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# The impact of corporate social responsibility on the financial performance of renewable energy firms

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## ABSTRACT

Tackling environmental pollution and climate change is a global challenge. Therefore, sustainability has become a hugely relevant topic in recent years. In their decision making, investors increasingly consider the non-financial performance of companies such as their social and environmental impact. However, the business research community has not yet reached a consensus regarding the relationship between corporate social responsibility (CSR) and corporate financial performance. This research contributes to the discussion on this relationship. It does so by assessing the impact of the individual dimensions of the environmental, social and governance (ESG) score on the corporate financial performance of renewable energy firms from a quantitative and qualitative perspective. Fuzzy-set qualitative comparative analysis (fsQCA) reveals complex and equifinal configurations that lead companies to record high and low levels of Tobin's Q. The results for a sample of 96 energy companies from the Eikon database do not provide strong enough evidence to affirm that the individual dimensions of the ESG score have a decisive effect on the corporate financial performance of renewable energy firms.

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## 1. Introduction

Curbing environmental pollution and climate change is one of the most important challenges facing humanity (IEA & IRENA, 2017). To tackle such a complex global problem, governments and organisations around the world have established courses of action to create a more sustainable world. In September 2015, the United Nations (UN) approved the 2030 Agenda for Sustainable Development, which contains 17 Sustainable Development Goals and 169 global targets aimed at protecting the lives of people and ensuring a future for the world as we know it (United Nations, 2021).

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Likewise, the Paris agreement has the goal of keeping the global temperature increase below 2 °C (IEA & IRENA, 2017).

In light of this global problem, sustainability has become a hugely relevant concept in recent years (Aggarwal, 2013). It has made environmental and social issues key factors for stakeholders when making decisions (Michelon et al., 2022). Sustainability means ‘meeting the needs of the present generation without compromising the ability of future generations to meet their own needs’ (Brundtland & Khalid, 1987). The concept of sustainability is linked to the concept of corporate social responsibility (CSR). However, it is not the same. There is no universal definition for CSR. However, all scholars agree that CSR refers to the actions of companies that display a responsibility towards society that goes beyond their economic and legal obligations (Van Marrewijk, 2003).

The interests of stakeholders determine the motivations and objectives of companies. Therefore, to generate profits, companies depend on stakeholders’ social acceptance and participation in their actions. CSR practices have been shown to have a positive effect on organisational trust (Duc Tai, 2022). Therefore, companies must not only carry out sustainable actions but also report on them (Herzig & Schaltegger, 2006).

Sustainability information may have an impact on stakeholder decisions (Chalmers et al., 2019). Therefore, in some sense, reporting is part of a participatory governance system that regulates the behaviour of companies (Bebington et al., 2007). CSR practices in company strategies can generate competitive advantages (Porter & Kramer, 2006). Consequently, sustainability reporting has become crucial at the global level (Michelon et al., 2022).

The feasibility of implementing sustainable practices in business strategies is a widely debated topic in academia, economics and politics (Lassala et al., 2021; Payne & Raiborn, 2001). Nevertheless, in business research, there is not yet a consensus regarding the relationship between corporate financial performance (CFP) and CSR (Huang et al., 2020). The question of whether CSR improves CFP is particularly relevant for managers and shareholders, who must decide on the level of resources to allocate to CSR actions (Simpson & Kohers, 2002).

Given the difficulties in explaining the complex relationship between CSR and CFP, studies from new perspectives with innovative methodologies are necessary. The inconclusive results in the literature may be due in part to methodological issues (Marti et al., 2015). Therefore, the present study draws on fuzzy-set qualitative comparative analysis (fsQCA) to establish the complex and equifinal configurations that lead companies to register high and low levels of Tobin’s Q. This paper deals with phenomena that arise in business management and hence in the social sciences. Therefore, it is reasonable to expect the conditions or groups of conditions that affect the outcome to behave in a complex manner (Gligor & Bozkurt, 2020).

This research contributes to the discussion on the relationship between CSR and CFP. It does so by assessing whether the individual dimensions of the environmental, social and governance (ESG) score have different effects on the financial performance of firms. This discussion is important because the weights of the components that make up the overall ESG score may explain differential financial performance

(Lee & Suh, 2022). The sample used for the analysis consisted of 96 energy companies. The data were sourced from the Refinitiv Eikon database (Refinitiv, 2022). The results depended largely on the information provided by the database. The focus in this study was on companies in the energy sector. This choice of focus was based on two aspects. First, previous studies have shown that sector can influence the relationship between CSR and CFP. Hence, research should focus on specific sectors (Baird et al., 2012; Lin et al., 2015). Second, two thirds of greenhouse gases come from the energy sector (IRENA, 2019). Therefore, there is great potential to reduce emissions by using renewable energies and improving energy efficiency (IEA & IRENA, 2017). Hence, this study focuses on a key sector in the fight against climate change, and one that can set an example for other sectors.

## 2. Theoretical framework

The literature does not offer a definitive conclusion regarding the relationship between CSR and CFP (Aggarwal, 2013). There is no standard CSR model, partly because CSR has gradually become a multidisciplinary research area. This situation means that studies are heterogeneous (Belas et al., 2022). The multiple studies in this area suggest that all kinds of relationships are possible. Some have shown a significant relationship (Orlitzky et al., 2003), whereas others have shown that the relationship appears to be non-significant (Surroca et al., 2010). Studies provide evidence that the relationship is neutral, positive, negative (Huang et al., 2020) or even mixed (Aggarwal, 2013). The literature suggests that these differences may be due to various factors such as choice of variables, industry, geographical area, sample characteristics, and methodological and estimation issues (Huang et al., 2020; Surroca et al., 2010).

The literature highlights three research views regarding the causal relationship between CSR and CFP (Surroca et al., 2010). The first view proposes that CSR positively influences CFP. This perspective is mainly based on the fact that responsible management fosters good relations with stakeholders, which has a positive impact on CFP (Waddock & Graves, 1997). Therefore, CSR would represent a set of intangible assets that improve the effective use of resources (Orlitzky et al., 2003). The second perspective is that CFP affects CSR. This idea is mainly based on the fact that companies in a good financial situation are in a better position to allocate resources to actions with a social and environmental impact (Waddock & Graves, 1997) because the financial flexibility of companies facilitates sustainable innovation (Hao et al., 2022). The third position reconciles these first two perspectives by proposing that CSR is both a cause and a consequence of CFP (Surroca et al., 2010). According to this third view, good CFP allows companies to invest resources and improve their CSR practices, while CSR generates benefits that improve CFP (Orlitzky et al., 2003; Waddock & Graves, 1997). Surroca et al. (2010) define the relationship between CSR and CFP as a virtuous cycle in which improvement in one area leads to improvement in the other. They also note that this relationship is indirect and is largely mediated by intangible resources. Therefore, they conclude that the key factor to improve both CSR and CFP is the development of intangible assets such as innovation, human capital, reputation and culture.

The positions that defend a positive relationship between CSP and CFP are mainly based on stakeholder theory (Freeman & Phillips, 2002). According to such positions, companies that invest in CSR establish a better relationship with stakeholders, gaining their goodwill, which creates a set of intangible resources that improve long-term performance (Wang et al., 2016). For example, some studies have reported that CSR can provide work-related positive outcomes such as employees' innovative job performance (Mahmood et al., 2021). Information on a company's sustainability also influences stakeholder decisions (Chalmers et al., 2019). CSR practices can have a positive effect on stakeholders' trust in a company (Duc Tai, 2022). The motivations of stakeholders are decisive because of their considerable financial power. Consequently, they have a major say in corporate behaviour (Waygood, 2011). Therefore, CSR investments that consider the interests of stakeholders can also maximise profitability (Price & Sun, 2017). Better relationships with stakeholders can generate competitive advantages (Surroca et al., 2010).

Another relevant theory is corporate reputation theory. According to this theory, moral reputation capital creates a link between CSR and company value (Godfrey et al., 2009; Wang et al., 2016). This link makes companies with strong CSR reputations perform better in times of crisis than companies with weak CSR reputations (Godfrey et al., 2009). The fact that more and more companies report on CSR in their annual reports or disclose information about their CSR actions reflects the belief that CSR has a positive impact on CFP (Huang et al., 2020). However, the complex nature of the mechanisms involved in the relationships between a company and its stakeholders means that consistently showing the impact of intangible assets on CFP is still a challenge (Surroca et al., 2010).

There are also positions that defend a negative relationship between CSR and CFP. One of these positions is based on the ideas of agency theory (Jensen & Meckling, 1976). According to this position, there are conflicts of interest between agents (management team) and principals (shareholders). Therefore, CSR does not necessarily provide financial benefits. In fact, if carried out under certain conditions, it will create agency costs rather than benefits. These agency costs occur when company managers use CSR investments for their own benefit at the expense of shareholder profits (Wang et al., 2016). Hence, it has been argued that if CSR is limited to temporary practices or is used only to gain reputation or generate self-satisfaction, investments in CSR will have a negative impact on performance instead of generating profits (Zhang et al., 2021). From this perspective, it has been suggested that CSR may represent a form of managerial opportunism (Kim et al., 2012).

Another stream is that of impression management (Michelon et al., 2022). Impression management is defined as the attempt to control and/or manipulate users' impressions of accounting information (Merkl-Davies & Brennan, 2007). Impression management is more common in areas with less regulated reporting, such as CSR and sustainability (Hooghiemstra, 2000). Reports oriented solely at the social and environmental impact of companies are relatively new. However, there is already evidence of impression management in this type of reporting (Michelon et al., 2022). This evidence reveals behaviours that range from omitting to concealing information (Criado-Jiménez et al., 2008). There is evidence that the requirement to disclose

information can lead companies to create facades to deceive stakeholders. Therefore, it has been argued that it is unlikely that sustainability reporting will become an impactful form of disclosure (Cho et al., 2018).

According to other positions, markets do not necessarily understand or reward sustainability or good behaviour. If investors do not see sustainable practices as generating returns beyond their investment horizons, markets may not reward sustainability (Waygood, 2011). This view is supported by the idea that sustainable practices can generate competitive disadvantages with respect to competitors without such practices (Waddock & Graves, 1997) because they incur costs that would not exist if not for socially responsible behaviour (Barnett & Salomon, 2006).

There are also studies that have not identified a meaningful relationship between CSR and CFP. Such a finding can be due to multiple factors. For instance, some positions defend the existence of intangible factors that exert an important mediating influence on the relationship between CSR and CFP (Surroca et al., 2010). The relationship may also be significantly affected by macroeconomic factors. Huang et al. (2020) found that macro-level economic fluctuations have an important influence on the CSR and CFP of firms. However, they are often not considered in studies.

Another argument for the lack of a positive impact of CSR disclosure and sustainability lies in the discrepancies that still exist between the information that stakeholders expect and the information that companies actually provide (Abdo et al., 2018; Bradford et al., 2017; Diouf & Boiral, 2017). Part of the difficulty in ensuring the quality of sustainability and CSR reporting lies in the fact that, by their nature, environmental and social aspects cannot be quantified and presented in terms of costs and benefits (Michelon et al., 2022). Additionally, information disclosure on CSR and sustainability issues might still have a greater impact among professional stakeholders than among non-professionals (Axjonow et al., 2018). Education of actors plays an important role because more educated entrepreneurs display a better knowledge of CSR and its enforcement within a company (Belas et al., 2022).

Among stakeholders, there is a notion that integrated reporting and sustainability information disclosure will eventually become a legitimate practice that allows them to judge the actions of companies as desirable, proper or appropriate and react accordingly (Stubbs & Higgins, 2018). The literature discusses the transformative potential of information disclosure (McNally & Maroun, 2018).

### **2.1. Financial performance (outcome)**

Tobin's Q (Q) is used in this study to measure financial performance. There is no consensus regarding the best measure of CFP (Lassala et al., 2021). Three types of measures are usually used in the literature: market measures, accounting measures and perceptual measures (Orlitzky et al., 2003). Market measures reflect investor expectations based on available information (Malkiel & Fama, 1970). Market measures are less susceptible to managerial manipulation than accounting measures (Branch, 1983). Tobin's Q is a market measure that has frequently been used as a dependent variable (Bose et al., 2022; Kang et al., 2010; Rhou et al., 2016; Wang

et al., 2016). This market-based performance indicator (Uyar et al., 2020) consists of the ratio of the market value of a firm to the replacement cost of its assets (Rhou et al., 2016). In the literature, a common approximation is the market value to book value ratio. This ratio represents long-term performance by reflecting investor expectations in relative terms to book value (Kang et al., 2010). Therefore, to measure CFP in this research, Tobin's Q is calculated as market capitalisation (market value) divided by total shareholder equity (book value).

## 2.2. Pillars of the ESG score as causal conditions

Based on the literature review, the causal conditions for this study are the three pillar scores that make up the overall Eikon ESG score. These pillars are environmental, social and governance (Refinitiv, 2022). These indicators have several categories. The *environmental pillar score* (EPS) has three categories: resource use, emissions, and innovation. The *social pillar score* (SPS) has four categories: workforce, human rights, community and product responsibility. The *governance pillar score* (GPS) has three categories: management, shareholders and CSR strategy.

The three pillar scores are used to measure the CSR and sustainability of firms across the three dimensions of environmental, social and governance CSR and sustainability. This approach is adopted to reveal the nature of the relationship of each dimension of the ESG score with CFP. Therefore, the analysis assesses whether the individual dimensions of the ESG score have different effects on financial performance. Three propositions are formulated:

**Proposition 1:** Environmental performance affects financial performance.

**Proposition 2:** Social performance affects financial performance.

**Proposition 3:** Governance performance affects financial performance.

## 2.3. Other causal conditions

The relationship between CSR and CFP may be conditioned by other factors (Huang et al., 2020; Surroca et al., 2010). The literature highlights some characteristics of firms such as size, leverage, age and industry that influence both CSR and CFP (Grewatsch & Kleindienst, 2017; Margolis & Walsh, 2003). The most important factors, based on the literature review, are included in the study and are discussed in the following paragraphs.

*Size.* To measure firm size (SIZ), the natural logarithm (LN) of total assets is used. Size is often used as a control variable when measuring causal relationships (Bose et al., 2022; De Beelde & Tuybens, 2015; Orazalin & Mahmood, 2021). To measure size, researchers usually use the natural logarithm of total assets (Choi & Wong, 2007; De Beelde & Tuybens, 2015). Total assets represents the total resources of companies and is commonly used because of evidence of its effectiveness and robustness to represent the size of companies (Noja et al., 2020). The literature highlights a positive relationship between company size and sustainable behaviour (Arora & Dharwadkar,

2011; Waddock & Graves, 1997). This positive relationship is justified by the idea that larger companies have advantages such as economies of scale (Roll et al., 2009), more resources to invest in sustainable practices and greater pressure from stakeholders (Hillman & Keim, 2001). Hence, larger companies tend to set sustainable objectives and manage sustainable practices more effectively (Clarkson et al., 2008). The opposite position is that small companies are more sustainable because of the importance of their reputation for growth (Aguinis & Glavas, 2012). The impact of firm size on CFP is a question that still generates debate (Lassala et al., 2021). This study examines whether the size of firms influences the relationship between CSR and CFP, as captured by [Proposition 4](#):

**Proposition 4:** Company size affects financial performance.

*Leverage.* To measure leverage (LEV), the percentage of indebtedness is used. Specifically, the measure consists of dividing total company debt by total assets. Leverage is employed in the literature as an explanatory variable because it captures the likelihood of financial distress (Bose et al., 2022). The literature suggests that a lower level of risk can lead to a better distribution of resources in sustainable practices (Orlitzky & Benjamin, 2001). However, it has also been argued that the most indebted companies tend to have better sustainable practices (Orazalin & Mahmood, 2021). The impact of leverage on CFP may be negative because of managerial opportunism and agency costs (Lassala et al., 2021) or positive because of the provision of capital for investment (Vithessonthi & Tongurai, 2015). Hence, [Proposition 5](#) is formulated:

**Proposition 5:** Company leverage affects financial performance.

### 3. Data and research methods

#### 3.1. Data collection

The data for this study were collected from the Refinitiv Eikon database (Refinitiv, 2022). The database provided financial and ESG data on 460 European energy companies for the year 2020. After removing incomplete data to ensure the applicability of the chosen methodology, the data set was reduced to 96 companies. Only European companies were included because the relationship between CSR and CFP varies between developed and developing countries (Aggarwal, 2013; Buallay, 2020). The study focused on the energy sector for two reasons. First, sector influences the relationship between CSR and CFP (Lin et al., 2015) because each sector may have different economic, environmental and social priorities (Baird et al., 2012). Second, the energy sector is a key sector in the fight against climate change (IEA & IRENA, 2017).

#### 3.2. Outcome and causal conditions

In this study, there were five causal conditions and one outcome, as shown in [Table 1](#).

**Table 1.** Conditions and outcome.

Label	Definition	Type of value	Condition/outcome
SPS	Social pillar score	Fuzzy value	Causal condition
GPS	Governance pillar score	Fuzzy value	Causal condition
EPS	Environmental pillar score	Fuzzy value	Causal condition
SIZ	Size (ln[total assets])	Fuzzy value	Causal condition
LEV	Debt/Total assets	Fuzzy value	Causal condition
Q	Tobin's Q	Fuzzy value	Outcome

Source: Authors.

### 3.3. Method

Qualitative comparative methods have been widely used in the social sciences (Zhang et al., 2021). In this study, fuzzy-set qualitative comparative analysis (fsQCA) was used to analyse the sample. FsQCA combines quantitative and qualitative approaches. It tries to establish complex and interdependent relationships between variables (Urueña & Hidalgo, 2016). FsQCA is usually used with moderately large samples (Vis, 2012). To perform the analysis, fsQCA 3.0 software was used, with the support of Microsoft Excel to provide the key statistics for the sample.

### 3.4. Data calibration

The first stage in fsQCA is to calibrate the expected outcome and causal conditions. Calibration is the process through which variables are transformed into fuzzy sets through the direct method (Ragin, 2008). Fuzzy sets acquire values in the range 0 to 1, where 0 indicates full non-membership and 1 indicates full membership. In the calibration process, three thresholds are established: the 90th percentile indicates full membership, the 50th percentile indicates the crossover point and the 10th percentile indicates full non-membership, following the approach of Feurer et al. (2016). The calibration of the variables is detailed in Table 2.

## 4. Results

FsQCA was used to identify causal configurations leading to high or low financial performance. Causal conditions can be present or absent. The tilde symbol ( $\sim$ ) indicates the absence of a condition or the outcome. The proposed models are as follows:

$FSQ = f(FSSPS, FSGPS, FSEPS, FSSIZ, FSLEV)$  for high financial performance.

$\sim FSQ = f(FSSPS, FSGPS, FSEPS, FSSIZ, FSLEV)$  for low financial performance.

### 4.1. Analysis of necessary conditions

After these prior steps, necessity analysis of the causal conditions was performed. According to the literature, necessary conditions were those with a consistency score of more than 0.9 (Sanchez-Roger et al., 2020). The results in Table 3 show that no condition was necessary for the presence or absence of the outcome.

**Table 2.** Calibration.

Property of the data	SPS	GPS	EPS	SIZ	LEV	Q
Full membership (90th percentile)	84.35	86.70	77.93	24.62	0.87	4.44
Crossover point (50th percentile)	58.61	47.97	49.64	21.83	0.59	0.85
Full non-membership (10th percentile)	14.44	18.45	8.59	19.16	0.20	0.25
Max	93.19	97.87	91.09	26.64	2.61	15.61
Min	2.28	6.63	0.00	15.77	0.08	-4.35
Mean (SD)	25.77	25.98	25.46	2.19	0.38	2.85

Source: Authors.

**Table 3.** Necessary conditions.

	Presence of outcome (Q)		Absence of outcome ( $\sim$ Q)	
	Consistency	Coverage	Consistency	Coverage
SPS	0.618283	0.560655	0.617791	0.638900
$\sim$ SPS	0.601784	0.579931	0.575171	0.632145
GPS	0.618283	0.565572	0.635777	0.663267
$\sim$ GPS	0.631884	0.603364	0.583578	0.635512
EPS	0.627425	0.580925	0.616422	0.650909
$\sim$ EPS	0.622965	0.587468	0.603128	0.648654
SIZ	0.594649	0.577648	0.634604	0.703054
$\sim$ SIZ	0.694314	0.624925	0.618768	0.635160
LEV	0.682943	0.638790	0.609580	0.650261
$\sim$ LEV	0.626087	0.584391	0.661388	0.704058

Note: The tilde symbol ( $\sim$ ) denotes absence of a condition or the outcome.

Source: Authors.

#### 4.2. Analysis of sufficient conditions

A condition is sufficient if the outcome occurs whenever that condition occurs (Ragin, 2008). In fsQCA, a truth table is reduced to reveal the conditions that lead to the outcome (Legewie, 2013). After the truth table had been constructed, the consistency cut-off was established. This cut-off determined the consistency threshold for a sufficient condition or configuration of conditions. Prior indications (Ragin, 2008) were followed, and the cut-off was set at 0.75. The truth table was reduced using the Quine-McCluskey algorithm (Duşa, 2007).

This process produces three solutions: complex, parsimonious and intermediate. The parsimonious solution employs all simplifying assumptions. Hence, it is the most reduced solution. The intermediate solution employs only the easy counterfactuals, which means assumptions aligned with empirical evidence and theoretical knowledge (Schneider & Wagemann, 2012).

As in prior studies (Fiss, 2011), the parsimonious solution was combined with the intermediate solution. Large circles show that a condition is present or absent in both solutions. Such conditions are core conditions. Small circles indicate that a condition is only present or absent in the intermediate solution. Black circles suggest that a condition is present. White circles indicate that a condition is absent. Blank spaces indicate that a condition is irrelevant for the solution. Table 4 shows the results.

The consistency index reflects the cases that meet the sufficient conditions for the outcome. The coverage describes how much the configurations in the solution explain the outcome. Configurations with consistency scores of more than 0.75 should be chosen (Rihoux & Ragin, 2009). All specific configurations are sufficient (see Table 4). The configurations with a high raw coverage (i.e. that explain the most cases) are discussed.

**Table 4.** Analysis of sufficient conditions.

	PRESENCE OF OUTCOME				ABSENCE OF OUTCOME								
	1	2	3	4	5	6	7	8	9	10	11	12	13
SPS		●	●	●	●			●	●		●		
GPS	●	●	○	○	○	○	●					○	●
EPS	○	●	●			●	○	○			●	●	●
SIZ	●			●				●		●	○	●	○
LEV	○	○	●	●			○		○	○			●
Raw coverage	0.214	0.348	0.270	0.239	0.350	0.358	0.252	0.280	0.438	0.470	0.322	0.276	0.274
Unique Coverage	0.019	0.109	0.023	0.004	0.013	0.009	0.117	0.020	0.001	0.007	0.002	0.002	0.011
Consistency	0.845	0.787	0.822	0.850	0.779	0.846	0.887	0.893	0.790	0.852	0.790	0.908	0.864
Solution coverage		0.453						0.686					
Solution consistency		0.757						0.756					

Note: Following the notation used by Ragin (2008) and Fiss (2011), the solutions are classified according to their core structure: a black circle indicates the presence of a condition; a white circle indicates the absence of a condition; a large circle indicates a core condition (i.e. it appears in both the parsimonious solution and the intermediate solution); a small circle indicates that a condition only appears in the intermediate solution; a blank space indicates that a condition may be present or absent (i.e. it is irrelevant).

Source: Authors.

### 4.3. High financial performance

Configuration 2 explains 34.8% of cases in which companies have a high Tobin's Q. It suggests that in order to achieve a high Tobin's Q, companies need to have a high social pillar score, a high governance pillar score, a high environmental pillar score and low leverage. This configuration has a consistency score of 0.787.

Configuration 3 shows that companies with a high Tobin's Q also have high social and environmental pillar scores and high leverage. Configuration 3 has a consistency score of 0.822 and explains 27% of cases in which companies have a high Tobin's Q.

Configuration 4 has a raw coverage of 0.239, so it explains 23.9% of cases in which companies have a high Tobin's Q. It also has the highest consistency score (0.850). It shows that to achieve a high Tobin's Q, companies need a high social pillar score, a large size, high leverage and a low governance pillar score.

The solution for the outcome of high financial performance is consistent (0.757). Solution consistency should be higher than 0.75, according to Ragin (2008). Solution coverage is 0.453.

### 4.4. Low financial performance

Configuration 10, which explains 47% of cases in which companies have a low Tobin's Q, shows that companies with a low Tobin's Q are large and have low leverage. This configuration has a consistency score of 0.852.

Configuration 9 explains 43.8% of cases in which companies have a low Tobin's Q. It suggests that companies with a high social pillar score and low leverage have a low Tobin's Q. This configuration has a consistency score of 0.79.

Configuration 6 explains 35.8% of cases in which companies have a low Tobin's Q. This configuration has a consistency score of 0.846 and shows that companies with a

low Tobin's Q have a high environmental pillar score and a low governance pillar score.

The solution for the outcome of low financial performance is consistent (0.756). Solution consistency should be higher than 0.75, according to Ragin (2008). Solution coverage is 0.686.

## 5. Discussion

This study used a quantitative and qualitative perspective to contribute to the discussion on the relationship between CSR and CFP. The analysis assessed whether the individual dimensions of the ESG score have different effects on the financial performance of firms. This discussion is important because the weights of the components used to calculate overall ESG scores may explain differential financial performance (Lee & Suh, 2022). As in some previous studies, the results of this study do not provide strong enough evidence to conclude that CSR indicators affect the CFP of energy firms (Huang et al., 2020; Orlitzky et al., 2003; Surroca et al., 2010). The individual scores for each of the ESG dimensions do not seem to have a strong impact on CFP.

A high social pillar score is present in configurations that lead to high financial performance and in some of the configurations that lead to low financial performance. This condition does not appear in five of the nine configurations that lead to low financial performance. A high governance pillar score is present in half of the configurations that lead to high financial performance. However, a low governance pillar score is also present in configurations that lead to high financial performance. The value of this condition is neither consistently high nor low in configurations that lead to low financial performance. The environmental pillar score is neither consistently high nor low in configurations that lead to high financial performance or configurations that lead to low financial performance.

The results do not provide solid evidence to conclude that firm size and indebtedness influence CSR or CFP. Firm size is not consistently high or low in configurations that lead to high financial performance or configurations that lead to low financial performance. Leverage is not consistently high or low in configurations that lead to high financial performance or configurations that lead to low financial performance.

The main limitations of this study relate to the characteristics of the sample. First, because of restrictions on the sample associated with the application of the chosen methodology, the sample consisted of only 96 energy companies. Future research should use larger samples. Second, the study was limited to the year 2020 because it was the last year with available data at the time of the study. Future studies should use longer term data and consider macroeconomic factors (Huang et al., 2020). Third, all data were gathered from one source (the Eikon database). Therefore, the results depended largely on the data provided by this database. Fourth, the chosen methodology limited the causal conditions, preventing the use of additional factors in the study.

The relationship between CSR and CFP remains unclear. This lack of clarity could be because investors still do not attach enough importance to the sustainable performance of companies in their decision making. However, as investors become more aware of the importance of business sustainability and as sustainability indicators

improve, markets could begin to reward sustainability. Therefore, studies such as the present one, using novel methodologies and perspectives, are important to measure this transition. Likewise, the relationship between CSR and CFP is complex and may be mediated by other variables (Orlitzky et al., 2003; Surroca et al., 2010). Future research could focus on identifying these variables and their impact on the relationship between CSR and CFP.

## 6. Conclusions

As in other studies (Huang et al., 2020; Orlitzky et al., 2003; Wang et al., 2016), this study does not provide solid enough evidence to conclude that there is a significant relationship between the CSR and CFP of energy firms. Moreover, the results do not provide strong enough evidence to conclude that the individual dimensions of the ESG score have a relevant effect on the CFP of firms. Multiple studies already suggest reasons why consistent results do not arise, such as the existence of intangible factors with a significant influence on the relationship between CSR and CFP (Surroca et al., 2010) or macroeconomic factors that are usually omitted from analysis (Huang et al., 2020). Future lines of research could focus on measuring the impact of such factors.

In their future decision making, investors may be more interested in the sustainable behaviour of companies. Also, the quality of sustainability indicators could improve. Therefore, it would be sensible to continue studying these issues under different perspectives to assess whether sustainability reporting could become an effective regulatory tool for corporate behaviour.

It is crucial to improve the quality of information disclosure. Another reason why markets may still not reward sustainability is that there may still be discrepancies between the information that users expect and what is actually provided (Abdo et al., 2018; Bradford et al., 2017; Diouf & Boiral, 2017). Therefore, optimising reporting and information disclosure standards should be a priority. Finally, it would be advisable to continue to study the energy sector because of its key role in the transition to a sustainable world.

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