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The financial performance of listed companies in pursuit of the Sustainable Development Goals (SDG)

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ABSTRACT

Socially responsible companies whose values are aligned with the United Nations Sustainable Development Goals (UN SDGs) contribute to creating wealth and long-term economic and social value. This alignment leads to a competitive advantage based on the triple bottom line that enhances financial performance. In this paper, fuzzy-set qualitative comparative analysis (fsQCA) is used to identify the configurations of conditions that lead to high or low financial performance (return on equity) for a sample of companies in the IBEX 35. Firms should adopt business models that embrace the SDGs because sustainability-based models can ensure not only the present but also the future of generations to come.

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1. Introduction

In dynamic, complex environments, sustainable social and environmental behaviour is likely to improve a firm's financial performance. The financial markets attach great importance to ethically and socially responsible values. Incorporating sustainability in corporate strategies can generate strategic benefits (Warren & Thomsen, 2012) that help create long-term shareholder value (Aggarwal, 2013; Mays, 2003) and improve corporate image (Oh et al., 2017). The survival of businesses and society, sustainable behaviour as a means of increasing competitive advantage and the ability to improve a firm's corporate reputation justify scholarly interest in sustainable development (Payne & Raiborn, 2001).

An abundant academic literature addresses the link between corporate social responsibility (CSR) and corporate financial performance (FP). In the 1990s, the economic, legal and ethical responsibilities of employers were first established (Carroll, 1991; Kang & Wood, 1995). The idea is for companies to achieve better financial performance through socially responsible behaviour (Lee, 2008).

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Despite the lack of a universal definition of CSR, all definitions share a focus on the responsibility of companies towards society beyond their economic and legal obligations (Van Marrewijk, 2003). Firms must improve social and environmental conditions through their business activity and in their interactions with stakeholders. They must also include procedures and controls in their strategic planning to shape the entire system of social responsibility within the organisation (Baron, 2001).

Sustainability and CSR are closely related (Montiel, 2008). CSR enables sustainable development across three business dimensions: economic, social and environmental. This sustainable development is directly related to stakeholders' concern for CSR. Sustainable development is defined as the ability to make development sustainable to ensure that it meets current needs without compromising the ability of future generations to meet their own needs (Brundtland, 1987). Based on this definition, scholars and practitioners have tackled sustainable development without ever developing a precise meaning of this concept (Robert et al., 2005).

Businesses must take responsibility for the effects of their actions on society and, particularly, the environment. Companies face increasing pressure to be more transparent and to report on their social and environmental performance (Lewis, 2003). Firms disclose their impact through sustainability reports, which describe their performance, emphasising the three aspects of the triple bottom line: society, the economy and the environment (Elkington, 1999).

In the business research methodology, many applications of multiple regression analysis and structural equation modelling are questionable. To build and test theory, algorithms are required (Woodside, 2011). Fuzzy-set qualitative comparative analysis (fsQCA) can be used to create and test algorithms. The application of fsQCA in this study contributes to the literature on the conditions that affect corporate FP. Methodological issues may have contributed to the lack of consensus in previous studies (Marti et al., 2015).

Data sets for empirical research must include valid indicators of causal relationships of real processes. Methods are needed to collect data that can provide an understanding of actual thought processes. Comparative methods, which are based on set theory, look for causal configurations within an empirical data set (Rihoux & Ragin, 2009).

Several ideas support the use of these methods (Woodside, 2011). In multiple regression analyses when there are equations with several independent variables, the influence of each variable is estimated without considering the effect of the others. Because multicollinearity occurs when a model includes many variables, it is possible that no single variable actually exerts a significant net effect. Moreover, the significance of a key variable may depend on the other variables in the model.

The empirical reality is usually that several combinations of conditions lead to a given outcome. Well-chosen combinations of conditions have asymmetric relationships with an outcome (Ragin, 2008). McClelland (1998) found that many relationships between dependent and independent variables are non-linear and that correlation coefficients describe these variables poorly. In the financial world, changes in a variable take time to become apparent (Woodside, 2011).

FsQCA performs well when causality is complex and when different conditions produce an identical outcome. FsQCA identifies necessary or sufficient conditions for a given outcome. In fsQCA, an outcome occurs only when the necessary conditions are present. In contrast, sufficient conditions always lead to the outcome (Fiss, 2007).

Given the importance of corporate sustainability in the current market context, this study provides new empirical evidence to advance the debate on the relationship between sustainable behaviour and corporate FP. The study focuses on companies in the IBEX 35 index. Many studies have used samples of companies from other countries, especially the United States and the United Kingdom. However, the link between CSR and FP may differ in companies with different characteristics.

The literature broadly advises against a universal approach to measuring CSR (Van Beurden & Gössling, 2008). In this research, the implementation of the United Nations (UN) Sustainable Development Goals (SDGs) in company strategy is used as a specific measure of firms' sustainable behaviour. A report by the Spanish Network for the United Nations Global Compact (*Red Española del Pacto Mundial de Naciones Unidas*, 2018) assesses the progress made towards addressing the major challenges of the SDGs in Spain. The report analyses how companies are implementing SDGs in their strategies and operating models.

The rest of the paper is structured as follows. Section 2 provides a review of the literature linking CSR to FP. Section 3 describes the goals of the United Nations Agenda 2030 and discusses the performance of the IBEX 35 in terms of the SDGs. Section 4 presents the sample, method and variables used in the model. Section 5 presents and discusses the results. Section 6 concludes by highlighting the limitations, managerial implications and directions for future research.

2. Theoretical framework

The relationship between CSR and companies' FP has been widely studied, although inconclusive results have kept the debate open (Aupperle et al., 1985; Griffin & Mahon, 1997; Lindgreen et al., 2009). This disparity in results may be caused by many factors, including differences in models (Al-Tuwaijri et al., 2004), the variables and definitions used to measure sustainability and financial performance, sample characteristics (Marti et al., 2015) and the lack of variables such as size and economic sector (Surroca et al., 2010). Some authors have called for a review of the theory linking CSR and FP. Given that this relationship is strategic, it would make sense for it to be included within a company's strategic management (Grewatsch & Kleindienst, 2017).

2.1. Corporate social responsibility and financial performance

The literature on this relationship consists of both theoretical and empirical studies. The predominant direction of causality is to consider CSR as an explanatory variable of FP (Preston & O'Bannon, 1997). Based on the nature of this relationship, the following theoretical hypotheses can be stated:

- *Social impact*. Higher (lower) levels of CSR lead to higher (lower) levels of FP (Makni et al., 2009). Stakeholder theory (Freeman, 1984) suggests that CSR helps firms meet stakeholder needs and enhances corporate reputation. Consequently, it leads to higher financial performance. Failure to meet these stakeholder needs increases a firm's risk premium and harms its FP (Cornell & Shapiro, 1987).
- *Availability of financial resources*. Higher (lower) levels of FP lead to higher (lower) levels of CSR (Preston & O'Bannon, 1997). Under this hypothesis, a company's social performance depends on the availability of financial resources.
- *Positive synergy*. A virtuous circle linking CSR and FP can be established by combining the previous two hypotheses. Improvements in CSR lead to higher FP, which, in turn, enables better management of CSR (Waddock & Graves, 1997).
- *Trade-off*. Higher (lower) levels of CSR lead to lower (higher) levels of FP (Garcia-Castro et al., 2010). An organisation's only social responsibility is to maximise its profits. CSR entails unnecessary costs that reduce a company's FP in relation to competitors (Friedman, 2007).
- *Opportunism of managers*. Higher (lower) levels of FP lead to lower (higher) levels of CSR. Managers pursue their own objectives to the detriment of the needs of other stakeholders (Jensen & Meckling, 1976). High FP may mean less investment in CSR by managers if they prioritise their personal short-term gains. However, managers may try to justify poor financial performance by channelling more resources into CSR.
- *Negative synergy*. The combination of the trade-off and management opportunism hypotheses suggests the existence of a vicious circle between CSR and FP (Preston & O'Bannon, 1997).

Some authors also highlight the possibility of no significant direct link between CSR and FP (McWilliams & Siegel, 2000; Surroca et al., 2010). The link could be explained using mediating variables such as company sector, age, size or level of risk. Studies also suggest that there is not always a linear relationship between these two variables. Barnett and Salomon (2012) highlighted the existence of an optimal level of CSR, with any deviation from that optimal level reducing FP.

All these hypotheses have been empirically tested in the last few decades (Aguinis & Glavas, 2012; Dixon-Fowler et al., 2013; Margolis & Walsh, 2003; Orlitzky et al., 2003). Some scholars use CSR to explain FP, whilst for others, FP explains CSR. In some studies, a two-way relationship between CSR and FP has also been proposed.

Overall, the results suggest a positive association between CSR and FP (Grewatsch & Kleindienst, 2017; Peloza, 2009; Van Beurden & Gössling, 2008). The evidence seems to reject the trade-off hypothesis in favour of the social impact hypothesis. At the very least, good CSR management and reporting does not harm FP. The hypothesis of availability of financial resources also receives more support than that of management opportunism. Thus, the idea of negative synergy receives little support. The strategic nature of CSR policies, together with the period they require to mature given status as a business innovation, justifies the support for the positive relationship between CSR and FP in the literature.

2.2. Sustainable behaviour and financial performance

The theory suggests that including corporate sustainability as part of core strategic aims improves FP (Aggarwal, 2013). The theory of legitimacy supports the fulfilment of social norms and expectations. Sustainability reduces the risk of regulatory action. Similarly, according to stakeholder theory, organisations are accountable to a wide range of stakeholders, and sustainability strengthens these relationships (Freeman, 1984). Agency theory also predicts the visibility of SDG compliance through, for example, reports that reduce information asymmetries. Less perceived uncertainty for investors improves decision making.

Sustainability initiatives vary amongst companies and have varying effects on the relationship between sustainable behaviour and FP (Kurapatskie & Darnall, 2013). The strength of a company's commitment to sustainable development influences stakeholder trust in the company (Tang et al., 2012). Stakeholders are likely to show greater appreciation for the development of new, sustainability-oriented products than sustainability initiatives that address internal processes (Jayachandran et al., 2013).

Part of the literature analyses the intensity of sustainable behaviour in companies. Companies can behave reactively or proactively. A reactive approach limits sustainable actions to regulatory compliance and addresses environmental and social problems as and when they occur. In contrast, a proactive approach aligns a company's actions with the sustainability expectations of a wide range of stakeholders to address environmental and social problems (Surroca et al., 2010). With a strategic approach to decision making, it is more beneficial for a firm to follow a proactive approach that enables cost and risk reductions within the firm (Brammer & Millington, 2008; Dixon-Fowler et al., 2013).

The relationship between corporate sustainability and its impact on FP has been the target of academic interest in recent years (Goyal et al., 2013). As with the broader research on the relationship between CSR and FP, the results are inconclusive. Moreover, most studies have been conducted in the context of developed economies.

Some studies have shown a positive relationship between the sustainable behaviour of companies and their FP (Ameer & Othman, 2012; Eccles et al., 2014). However, the relationship between these variables has also been reported to be negative (Detre & Gunderson, 2011; López et al., 2007). Additional research provides mixed results (Brammer et al., 2006; Mănescu, 2011; Semenova et al., 2010). Some authors have even concluded that the relationship between corporate sustainability and FP is non-significant (Humphrey et al., 2012).

3. The 2030 Agenda for Sustainable Development

On 25 September 2015, the UN approved the 2030 Agenda for Sustainable Development. The 2030 Agenda contains 17 SDGs and 169 global targets that aim to improve the lives of all, protect the planet and ensure a future for the world (United Nations, 2019). These goals, which are shown in Figure 1, are planned to be attained over the next 15 years.

Figure 1. United Nations Sustainable Development Goals.
Source: United Nations.

To promote these SDGs and achieve the 2030 Agenda, in 2016, the UN developed the United Nations Global Compact, which is aimed at mobilising companies around the world to engage in responsible practices. This commitment has led many companies into sustainable development partnerships. By 2018, more than 9,500 companies in 145 countries had signed up to these initiatives (*Red Española del Pacto Mundial de Naciones Unidas*, 2018).

Achieving the SDGs requires global collaboration from all stakeholders: governments, business, academia and society. An awareness of the most important current social issues is needed. The SDGs are a powerful guide for action to ensure a more sustainable planet (Mukhi & Quental, 2019).

The SDGs explicitly cite the critical role of businesses in achieving these goals. Sustainability is increasingly included in business strategies (Lloret, 2016), and it involves the implementation of the SDGs (Palmer et al., 2019). At an operational level, any organisational activity can address sustainability-related issues, from variations in technology to changes in the financial environment.

The implementation of the SDGs in business strategies can contribute to enhancing financial performance for many reasons, including the integration of systems that improve decision making, efficient resource management that reduces costs, inclusion in rankings that reassure investors, better long-term results, the development of value-adding products through innovation and social and media friendliness (Malik, 2015).

The demand for sustainability information based on three dimensions (people, planet and profit) is increasing (Milne & Gray, 2013). Companies use their sustainability reports to identify their sustainability strategies and achievements publicly. Target setting is becoming a central part of sustainability strategies (Bonini & Swartz, 2014).

Although the literature examines the motives behind companies' sustainability goals (Ransom & Lober, 1999) and their content (Galpin et al., 2014), little attention has been paid to how specific contexts affect companies' sustainability goals. Palmer and Flanagan (2016) describe the need for studies that examine the SDGs in different

companies and countries. For example, Ali et al. (2018) reported a lack of key SDGs in the vision and mission of companies in BRICS countries.

Since the approval of the UN 2030 Agenda, scientific organisations and international institutions have performed various studies to monitor progress towards the SDGs, mapping the available resources and reviewing the strategies that have been applied. The capacities and challenges of each country are being explored, analysing the necessary strategies and forecasting results. Gil (2018) highlighted studies carried out in the United Kingdom, Sweden, France and other contexts.

In Spain, adoption of the SDGs by all listed companies has been slow (*Red Española del Pacto Mundial de Naciones Unidas*, 2018). Spanish companies must adapt to the new context and understand that a fundamental part of business success lies in the commitment to sustainable development. The idea of establishing sustainable development goals is increasingly embraced by organisations.

Spanish companies are beginning to set sustainability goals. In 2018, 28 of the 35 IBEX 35 companies had committed to the 2030 SDGs (*Red Española del Pacto Mundial de Naciones Unidas*, 2018). However, organisations should identify and focus on the highest priority SDGs depending on their business model. Within the IBEX 35, 27 companies had identified their priority SDGs, whilst 20 companies explained how they were working towards achieving these goals (i.e. they envisaged their direct contribution to the SDGs).

4. Method

4.1. Data

An abundant literature links social and environmental sustainability derived from the application of CSR principles to value creation and, consequently, FP. Thus, including and implementing SDGs in business strategies could help enhance FP by creating value for companies. Firms that adopt a strategic approach to CSR can generate a competitive advantage and, therefore, increase their profits (Porter & Kramer, 2006).

A universal limitation in research linking CSR and FP is the complexity of quantifying the latent benefits of CSR investment (Charlo et al., 2015). These benefits are associated with the development of a suitable relationship with different stakeholders (Roberts & Dowling, 2002). From an investor's perspective, these benefits are also justified by easier access to capital for socially responsible companies (Hockerts & Moir, 2004).

Many studies have shown a causal relationship whereby CSR explains FP (Callan & Thomas, 2009). Following the same logic in this study, FP is considered an outcome and CSR a condition leading to that outcome. The presence of SDGs in a company's strategy indicates that, in addition to economic considerations, the company also addresses social and environmental concerns. In this paper, a company is considered socially responsible when it is governed by concerns of social and environmental sustainability. That is, companies that have included SDGs in their strategies, pursuing them through their operational management.

This study examines the 35 companies that formed the IBEX 35 at the end of 2018. The financial information on these companies came from two sources: the

Spanish National Securities Market Commission (CNMV) and the SABI platform. On the aforementioned date, there were 20 IBEX 35 companies implementing the SDGs. The aim is to establish whether there is a relationship between implementation of the SDGs and FP.

4.2. Outcome and conditions

4.2.1. Financial performance (outcome)

There is no consensus on the best way to measure FP (Dalton & Dalton, 2011). The literature provides a wide range of measures that can be grouped into three types (Orlitzky et al., 2003): market measures, accounting measures and perceptual measures.

Scholars generally assess FP using either accounting measures – such as return on assets (ROA), return on equity (ROE) and return on sales (ROS) – or market-based measures – such as Tobin's *q* and cumulative abnormal return (CAR). Measures based on managers' perceptions of aspects such as a company's financial position, the efficient use of assets or the achievement of financial targets in relation to competitors are rarely used. These measures provide a subjective estimate of financial performance.

Accounting measures tend to show a stronger positive relationship between sustainability and FP than market-based measures (Grewatsch & Kleindienst, 2017; Peloza, 2009). Gentry and Shen (2010) reported weak correlation between accounting and market measures of FP. The two types of measures capture different dimensions of FP and require independent theoretical frameworks.

All three types of measures have received criticism. Market measures reflect expectations of future profitability, but they may be influenced by numerous macroeconomic factors (Griffin & Mahon, 1997). Accounting measures are better indicators of performance than market measures (Wu, 2006) and reflect what is actually happening in the company (Grewatsch & Kleindienst, 2017; López et al., 2007). However, they can be more easily manipulated. Measures based on managers' perceptions are criticised for their subjectivity. Given these criticisms, some researchers recommend using more than one type of measure to examine the possible relationships between FP and CSR (Garcia-Castro et al., 2010; Margolis & Walsh, 2003; Rodgers et al., 2013).

Market-based measures reflect investors' expectations. They are based on the efficient market hypothesis, according to which prices reflect all available market information (Malkiel & Fama, 1970). Because efficiency has been debated from the perspective of strategic management, it is questionable whether market-based measures are suitable to study the relationship between sustainable behaviour and FP (Bromiley, 1990).

To ensure objectivity and coherence using a strategic conception of corporate sustainability in this study, FP is evaluated using one of the most widely supported accounting measures in the literature: return on equity, often abbreviated to ROE (Griffin & Mahon, 1997; Margolis & Walsh, 2003; Waddock & Graves, 1997). This

measure captures a company's profitability in terms of the company's shareholder equity.

4.2.2. Sustainability (causal condition)

Measuring CSR is complicated by two factors. The first is the lack of consensus on the theoretical meaning of the concept. The second is that the concept is multidimensional and has widely varying dimensions (Galant & Cadez, 2017). Charlo et al. (2015) highlight the limitation caused by deciding which variables to use to measure CSR. In the literature, a multidimensional measure consisting of the social and environmental performance of companies is often used to measure CSR (Van Beurden & Gössling, 2008).

Orlitzky et al. (2003) identified four common ways of measuring CSR: social audits by agencies, social and environmental reports, reputation indices and a company's sustainable management principles and values. Applying the latter approach to this study would involve analysing whether the implementation of the SDGs by IBEX 35 companies affects their FP. A dichotomous variable (SDG) was defined, taking the value 1 when the company had identified, developed and implemented SDGs, and 0 otherwise. Using this type of variable to measure CSR is common (Aupperle et al., 1985; McWilliams & Siegel, 2000).

The inclusion and implementation of SDGs in a company's strategy reflects the management's interest in social and environmental issues as a way to achieve competitive differentiation in a global market (Charlo et al., 2017). According to *Red Española del Pacto Mundial de Naciones Unidas* (2018), 20 companies in the sample have chosen some goal from the 2030 Agenda, have established which SDGs are a priority (based on their business model) and are already contributing directly to these goals.

Proposition 1. *The inclusion and implementation of SDGs in a company's strategy affects that company's financial performance.*

4.2.3. Control conditions (contingency)

The relationship between CSR and FP may be affected by contingent factors (conditions), which are traditionally analysed under the hypothesis of mediation (Surroca et al., 2010). The omission of these variables can cause problems of specification error (Marti et al., 2015). The empirical literature reports that some firm characteristics, such as size, age, industry and risk, affect the relationship between CSR and FP (Andersen & Dejoy, 2011; Callan & Thomas, 2009; Grewatsch & Kleindienst, 2017; Margolis & Walsh, 2003).

Company size. Company size (SIZ) was measured as the natural logarithm (ln) of total assets. Size can affect the relationship between CSR and FP (Brammer & Millington, 2008; Surroca et al., 2010; Wang & Bansal, 2012). However, the direction of this influence is unclear. The literature offers justification for both a positive and a negative impact on social and environmental sustainability and FP.

In general, large companies have a greater socio-economic impact where they operate. They also have more resources to invest in sustainable practices. In addition,

they attract stakeholders' attention and, therefore, need to respond effectively to stakeholder demands (Hillman & Keim, 2001). In support of these arguments, studies have shown a positive relationship between company size and sustainable behaviour (Arora & Dharwadkar, 2011; McWilliams & Siegel, 2000; Pava & Krausz, 1996; Waddock & Graves, 1997).

However, other authors have found a negative effect of size on social and environmental aspects. Small companies are more motivated to engage in socially sustainable behaviour because of the potential boost to their reputation and because, strategically, it gives them better access to key resources (Aguinis & Glavas, 2012; Udayasankar, 2008; Van Beurden & Gössling, 2008). Such companies are also more flexible and effective in responding and adapting to environmental challenges (Dixon-Fowler et al., 2013).

The empirical evidence is also inconclusive regarding the effect of size on FP. Large firms achieve economies of scale, have more market power and secure financial resources more easily (Jo & Harjoto, 2011; Van Beurden & Gössling, 2008). However, their organisational structure is complex, and, internally, there are conflicting interests. Factors such as the existence of information asymmetries and control and agency costs can negatively affect their FP (Donker et al., 2008; Garcia-Castro et al., 2010).

Proposition 2. *Company size affects financial performance.*

Company sector. The idiosyncrasies of each economic activity mean that industry moderates the relationship between CSR and FP (Lin et al., 2015). Each sector has different environmental, social and financial concerns (Baird et al., 2012; Schreck, 2011), and the pressure for sustainable behaviour also differs (Hull & Rothenberg, 2008). Some studies have examined specific industries (e.g. Inoue & Lee, 2011), whereas others have explored companies across different industries (e.g. Makni et al., 2009).

By acting sustainably, companies try to respond to the demands of their stakeholders (Baird et al., 2012). Each industry has its own social and institutional sustainability requirements (Inoue & Lee, 2011). This study examines companies in various industries. The study uses a categorical dummy variable (SEC) taking the value 1 if the company belongs to the production sector, and 0 otherwise (i.e. it is a service, consumer or technology company).

Proposition 3. *The company sector affects financial performance.*

Company age. Studies have shown a direct relationship between how long a company has existed and its contribution to CSR. The AGE variable captures this time as the number of years since a company was founded.

The experience accumulated over time and the potentially superior reputation this experience provides encourage a company's involvement in social issues (De Villiers et al., 2011). It is reasonable for a well-established, incumbent firm with a long history to have more resources to invest in CSR. In contrast, younger companies often invest in the growth of the company and neglect CSR investment (Barnett & Salomon, 2012; Roberts, 1992).

Other authors argue that strategic decisions in new companies have a long-term focus and that, although socially responsible activities involve financial resources and need time to mature, they develop strategic resources that help create value (Wang & Bansal, 2012).

With regard to FP, the possible positive relationship between age and productivity, derived from the corporate learning effect, is conducive to FP. Likewise, a good corporate reputation can boost sales and, therefore, FP. However, the lower level of dynamism and greater bureaucracy that sometimes characterise older enterprises could negatively affect FP. Another condition affecting FP is technological development. Finally, the opportunistic or non-opportunistic behaviour of managers could also affect FP (Evans, 1987).

Proposition 4. *Company age affects financial performance.*

Corporate risk. A company's risk is measured by the variable RSK, which is the ratio of external financing to total company assets. It is related to both sustainable behaviour and FP.

CSR activities can help reduce a company's overall risk if the company manages to avoid other possible social or environmental risks (Arora & Dharwadkar, 2011; Orlitzky & Benjamin, 2001; Waddock & Graves, 1997). However, it is also argued that the lower a company's risk is, the greater the certainty of estimates of future cash flows will be. In less uncertain scenarios, managers can envisage the opportunities for sustainable behaviour and the associated opportunity costs more clearly. Financial planning is more accurate and credible in a context of greater stability, enabling the allocation of more resources to social and environmental purposes (Jo & Harjoto, 2011; Makni et al., 2009; Orlitzky & Benjamin, 2001).

With regard to FP, there is justification for both a negative and a positive relationship with corporate risk. There are two basic reasons for a negative relationship: the existence of agency costs due to conflicts of interest between internal and external shareholders and the opportunistic behaviour of managers who do not allocate resources from debt financing to profitable investment opportunities. In contrast, a positive relationship could be explained by supervision and control by debt holders, which reduces conflicts of interest between shareholders and managers (Hu & Izumida, 2008). The final proposition is derived from this argument.

Proposition 5. *Corporate risk affects financial performance.*

The outcome and conditions are summarised in Table 1.

4.3. Method and model

The limitations of sampling in social science research make configurational comparative methods attractive for reaching reliable conclusions when working with a small number of cases (Fiss, 2007). According to Rihoux and Ragin (2009), the number of causal conditions should be between three and eight. Crilly (2011) established that up to seven causal conditions may be studied. This research is based on a sample of 35 cases and five causal conditions.

Table 1. Output and conditions: descriptions and labels.

Type		Description	Label
Outcome	ROE	Outcome representing financial performance based on the ratio of net profit to shareholder equity.	Fuzzy
Condition	SDG	Crisp condition indicating whether a company implements SDGs in its strategy (1) or not (0).	Crisp
	SIZ	Fuzzy condition based on the natural log of assets.	Fuzzy
	RSK	Fuzzy condition defined as the ratio of external financing to assets.	Fuzzy
	AGE	Fuzzy condition based on the natural log of the number of years a company has been in business.	Fuzzy
	SEC	Crisp condition indicating whether a company belongs to the production sector (1) or not (0).	Crisp

Source: Authors.

This methodology is used to examine how conditions combine to produce an outcome of interest. In turbulent and changing environments, techniques such as multiple regression analysis present problems such as multicollinearity (i.e. the existence of a strong correlation between explanatory variables).

Methodological innovations in qualitative comparative analysis (QCA) have created new opportunities for analysis and have enriched methodological pluralism in research (Kornelakis, 2018). In this study, fuzzy-set qualitative comparative analysis (fsQCA) is used to identify the conditions associated with the performance of Ibex 35 companies. The study focuses on the possible relationship between the SDGs and FP. This method was applied using fsQCA 3.0 software.

FsQCA is useful when cases are best understood as combinations (or configurations) of attributes that potentially lead to an outcome. Comparing different cases and adopting a concept of causality that embraces complexity enables the identification of different combinations of causal variables (conditions) that lead to the same outcome.

Conditions may be present or absent. FsQCA uses asymmetric relationships to identify the causal conditions that are sufficient to cause an outcome (which is similar to the concept of a dependent variable in other analyses). Regression coefficients show the impact of variables but do not indicate which individual variables are sufficient or necessary for an outcome. Necessary conditions indicate that the outcome only occurs when the causal condition is present (or absent). Sufficient conditions indicate that a causal condition always leads to the outcome (Braumoeller & Goertz, 2000; Fiss, 2007).

4.3.1. Data calibration

The raw data were calibrated into fuzzy values using the method described by Ragin (2008). Table 2 shows the criteria used to calibrate each condition and the outcome. Calibrated scores ranging from 0.0 to 1.0 were calculated to identify cases with full membership (completely within the set) and full non-membership (completely outside the set). To transform raw data into fuzzy sets, calibration is based on the thresholds for full membership ($\geq$ 0.95), full non-membership ($\leq$ 0.05) and the cross-over point (0.5). The cross-over point is the point of maximum ambiguity (in terms of membership) in the assessment of whether a case is mostly inside or mostly outside a set.

Table 2. Calibration of the outcome and conditions.

	Thresholds		
Variable	Full membership	Cross-over point	Full non-membership
ROE	0.23	0.12	0.01
SDG		1 = implements SDGs 0 = does not implement SDGs	
SIZ	19.19	16.35	15.08
RSK	0.70	0.36	0.07
AGE	4.72	3.78	2.44
SEC		1 = production sector 0 = other sector	

Source: Authors.

In the academic literature (e.g. Dul, 2016; Woodside et al., 2016), the use of percentiles for calibration is accepted. According to Kraus et al. (2018), the cut-off points for the outcome and certain conditions can be established using the 90th (full membership), 50th (cross-over point) and 10th (full non-membership) percentiles.

For the calibration of the outcome (ROE), the cut-off points can be defined as follows: full membership (90th percentile), cross-over point (50th percentile) and full non-membership (10th percentile). The values of 0.23, 0.12 0.01, respectively, were assigned for this purpose. For the achievement of SDGs (a crisp condition), the breakpoint was 1 if the company included the SDGs in its strategic plan for 2018, and 0 otherwise. The company sector was also a crisp condition, taking the value 1 if the company belonged to the production sector, and 0 otherwise. Percentiles were used for all other conditions. Company size (SIZ), risk (RSK) and age (AGE) were fuzzy-set conditions. Table 2 shows the values used for the cut-off percentiles.

5. Results

FsQCA enables the identification of causal configurations that lead to high or low FP. The tilde symbol (~) indicates the absence of the outcome. The causal conditions may be present or absent. The proposed models are as follows:

Model A

Successful financial performance (ROE) = f (SDG, SIZ, RSK, AGE, SEC)

Model B

~ Successful financial performance (ROE) = f (SDG, SIZ, RSK, AGE, SEC)

5.1. Analysis of necessary conditions

The first step is to examine the necessary conditions for the presence and absence of the outcome. The necessary conditions are those that must occur for the outcome to occur. A condition is considered necessary if its consistency is greater than 0.9 (Schneider & Wagemann, 2010). As Table 3 shows, no condition exceeds the consistency threshold of 0.9 for either the presence of the outcome (successful financial performance: Model A) or the absence of the outcome (unsuccessful financial performance: Model B).

Table 3. Analysis of necessary conditions.

	Model A Presence of outcome		Model B Absence of outcome	
Conditions	Consistency	Coverage	Consistency	Coverage
SDG	0.489055	0.424500	0.652494	0.575500
SIZ	0.566244	0.557572	0.663832	0.664209
RSK	0.626728	0.643406	0.568027	0.592549
AGE	0.603687	0.570495	0.684240	0.657049
SEC	0.326613	0.405000	0.472222	0.595000
∼*SDG*	0.510945	0.591333	0.347506	0.408667
∼*SIZ*	0.658986	0.658607	0.663832	0.566494
∼*RSK*	0.603111	0.578773	0.658163	0.641791
∼*AGE*	0.637097	0.665063	0.552721	0.586290
∼*SEC*	0.673387	0.556667	0.527778	0.443333

Note: The tilde symbol (∼) denotes absence of a condition or the outcome.
Source: Authors.

5.2. Analysis of sufficient conditions

The Quine-McCluskey truth table is used for the analysis of sufficient conditions. This table shows the combinations of conditions that are sufficient for the outcome (successful FP) or the absence of the outcome to occur. The table is reduced by eliminating the combinations with 0 observed cases. For the combinations captured by empirical cases, configurations whose consistency exceeds a certain threshold are selected. According to Rihoux and Ragin (2009) this threshold should be set at 0.75. In this study, the analysis of sufficient conditions was performed using a consistency cut-off of 0.82 (for presence or success) and 0.81 (for absence or failure).

A frequency threshold of 1 was adopted for success. By adopting this threshold, 12 cases were included in the analysis of conditions leading to successful performance. A frequency threshold of 1 was also used for absence. By adopting this threshold, eight cases were included in the analysis of conditions leading to the absence of success.

The solution of the analysis shows the causal configurations that lead to the same outcome, which, in this case, was successful FP (or the absence of successful FP). Three alternative solutions are provided depending on how the unobserved cases are processed: the complex solution, the parsimonious (or simplest) solution and the intermediate solution. The complex solution is the most detailed solution. It is assumed that all configurations that were eliminated because they were not reflected by real empirical cases would have led to the absence of the outcome (here, the presence or absence of successful FP). The parsimonious solution is the simplest solution. It is assumed that all non-observed cases would have led to the outcome. Finally, the intermediate solution offers an alternative with intermediate complexity. It is assumed that only some of the possible causal configurations not captured by real empirical cases would have led to the outcome.

Table 4 shows the complex and parsimonious solutions of the analysis. The table shows the set of sufficient causal configurations, the overall and unique coverage of each configuration in the solution, the consistency of each configuration and the coverage and consistency of the solution as a whole.

The parsimonious solution has been used in various fields such as marketing (Frösén et al., 2016), international business (Pajunen, 2008), social sciences (Skaaning,

Table 4. Analysis of sufficient conditions.

	Financial performance: success (high ROE)				Financial performance: failure (low ROE)			
Configuration	1	2	3	4	5	6	7	8
SDG		◯	◯	●		●	◯	●
SIZ	○	●			○		●	●
RSK	●	○	◯	●	●	○	○	
AGE		◯	●	○	◯	●	●	
SEC	◯	○	●	○	●	●	◯	●
Overall coverage	0.389	0.125	0.111	0.149	0.181	0.195	0.106	0.270
Unique coverage	0.191	0.044	0.111	0.031	0.074	0.040	0.106	0.084
Consistency	0.823	0.960	1	0.869	0.834	0.774	0.874	0.834
Solution coverage		0.577765				0.493197		
Solution consistency		0.871416				0.822306		

Source: Authors.

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).

2011; Thomann, 2015) and, most recently, management (Franklin & Marshall, 2019). The results are presented using the notation employed by Fiss (2011).

The analysis of sufficient conditions yields two models: one for successful FP (high ROE) and one for unsuccessful FP (low ROE). The consistency reflects the percentage of cases included in the solution for which the outcome is present. Both models are acceptable, with a solution consistency greater than 0.75 (0.871 and 0.822 for success and failure, respectively). Ragin (2008) and Woodside et al. (2016) advocate a threshold of 0.8, which was exceeded in this study. The coverage, which indicates the percentage of cases explained in each model, is relatively high (57.78% and 49.32%, respectively).

For specific configurations, the consistency reflects the degree to which the configuration is a subset of the outcome. Configurations with consistencies greater than 0.75 should be chosen. Thus, the four configurations for successful FP and the four configurations for the absence of successful FP are sufficient with respect to the outcome ROE.

Overall coverage refers to the degree to which the configurations cover the outcome. Unique coverage measures the proportion of cases in the outcome explained uniquely by each individual configuration. A high coverage indicates that a configuration explains a large proportion of the outcome.

Configurations 1 to 4 describe the paths to successful FP (high ROE) for companies with certain attributes. According to Configuration 1, 38.9% of cases suggest that the ROE is high when risk is present but company size and sector are absent. This configuration has a consistency of 0.823. Configuration 2, which has a consistency of 0.96, suggests that 12.5% of cases achieve high FP when company size is present but the implementation of SDGs, risk, age and sector are absent. Configuration 3, which has a consistency of 1.00, suggests that 11% of cases lead to a high ROE when company age and sector are present but risk and compliance with the SDGs are absent. Finally, Configuration 4 has a consistency of 0.869. This configuration suggests that 14.9% of cases lead to a high ROE when SDGs in the company strategy and risk are present but sector and size are absent.

In terms of the negative outcome, Configurations 5 to 8 show the paths to unsuccessful FP. According to Configuration 5, FP fails in 18.1% of cases when sector and risk are present but size and age are absent. The consistency of this solution is 0.834. Configuration 6 has a consistency of 0.774. Company age, industry and commitment to SDGs are present, whereas risk is absent. This configuration is reflected by 19.5% of the cases in this study. In Configuration 7, in 10.6% of cases, there is a path to poor FP when size and age are present but SDGs, risk and sector are absent. This configuration has a consistency of 0.874. According to Configuration 8, FP is absent when commitment to SDGs, size and sector are present. This solution represents 27% of cases and has a consistency of 0.834.

6. Conclusions

This paper offers empirical analysis of a highly topical theme, namely the relationship between FP and environmental and social considerations in companies. The aim is to ascertain whether the implementation of these policies helps achieve high FP.

The method of fsQCA enables research using small samples and a small number of variables. It was thus possible to identify the conditions that lead to successful or unsuccessful FP by companies in the IBEX 35. This stock market index is the most representative stock market index of the business sector in Spain.

The analysis examined the relationship between the implementation of the SDGs and FP. This analysis also included variables identified in the financial literature as relevant for company performance because of their potential role in the aforementioned relationship. These variables refer to the characteristics of the company, namely company age, sector (production vs. services), size and risk.

The successful FP model consists of four configurations explaining the relationship between the SDGs and FP. In two of these four configurations (Configurations 2 and 3), a high ROE is explained by the absence of SDGs, in combination with other variables. Likewise, in Configuration 1, the implementation of SDGs is an irrelevant condition in the model.

Regarding the unsuccessful FP model, in two of the four configurations (Configurations 6 and 8), the presence of SDGs helps explain a low ROE (i.e. poor FP). Furthermore, the implementation of SDGs in Configuration 5 is an irrelevant condition in the model.

In conclusion, the analysis of the results shows that companies that do not implement SDGs in their strategies have historically achieved better FP (i.e. higher ROE). In addition, the presence of SDGs in their strategies, when combined with other conditions, leads to a lower ROE (i.e. it leads companies to achieve poorer FP). Two factors can justify these findings.

- *The medium- to long-term strategic nature of the SDGs.* Companies are in the process of incorporating and implementing SDGs within their organisations. Although progress is being made, full integration is a still a long way away.

- The study was carried out using a specific sample, namely companies in the IBEX 35. It would be of interest to analyse this type of relationship using companies from other types of samples.

Finally, despite these results, companies must continue to develop business models that embrace the SDGs because sustainability-based models can ensure not only the present but also the future of generations to come.

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