analysis presents that board independence and gender diversity are positively related to CSR reporting and those variables are more positively linked with CSR reporting in countries with a higher range of shareholder protection and higher legal enforcement. We do not find any evidence for a moderator effect of code law regimes. In our sensitivity analyses, we found robust results.

We see a major benefit of our meta-analysis in comparison to former narrative literature reviews on that topic (e.g. Dienes et al., 2016; Hahn & Kühnen, 2013; Jain & Jamali, 2016; Malik, 2015; Velte, 2017) and in comparison to meta-analyses on related corporate governance and CSR issues (e.g. Byron & Post, 2016 (gender diversity); Ortas et al., 2017 (board independence); Majumder et al., 2017 (corporate governance attributes)). Literature reviews only give a qualitative summary on prior empirical results without measuring the total impact of board composition on CSR reporting. Thus, meta-analyses on that topic are major complements to prior literature reviews. In contrast to other related meta-analyses, we focus on selected board composition variables on the one side and CSR reporting on the other side. As CSR reporting is one of the most common variables of analyzing CSR engagement, we decide to focus on this variable and not on other measures (e.g. donations, external CSR ratings without any link to CSR reporting). CSR reporting mainly relates to corporate governance aspects, e.g. the information on sustainable management compensation or (gender) diversity on the board of directors. As researchers, regulators and companies are more and more aware of possible relationships, there is little knowledge about the overall impact of those board composition variables on CSR reporting from an international perspective. Insofar, our meta-analysis contributes to the present literature as we analyze the overall impact of the most common board composition variables by 51 papers on board composition variables and CSR reporting.

Our analysis is aimed at researchers, regulators, and practitioners alike. It provides starting points for future research activities in terms of investigating the link between board composition and CSR reporting variables. The findings also

provide an important impetus for the analysis and development of recent sustainable corporate governance regulations. As already stated, board composition is currently regulated as an instrument in order to strengthen CSR reporting. Our meta-analysis will contribute to this regulatory discussion by showing the possible outcomes of these reforms. Finally, we would like to motivate corporate practice to recognize the interactions of board composition and CSR reporting activities as key elements of building stakeholder trust.

This paper is structured as follows. First, the research framework is presented from a theoretical and empirical perspective. In so doing, we first present the theoretical framework, followed by a review of the empirical literature on our board composition variables and CSR reporting and by an analysis of the moderating variables of our study (Section 2). In this context, we deduct the hypotheses of our meta-analysis. Then, the research method will be presented: criteria for inclusion, search strategy, primary study variables, moderators, and analysis strategy (Section 3). Furthermore, we present the results of our meta-analysis and the sensitivity analysis (Section 4). Finally, in our discussion, we stress the main recommendations for research, practice, and regulators (Section 5). The paper will close with our conclusions.

2. THEORETICAL AND EMPIRICAL FOUNDATION OF THE IMPACT OF BOARD COMPOSITION ON CSR REPORTING

2.1. Theoretical framework

Board composition can have a positive or negative impact on CSR reporting. This assumption relies on theories based on economics (e.g. stakeholder-agency theory) that assume a *positive* relationship by tendency or on socio-political theories (e.g. legitimacy theory) that assume a *negative* connection (Haji & Anifowose, 2016). According to *stakeholder-agency theory* (Hill & Jones, 1992), CSR reporting should decrease information asymmetries and conflicts of interest between management and different stakeholder groups. Monitoring institutions such as the board of directors are an application of agency theory that enhances the decision usefulness of CSR reports (Velte, 2017). However, board directors can only fulfil the information needs of stakeholders if some requirements, e.g. board independence, the absence of CEO duality, gender diversity and appropriate board size are realized. When stakeholders are satisfied with board composition and CSR reporting, a positive impact can be expected on corporate financial and CSR performance.

In contrast to stakeholder-agency theory, *legitimacy theory* (Shocker & Sethi, 1973) stresses a negative relationship between board composition and CSR reporting (Haji & Anifowose, 2016). Organizations seek to comply with their society's specific norms, values and boundaries by implementing innovative reporting tools, such as CSR reporting. This can enhance organizations' image as good corporate citizens (O'Donovan, 1999), as well as their competitive position. Legitimacy theory recognizes the risks that positive self-

⁹ We note that external corporate governance (e.g., ownership structure) can also be important in influencing CSR (reporting) (Dienes et al., 2016). A meta-analysis on both internal and external corporate governance factors is not our intention, as we see an increased regulation density on board composition and intend to focus on these internal corporate governance issues.

¹⁰ We are aware of other internal corporate governance variables, e.g. board meeting frequency, committee variables (e.g. audit committee composition), which are of lower relevance in empirical sustainable corporate governance literature.

impression management can represent to stakeholders. Corporate governance reports, e.g. on board composition, and CSR reports may be only 'symbolic' – a way to reinforce organizational legitimacy (Haji & Anifowose, 2016). Therefore, board independence, the absence of CEO duality, gender diversity and board size are not necessarily effective monitoring variables, and it may not lead to better CSR reports if the reporting process is merely symbolic and not vigilant monitoring (Beasley et al., 2009).

2.2. Board composition variables and CSR reporting

2.2.1. Board independence

Stakeholder-agency theory stresses the importance of non-executive directors being independent of the executive directors. Board independence is a necessary condition for monitoring measures with the aim of CSR reporting that fulfils the stakeholders' informational needs. Research has stated a positive influence of independent board members on reporting quality (Farber, 2005) as well as the quality of external audits (DeFond et al., 2005) and a reduced cost of capital (Anderson et al., 2003). Without adequate board independence, stakeholder-agency theory assumes higher management incentives to use "boilerplates" in the CSR reporting without precise information for the stakeholders or even use greenwashing strategy to manipulate the public. According to legitimacy theory, board independence can also be linked with those negative incentives of CSR reporting. This may be explained by a symbolic management strategy to appoint more independent board directors without reflection of stakeholders' interests of CSR reporting.

Insofar, it is not surprising, that the empirical results of board independence are mixed. Among others, Das et al. (2015), Khan (2010) and Htay et al. (2012) stated a positive relationship between board independence and CSR reporting. In contrast to this, Sundarasan et al. (2016), Haniffa and Cooke (2005) and Prado-Lorenzo et al. (2012) found a negative relationship. The heterogeneous theoretical and empirical research results lead to the following hypotheses:

H1a: Board independence is positively linked to CSR reporting in line with stakeholder-agency theory.

H1b: Board independence is negatively linked to CSR reporting in line with legitimacy theory.

2.2.2. CEO duality

In the one-tier system, the theoretical necessity for an internal division between executive and non-executive duties on the board of directors arises from the notion that management is mainly guided by the intent to maximize its own profit and wealth on the one hand while shirking responsibility on the other (Ross, 1973; Jensen & Meckling, 1976). In the so-called CEO duality model, in which the chief executive officer (CEO) is also the chair of the board, major conflicts of interest may arise (Tirole, 1986). There are increased risks when companies carry out their own assessments, as the chairperson of the board needs to evaluate situations that are associated with his or her own functions as CEO. Thus, according to stakeholder-agency theory, the CEO duality model should be avoided. At the same

time, suitable and effective management advice from the board necessitates their comprehensive knowledge of business strategy. This can be relevant in CSR reporting. Furthermore, the avoidance of the CEO duality model may be attributed to self-impression management in order to attract new stakeholders.

CEO duality is a very common board composition variable in empirical research with mixed results. Negative impacts of CEO duality on CSR reporting are stated by Muttakin and Subramaniam (2015), Li et al. (2010) and Lim et al. (2008). Among others, Jizi et al. (2014) found a positive impact. With regard to the mixed theoretical and empirical research results, the following hypotheses are stated:

H2a: Absence of CEO duality is positively linked to CSR reporting in line with stakeholder-agency theory.

H2b: Absence of CEO duality is negatively linked to CSR reporting in line with legitimacy theory.

2.2.3. Gender diversity

By taking gender diversity of boards into account, several arguments concerning CSR reporting can be stressed. For instance, Hillman et al. (2000) state that gender diversity provides various resources that benefit the company in terms of CSR reporting. Thus, the greater efficiency of monitoring activities can be explained by better information processing and a willingness on the part of the management to engage in dialogue (Carter et al., 2010). Many psychological studies confirmed that gender diversity may be connected with a more open mind discussion and creating innovative strategies like CSR reporting (Wood et al., 1985). Research has partly confirmed the positive influence of gender diversity on board effectiveness. Psychological researchers state that female board members are more risk-averse than their male colleagues so that they are more alike to fulfil stakeholders' interests (Konrad et al., 2008). As CSR reporting contributes to stakeholders' information needs, women on boards will contribute to an increased awareness of CSR reporting in line with stakeholder-agency theory. The predominance of research focusing on gender diversity on boards of directors can be attributed to its comparative simplicity of categorization as well as to the long-running socio-political debate over whether a fixed quota of women on boards should be established by law. The link between gender diversity on CSR reporting can also be negative according to the legitimacy theory. As gender diversity is a very political topic, it could be used as a symbolic strategy of management without any impact on CSR reporting quality. With regard to critical mass theory, the election of one or few female board member may be even ineffective.

In view of the huge discussion of gender diversity from an international perspective, current empirical research often includes this board composition variable and finds mixed results. We recognize both positive (e.g. Kilic et al., 2015; Barako & Brown, 2008) and negative (e.g. Handajani et al., 2014) results. A current meta-analysis of former studies found a positive link between gender diversity and CSR performance (Byron & Post, 2016). As the author's mix CSR performance and CSR reporting studies in their sample, it is not clear whether the positive

significance is also valid only for the CSR reporting studies. With regard to the mixed theoretical and empirical research results, the following hypotheses are stated:

H3a: Gender diversity is positively linked to CSR reporting in line with stakeholder-agency theory.

H3b: Gender diversity is negatively linked to CSR reporting in line with legitimacy theory.

2.2.4. Board size

From the perspective of stakeholder-agency theory, an appropriate amount of board members seems to be most important to guarantee a good quality of board effectiveness (Jensen, 1993). But large boards can also result in flawed incentives to engage in free-rider behaviour (McConnell & Servaes, 1990). Thus, board size is a controversial corporate governance variable. In line with legitimacy theory, flexibility and dynamism of the decision-making process can be reduced as the number of board members increases (Cheng, 2008). Insufficient critical self-reflection and a lower level of process discussion can be the consequence, thereby resulting in lower board effectiveness (Lipton & Lorsch, 1992). Moreover, monitoring requirements within the board increase along with board size, which requires more resources with respect to time and special experience. Insofar, an “optimal” board size is related to individual firm factors and maybe not the best board composition indicator to influence CSR reporting.

Furthermore, the empirical results on board size are mixed. Alotaibi and Hussainey (2016), Jangu et al. (2014) and Jizi et al. (2014) found a positive impact of board size on CSR reporting. According to Abduh and AlAgeely (2015), among others, board size was negatively related to CSR reporting. With regard to the mixed theoretical and empirical research results, the following hypotheses are stated:

H4a: Board size is positively linked to CSR reporting in line with stakeholder agency-theory.

H4b: Board size is negatively linked to CSR reporting according to legitimacy theory.

2.3. Country-specific governance variables as moderators

As we argue that board composition variables on the firm level have an impact on CSR reporting, country-specific governance factors may serve as moderating variables. Common measures in empirical research are the degree of shareholder protection, legal enforcement, and code law systems. In line with prior research (e.g. Post & Byron, 2015; Byron & Post, 2016) and with stakeholder-agency theory, we assume that a positive (negative) relationship between board composition variables and CSR reporting will be stronger (weaker) in countries with higher shareholder protection, higher legal enforcement, and existence of a code law regime. Shareholder protection, in particular interests of minority shareholders and legal enforcement ensure an appropriate market pressure on listed companies (Post & Byron, 2015; Byron & Post, 2016). As shareholders represent one of the key stakeholders of listed firms, it is obvious, that sustainable investors with nonfinancial goals increased their

influence during the last years. Code law systems are linked with an increased stakeholder focus which also highlights the relevance of CSR reporting. Thus, country-specific governance attributes support stakeholders' interests on the firm level. This leads to the following hypotheses:

H5: The relationship between the included board composition variables and CSR reporting is moderated by the strength of shareholder protection in line with stakeholder agency-theory.

H6: The relationship between the included board composition variables and CSR reporting is moderated by the strength of legal enforcement in line with stakeholder-agency theory.

H7: The relationship between the included board composition variables and CSR reporting is moderated by code law systems in line with stakeholder-agency theory.

3. METHOD AND DATA

3.1. Criteria for inclusion

Our meta-analysis focuses on the link between board independence, the absence of CEO duality, gender diversity and board size on the one hand and CSR reporting on the other hand. To be included, studies were published in journals by September 2018 and written in the English language. Moreover, the research papers had to include an effect size or include data that could be used to calculate an effect size for the meta-analysis. The corresponding authors of studies that did not include an effect size were contacted. If the authors provided the requested data, we include the respective study in our sample for our meta-analysis. Otherwise, we exclude the research paper.

3.2. Search strategy and paper selection

We included empirical studies in our meta-analysis by international databases (Web of Science, Google Scholar, SSRN, EBSCO, and Science Direct). A targeted search was conducted for the keywords “corporate (social) responsibility reporting”, “corporate (social) responsibility disclosure”, “CSR reporting”, “CSR disclosures”, “sustainability disclosure”, as well as “sustainability reporting”, “environmental reporting”, and “social reporting”. Furthermore, the search was either broadened by the addition of the broader terms “corporate governance” and “board composition” or narrowed by the addition of specific variables (e.g., gender diversity). We did not limit our selection to a specific country or time. We focused on empirical-quantitative studies as the dominant research method in this field. For reasons of quality assurance, only the contributions published in international (English) journals with double-blind review were included. As of the end of September 2018, 64 studies corresponding to the selection criteria mentioned above were identified. Due to definitional differences, this set of studies was narrowed further. Our analysis is based on the definition of CSR reporting as a voluntary report as part of the annual report or a stand-alone report that covers economic, social and environmental issues in line with widely recognized CSR reporting standards, e.g. the guidelines of the GRI.

Furthermore, we do not include empirical studies with a clear focus on greenhouse gas emissions and carbon disclosure as a single dimension of CSR reporting (i.e., the ecological dimension), not in line with the triple bottom line. We do not include empirical studies on the link between board composition and integrated reporting. In comparison to a CSR report, integrated reporting conducted in according to the framework of the International Integrated Reporting Council (IIRC, 2013) represents a different approach that aims to combine financial and CSR reports based on the concept of integrated thinking (Frias-Aceituno et al., 2013b; Stacchezzini et al., 2016). We only include publications with regression analyses on the link between at least one of our board composition variables and CSR reporting. This results in a final sample of 51 empirical studies.

The studies were all published or prepared within the last 14 years (2004-2018) with a clear increase in recent years. In contrast to much of the empirical corporate governance research, few studies analyzed the US-American and the European market. Developing countries were very attractive for sample selection. Cross-country studies were not common. Many of the research findings were published in accounting, corporate governance, and business ethics journals. A commonly used medium for this type of research is the *Journal of Business Ethics*, in which six studies were published.

3.3. Board composition and CSR reporting variables

Reflecting the heterogeneous literature on the link between board composition variables and CSR reporting, the studies included in this meta-analysis examined the variables in a number of ways. Although there are some critics of meta-analyses in general, our method can include studies that are diverse in terms of sample and measurement (Velte, 2018). *Board independence* represents our first independent variable in our study and is operationalized in different ways. Most of our included studies refer to non-executive directors. Some papers rely on a two-tier system and therefore analyze the independence of supervisory board members, on board members without being a large shareholder or external directors without managerial ownership. *CEO duality* is normally measured through a dummy variable and is most homogeneous. The same applies to *board size* as the number of directors on the board. In most studies, *gender diversity* was measured by the percentage of female directors. Some studies also analyzed the presence of women by a dichotomous variable. In empirical research, *CSR reporting* can be operationalized either by including a self-constructed CSR disclosure score or by reference to an external CSR disclosure rating (e.g. KLD, Bloomberg, AssetFour). We do not include those studies without any link to CSR disclosures (e.g. information on the existence of firm donations to CSR institutions) in order to increase comparability. In total, the included studies in our meta-analysis found mixed results with regard to the impact of board independence, the absence of CEO duality, gender diversity and board size on CSR reporting (positive, negative and insignificant regression results) (see also Velte, 2017).

3.4. Country-specific variables as moderators

Three moderator variables are used in our analysis: 1) shareholder protection; 2) legal enforcement and 3) code law regime. Our first moderator variable is shareholder protection strength, which is important in country-specific governance (La Porta et al., 1998; Leuz et al., 2003). We use the shareholder protection index by the World Bank (2018) as a simple average of the extent of conflict of interest regulation and extent of shareholder governance indices.¹¹ The range of the score is between 0 and 10. Our second moderator variable is legal enforcement strength. We refer to the rule of law index provided by the World Justice Project (2016) as the recognition of various factors for a country's legal system's effectiveness, e.g. absence of corruption and regulatory enforcement, scaled from 1.¹² Finally, we introduce a dummy variable 1 if the specific country in the study has a code law regime and zero if the country represents a case law regime. We refer to the classification by La Porta et al. (2008).

3.5. Meta-analytical strategy

The main goal of our meta-analysis is to summarize and quantify the heterogeneous results in different studies that focus on the impact of board composition on CSR reporting. A key issue in meta-analysis econometrics is the measurement of the effect size, which represents the magnitude of the relationship between the variables (Velte, 2018). In our meta-analysis, the effect size is measured by the average correlation coefficient of the included studies, and the effect size is most important to measure the influence of our board composition variables on CSR reporting. We refer to the meta-analytic technique by Hedges and Olkin (1990); (see Appendix for further information).

4. RESULTS

Table 1 presents the results of our meta-analysis of the link between board composition (board independence, the absence of CEO duality, gender diversity and board size) and CSR reporting. We include shareholder protection, legal enforcement, and code law as moderating variables. All of our independent variables are positively linked with CSR reporting. Board independence and gender diversity also indicate a significant positive relationship with CSR reporting, whereas the absence of CEO duality and board size are insignificantly related to CSR reporting (Table 1). With regard to our moderating variables, both shareholder protection, and legal enforcement strengthen the positive impact of board independence and gender diversity on CSR reporting. In both situations, shareholder protection is linked with an increased effect size (0.120; 0.151) in comparison to the effect sizes without the moderator (board independence: 0.113; gender diversity: 0.140). Code law does not moderate the relationship between board independence, gender diversity and CSR reporting.

¹¹ <http://www.doingbusiness.org/en/data/exploretopics/protecting-minority-investors>;
<http://www.doingbusiness.org/methodology/protecting-minority-investors>.

¹² <https://worldjusticeproject.org/our-work/wjp-rule-law-index/wjp-rule-law-index-2016>.

Table 1. Meta-analysis of the association between board composition and CSR reporting and including moderating variables

Independent variables	Dependent variables and moderator	Number of effect sizes (k)	Sample size (n)	Effect size (Mr)	95% confidence interval CI-	95% confidence interval CI+	Significance level SE	Homogeneity test statistic (Q) (with k-1 degrees of freedom)	Heterogeneity test statistic F
Board independence	CSR reporting	43	22,598	0.113	0.102	0.128	0.000	796.569**	57.432
	Shareholder protection	38	20,437	0.120	0.112	0.123	0.000	642.346**	54.434
	Legal enforcement	38	20,437	0.126	0.114	0.125	0.000	653.869**	43.545
	Code law	38	20,437	0.095	0.084	0.109	0.394	96.274	21.454
Absence of CEO duality	CSR reporting	23	17,612	0.067	0.056	0.070	0.312	102.321	22.432
	Shareholder protection	21	17,393	0.045	0.041	0.051	0.343	69.432	14.451
	Legal enforcement	21	17,393	0.039	0.032	0.047	0.397	67.223	16.406
	Code law	21	17,393	0.054	0.049	0.060	0.243	83.234	
Gender diversity	CSR reporting	22	26,507	0.140	0.121	0.159	0.000	249.256**	54.650
	Shareholder protection	18	24,090	0.151	0.129	0.154	0.000	213.174**	49.528
	Legal enforcement	18	24,090	0.155	0.130	0.156	0.000	220.546**	51.439
	Code law	18	24,090	0.054	0.048	0.060	0.421	54.980	17.539
Board size	CSR reporting	26	18,160	0.079	0.072	0.081	0.392	154.898	63.525
	Shareholder protection	23	16,343	0.054	0.052	0.059	0.364	123.245	51.798
	Legal enforcement	23	16,343	0.042	0.032	0.049	0.379	102.389	50.252
	Code law	23	16,343	0.068	0.059	0.072	0.289	99.329	14.242

Note: ** $p < 0.01$; * $p < 0.05$

To analyze the sensitivity of our study, we differentiate between two main CSR reporting measures (individual disclosure scores versus external CSR disclosure ratings) and publication quality of our included papers (a reference to the ABS journal ranking) (Table 2). As CSR reporting measures are very heterogeneous in empirical research, the validity of our meta-analysis may be decreased. Moreover, the quality of the included studies is also heterogeneous with regard to

different types of journals and their international reputation (publication bias). After splitting the sample into two different CSR reporting measures, we still find a positive significant link between board independence and gender diversity on the one hand and CSR reporting on the other hand. The same applies after splitting our sample into journal articles with an ABS ranking and other scientific journals.

Table 2. Sensitivity analyses of the association between board composition and CSR reporting

Independent variables	Dependent variables and moderator	Number of effect sizes (k)	Sample size (n)	Effect size (Mr)	95% confidence interval CI-	95% confidence interval CI+	Significance level SE	Homogeneity test statistic (Q) (with k-1 degrees of freedom)	Heterogeneity test statistic F
Board independence	CSR reporting: self-constructed	35	9,649	0.127	0.119	0.131	0.001	978.505**	43.522
	External rating	8	13,199	0.103	0.092	0.109	0.001	458.592**	60.231
	Journal ranking: yes	33	20,444	0.125	0.122	0.128	0.001	927.867**	55.442
	Journal ranking: no	10	1,921	0.104	0.098	0.107	0.001	529.831**	51.254
Absence of CEO duality	CSR reporting: self-constructed	16	4,516	0.083	0.072	0.086	0.354	157.864	20.434
	External rating	7	12,516	0.039	0.036	0.044	0.321	53.361	19.434
	Journal ranking: yes	18	16,701	0.098	0.086	0.102	0.343	142.890	18.434
	Journal ranking: no	5	911	0.029	0.023	0.031	0.397	98.331	20.927
Gender diversity	CSR reporting: self-constructed	13	4,798	0.158	0.152	0.163	0.001	286.226**	50.343
	External rating	9	21,709	0.127	0.123	0.131	0.001	197.575**	42.434
	Journal ranking: yes	19	25,201	0.154	0.151	0.157	0.001	278.246**	34.443
	Journal ranking: no	3	1,306	0.132	0.128	0.139	0.001	203.446**	40.242
Board size	CSR reporting: self-constructed	20	6,368	0.091	0.087	0.096	0.427	173.097	61.323
	External rating	6	20,013	0.041	0.038	0.042	0.254	118.741	58.324
	Journal ranking: yes	17	15,423	0.085	0.080	0.089	0.512	195.112	19.434
	Journal ranking: no	8	1,887	0.051	0.047	0.058	0.287	94.174	20.324

Note: ** $p < 0.01$; * $p < 0.05$

5. DISCUSSION

Although our meta-analysis refers to board composition attributes, we are aware that there are

further variables of corporate governance (e.g. external corporate governance as block holding or individual board attributes as CEO tenure). The board composition variables that were taken into

account in previous studies have interdependencies as well and should be specified. With respect to gender diversity, it remains open to question whether women on boards have an impact on CSR reporting. Thus, it should be analyzed to what extent female directors have a positive influence on CSR reporting. The critical mass theory indicates that a critical mass of women on boards is necessary to change board attitude towards CSR strategy and reporting. Surprisingly, up to now, sustainable management compensation and the structure thereof have not been analyzed so far.

In line with these recommendations, future research should also include *other* board composition variables that might have an impact on CSR reporting. The first useful variable to include in future CSR research is *board tenure* diversity. Rao and Tilt (2016b) state that short-term relationships may contribute to limited awareness of CSR reporting because the specific board member has only little firm-specific knowledge. Another variable that is not well recognized in current research on CSR reporting is the existence of *multiple directorships*. According to Elsakit and Worthington (2014), the participation of the chairman of the board in discussions regarding CSR reporting is expected to have a positive impact on CSR reporting. Finally, as board diversity represents one of the main board composition variables in current empirical research, board outcome is the result of the collective discussion, so that an *overall diversity variable* is useful to analyze the combined effect of diversity on CSR reporting. The “Blau index” (Blau, 1977) has reached a key relevance in empirical diversity research, but not in CSR reporting research (Rao & Tilt, 2016b).

Multinational studies are not very common in our sample. There is a need for further research because a key aspect is the impact of different cultures in different countries on board composition and CSR reporting practice as a mediator, with special reference to the risk of litigation (Morros, 2016). Culture is relevant in view of the different ranges of stakeholder pressure on CSR reporting practice in a specific society. Most of our included studies contribute to developing countries and only differ between the banking industry and other industries. We encourage future researchers to focus on European member states with regard to the huge regulations on board composition and CSR reporting during the last years. It seems to be important to analyze the different branches of non-financial industries to a greater extent (e.g. pharmacy, automobiles) as the contents of CSR reporting will differ.

Our meta-analysis has also main *regulatory implications*. In contrast to the US-American capital market, the European legislator and other regimes (e.g. South Africa) have finalized reform initiatives on board composition and CSR reporting since the financial crisis. The intention is to increase the motives for high quality CSR reporting. However, we know very little if these regulations will positively contribute to board effectiveness and CSR reporting. The related implementation and transaction costs and the market implications of a decision-useful CSR reporting are rather a “black box”. Sustainable management behaviour won’t be generally generated by stricter regulations on board composition and

CSR reporting. In order to prevent greenwashing of CSR reporting and information overflow, the board of directors must implement a sustainable vision and philosophy as a top-down approach in accordance with the total employees and permanent dialogue with related departments (e.g. finance and accounting) (Schaltegger & Zvezdov, 2015).

Practical implications can be also stressed. In general, the included studies in our meta-analysis found rather low CSR reporting scores in their descriptive statistics. Insofar, there are many possibilities for improvements in CSR reporting activities. Management should not only be aware of the reporting costs but also on the positive link on firm reputation and stakeholder trust, which could lead to better (non) financial performance in the long run. However, CSR practices may not generally be transformed into decision-useful CSR reporting (Majeed et al., 2015). Insofar, firms without CSR reporting can be active in CSR management and may plan to introduce a CSR report in the future. Even though some studies indicate that PIEs have higher CSR disclosure scores, also small and medium-sized entities are aware of CSR, especially family firms.

6. CONCLUSION

Empirical research on the impact of board composition on CSR reporting has increased since the last decade. As CSR reporting usually includes corporate governance information, e.g. sustainable management compensation or gender diversity, there many interdependencies between corporate governance and CSR reporting (“sustainable corporate governance”). In view of the heterogeneous results of empirical-quantitative research and with regard to the variety of board attributes, our meta-analysis focuses on common board attributes, namely board independence, the absence of CEO duality, gender diversity and board size, and their impact on CSR reporting based on 51 studies. According to our theoretical framework, we assume both a positive (agency theory) and negative (legitimacy theory) impact of our board composition variables on CSR reporting. Our meta-analysis indicates that board independence and gender diversity are positively and significantly linked with CSR reporting. Furthermore, we examine whether this relationship is moderated by country-specific governance attributes. We find that board independence and gender diversity are more positively related to CSR reporting in countries with a higher range of shareholder protection and legal enforcement. We do not find any evidence for a moderator effect of code law regimes.

We also offer recommendations to researchers, practice, and regulators in our paper. While CEO duality and board size are commonly used as board composition variables, their explanatory power is rather limited. They should be regarded as control variables and not as independent variables. Board independence and gender diversity are very common in empirical research, but other items, e.g. board expertise, multiple directorships, or board tenure, and should be also integrated. The variety of CSR reporting measures decrease the comparability of empirical research, especially by self-constructed CSR disclosure scores. But the recognition of external CSR disclosure ratings is also problematic

in view of their “black box” character. We find that developing countries are very attractive in related empirical research. As many regulations on board composition and CSR reporting have been implemented in developed countries during the last years, other regimes should be included, e.g. EU member states with one-tier and two-tier systems and with a separation of different branches of industries.

Finally, *integrated reporting* research has also increased in empirical research during the last years (Frias-Aceituno et al., 2013b; Stacchezzini et al., 2016; Velte & Stawinoga, 2017). Integrated reporting should complement CSR reports as it

includes material aspects of financial and nonfinancial reporting. In contrast to CSR reporting, we know little about the impact of corporate governance variables on the integrated reporting quality (Haji & Anifowose, 2016; Gerwanski et al., 2019). The applicability of recent research results on sustainable CSR reporting to integrated reporting had to be neglected owing to the divergent concepts of CSR reporting and integrated reporting. Nevertheless, recent research methods tailored to studying board composition and CSR reporting will be used for analyzing possible determinants of integrated reporting quality in the future.

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Appendix

Meta-analytical strategy

The average correlation coefficient of the link between our board composition variables and CSR reporting is measured as a weighted average of the correlations obtained from the individual studies in our sample (Ortas et al., 2017). Correlation coefficients must be converted to a standard normal metric, calculated by the following expression:

$$z_{r_i} = \frac{1}{2} \log_e \left(\frac{1 + r_i}{1 - r_i} \right) \quad (1)$$

r_i is the correlation coefficient between the board composition variables and CSR reporting in study i . We use the transformed effects to measure the weighted average effect:

$$\bar{z}_r = \frac{\sum_{i=1}^k w_i z_{r_i}}{\sum_{i=1}^k w_i} \quad (2)$$

k is the number of studies in our meta-analysis and w_i is the weight of each study. \bar{z}_r is the average correlation coefficient and $SE(\bar{z}_r)$ is the standard deviation. Both are used to compute the appropriate confidence interval. We chose the following confidence level:

$$[(\bar{z}_r) - 1.96 * SE(\bar{z}_r); (\bar{z}_r) + 1.96 * SE(\bar{z}_r)] \quad (3)$$

We use the following expression to convert the Fisher's z values (average effect and confidence interval) back to a correlation:

$$\bar{r} = \frac{e^{2\bar{z}} - 1}{e^{2\bar{z}} + 1} \quad (4)$$

The homogeneity of the observed correlations is analyzed by Cochran's Q statistic as shown in:

$$Q = \sum_{i=1}^k w_i (z_{r_i} - \bar{z}_r)^2 \quad (5)$$

Homogeneous correlations imply that the Q statistic follows Pearson's χ^2 distribution with $k - 1$ degree of freedom. If the calculated value exceeds the tabulated one for the specified level of significance, homogeneous correlations do not exist. Furthermore, we measure the level of heterogeneity according to the Higgins and Thompson I^2 statistic:

$$I^2 = \frac{Q - (k - 1)}{Q} \quad (6)$$

The full sample is divided into different sub-samples according to the values of the discrete variables to test the significance of our included moderating effects. The approach described above is then applied to each sub-sample to analyze differences in the impact of board composition variables on CSR reporting between groups identified using the moderating variables shareholder rights, legal enforcement, and code law.