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Which internal corporate governance mechanisms drive corporate sustainability?

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STRUCTURED ABSTRACT

Design: /methodology/approach: This study conducts a systematic review to analyze the relationship between corporate governance and corporate sustainability.
Purpose: As enterprises are directed through corporate governance, the integration of corporate sustainability is a necessary step to secure long-term firm success and react to recent social and environmental developments. Against this background, this paper investigates the following research question: Which internal corporate governance mechanisms drive corporate sustainability?
Findings: The results gained from a sample of 56 articles show findings for different internal corporate governance mechanisms such as board diversity, board independence, the board size, the board-level sustainability committee, the role of the CEO, ownership concentration, and the disclosure and transparency practice, which play a role in guiding a firm in a sustainable direction and achieving sustainability integration. The role of board diversity is discussed the most throughout the literature.
Practical implications: The results suggest that boards should be designed diversely and independently while having an appropriate size to work effectively. Furthermore, the sustainability strategies of CEOs should be motivated by incentives. Nevertheless, there has to be a consideration of the interrelations of the investigated mechanisms.
Social implications: The results suggest that being more transparent and showing non-financial performance at least compliant to sustainability regulations increases the orientation on stakeholder interests and long-term focus.
Originality/value: The paper systemizes the research field related to internal corporate governance mechanisms and corporate sustainability to give an overview of the current research landscape and discuss the identified drivers. Overall, this research comprehensively sketches of what is known and unknown about the questions addressed in the systematic review.

Credit author statement

Paul Ludwig: Methodology, Formal analysis, Investigation, Data curation, Visualization, Writing – original draft preparation. Remmer Sassen: Conceptualization, Methodology, Project administration, Supervision, Writing- Reviewing and Editing.

1. Introduction

The corporate governance definition of the *Cadbury Committee* highlights value creation while stakeholders receive comparatively little attention (Crifo et al., 2019). Nevertheless, sustainable business approaches became more and more popular in recent years, and they decide whether companies will be successful in the long run (Aras and Crowther, 2008). Companies with good governance approach not only minimize the risk of being not successful in the long run by gaining sustainable performance; they additionally improve their financial performance (Munir et al., 2019), are more attractive to investors (Aras and Crowther, 2008; Kohl, 2009) and gain competitive advantages (World Business Council for Sustainable Development, 2012). Corporations influence a significant amount of people of all kinds around the world. Hence, it is crucial to create a corporate governance structure

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that cares about stakeholders as much as about shareholder values and enables sustainable development (Aras and Crowther, 2008; UNEPFI, 2014a).

The 1992 United Nations Earth Summit in Rio de Janeiro recognized the importance of sustainability for the world by transforming the concept of sustainable development into an international guideline (Ortiz-de-Mandojana et al., 2016). Since then, many countries have adjusted their national corporate governance codes (OECD, 2019). Different environments, caused by unique cultures, economics, and jurisdictions, leave corporations' immense scope to practice good governance (Aras and Crowther, 2008; OECD, 2019; World Business Council For Sustainable Development, 2019). As stated by the WBSCD, *"it is the responsibility of companies to apply the voluntary standards to promote their own transparent and responsible business practices"* (World Business Council For Sustainable Development, 2019: 9).

To shed more light on the subject of good governance, this paper aims to synthesize the state of research and the options for corporations to practice an integrative sustainability approach in corporate governance. Since external corporate governance mechanisms are derived from the capital markets, the corporations themselves cannot change external mechanisms and internal ones are closely related to management and corporate performance (Dharmastuti and Wahyudi, 2013), we focus on internal corporate governance mechanisms. Hence, this paper serves to answer the following research question: Which internal corporate governance mechanisms drive corporate sustainability?

Numerous scientific studies have investigated the relationship between one or more internal corporate governance mechanisms and corporate sustainability (e.g., Crifo et al., 2019; Kock et al., 2012; Lenssen et al., 2014; Walls et al., 2012; Walls and Hoffman, 2013). Since most of these studies base on various datasets and therefore use different measures, this paper uses a systematic review to analyze and synthesize prior research results. Furthermore, this study presents limitations and contradictions of prior research.

The remainder is structured as follows: Section two elucidates the research background on corporate sustainability and internal corporate governance mechanisms, while section three explains the systematic review methods. The fourth section presents and synthesizes the results, starting with the sample demographics, followed by the findings of the following internal corporate governance mechanisms: board diversity, board independence, board size, board-level sustainability committee, the role of the CEO, ownership concentration, and the disclosure and transparency practice. Section five discusses the results. The last section briefly summarizes the findings, reveals the research limitations, and gives an outlook on future research.

2. Research background on corporate sustainability and internal corporate governance mechanisms

The concept of corporate sustainability bases usually on the economic, environmental, and social pillars of sustainability (Wilson, 2003). While the environmental pillar focuses on sustaining natural capital in the global ecosystem, the social pillar seeks to create equality of opportunities and fulfill the current and future generations' basic human needs. The economic pillar includes long-term value creation. The most commonly used definition of sustainable development can be found in the Brundtland-report by the *World Commission on Environment and Development*. By this definition, *"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs"* (Brundtland, 1987: 41). On the one hand, this understanding considers the importance of being able to respond to short-term needs; on the other hand, it points to the fact that resources can just be used on a regenerable scale not to compromise the ability to meet needs in the future (Aras and Crowther, 2008; Bansal and DesJardine, 2015). With the focus set on time and intergenerational equity, sustainable engaging enterprises focus on long-term value creation instead of short-term monetary success (Bansal and DesJardine,

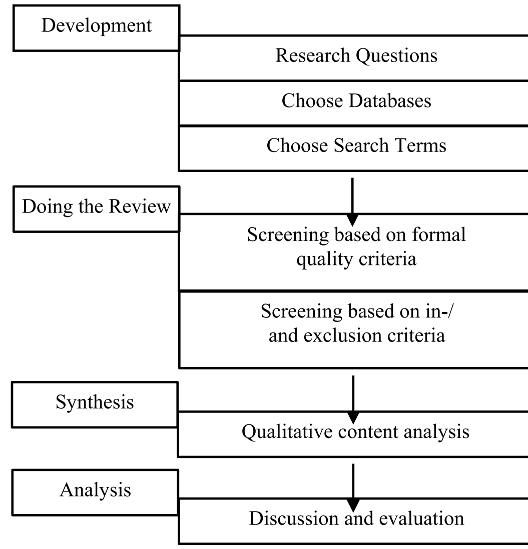

Fig. 1. Process of systematic literature research.

2015).

Sustainable firms should furthermore address their operations and be transparent in all three pillars of sustainability. While the importance of financial success is undoubted, the interaction between financial, social, and environmental management is significant (Aras and Crowther, 2008). Critical to sustainability is that while acting in stakeholders' interests, corporations act based on sustainable development principles (Bansal and DesJardine, 2015). This approach argues why firms should consider sustainability topics in their business strategies, management, and performance measurement. Furthermore, a sustainable corporation must align its stakeholders' interests with its long-term goals (World Business Council For Sustainable Development, 2019).

To support effective sustainability management, it is necessary to implement effective internal corporate governance mechanisms, which influence the intra-corporation organization. More specifically, the board, capital and incentive structures, ownership concentration, and transparency of disclosure can be defined as internal corporate governance mechanisms (Kohl, 2009). Due to the interdependency with the external mechanisms and the dependency on the place of business, internal governance mechanisms can also be found dependent on factors like country and culture. However, independent from the jurisdiction, the board of directors always has to lead the company and set the strategic goals to ensure its long-term success and survival (Cadbury, 1992; World Business Council For Sustainable Development, 2019). The quality of corporate governance strategies and mechanisms is critical in guiding a company towards a successful future. Just if being understood and implemented effectively, a focus on ethical business practices, wide-ranging enterprise risk management systems, and long-term value creation can be achieved (World Business Council For Sustainable Development, 2019). Implementing target-oriented internal corporate governance mechanisms such as board diversity, board independence, the board size, the board-level sustainability committee, the role of the CEO, ownership concentration, and the disclosure and transparency practice enables firms to implement target-oriented sustainability measures.

3. Methodology

3.1. Methodological approach

This paper uses a systematic review as a method. This approach is based on scientific replicability and searches, selects, synthesizes, and analyses the relevant scientific literature in an explicit and reproducible

Table 1
Search string.

(governance OR ownership OR manage* OR *board* OR shareholder OR CEO OR leader* OR director)
AND (sustainab* OR environ* OR integration) **AND** ("stakeholder theory" OR "agency theory")

way. As a result, it enables the summary and conclusion of the research topic's current knowledge (Fink, 2020). To guarantee integrity, this paper is orientated on Fink's approach (2020) (Fig. 1).

A precisely formulated research question (see introduction) effectively summarizes the research goals (Fink, 2020). It is the basis for the following systematic review, as it brings the benefit of containing the keywords needed for the search (Fink, 2020). To answer the research question and start the systematic literature review, it is necessary to choose databases, which allow the detailed search of academic journals and provide the basis for scientific examinations. This paper is based on five databases to prevent the search from being biased by specific search approaches. Following Fink (2020), the multidisciplinary database *Web of Science Core Collection* is used. Furthermore, this study uses the *EBSCOhost* database that is based on several sub-databases. Hence, *Academic Search Elite, Business Source Complete, EconLit*, and *GreenFile* are considered relevant for the research topic.

To start searching in the databases, the search terms must be defined. With Boolean operators' help, the identified keywords are combined into one search string (Fink, 2020). To enable the search to find all variables of words, the method of truncation is used. In this approach, a "*" is used to replace an unlimited number of letters (Table 1). To create the search string, the two keywords *governance* and *sustainability* are derived from the research question. These search terms are extended with synonyms to enable the search to find relevant studies. Subsequently, the descriptors identified are compared with the search terms of articles searched to get a first overview of the topic (Fink, 2020).

To restrict the search to those publications relevant to answer the research question, the *Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA)* guidelines (Moher et al., 2009) provide aid finding including and excluding criteria. The approach of this process is illustrated in Fig. 2. As English is the most used academic language, the search is restricted to publications written in English. Since *Web of Science,* in contrast to *EBSCOhost*, does not provide the possibility to limit the search to peer-reviewed journals and the number of hits in *EBSCOhost* in this search does not depend on the usage of this filter, this option is not used. Hence, the search is restricted to only academic journals and

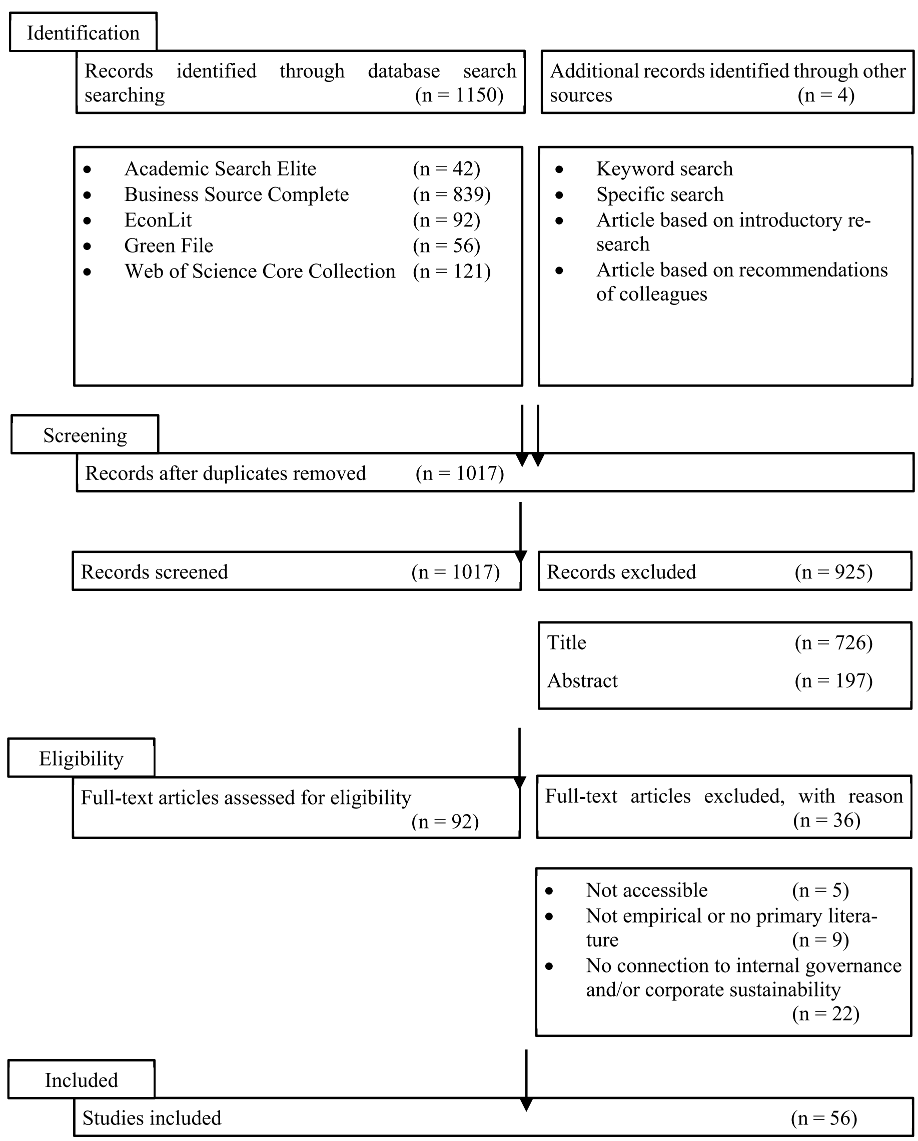

Fig. 2. Process of a systematic literature review.

Table 2
Included publications.

Author and Year	Journal
Akbas (2016)	South East European Journal of Economics and Business
Al-Shaer & Zaman (2019)	Journal of Business Ethics
Alipour et al. (2019)	Corporate Governance
Ben-Amar et al. (2017)	Journal of Business Ethics
Ben-Amar and McIlkenny, 2015	Business Strategy & the Environment
Berrone & Gomez-Mejia (2009)	Academy of Management Journal
Bravo and Reguera-Alvarado, 2019	Business Strategy & the Environment
Calza et al. (2016)	Business Strategy & the Environment
Chinta (2017)	Journal of Business Inquiry
Choi et al. (2015)	Social Behavior and Personality
Cordeiro & Sarkis (2008)	Business Strategy & the Environment
Cordeiro et al. (2020)	Business Strategy & the Environment
Crifo et al. (2019)	Journal of Business Ethics
Cucari et al. (2018)	Corporate Social Responsibility & Environmental Management
Daddi et al. (2019)	Business Strategy & the Environment
Dixon-Fowler et al. (2017)	Journal of Business Ethics
Elmagrhi et al. (2019)	Business Strategy & the Environment
Endrikat et al. (2020)	Business & Society
Enric Ricart et al., 2005	Corporate Governance
Fernandez-Feijoo et al. (2014)	Corporate Social Responsibility & Environmental Management
Ferrero-Ferrero et al., 2015	Corporate Social Responsibility & Environmental Management
Francoeur et al. (2017)	Journal of Business Ethics
Galbreath (2018)	Business Strategy & the Environment
García-Sánchez et al., 2018	Australian Accounting Review
Goktan (2014)	Journal of Business Economics & Management
Hahn & Scheermesser (2006)	Corporate Social Responsibility & Environmental Management
Helfaya & Moussa (2017)	Business Strategy & the Environment
Herda et al. (2012)	Issues in Social & Environmental Accounting
Hoppmann et al. (2019)	Academy of Management Journal
Huang (2013)	Corporate Social Responsibility & Environmental Management
Hussain et al. (2018)	Journal of Business Ethics
Jiraporn et al. (2019)	Human Resource Management
Jizi (2017)	Business Strategy & the Environment
Joseph et al. (2019)	Business Strategy & the Environment
Klettner et al. (2014)	Journal of Business Ethics
Kock et al. (2012)	Journal of Management Studies
Kujala (2010)	Business Ethics: A European Review
Lau et al. (2016)	Journal of Business Ethics
Lee (2009)	Business & Society Review
Lenciu (2012)	Annals of the University of Oradea, Economic Science Series
Macaulay et al. (2018)	Journal of Business Ethics
Michelon & Parbonetti (2012)	Journal of Management and Governance
Mudiyanselag (2018)	Corporate Governance
Nadeem et al. (2020)	Business Strategy & the Environment
Oh et al. (2018)	Journal of Management
Orazalin (2020)	Business Strategy & the Environment
Ortiz-de-Mandojana et al., 2019	British Journal of Management
Peters & Romi (2014)	Journal of Business Ethics
Pucheta-Martínez et al. (2019)	Sustainable Development
Schaltenbrand et al. (2018)	Journal of Business Ethics
Shamil et al. (2014)	Asian Review of Accounting
Shaukat et al. (2016)	Journal of Business Ethics
Uwuigbe et al. (2011)	Acta Universitatis Danubius: Oeconomica
Viana Junior and Crisóstomo, 2019	Revista Brasileira de Gestão de Negócios
Walls & Hoffman (2013)	Journal of Organizational Behavior
Walls et al. (2012)	Strategic Management Journal

articles. In 1992, the *Cadbury Committee's* (1992) first definition of corporate governance became popular (Crifo et al., 2019), and the *United Nations Earth Summit* in Rio de Janeiro took place. As these events shaped the perception of the relationship between corporate governance and sustainable development, all articles published before 1992 are excluded. This paper's search results are based on the search from June 16, 2020, and score 1150 hits. To ensure not to exclude relevant literature, a supplementing second search is conducted and enables the finding of four additional publications. This search is based on a keyword search in the *GOOGLE Scholar* database and recommendations by colleagues.

Following this, duplications are removed, leaving 1014 publications. In the fundamental step of systematically searching relevant publications, first the title and second, the abstract is reviewed based on in- and exclusion criteria. All empirical articles describing the relationship between one or more internal corporate governance mechanisms and corporate sustainability are considered relevant. Articles that do not meet the search restrictions or are not accessible are excluded. As a result, 726 hits are excluded by title selection and an additional 197 after examining the abstracts. In the following step, the full text of the 92 articles left is checked for eligibility. Consequently, another 36 articles are excluded, leaving 56 publications for the analysis (Table 2).

3.2. Data evaluation

The analysis grid plays another fundamental part in a systematic literature review as it enables a standardized process of collecting data. It can be seen as the basis for evaluating the literature that is eligible for review. Additionally, it promotes consistency and reproducibility and provides the structure to answer the research question by categorizing the collected information (Fink, 2020). Each category is aimed to answer the research question; categories not providing information for reaching the study goal are not considered. Fig. 3 shows that this paper's analysis grid is based on categories directly deduced from the research question. Further sub-categories are deduced from the researched material. The process of categorizing the data is done with the help of the *MAXQDA* software, which enables the structured and computer-assisted content analysis of data, text, and multimedia. The categories are arranged in a general and a specific group (Fig. 3).

The general category group consists of three categories: *year of publishing, researched period, and sample size*. The specific categories consist of *internal governance mechanisms, pillar of sustainability, place of study,* and *used theory*. The two categories *year of publishing* and *researched period* enable examining the actuality of the research and scientific interest. The *sample size* category enables the illustration of the mean sample size used and the identification of outliers. For the category of *internal governance mechanisms*, several sub-categories are deduced. This category identifies the mechanisms discussed the most and the argumentation of different points of view on each mechanism. Finally, the two categories *pillar of sustainability* and *used theory* are used to work out the theoretical framework of the researched publications.

4. Results

4.1. Sample demographics

Fig. 4 shows the studies published between 1992 and 2020 and indicates a strong trend toward more studies being published in more recent years. The first study was published only in 2005; the latest study considered was published in 2020. The number of studies was considerably low until the 2010s when it started to increase noticeably.

Fig. 5 shows the spread of studies over all continents. Most studies (37 out of 56) are of American or European origin.

The following sections present the results of the categories board diversity (24 studies), board independence (18 studies), board size (10 studies), board-level sustainability committee (12 studies), CEO and incentive structure (seven studies), ownership concentration (eight) and capital structure (two studies), and disclosure and transparency (two studies).

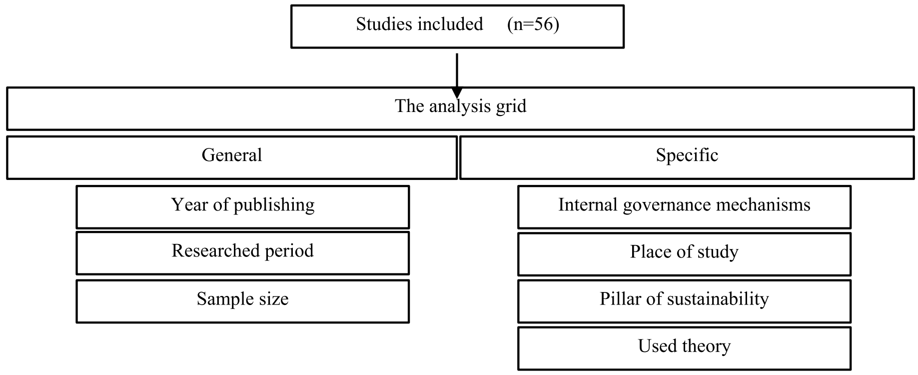

Fig. 3. Analysis grid.

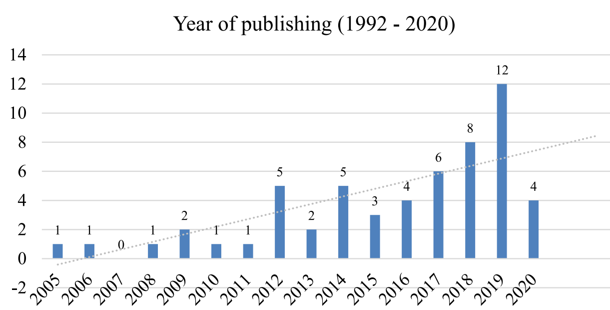

Fig. 4. Years of publishing.

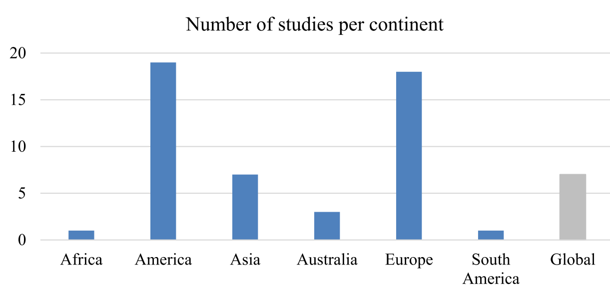

Fig. 5. Number of studies per continent.

4.2. Board diversity

For the Board of Directors, the four sub-categories, board diversity, board independence, the board size, and the board-level sustainability committee, can be identified in the literature (Endrikat et al., 2020). Distinguished into five diversity factors, the category of board diversity is the most discussed within the reviewed literature (24 of 56 articles). Table 3 shows that gender diversity is the most popular diversity factor, discussed in 19 of 24 studies. Fourteen out of 19 articles show a positive relationship between gender diversity in the board of directors and sustainable issues. Five studies indicate a neutral relation, and only three studies present a negative relation between board gender diversity and corporate sustainability. The positive perception of the relation is reasoned by board gender diversity's consideration of several sustainability issues and perspective gain. Ben-Amar et al. (2017) indicate the necessity of at least two, Fernandez-Feijoo et al. (2014) of at least three women on board to relate positively. Cordeiro et al. (2020) underline this result by stating that CSR's environmental level is dependent on the number of women on the board of directors. An increasing level of CSR-related issues caused by women on boards is described seven times throughout the analyzed articles.

Furthermore, environmental performance, stakeholder engagement, socially responsible orientation, and transparency growth are based on increasing gender diversity in the board of directors. However, Cucari et al. (2018) and Shamil et al. (2014) found a negative relation between gender diversity and sustainability factors. The articles stating a neutral relationship describe the environmental performance and the extent of the environmental disclosure as independent from board gender diversity. The second most discussed diversity factor is experience. Sustainability experiences and the education of directors have a positive relation to consumer focus and performance.

Furthermore, the boards' age and LGBT politics are seen as a positive factor for the boards' contribution to sustainability. These factors are found to be related to a gain in environmental performance, an increase in environmental strategies, and the likeability of establishing a specialized sustainability committee (Elmagrhi et al., 2019; Jiraporn et al., 2019).

4.3. Board independence

Board independence is the category discussed the second most, with 18 out of 56 articles analyzing the relationship between the boards' independence and sustainability (Table 4). Board independence can be measured by the ratio between dependent directors and independent outside directors (Akbas, 2016). Out of the 18 articles, ten concentrated on the board independence in general and 11 on the directors' independence. For both groups, the positive relation to sustainability is dominant. Especially the positive relationship between a more independent board and CSR as well as transparency is noticeable and stated the most in the literature concerning this topic.

Furthermore, an increase in performance, environmental leadership, LGBT-friendly policies, and female directors' effect on corporate social performance (Macaulay et al., 2018) can be found while analyzing the relationship between the boards' independence and sustainability. However, Walls et al. (2012) found a negative relation to environmental performance and Crifo et al. (2019) to sectoral leadership. Contrary to the positive findings of increasing transparency, Akbas (2016) did not find any relation between boards' independence and the extent of environmental disclosure. Pucheta-Martínez et al. (2019) undermines this by stating that CSR disclosure is neutral about board independence.

4.4. Board size

Board size is part of 10 of the articles reviewed in this paper. With eight of 10 articles finding a positive relationship between board size and sustainability, the negative findings are outnumbered in this category also (Table 5).

The three significant findings stated as the outcome of a positive relationship with sustainability are enhanced disclosures and transparencies and increasing CSR. Furthermore, diversity, and hence the

Table 3
Board diversity.

Author	Diversity Factor	Positive	Negative	Neutral	Impact on/Description
Akbas (2016)	gender			x	the extent of environmental disclosure
Ben-Amar et al. (2017)	gender	x			voluntary climate change disclosure
Ben-Amar et al. (2017)	gender	x			awareness about environmental issues
Ben-Amar et al. (2017)	gender	x			adaption of proactive strategies to respond to stakeholder demands
Ben-Amar et al. (2017)	gender	x			presence of **at least two** female directors increases the propensity of firms to respond to the CDP annual questionnaire
Ben-Amar et al. (2017)	gender			x	presence of less than two female directors - > no impact on climate change disclosure
Chinta (2017)	gender	x			more women on boards - > greener practices at the firm level
Cordeiro et al. (2020)	gender	x	x		% of female directors - > level of environmental CSR
Cordeiro et al. (2020)	gender	x			more socially responsible orientation - > environmental performance
Cucari et al. (2018)	gender		x		ESG disclosure
Elmagrhi et al. (2019)	gender	x			environmental performance
Elmagrhi et al. (2019)	age	x			environmental performance, implementation, disclosure of good environmental strategies
Endrikat et al. (2020)	gender	x			CSR
Fernandez-Feijoo et al., (2014)	gender	x			CSR, if at least three women are on board
Fernandez-Feijoo et al., (2014)	gender	x			moderates masculine cultural characteristics effect
Ferrero-Ferrero et al. (2015)	gender	x			CSR management quality
Ferrero-Ferrero et al. (2015)	gender	x			engagement with stakeholders
Ferrero-Ferrero et al. (2015)	gender	x			integration of financial and extra-financial factors in the management discussion
Ferrero-Ferrero et al. (2015)	gender	x			information resources, viewpoints
Galbreath (2018)	gender	x			economic viability
Galbreath (2018)	gender	x			environmental integrity
Galbreath (2018)	gender	x			social responsiveness
García-Sánchez et al. (2018)	gender	x			CSR
García-Sánchez et al. (2018)	gender	x			enhances the social dimension of sustainability
Hussain et al. (2018)	gender			x	environmental performance
Jiraporn et al. (2019)	LGBT	x			firm performance
Jiraporn et al. (2019)	LGBT	x			probability of having CSR committee
Jizi (2017)	gender	x			CSR
Lau et al. (2016)	gender			x	CSR
Lau et al. (2016)	experience	x			CSR
Lau et al. (2016)	nationality			x	CSR
Macaulay et al., 2018b	gender	x			CSR
Michelon & Parbonetti (2012)	general composition			x	Sustainability disclosure
Mudiyanselag (2018)	gender	x			Sustainability disclosure
Nadeem et al. (2020)	gender	x			stakeholder value
Nadeem et al. (2020)	gender			x	social and economic value creation in family
Nadeem et al. (2020)	gender	x			legitimacy
Pucheta-Martínez et al. (2019)	gender	x			CSR reporting
Schaltenbrand et al. (2018)	Experience	x			Consumer focus
Shamil et al. (2014)	gender		x		sustainability reporting
Walls & Hoffman (2013)	experience	x			to deviate from normative environmental standards
Walls et al. (2012)	general diversity	x			environmental performance

benefits and problems of diversity, are found to increase board size. However, Walls et al. (2012) and Uwuigbe et al. (2011) find a negative relation between a growing board size and sustainability. They argue that a growing board comes with decreasing environmental performance caused by similarly decreasing monitoring effectiveness.

4.5. Board level sustainability committee

Twelve out of 56 publications reviewed are concerned with the relation between Board-level Sustainability Committee and corporate sustainability. All 12 articles found a positive relationship (Table 6), highlighting the importance of this category. Especially, growing transparency, environmental performance, corporate social responsibility, and social performance are found as positive outcomes. Furthermore, Dixon-Fowler et al. (2017) found environmental weakness positively associated with board environmental committees and classified the relationship between a sustainability committee and environmental performance as neutral.

4.6. CEO and incentive structure

Another category of corporate governance mechanisms includes the relation between CEOs/incentive structures and corporate sustainability. The role of the CEO on corporate sustainability is examined with the focus set on different factors. Huang (2013) studied the impact of CEO characteristics on corporate sustainable development and found a correlation between firms' CSR performances and the CEO's educational specialization in Master of Science and Master of Business Administration degrees. Furthermore, gender and tenure are diversity factors found to correlate with firms' CSR performances. Nationality, age, and other educational specializations were not found to be correlated with CSR performances (Huang, 2013). Ortiz-de-Mandojana et al. (2019) concentrated on the CEO's time perspective. They found a relation between short-term compensation and higher environmentally responsible

Table 4
Board independence.

Author	Instance	Positive	Negative	Neutral	Impact on/Description
Akbas (2016)	board			X	extent of environmental disclosure
Akbas (2016)	directors			X	environmental disclosure
Alipour et al. (2019)	board	x			relationship EDQ and performance
Ben-Amar et al. (2017)	directors	x			Carbon Disclosure Project
Crifo et al. (2019)	directors	x			Performance
Crifo et al. (2019)	inside directors	x			environmental leadership
Crifo et al. (2019)	external directors		x		sectoral leadership
Cucari et al. (2018)	directors	x			transparency, voluntary disclosure
Cucari et al. (2018)	directors	x			shareholder and stakeholder interest with consideration of CSR disclosure
Endrikat et al. (2020)	board	x			CSR
García-Sánchez et al. (2018)	board	x			CSR strategy
Herda et al. (2012)	board	x			report quality
Herda et al. (2012)	board	x			sustainability reporting decisions
Hussain et al. (2018)	directors	x			environmental and social performance
Jiraporn et al., 2019b	board	x			LGBT supportive policies
Jizi (2017)	board	x			CSR disclosure
Jizi (2017)	directors	x			good citizenship, promoting CSR agenda
Lau et al. (2016)	external directors			x	change in the board
Macaulay et al. (2018)	external directors	x			effect of female directors on corporate social performance
Michelon & Parbonetti (2012)	directors	(x)			positively associated with disclosure if community influential
Mudiyanselag (2018)	board	x			sustainability disclosure
Pucheta-Martínez et al. (2019)	inside directors			x	CSR disclosure
Pucheta-Martínez et al. (2019)	directors	x			CSR disclosure
Walls & Hoffman (2013)	board			x	general
Walls et al. (2012)	board		x		environmental performance
Walls et al. (2012)	board	x			financial performance

Table 5
Board size.

Author	Positive	Negative	Neutral	Impact on/Description
Akbas (2016)	X			environmental disclosure
Ben-Amar et al. (2017)	X			voluntary disclosure of climate change strategies
Endrikat et al. (2020)	X			CSR
Lenciu (2012)	X			transparency
Lenciu (2012)	X			environmental disclosure
Jizi (2017)	X			CSR agenda, disclosure
Lau et al. (2016)	X			CSR performance
Lau et al. (2016)	X			higher diversity
Mudiyanselag (2018)	X			sustainability disclosure
Shamil et al. (2014)	X			sustainability reporting
Uwuigbe et al. (2011)		x		corporate environmental disclosure
Walls et al. (2012)		x		environmental performance

technologies. Future time perspective is found to be dependent on the career perspectives, with shorter perspectives being positively associated with environmentally responsible decisions. Several studies examined the influence of CEO independence. Walls et al. (2012) imply that CEO duality is positively associated with the emphasis of environmental goals if the board is not independent. Pucheta-Martínez et al. (2019) suggest that CEO duality affects CSR negatively. Furthermore, Ben-Amar et al. (2017) found CEO duality negatively related to board gender diversity.

Another impacting factor explicitly studied in the literature is the incentive structure. Table 7 shows seven studies with four studies finding positive, three neutral, and two negative correlations. Incentive structures aim to motivate CEOs to lead an enterprise in specific directions. Berrone and Gomez-Mejia (2009) identified economic incentives as the reasons for CEOs to follow environmental strategies. CEO total pay was found to be positively related to pollution prevention performance, end of pipe pollution, and green management practices (Berrone and Gomez-Mejia, 2009; Goktan, 2014). Furthermore, long-term compensation strategies are found to promote CSR (Oh et al., 2018). While Cordeiro and Sarkis (2008) did not find any interrelation between CEO compensation and performance, Walls et al. (2012) found a negative correlation for these variables. Bonus payments are not found to be related to green management practices (Goktan, 2014).

4.7. *Ownership concentration and capital structure*

Eight articles concentrated on ownership concentration (Table 8) and two on capital structure (Table 9).

While Orazalin (2020) found a positive relationship between capital structure and sustainability, explicitly the positive impact of capital intensity on environmental performance and financial capacity on corporate sustainability performance, Shaukat et al. (2016) could only identify the independent relationship between social performance and capital expenditure.

The relation between ownership concentration and corporate sustainability aspects is discussed more thoroughly in the literature, categorized in block holder ownership, CEO ownership, concentrated ownership, voting ownership, long-term and short-term institutional investors, public corporations, state ownership, and top management stock ownership. Block holder ownership is found to be negatively correlated to firms' environmental performances and the CSR orientation (Oh et al., 2018; Shaukat et al., 2016). On the other hand, CEO ownership is found to be positively related to renewable energy generation and long-term orientation (Ortiz-de-Mandojana et al., 2016). Ownership concentration is stated to be positively associated to disclosure and negatively to CSR. Furthermore, it is presented to be restrictive to the freedom of pursuing environmental activities more extensively than compliance demands (Viana Junior and Crisóstomo, 2019; Walls et al., 2012).

Additionally, Viana Junior and Crisóstomo (2019) found a positive correlation between voting ownership and voluntary disclosure. While Calza et al. (2016) found long-term institutional investors to have no impact on environmental proactivity, they identified short-term institutional investors as negatively associated with environmental proactivity. Both public corporations and state ownership are found to be positively associated with corporate sustainability. Public corporations are said to have a positive conductivity to environmentally responsible

Table 6
Board level sustainability committee.

Author	Committee	Positive	Negative	Neutral	Impact on/Description
Al-Shaer & Zaman (2019)	Sustainability	x			sustainability terms in compensation contracts of CEO
Cucari et al. (2018)	environmental	x			ESG disclosure
Daddi et al. (2019)	manager	x			environmental performance
Dixon-Fowler et al. (2017)	environmental	x			environmental strengths
Dixon-Fowler et al. (2017)	sustainability manager	x			prediction of proactive environmental performance
Dixon-Fowler et al. (2017)	environmental	x			environmental weakness
Dixon-Fowler et al. (2017)	environmental			x	environmental performance
Endrikat et al. (2020)	CSR	x			CSR
Helfaya & Moussa (2017)	CSR	x			Corporate environmental sustainability disclosure
Hussain et al. (2018)	CSR	x			environmental and social performance
Lenciu (2012)	environmental, safety or responsibility	x			disclosure more environmental information
Michelon & Parbonetti (2012)	CSR	x			disclosure
Orazalin (2020)	sustainability	x			CSR strategy
Orazalin (2020)	sustainability	x			environmental and social performance based on effective CSR strategy
Peters & Romi (2014)	environmental	x			decision to disclosure of GHG emission accounting
Walls et al. (2012)	environmental	x			environmental strengths
Walls et al. (2012)	environmental	x			environmental concerns

Table 7
Incentive structures.

Author	Incentive	Positive	Negative	Neutral	Impact on/Description
Berrone & Gomez-Mejia (2009)	CEO total pay	x			pollution prevention and end of pipe pollution control - > positive and significant effect on CEO total pay
Berrone & Gomez-Mejia (2009)	CEO total pay	x			positive effect of CEO long term pays on pollution prevention performance
Berrone & Gomez-Mejia (2009)	general	x			encourage to deploy efforts and resources toward environmental initiatives, accountability, monitoring of environmental behavior
Cordeiro & Sarkis (2008)	CEO compensation			x	environmental performance
Francoeur et al. (2017)	CEO compensation		x		higher environmental commitment, less incentive and total based compensation
Goktan (2014)	CEO bonus			x	green management practices
Goktan (2014)	CEO pay	x			green management practices
Oh et al. (2018)	incentive pay			x	CSR, if CEO owns substantial number of shares
Oh et al. (2018)	long-term incentive compensation	x			CSR promotion, if more outside directors, less effective if block holders existing or management ownership of many shares
Ortiz-de-Mandojana et al., 2019	Short-term compensation	x			Relation to higher environmentally responsible technologies
Walls et al. (2012)	CEO salaries		x		environmental action
Walls et al. (2012)	low salary	x			better environmental performance

behavior (Lee, 2009). State ownership is found to promote environmental proactivity, CSR, and carbon disclosure stores (Calza et al., 2016; Lau et al., 2016). Regarding the top management stock ownership, Oh et al. (2018) found a negative association with board independence.

4.8. Disclosure and transparency

The gain in disclosure and transparency is mentioned numerous times as a positive, sustainable outcome and hence as a part of corporate sustainability. However, only two articles discuss the relationship between this category and corporate sustainability (Table 10). Only positive outcomes are found concerning this relationship. Peters and Romi (2014) state that firms that disclosed their greenhouse gas information before are likely to disclose it in the future. Hence, they indicate a positive relation between past disclosure and future disclosure decisions. Furthermore, Alipour et al. (2019) describe an increasing market and financial performance due to transparency and non-financial disclosure.

5. Discussion

This study analyzed the relationship between corporate governance and corporate sustainability and systemized findings on the relation between internal corporate governance mechanisms and increasing and integrating corporate sustainability. There is a strong trend toward more studies being published in recent years, which shows increasing interest. The distribution of studies per continent shows that America, Asia, and Europe are represented the most.

Out of all internal corporate governance mechanisms, the board of directors is discussed the most throughout the literature. The board has a vital role in integrating corporate sustainability into corporate governance (UNEPFI, 2014). As the most examined board factor, board diversity positively correlated with social and environmental influence, reporting, and performance. Especially gender diversity and experience are found to have a relationship to these topics. Hence, it can be recommendable to increase the number of experienced female directors on boards to gain perspective and increase social and environmental performance levels as well as reporting, as a higher number of female directors on board is found to increase these effects (Ben-Amar et al., 2017; Fernandez-Feijoo et al., 2014). Board independence plays an additional role in increasing board sustainability. It enables a greater stakeholder connection through CSR channels, increases transparency, and prevents the board's interest from being concentrated solely on financial growth. Another aspect identified as influential is board size. Board size is found to be positively associated to board diversity and independence since a bigger number of directors can be part of a larger board. However, Walls et al. (2012) and Uwuigbe et al. (2011) state that bigger boards may be less effective. The most critical part of a board is integrating corporate sustainability in a board-level sustainability committee (UNEPFI, 2014). The literature underlines these ideas and

Table 8
Ownership structures.

Author	Ownership	Positive	Negative	Neutral	Impact on/Description
Calza et al. (2016)	state ownership	x			carbon disclosure score/environmental proactivity
Calza et al. (2016)	long term institutional investors			x	environmental proactivity
Calza et al. (2016)	short term institutional investors			x	environmental proactivity
Lee (2009)	public corporations	x			conductivity to environmentally responsible behavior
Lee (2009)	public corporations	x			investors considering socially and environmentally topics use their leverage to pressure corporations
Lau et al. (2016)	state ownership	x			CSR
Lau et al. (2016)	concentration		x		CSR
Oh et al. (2018)	block holder		x		incentive compensation does not further contribute to promoting CSR
Oh et al. (2018)	Top Management Stock ownership		x		no promotion if high level of board independence, hence low level of board independence
Ortiz-de-Mandojana et al., 2019	CEO	x			renewable energy generation
Ortiz-de-Mandojana et al., 2019	CEO	x			identification with firm, more stable and long relationship with firm, future time perspective
Shaukat et al. (2016)	block holder		x		environmental performance
Shaukat et al. (2016)	Block holder		x		board CSR orientation
Viana Junior and Crisóstomo, 2019	concentration	x			disclosure of social and environmental actions
Viana Junior and Crisóstomo, 2019	higher voting ownership	x			voluntarily disclosure social and environmental information
Viana Junior and Crisóstomo, 2019	concentration	x			degree of disclosure of social and environmental information in financial reports
Walls et al. (2012)	concentration		x		freedom

Table 9
Capital structures.

Author	Capital	Positive	Negative	Neutral	Impact on/ Description
Orazalin (2020)	capital intensity	x			environmental performance
Orazalin (2020)	financial capacity	x			corporate sustainability performance
Shaukat et al. (2016)	capital expenditure			x	social performance

identifies growing transparency, better performance, and an increase in CSR focus due to such committees' implementation. The results indicate that an appropriately sized board with a more independent and diverse board design plays an essential role in leading corporate commitments in a responsible direction.

While the literature discusses the influence of incentive structures, there is a lack of research concerning CEOs' influence on corporate sustainability. This topic is only partly considered in several studies. Within these studies, CEO duality is the factor identified as the most critical since CEO duality favors less independent boards (Walls et al., 2012) and hence leads to less diversity (Ben-Amar et al., 2017). Berrone and Gomez-Mejia (2009) identify incentive structures as the only reason for CEOs, not based on morals or norms, to steer enterprises in a sustainable direction. Furthermore, CEO-ownership is found to enhance the CEO's and hence a firm's long-term focus, creating a more sustainable perspective, as sustainable development is based on future orientation.

Regarding the ownership structures of corporations, block holder structures can be identified as the most critical since they are found to be negatively related to the top management teams' perspective on CSR orientation (Oh et al., 2018; Shaukat et al., 2016). Both state and public ownership have a positive interest in corporate sustainability. While firms with state ownership are more focused on social and environmental stakeholders' interests, publicly owned companies have a stronger orientation towards economic interests. Compared to ownership structures, capital structures are not discussed much, leaving a lack of information on this relationship.

Transparency and disclosure are not discussed much either. Mostly they are considered as a sustainable outcome of other corporate governance mechanisms. However, the results indicate that better reporting and transparency lead to better market and financial performance (Alipour et al., 2019), based on a closer linkage to stakeholders' interest in non-financial performances.

Overall, all studies' results are mostly consistent, with just a small number of studies in all categories presenting contradictive findings.

6. Conclusion

The findings suggest several courses of action to integrate corporate sustainability into corporate governance and achieve sustainable strategies. First, the board of directors must be appropriately sized and organized more independently and diverse to gain a sustainable perspective, stakeholder communication, stakeholder orientation, and increased social and environmental performance. Second, motivating CEOs with the help of incentive structures and making them part of the ownership structure and therefore connecting the firms' and CEOs' interests can integrate sustainability ideas at the top management level. Third, the ownership structure of corporations should avoid block holder ownership to minimize short-term focus. Lastly, being more transparent and showing non-financial performance at least compliant

Table 10
Disclosure and transparency.

Author	Transparency Type	Positive	Negative	Neutral	Impact on/Description
Alipour et al. (2019)	general transparency	x			market and financial performance
Alipour et al. (2019)	non-financial disclosure	x			market and financial performance
Peters & Romi (2014)	GHG disclosure	x			firms with environmental governance mechanisms

to sustainability regulations increases the orientation on stakeholder interests and long-term focus.

Of course, limitations may have influenced the results obtained. First, this review is limited to data being accessible based on the results found in the databases. Another possible limitation source is the dependency of managers' views on corporate sustainability on the economic situation since the firm's survival will always be the manager's main interest (Kujala, 2010). Furthermore, the results might also depend on external mechanisms and external factors like firm size or sector.

Further studies are needed to estimate the influence of external factors like origin, firm size, or sector on the results found in this review. Furthermore, research on CEOs' direct influence, capital structure, and disclosure and transparency on corporate sustainability's successful integration into corporate governance is needed. Moreover, it would be possible to conduct a meta-analysis of data found on one specific corporate governance mechanism, region, or sector.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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