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IR a Qualitative Comparative Analysis on Internal Conditions leading to high Disclosure Levels in the case of European State-Owned Enterprises

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Abstract: The present paper aims at investigating the disclosure practices in State-Owned European organizations issuing an Integrated Reporting. Under the legitimacy theory, the paper investigates a total of 24 organizations from 2014 to 2017. The analysis covers five years and explores which internal characteristics determine organizations' high disclosure levels in their report. The investigation is conducted through the fuzzy-set Qualitative Comparative Analysis and outlines several different combinations of solutions for the outcome to occur. The study presents a new perspective in the literature as it investigates a niche of organizations largerly unadressed by the literature and adopts a methodology dragged from other fields (e.g., marketing). The results demonstrate different circumstances under which the analyzed condition co-exist and led to high disclosure levels without excluding other conditions.

Keywords: European State-Owned Enterprises; European SOEs' levels of disclosure in IR; marketing

JEL Classification: L26

1. Introduction

In 2019, South Africa is still the only country mandating IR for listed companies, on a 'apply or explain' basis (Haji & Anifowose, 2017; p. 4), and not only on this basis, as the Institute of Directors Southern Africa (IoDSA) through KING IV 'aspires to apply [it] to all organizations' (IoDSA, 2016; p. 35). Nevertheless, other countries are embarking on mandatory disclosure requirements: the EU, through the Directive on non-financial information, aims to rebuild trust among investors and consumers (Dumay et al., 2019). Meanwhile, other countries, like Brazil and the Netherlands, already have necessary governance codes and non-financial disclosure (Rivera-Arrubla et al., 2017).

Despite these changes, the IR promoted by the IIRF remains a voluntary choice for organizations willing to respond to the increased complexity of financial reporting and non-financial reporting (Fiori et al., 2016) and the increased demand for corporate governance and sustainability information (García-Sánchez & Noguera-Gámez, 2018). Furthermore, the increased interest in IR in recent years (García-Sánchez et al., 2018) positioned the IIRF among the possible frameworks suitable for

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European organizations to respond to the EU Directive on non-financial information (European Commission, 2017/C 215/01).

Notwithstanding the voluntary character of the IR, many companies have been embarking on this journey towards a more sustainable strategy (Fiori et al., 2016) and, consequently, many scholars have been investigating what led to the adoption of IR (Frías-Aceituno et al., 2013; Frías-Aceituno et al., 2014), or whether IR is a legitimation strategy (Lai et al., 2016) and what corporate characteristics lead to higher levels of IR disclosure (Rivera-Arrubla et al., 2017; Lopes & Coelho 2018). The results of the previous studies demonstrate that size, profitability, the business sector (Frías-Aceituno et al., 2013), and the board characteristics (Frías-Aceituno et al., 2014) influence the adoption of an IR. On the other hand, Lai et al. (2016) demonstrated that IR adoption is not related to size, leverage, profitability, or industry. In addition, IR disclosure level has been strongly associated with region, sector, and assurance (Rivera-Arrubla et al., 2017). Given the previous assertion, opposing perspectives emerge from the literature on what internal factors determine the adoption of IR, and consequently, should be further investigated. Still, the previously mentioned studies concentrate on samples limited to listed companies, leaving unaddressed other types of organizations using the IR tool. In particular, studies on corporate characteristics that determine high disclosure levels have not been found in the literature.

In this sense, the present paper aims to shed light on the European State-Owned Enterprises (SOEs) disclosure levels and what and how corporate characteristics determine a high level of disclosures through the adoption of the Qualitative Comparative Analysis (QCA) (Ragin, 2009; Schneider & Wagemann, 2012; Cuadrado-Bellesteros et al., 2017), which is a methodology rarely adopted by accounting scholars, to overcome the previous contradictory perspective and at the same time by providing a different viewpoint on how corporate conditions led to high disclosure levels. In doing so, the present paper will demonstrate what combination of internal conditions is necessary or sufficient to determine a high level of disclosure.

Given the particularity of the organizations investigated (Farnetti et al., 2019), the current investigation draws on a legitimacy theory perspective, which is essential to analyze 'the relationships between organizations and their environments' (Dowling & Pfeffer, 1975; p. 131); in this case, legitimacy theory looks at how organizations 'react to environmental factors and […] disclosure legitimize actions' (Guthrie & Parker, 1989; p. 344) and it also suggests that organizations produce such reports to demonstrate congruence to social norms and values, as indicated by Deegan (2002). This perspective gains pivotal relevance in SOEs, as they have to demonstrate that they create public value while operating in an entrepreneurial manner (Greiling et al., 2015).

The paper is structured as follows: the second section exposes the theoretical framework and develops the propositions for the present study, the third describes the calibration process while section four outlines results and discusses them, and the last section provides conclusions, limitations, and reflections for future studies.

2. Legitimacy, Corporate Characteristics: an Exploration of the Literature

Different theories have been adopted to debate voluntary IR adoption or disclosure levels, including agency theory (Frías-Aceituno et al., 2014; Fiori et al., 2016), legitimacy theory (Lai et al., 2016), stakeholder theory (Frías-Aceituno et al., 2013) and institutional theory (Rivera-Arrubla et al., 2017).

The present paper draws on legitimacy theory and considers the essential role the IR tool can play in SOEs. In the case of the organizations investigated, a wide range of stakeholders exerts their influence, requesting information about the activity of the organization and, consequently, SOEs try to maintain their legitimacy status by improving transparency and accountability through corporate communication (Cormier and Gordon, 2001; Grielig et al., 2015). This behavioral type has already been associated with an organization aiming to gain legitimacy in society (Patten, 1992).

While SOEs share different characteristics with private corporations (Montecalvo et al., 2018), one of the primary responsibilities of these organizations is to create public value while operating as a private entity (Goldeng et al., 2008; Flores-Macias & Musacchio, 2009; Grieling et al., 2015;). Furthermore, legitimacy theory is grounded on the need to demonstrate that the actions carried by organizations are desirable, proper, or appropriate within the society they operate in (Suchman, 1995). Through voluntary disclosure, organizations aim to justify their continued existence (Guthrie & Parker, 1989). Accordingly, the expectations by society at large are higher in the case of SOEs (Guthrie & Parker, 1989). Consequently, the corporate characteristics included in the present investigation are targeted toward recognizing behavioral techniques adopted by SOEs to maintain their legitimacy (Suchman, 1995).

Lai et al. (2016) investigated whether the adoption of IR can be connected to a legitimation strategy, although this idea has been rejected as the results did not support such a viewpoint. The investigation demonstrated that company *size, leverage, profitability, and industry sensitivity* do not affect IR adoption (Lai et al., 2016), while other authors demonstrated precisely the opposite (Frías-Aceituno et al., 2013; Frías-Aceituno et al., 2014). Although contradictory results have emerged from the literature, according to legitimacy theory and, in particular, Dowling and Pfeffer (1975), individual organizations can try to shape public perception through corporate communication more than others. To maintain their legitimacy, different organizations may adopt different corporate behaviors to demonstrate that their operations are in accordance with social norms and expectations. Accordingly, the previously mentioned characteristics have already been tested in the literature to determine which factors influence IR adoption or disclosure levels.

The *size* of an organization is considered to be a driver for greater disclosure due to the organization's impact (Frías-Aceituno et al., 2014; Lai et al., 2016) and due to higher visibility (Lai et al., 2016). Moreover, *profitability* indicates the situation in which an organization may choose a voluntary disclosure strategy to obtain legitimacy, moving stakeholders' attention away from negative results and orienting it towards other positive actions (Lindblom, 1993; Lai et al., 2016), and, additionally, profitable organizations may use voluntary disclosure to distinguish themselves from less profitable ones (Frías-Aceituno et al., 2014). In the case of SOEs, reporting loss may threaten their legitimacy as these organizations are delivering public value while working as a private enterprise, and therefore are using public resources to operate (Cormier & Gordon, 2001). Accordingly, the condition *size* has been determined by following the European Directive on non-financial information 2014/95/EU, which emended 2013/34/EU, which requires organizations with over 500 employees to disclose non-financial information. The calibration method is indirect, relying on the researcher's broad groupings of cases according to their degree of membership in the target set' (Ragin, 2009; p. 94). In this sense, organizations with over 500 employees will be considered a full member of the set of SOEs with score 1, while SOEs with less than 500 employees will be regarded as outside the group of organizations with more than 500 employees. It may be argued that previous studies investigating the *size* effect on voluntary disclosure (Frías-Aceituno et al., 2014, Lai et al., 2014) adopted the volume of total assets, while the current study refers to the workforce to determine the *size* of the company. The choice to adopt such a viewpoint is motivated by different reasons: (1) other studies exclude the financial sector from their analysis due to different evaluations of the corporate structure (Frías-Aceituno et al., 2014), while the present study aims to include the financial sector and, consequently, the use of the number of employees to determine the *size* of the company solves possible conflicts regarding the different evaluation of the corporate structure, and (2) the adoption of such calibration permits capturing organizations that will be forced to disclose non-financial information from 2017 (EC, 2014) and (3) the impact of a large SOE is higher in the environment in which it operates and therefore that SOE has to act in a more accountable way (Grieling et al., 2015).

Meanwhile, the *business sector* of activity may play a crucial role in organizations' legitimation strategies, as prior studies have demonstrated that the industry sector helps explain the amount of voluntary disclosure (Frías-Aceituno et al., 2014) and the *sensitivity* (Melloni, 2015; Haji & Hossain, 2016) of the industry, indeed, is related to the greater exposition of the company to public pressure than other organizations (Patten, 1992; Lai et al., 2016). In this case, the pursuit for legitimacy plays an essential role for organizations belonging to the public realm while operating as an entrepreneurial venture (Greiling et al., 2015) and at the same time working in environmentally sensitive sectors (Frías-Aceituno et al., 2014; Lai et al., 2016; Rivera-Arrubla et al., 2017). Accordingly, the industry *sensitivity* has been determined through an indirect calibration approach (Ragin, 2009), as SOEs belonging to environmentally sensitive sectors (Lai et al., 2014) have been given a full membership score, 0.95. While SOEs belonging to the *Financial* sector, given the existing literature on IR and Financial organizations, which demonstrate the role of this particular type of organization which is primarily exposed to economic cycles and plays an important role in societies (Sofian & Dumitru, 2017) and consequently have been considered to be 'more or less in' (Ragin, 2009; p. 31) the set of sensitive organizations, having a score of 0.6.

The sample investigated includes all European SOEs identified in the IIRC database, under the section 'IR Reporters', which corresponded to the definition of SOEs provided by the OECD and widely adopted by the literature (OECD, 2015; Grossi et al., 2015). However, in the set of SOEs, there are organizations fully owned by the State, County, City and others where the state still keeps the majority of the share but does not fully own it. Consequently, the degree of public resources at stake is higher in cases of full ownership and the need for legitimation would increase as such organizations are exposed to even higher scrutiny by all stakeholders. Therefore, public ownership has been further calibrated through a direct method of calibration in order to capture SOEs fully or mostly owned by the States. The threshold of full membership has been set at 100% of public ownership. The maximum ambiguity has been set to 50% of public ownership, as this delineates the point at which it is ambiguous whether the state's ownership can be considered as full. Meanwhile, the threshold for determining the set of organizations that are fully out of the set of SOEs has been established at 20% of the ownership.

The adoption of other voluntary reporting systems, as well as assurance, can provide objectivity to the information provided (Rivera-Arrubla et al., 2017). In view of legitimacy theory, the adoption of assurance of non-financial information, GRI guidelines application and in addition also publication on the IIRC database, as well as the mention of the application of the IIRF in the report, can be perceived by society at large as a way to demonstrate that organizations are acting in accordance with social norms and expectations. The literature has explored the relationship between GRI and assurance of non-financial information on IR disclosure (Rivera-Arrubla et al., 2017). However, in the case of the current research, a new item has been developed in order to capture legitimacy behaviours that emerge through the application of a series of guidelines which, in this case, are: GRI, the IIRF, assurance and whether the assurance is done by a Big Four company. Similar behaviour can be seen as an attempt by SOEs to demonstrate to the broad range of stakeholders that their activity is in accordance with social norms and values and, consequently, that they are respecting the existent social contract (Deegan 2002; Setia et al., 2015). Each of the four categories mentioned was scored separately, with one for the presence of the category or zero in the case of the absence. Moreover, the condition *guidelines application* was obtained by adding up the four categories, which have been considered to be legitimacy-related behaviours. Therefore, the maximum score will be 4, while the minimum will be 0. In this case, a direct calibration approach has been adopted (Ragin, 2009). In this sense, the point of maximum membership in the set is 4, the maximum ambiguity threshold has been set at two elements, as two does not represent either a high level of legitimation attempt or unconcern regarding the legitimacy issue, while the minimum threshold has been established at 0, demonstrating that the organization does not attempt to validate, through the application of guidelines, a legitimacy behaviour oriented towards the respect of social norms and expectations (Suchman, 1995).

Moreover, the *profitability* condition has been recalibrated through the assessment of profit, taking profitable companies to be full members, and those showing a loss to be non-members. The literature has largely adopted ROA as a profitability measurement (García-Sánchez & Noguera-Gomez, 2018; Iredele, 2019), although such adoption will not be suitable for the current investigation, as the main purpose is to demonstrate whether the presence or absence of profit, in combination with other conditions, leads to the outcome.

The contradictory results shown in the literature can be connected to the asymmetrical and intricate paths of social and economic relationships (Ragin, 2009; Schneider & Wagemann, 2012; Cuadrado-Bellesteros et al., 2017). In this sense, when an organization is operating in a sensitive environment and at the same time not making a profit, it can determine that the organization needs to disclose more information to justify its activity and, consequently, one condition will not necessarily exclude the other. In the case of the current paper, full ownership by the state in combination with different factors such as the sector sensitivity, lack of profit, the size of the SOE, as well as the adoption of several guidelines, can put the organization in a situation in which it feels that it must disclose non-financially oriented information to legitimize its existence. In this sense, the adoption of a different methodology can demonstrate different corporate behaviours emphasising legitimacy.

Additionally, Pozzoli & Geusele (2016) found that longer reports contain more information, while the requirements of the IIRF call for concise reports (IIRC, 2013). Under a legitimacy perspective, longer reports can be seen as an attempt to justify and modify stakeholders' perception of the organizations' activity (Setia et al., 2015). In this sense, the report's *length* has been taken into consideration, as the IIRC calls for concise reports in its framework (IIRC, 2013) and also a wide range of literature argued for the relevance of reports' length, as it reflects the importance of the argument for the issuer (Guthrie & Parker, 1989; Rivera-Arrubla et al., 2017). Consequently, the number of pages has been calibrated through the indirect method, as scores of full membership were given to organizations with less than

200 pages, while organizations with more than 200 pages were considered to be fully out of the set of organizations with concise reports. A threshold of 200 pages was established according to the recommendation of KPMG (2015), which considers that 200 pages are more than enough for an IR.

Accordingly, the influence that corporate characteristics have on determining high IRD levels that are going to be explored are: *size* in term of number of employees, *sensitivity* based on the business sector, the report's *length* in terms of pages number, whether the SOEs is *profitable* or not, as well as whether it is *fully owned* by a public entity, and whether the organizations are applying different non-financial guidelines as well as assuring the non-financial information included in the report (Rivera-Arrubla et al., 2017). Noteworthy to mention, is the exclusion of a listed non-listed, to the stock exchange conditions, as the research aims to demonstrate how SOEs aims to respond to other stakeholders rather than private investor.

The existence of high-level IIRF is expected to occur due to different conditions determining legitimacy behaviour. The present investigation proposes that high IRDs levels:

Proposition 1: *are determined by different configurations of corporate characteristics*

Moreover, in addition, it aims to investigate whether a condition, in particular, leads to high IRDs scores (*necessary condition analysis*).

Therefore, the empirical model adopted for the present analysis, for each year and the variance is the following:

IRDs= f (Sensitivity, Length, Size, Profitability, Ownership, GApplication)

Methodology

Data Collection

The investigation explores European SOEs' levels of disclosure in IR. The sample was gathered in the IR database under the section "IR Reporters". SOEs were selected after an ownership analysis in which the ownership was analysed to determine whether the organization correspond to the definition provided by the OECD (2015): "enterprises where the state, regional governments or cities have significant control, through full, a majority, or significant minority ownership" (Grossi et al., 2015). Once the sample has been determined, the official websites of each organization were scrutinized in order to download public available reports useful for the present analysis. The total number of reports analysed is 106.

Table 1. Sample Composition

Industry	**2013**	**2014**	**2015**	**2016**	**2017**
Basic Materials	2	3	3	3	2
Consumer Good	0	0	1	1	1
Consumer Services	4	4	5	5	4
Financial	6	6	7	7	7
Oil and Gas	3	3	3	3	3
Utilities	3	3	4	5	5
Total Reports	**18**	**19**	**23**	**24**	**22**

Data Analysis

For the disclosure analysis the methodology employed is Content Analysis which "involves replicable and valid methods for making inferences from observed communications to their context' (Krippendorff, 1980; p. 69). Such methodology is largely adopted in the case of disclosure studies (Rivera-Arrubla et al., 2017; Sofian & Dumitru, 2017; Kiliç & Kuzey, 2018a-b; Pistoni et al., 2018; Manes et al., 2018). The reports were analysed according to the checklist proposed by Zhou et al. (2017), which covers 31 elements divided in 8 categories (annex 1). An unweighted score was adopted where "1" represents the presence of the element and "0" the absence of the corresponding element. By using the framework proposed by Zhou et al. (2017), the reliability issue emerging from the use of the Content Analysis is solved.

In this vein, the IR Disclosure level (IRD) was calculated as follows:

$$\textbf{IRD}=\frac{\sum_{i=1}^{m} d_i}{m}$$

Where $\sum_{i=1}^{m} d_i$ represents the sum of the number of items disclosed by an SOE and *m* indicates the maximum number of items (31) foreseen by the checklist.

The issue of concise reports was acknowledged as Cavicchi et al. (2019) outlined that organizations tend to have IR too long to represent an interest for readers, and in order to assess whether SOEs are providing concise reports, the present research also included an analysis of the number of pages per each report.

Moreover, the GRI guidelines' application inside IRs has been acknowledged through a dummy variable, when organizations adopting GRI guidelines are assigned (1), and (0) when the application of such guidelines was not mentioned (Haji & Anifowose, 2017; Sofian & Dumitru, 2017; Reimsbach et al., 2018; Gerwanski et al., 2019). Furthermore, an additional dummy variable was adopted with a value (1) when assurance was provided by a Big Four audit firm (1), and (0) when assurance was not provided by a Big Four audit firm (Buys & van Niek, 2014; Rivera-Arrubla et al., 2017). The inclusion of a variable that outlines the adoption of assurance of the non-financial information is related to the aim of such strategy which is to ensure credibility of the information included in the reports (Rivera-Arrubla et al., 2017).

Table 2. Additional Elements

Included Elements	Value
GRI Guidelines Application	Presence (1)/Absence (0)
Assurance	Presence (1)/Absence (0)
Big 4 Assurance Provider	Presence (1)/Absence (0)
IIRF Mention	Presence (1)/Absence (0)

Furthermore, the investigation moves to the QCA approach. The motivation behind the decision to use the adopted methodology is related to the call for a shift in research approach that moves from the current emphasis on Multivariate Regression Analysis (MRA) and Structural Equation Modelling (SEM) (Woodside, 2013). The QCA methods differs from usual methodologies as it demonstrates the presence of particular attributes that can be seen alone or together with other conditions. QCA is associated with se-theoretical methods that analyses social reality in which data are set-memberships scores, social phenomena are modelled in terms of relations and results demonstrate sufficient and necessary conditions that emphasize causal complexity (Schneider and Wagemann, 2012). Through the sufficiency analysis, the QCA demonstrate how different combinations of conditions are able to reach the same outcome (Ragin, 2009; Greckhamer et al., 2018). The present paper adopts the fuzzy-set QCA (fsQCA) that comprehend a qualitative and quantitative perspective (Ragin, 2009). A pivotal step in the fsQCA methodology is the calibration process, as it outlines the position of cases in relation to the others (Ragin, 2009).

Results & Discussions

Moreover, the results presented in Table 5.4.3 represent the IRDs per sector for the analysed period.

Table 3: IRDs Results per Sector per Year

Industry	2013	2014	2015	2016	2017
Basic Materials	0.52	0.58	0.51	0.68	0.66
Consumer Good	-	-	0.35	0.32	0.45
Consumer Services	0.56	0.68	0.58	0.65	0.72
Financial	0.44	0.61	0.66	0.75	0.71
Oil and Gas	0.53	0.59	0.58	0.58	0.59
Utilities	0.61	0.71	0.54	0.65	0.69
IRDs	**0.52**	**0.63**	**0.58**	**0.66**	**0.68**

Further insights emerge from the table presented above. The consumer goods sector is not aligning its IR to the IIRF. However, generalisations on the '*Consumer Goods*' sector may not be relevant, as the sector includes only one SOE, as shown in Table 2.3.1.1. The other sectors show alignment scores over 0.5. It is worth noting the alignment development of the '*Financial*' sector, which shows a constant increase in alignment scores. In this sense, the high IIRF as of the '*Financial*' sector can be related to the role played by this type of organizations in local economies (van Zijl et al., 2017); therefore, the social expectations from organizations working in this sector are higher due to its capacity to protect from risks, support the creation of new jobs as well as companies and empower saving and investments (Sofian & Dumitru, 2017) and, consequently, these organizations feel higher pressure to respect the social contract (Deegan, 2002; Setia et al., 2015). Moreover, the IRDs score of the '*Financial*' sector is in line with a previous study (Sofian & Dumitru, 2017).

On a less positive note, the alignment score demonstrated by SOEs working in sensitive sectors like '*Oil & Gas*' (Melloni, 2015; Haji & Hossain, 2016) did not perform well. While Walchiria et al. (2019) argued that organizations working in sensitive sectors are more likely to adopt and respect King III requirements, SOEs working in 'sensitive' sectors are not aligning their reports to the IIRF. In this vein, it may be argued that the need to operate in accordance with social norms (Cormier & Gordon, 2001; Greiling et al., 2015) is fulfilled through other means (e.g. SR), as 'Oil & Gas' organizations have a more significant environmental impact, and consequently an SR may be a more suitable tool to disclose such information.

Furthermore, the present study assessed how many organizations were adopting the GRI guidelines in their IR, how many were assuring their IR, as well as how many assurance reports were provided by Big Four firms and, finally, the number of organizations mentioning the adoption of the IIRF in their report, supporting the findings of Rimmel (2019).

Table 5.4.5. GRI, Assurance, IIRF Application

Application	2013	2014	2015	2016	2017
GRI	12	16	18	20	18
Assurance	11	9	15	14	14
Big 4	10	9	8	14	14
IIRF Mention	10	13	16	15	14

The results show widespread use of the GRI guidelines, followed by the widespread adoption of assurance provisions, which have been provided mainly by Big Four audit firms. Additionally, the findings show that European SOEs mostly, but not always, mention the adoption of the IIRF. This indicates that even if not all organizations are following the framework proposed by the IIRC, they are providing an IR which is influenced by the IIRF. The application of the GRI guidelines by European SOEs as well as the provision of assurance by a Big Four audit firm, represent a strategy oriented to maintain legitimacy, as through these actions SOEs are communicating towards their stakeholder that their activity respects norms and is aimed at working in harmony with the broad range of expectations stakeholders have towards this particular type of organization (Cormier & Gordon, 2001). Moreover, the literature demonstrates that the GRI application and assurance provision influence the disclosure level of an IR (Rivera-Arubla et al., 2017) in this sense the broad adoption of GRI guidelines can be seen as facilitating the IR journey (Kiliç & Kuzey, 2018b).

The length analysis demonstrates a fluctuating number of pages, as during the first two years the number of pages is above the recommended number of 200 pages (KPMG, 2015). However, the number of pages decreases in 2015 reaching length levels below 200 pages and after in 2016 and 2017 reaches levels slightly above the threshold recommended by KPMG (2015), of 200 pages. Noteworthy to mention, is the inclination of some sectors like "*Consumer Services*", "*Basic Materials*" and "*Utilities*" toward a strong reduction in number of pages.

Table 5.4.6. Length Analysis per Sector

Sector	2013	2014	2015	2016	2017
Basic Materials	233	149	149	185	164
Consumer Good	-	-	308	349	545
Consumer Services	232	209	158	190	224
Financial	248	248	213	248	215
Oil and Gas	324	286	176	185	226
Utilities	297	290	137	182	194
Total Average	**264**	**237**	**179**	**211**	**224**

From a different perspective, even if the "Financial" sector obtained the highest scores in terms of alignment the average length of the sector is stable at levels above the recommended number of pages.

Moving toward the fsQCA, the first step is represented by the necessary condition analysis for the outcome to occur. The analysis was practised for all the years and, in addition, the variance of the IRDs, which was obtained by the difference of IRDs from 2017 with 2013 in order to determine which conditions lead to the increase of the outcome.

The analysis of the necessary conditions demonstrates that in 2013, SOEs reporting profits had high IRDs, consequently providing more information to all stakeholders about the good results of the activity. In this case, European SOEs reporting profits aimed to demonstrate that such organizations are able to create public value while acting in an entrepreneurial way (Grieling et al., 2015). In addition, two significant conditions (Álvarez-Coque et al., 2017), having consistency levels higher than 0.80, were found: *size* and *guidelines application*. This can be connected to the exposure larger organizations have in the environment in which they operate (Patten, 1992), which is in accordance with a legitimacy perspective.

Furthermore, the necessary conditions have been found for other periods. Although, in the year 2017, all the investigated SOEs produced profits, and, consequently, the analysis results in a necessary condition, having profit, for the outcome to both occur and not to occur. In addition, significant conditions (Álvarez-Coque et al., 2017) resulted in multiple times in different years demonstrating the significance of specific conditions like *size* (2013, 2014, 2017), *Guidelines Application* (2013, 2015, 2017). It can be argued that SOEs having a higher number of employees, and consequently being larger organizations, provide higher alignment scores. This aspect is in line with legitimacy theory, as larger organizations have a larger impact on the environments in which they operate and are expected to disclose more non-financial information (Patten, 1992; Lai et al., 2016). This result supports the evidence provided by Frías-Aceituno et al. (2013). Another relevant condition for the outcome to occur is the *Guidelines Application*, as already mentioned above, for the years 2013, 2015, 2017. This demonstrates that for the current type of organizations investigated the application of different guidelines, as well as the adoption of assurance, leads to higher alignment scores. Therefore, the similar previous assumption on the objectivity of the information provided through the application of assurance of the non-financial information and GRI application (Rivera-Arrubla et al., 2017) is supported by the present research, as it demonstrates that similar behaviours lead to higher alignment scores.

Furthermore, the IRDs variance from 2013 to 2017 is not determined by any condition in particular, as none of the proposed conditions obtained consistency results higher than 0.90. It can be argued that the IRDs increasing is not due to any condition in particular, although it can be related to *significant* conditions, having consistency results higher than 0.80 (Álvarez-Coque et al., 2017) and these are: *Ownership* (consistency 0.8425) and *Guidelines Application* (consistency 0.8294). The *Ownerships* condition, which indicates full ownership by the state of the organization, emerged to be an important condition for improving the IR alignment scores. The presence of full ownership of the organization by a public entity demonstrates that such entities are trying to conform their communication towards public society at large in order to comply with social norms and expectations (Dowling & Pfeffer, 1975), as these organizations are creating public value acting in a private manner (Greiling et al., 2015).

Table 7.4.1. Necessary Analysis for High IRDs

	2013		2014		2015		2016		2017		2017-2013	
Conditions	**Consistency**	**Coverage**	**Consistency**	**Coverage**	**Consistency**	**Coverage**	**Consistency**	**Coverage**	**Consistency**	**Coverage**	**Consistency**	**Coverage**
Sensitivity	0.7464	0.5526	0.7458	0.7887	0.7245	0.6857	0.7037	0.7926	0.6994	0.7957	0.6706	0.5323
~Sensititvity	0.4810	0.6152	0.4518	0.8872	0.4709	0.6933	0.4175	0.7768	0.4045	0.7975	0.5814	0.5274
Length	0.4455	0.5371	0.5398	0.7050	0.6340	0.5600	0.5754	0.7454	0.6074	0.7415	0.6391	0.4427
~Length	0.5545	0.4255	0.4602	0.6678	0.3660	0.6063	0.4246	0.6500	0.3926	0.6922	0.3609	0.3929
Size	*0.8957*	0.5040	*0.8461*	0.6906	0.7675	0.5650	0.7684	0.6811	*0.8841*	0.7384	0.5682	0.3608
~Size	0.1043	0.2933	0.1539	0.6700	0.2325	0.6160	0.2316	0.7800	0.1159	0.6133	0.4318	0.5483
Profitability	**0.9111**	0.4806	0.7734	0.6733	0.5509	0.6636	0.6277	0.6606	**1.0000**	0.7214	0.7756	0.4925
~Profitability	0.0889	0.3750	0.2266	0.7400	0.4491	0.4958	0.3723	0.7838	0.0000	0.0000	0.2244	0.2850
Ownership	0.7855	0.5909	0.7802	0.8373	0.7736	0.6912	0.7102	0.7802	0.7215	0.8526	*0.8425*	0.5722
~Ownership	0.5036	0.6268	0.4081	0.7804	0.4309	0.6989	0.4365	0.8478	0.4423	0.8191	0.4239	0.4764
GAplication	*0.8294*	0.6641	0.7833	0.8759	*0.8415*	0.7549	0.7797	0.8559	*0.8166*	0.8763	*0.8294*	0.6590
~GApplication	0.4609	0.5214	0.4694	0.8374	0.4845	0.7801	0.4590	0.8926	0.3566	0.7850	0.6076	0.5505

Moving away from the necessary condition analysis, the second step in fsQCA analysis enters the core of the purpose of the present research, which is demonstrating that high IRDs scores are not limited to one condition in particular, but the combination of different conditions leading to the outcome. In this vein, the sufficiency analysis has been performed on every year as well as for the variance between 2017 and 2013.

The solutions provided have consistency levels above than the recommended level given in the literature (Ragin, 2008; Greckhamer et al., 2018), apart from the results obtained for the year 2013, which have consistency values of 0.777444. However, the literature mentions the possibility of considering sufficiency results with consistency levels of > 0.75 (Woodside, 2013; Rivera-Arrubla & Zorio-Grima, 2016).

The solution proposed for the year 2013 has less empirical relevance due to the lower consistency, although some comments on the two proposed solution are still provided. The 2013 solutions demonstrate similar paths towards high IRDs, which must be connected to the business operating in environmentally sensitivity sectors, the presence of more than 500 employees, indicating the size of the organization, as well as the presence of Guidelines Applications. The two solutions differ in the length of the reports, as the two solutions consider both possibilities of having long IR and short IR. Also, one solution considers the presence of full public ownership for the sufficiency and does not consider the presence or the absence of profit, while the second one outlines the opposite for the two previously mentioned conditions. In particular, the core conditions linking the two solutions are the presence of a sensitive activity sector, the size of the organizations and the application of different guidelines. A behaviour geared towards the meeting of social norms and expectations can be observed in both of the solutions provided. The exposure of organizations operating in environmental sensitive sectors (Lai et al., 2016) in combination with the size (Frías-Aceituno et al., 2013) and the search for objectivity for the provided information (Rivera-Arrubla et al., 2017), which in this case is demonstrated by the application of different guidelines and the assurance of non-financial information, appears to be a combination of conditions linking the two solutions. The impact and the use of resources by these organizations (Patten, 1992) render their compliance with the social contract essential (Deegan, 2002; Setia et al., 2015), and, consequently, organizations corresponding to such cases demonstrate through IR their intention to meet social norms and expectations (Dowling & Pfeffer, 1975).

Furthermore, the 2014 analysis, having consistency values over 0.80 is empirically relevant and, consequently, suitable for further consideration. The 2014 analysis provides five different solutions for the occurrence of high IRDs and demonstrates that the high IRDs are determined by the presence of several conditions combined with others or, in some cases, with the absence of certain conditions. S1, from 2014, demonstrates that high IRDs can be obtained through the presence of several conditions combined. As the solutions proposed, the combined presence of size, profit, full ownership and the application of different guidelines leads to high IRDs scores. Meanwhile, solution S2 demonstrates that operating in a sensitive field of activity, having more than 500 employees, and therefore being considered a large organization, as well as being fully state-owned and applying different guidelines, including assurance, also leads to high IRDs scores. Furthermore, these two solutions demonstrate that by different, although similar, means the outcome is achieved in both situations. With the intention of strengthening the previous assertion, S5 suggests that organizations can still reach the desired outcome, high IRDs in this case, without having more than 500 employees and the application of different guidelines as well as the assurance of the non-financial information contained in the report. It is worth noting that the core condition linking the five different proposed solutions is the presence of full ownership. This condition aims at demonstrating that this particular type of organization is more inclined to communicate corporate results towards a wide range of stakeholders due to their activity (Greiling et al., 2015) and due to their foggy nature, which implies blurred lines of ownership and accountability (Luke, 2010), making the role of IR in communicating the value creation model of the organization towards the society at large essential, which requires further communication in order to demonstrate that the activity pursued by such organization, also implying public resource, is in line with social norms and expectation (Suchman, 1995) as these organizations are responding to a wider range of stakeholders (Cormier & Gordon, 2001). While Suttipun & Bomlai (2019) demonstrated that there is no relationship between the level of Integrated Reporting and state ownership, this case demonstrates that on a sample of SOEs, the full ownership by a state’s entity or directly by the state leads to high IRDs, demonstrating the relevance of a full presence by the state. Given the different methodology applied in the current study, it is not possible to state that the high IRDs are determined by a higher presence of the state in the ownership of the organization, as could be done through the MRA, although these results demonstrate that the combination of different conditions, including also the presence of state as a full shareholder, leads to high IRDs.

The analysis from 2015 provides different results, as none of the solutions is equal to those previously proposed. This proves that the asymmetrical and complex paths followed by social and economic phenomena (Ragin, 2009; Schneider & Wagemann, 2012; Cuadrado-Bellesteros et al., 2017) allow for different recipes for an outcome to occur and that a disclosure level is not limited to a single characteristic. Accordingly, the results from the 2015 analysis expose fewer solutions than the previous years, and are only three. In contrast to the other proposed solutions, the 2015 results demonstrate a particular relevance for the absence of short reports, having more than the 200 recommended pages (KPMG, 2015). In this sense, it is possible to observe that S1, from 2015, is similar to S1 proposed in 2014, although the condition sensitivity gains relevance and turns out to be a part of the solution for the sufficiency. The combinations of the given conditions in S1 indicates that organizations operating in sensitive sectors are more exposed to public scrutiny and are more inclined to disclose voluntary information (Patten, 1992), while also being profitable, fully owned by a state entity and applying non-financial guidelines and assurance.

Moreover, the other two solutions emerging from the analysis expose a characteristic similar to the previous year's S3 and S4, which is the absence of Length, i.e. reports longer than the recommended average of 200 pages (KPMG, 2015). While containing the full ownership of state in the three solutions, S2 and S3, from 2015, differs in few conditions; first, the sensitivity is not foreseen by S3, while S2 does not include the Guidelines Application and, in addition, it outlines the absence of profit for the occurrence of the outcome in combination with long reports, sector sensitivity, size and the public ownership. The core conditions obtained demonstrate that in solutions 1 and 3, the core condition is the presence of profit, and in S2, the core conditions are Sensitivity 'AND' Length. According to the given core conditions it is possible to develop different assumption in relation to legitimacy theory. First, in the case of SOEs, the pursuing of their social mission through commercial activities is a primary purpose (Pache & Santos, 2013) and, additionally, these, can be competitive (Goldeng et al., 2008; Flores-Macias & Musacchio, 2009) and, therefore, though the corporate communication are aiming at maintaining their legitimacy through corporate communications (Cormier and Gordon, 2001; Grieling et al., 2015), in this case they are motivated by the positive economic result. From a similar perspective, the other conditions emerging as core conditions are Sensitivity 'AND' Length, which are only reflected in S2, indicating that sector sensitivity and long reports are core conditions leading to the occurrence of the outcome. From a legitimacy theory perspective, activity in environmental or social sensitive sectors in combination with long reports lead organizations to have higher alignment scores, as this demonstrates that the need of legitimacy is higher in such organizations (Patten, 1992), and, consequently, that they are providing more information in order to maintain their legitimate status through longer reports.

Furthermore, the 2016 analysis provides six different solutions leading companies to have high IRDs. In this sense, S1 and S2 are similar, as both foresee the presence of a sensitive sector of activity, profit, full state ownership and the application of different guidelines, as well as assurance of the non-financial information included in the report, the two mentioned solution does not include, separately, two conditions: S1 does not foresee the Size while S2 does not foresee the Length. From a similar perspective, S4 and S5 are analogous as they differ only for the sensitivity, as S4, foresees its absence while including in the solution the presence of all the other conditions, and as S5, foresees the absence of profit but foresees the presence of all the other conditions. Solution three is the most different from the others resulting from the analysis. It demonstrates that organizations operating in an environmentally or socially sensitive sector, with concise reports, having more than 500 employees, having losses, not being fully owned by a state entity, as well as not applying guidelines and assurance, still results in high IRDs scores. These results, as can be observed in Table 4.4.3, demonstrate a wide variety of possible pathways for reaching high IRDs.

Additionally, the core conditions demonstrate that the combination of sector Sensitivity 'AND' Guidelines Application, the absence of profit (to be seen as a loss) or Length 'AND' Guidelines

Application support the concept of various conditions affecting the IRDs scores. Accordingly, the maintenance of legitimacy follows different paths, as organizations can be driven by different combined reasons. It can be argued that SOEs, through the IR tool, are responding to different internal stimuli, which, for different reasons, are felt to be challenging the legitimacy status of the organization itself and, consequently, SOEs are responding with high IRDs. The corporate communication strategy aims at demonstrating that the actions undertaken by these organizations are desirable, proper and appropriate inside their social system of norms, values and belief (Suchman, 1995). In this case, the alignment of a recently developed form of corporate reporting tool can be seen as an attempt to conform to a pre-existing environment with the goal of meeting the substantive needs of various stakeholders (Suchman, 1995). Additionally, the higher scrutiny to which these organizations are exposed (Cormier & Gordon, 2001; Grieling et al., 2015) makes these organizations more visible and dependent on social and political support and to therefore engage in legitimating behaviours (Dowling & Pfeffer, 1975), in this case, represented by high IRDs. Meanwhile, the proposed solutions explain what determines organizations to follow the IIRF more and, in doing so, propose a different perspective from the existing literature explaining this phenomenon (space for comparison with previous results is limited). This is related to equifinality, conjunctural causation and casual asymmetry (Schneider & Wagemann, 2012), which are at the foundation of QCA and enable researchers to demonstrate a combination of conditions explaining the same outcome as well as the effect of a condition in combination with other conditions. Therefore, the assumptions which can be drawn from existing results in comparison with the results emerging from the current analysis are enforcing and, at the same time, rejecting previous results as the sensitivity, size and also ownership (Frías-Aceituno et al., 2014; Lai et al., 2016; Suttipun & Bomlai, 2019) were found to be, in different solutions, present and absent. This demonstrates the complex pathways for maintaining legitimacy, which is related to the complex economic relations which have not to be defined as symmetrical (Ragin, 2009; Schneider & Wagemann, 2012).

Table 7.4.2. Sufficiency Analysis for High IRDs (a)

	2013		2014					2015		
Conditions	S1	S2	S1	S2	S3	S4	S5	S1	S2	S3
Sensitivity	●	●		●	●	●	●	●	●	
Length	ϴ	●			ϴ	ϴ	●		ϴ	ϴ
Size	●	●	●	●		●	ϴ		●	●
Profit/Loss	●		●		●	●	●	●	ϴ	●
Ownership		●	●	●	●	●	●	●	●	●
GApllication	●	●	●	●	●		ϴ	●		●
raw coverage	0.3555	0.2571	0.37060	0.40123	0.11332	0.10950	0.08423	0.3230	0.1004	0.1034
unique coverage	0.3555	0.2571	0.16999	0.20061	0.04441	0.04058	0.08423	0.2702	0.1004	0.0506
consistency	0.7317	0.8510	0.90977	0.96147	0.98667	0.98621	1.00000	0.9839	1.0000	0.8896
solution consistency	0.777444				0.943415				0.973643	
solution coverage	0.612559				0.740429				0.473962	

Legend: "●" = Core causal Condition Present; "ϴ" = Core casual Condition absent; "●" = Complementary casual Condition present; "ϴ" = Complementary casual Condition absent; "blank space" don't care

Table 7.4.3. Sufficiency Analysis for High IRDs (b)

	2016					2017					2013-2017			
Conditions	S1	S2	S3	S4	S5	S1	S2	S3	S4	S5	S1	S2	S3	S4
Sensitivity	●	●	●	ϴ	●	●		●	●	●	●	●	ϴ	●
Length	ϴ		●	●	●		ϴ	ϴ	ϴ	●	●	●	●	ϴ
Size		ϴ	●	●	●	●	●	●	●		●	ϴ	●	●
Profit/Loss	●	●	ϴ	●	ϴ	●	●	●	●	●		●	●	●
Ownership	●	●	ϴ	●	●		●	●	ϴ	●	●	●	●	●
GApllication	●	●	ϴ	●	●	●	●			●	●		ϴ	●
raw coverage	0.144	0.131	0.106	0.060	0.124	0.524	0.258	0.169	0.179	0.287	0.269	0.241	0.113	0.207
unique coverage	0.108	0.096	0.086	0.060	0.104	0.096	0.115	0.026	0.034	0.072	0.070	0.042	0.113	0.207
consistency	0.931	1.000	1.000	0.918	0.991	0.898	0.885	0.982	0.833	0.996	0.962	0.856	0.956	0.908
solution consistency	0.967306					0.862579					0.890741			
solution coverage	0.509501					0.771267					0.631234			

Legend: "●" = Core causal Condition Present; "ϴ" = Core casual Condition absent; "●" = Complementary casual Condition present; "ϴ" = Complementary casual Condition absent; "blank space" don't care

The last year analysed, 2017, proposed another five solutions explaining high IRDs, again, different from the previous ones. In this sense, a standard line visible in all the five proposed solutions is that none of them foresees all the conditions included in the current investigation. The only condition included in all the solutions is the presence of profit, as it reflects the limited diversity in the sample, as all organizations are reporting profits. S1 has the largest raw coverage with a coefficient of 0.52363, representing how much of the outcome is a solution covering (Schneider & Wagemann, 2012). The first solution outlines the occurrence of the outcome in the case of SOEs operating in a sensitive environment, with more than 500 employees, having profits and applying guidelines and assurance of the non-financial information included in the IR. In the explanation provided by this solution, it can be argued that, noticing the exclusion from the solution of the Ownership conditions, demonstrating that both fully owned and not fully owned SOEs are following similar paths determining the occurrence of high IRDs. Moreover, S2, S3 and S4 are similar as they share several conditions: long reports, size, and being profitable. Meanwhile, S2 does not include the sensitivity condition but includes guidelines and assurance application; S3 and S4 include the sensitivity condition but excludes the guidelines and assurance application. While some resemblances are found among the previously discussed solutions, S5 provide an altogether, different perspective for the occurrence of the outcome. As, according to S5, high IRDs are found in SOEs operating in environmentally sensitive sectors, issuing short reports, are reporting profits, are fully owned by a state entity and are applying guidelines and assurance on non-financial information included in the report. The guidelines and assurance application emerged to be a core condition in S1, S2, S5, as well as the activity developed by SOEs operating in environmentally and socially sensitive sectors 'AND' the size, in terms of >500 employees emerged to be a core condition in S1, S3 and S4. From a legitimacy theory perspective, the emerged core conditions enforce the idea that organizations working in environmentally or socially sensitive sectors and having larger impact due to their size (Pattent, 1992) can adopt legitimation strategies through corporate communication (Dowling & Pfeffer, 1975). In a similar vein, the application of well established (GRI) (Setia et al., 2015) or new guidelines (IIRF) on corporate reporting as well as assuring the non-financial information can be seen as an attempt by SOEs to demonstrate the compliance with social norms and expectations in a determined environment (Suchman, 1995).

The variance analysis demonstrates which combination of conditions lead to increasing IRDs values in the investigated sample by using the difference of IRDs obtained in 2017 and 2013. Accordingly, the analysis provides four different solutions. The first two solutions provide pathways for increasing the IRDs without including all the conditions, as S1 does not include the Profit/Loss condition and S2 does not include the application of different guidelines and assurance, demonstrating the combinations of different, although similar, conditions are leading organizations to align their report to the IIRF. In this sense, according to S1, SOEs that are operating in sensitive sectors, with a short report, an increasing number of employees, fully owned by a state entity as well as showing the application of different guidelines and the assurance of non-financial information have been observed to be increasing their IRDs. Meanwhile, S2 differs from the previously exposed solution, as it demonstrates how SOEs operating in a sensitive environment, have short reports, but a decreased number of employees, are increasing profit and are fully owned by a state entity are improving their IRDs scores. These two solutions, in their diversity, show how both large and small organizations increased their IRDs. Furthermore, the other two proposed solutions expose other similar, but, yet different, pathways for the occurrence of the outcome, IRDs increasing. Accordingly, S3 suggests that SOEs operating in non-sensitive sectors (given the absence of the condition), issuing short reports, with an increasing number of employees, improving profits, being fully owned by the state and not applying guidelines or assurance are, as well, a recipe for improving IRDs. In a similar vein, but with small differences, S4 demonstrates that increasing levels of IRDs are also determined in SOEs operating in sensitive sectors, having longer reports, an increasing number of employees, increasing profits, fully state-owned and applying different guidelines and assuring the non-financial information included in the report. These different, solutions, in addition to the ones already analysed from the previous years, demonstrate how these conditions, in a variety of combinations, are influencing SOEs' strategies oriented to legitimacy maintenance. In this sense, the different pathways demonstrated for the growth of IIRF can be connected with different reasons or pressures SOEs may feel and respond to by increasing their transparency and, consequently, their accountability levels, in order to legitimate their actions (Cormier & Gordon, 2001; Grieling et al., 2015). In particular, the core conditions demonstrate that in S1 and S4, the presence of sector's sensitivity and the application of guidelines 'AND' assurance results as core conditions. Accordingly, from a legitimacy theory perspective, the IRDs growth is triggered by the combination of the two mentioned conditions related to the environmental and social impact these SOEs have in their environments; a similar phenomenon has been observed by Patten (1992), and by applying guidelines and assurance organizations aim at strengthening their communications, as similarly hypothesised by Setia et al. (2015; Rivera-Arrubla et al., 2017). In doing so, SOEs may try to demonstrate their compliance with social norms and expectations, as they are more exposed to public scrutiny (Grieling et al., 2015). In addition, the variance analysis demonstrates the opposite side of the core conditions, as organizations non-operating in sensitive sectors and not applying guidelines and assurance have been increasing their IRDs. These two core conditions, found in solution 3, demonstrate that legitimacy is not only a matter of the sector's sensitivity and about information credibility, but it can be determined by the absence of these two elements. To some extent, social expectations are not oriented only towards a certain type of organization, but, as demonstrated in this case, the occurrence of the outcome indicates a legitimation attempt triggered by the absence of the two conditions, as well as the presence of the others included in the solution, which, however, are peripherical. Nevertheless, S3 suggests, as core conditions, the profitability of the SOEs

'AND' a decreasing number in term of employees expose the necessity of legitimating the SOEs activity. In this particular case, it was felt that it was mandatory to demonstrate that even with a decreasing number of employees, the organization was obtaining profits, and in doing so the organization was complying with social norms and expectations (Dowling & Pfeffer, 1975), even if the number of employees had decreased over the years investigated.

Finally, the different pathways analysed in the present section expose a variety of conditions cooperating in determining organizations to have IRDs alignment. In this vein, it is possible to argue that, in comparison with the existing literature, the results provided offer a different perspective on what is behind the curtains of SOEs, motivating them to increase their corporate communication, in this case through alignment towards the IIRF.

Conclusions

The voluntary adoption of IR by European SOEs is indeed an attempt to respond to the increased complexity of financial reporting and non-financial reporting (Fiori et al., 2016), as well as the increased demand for corporate governance and sustainability by stakeholders (García-Sánchez & Noguera-Gámez, 2018). However, behind these two reasons mentioned, scholars have been debating which different factors lead to the adoption of such reports obtaining opposite results (Frías-Aceituno et al., 2014; Lai et al., 2016). In particular, the adoption of the IR tool from SOEs may cover the need of SOEs to respond to social expectations given their visibility, use of public resources (Grieling et al., 2015), which mean that they are exposed to greater expectations (Dowling & Pfeffer, 1975).

The current investigation aimed to shed light on the corporate characteristics determining high IRDs, based on the alignment results obtained through the content analysis of the reports adopting a methodology largely ignored by the literature investigating the IR phenomena.

Furthermore, the current investigation aimed to drive the academic debate into the area of SOEs, which at the time of writing remained partially unaddressed, and, in addition, to demonstrate that using a different methodological approach, and therefore providing a different perspective; the existing results (Frías-Aceituno et al., 2013; Frías-Aceituno et al., 2014; Lai et al., 2016; Rivera-Arrubla et al., 2017) are not opposing but have to be seen from a different point of view and in some cases are complementary. In this vein, the adopted methodology seems more suitable for similar studies than the application of MRA, given the asymmetrical and complex paths followed by social and economic phenomena (Ragin, 2009; Schneider & Wagemann, 2012; Cuadrado-Bellesteros et al., 2017).

The necessary conditions analysis demonstrates that the occurrence of the outcome was related to the presence of profit in 2013, but for the rest of the years analysed the outcome was obtained only through a wide combination of conditions, while *significant* conditions emerged in different years (Álvarez-Coque et al., 2017). The *significant* conditions recurring were mainly two: *Size* (2013, 2014, and 2017) and *Guidelines and Assurance* (2013, 2015, and 2017). Meanwhile, for the IRDs improvement, significant conditions are ownership and, also, *Guidelines and Assurance.* The reoccurrence of size and the application of guidelines and assurance are a clear sign of legitimacy, as organizations with larger impacts (Patten, 1992), following existing guidelines (Setia et al., 2015) and the improvement of credibility given by assurance (Rivera-Arrubla et al., 2017) are trying to demonstrate their compliance towards social norms and expectations (Dowling & Pfeffer, 1995) in order to maintain the existing social contract (Guthrie & Parker, 1989).

On the other hand, the sufficiency analysis points out, at best, the complex pathways followed by social and economic phenomena (Ragin, 2009; Schneider & Wagemann, 2012) as, for all the years investigated, there is no solution equal to the others. This diversity demonstrates that corporate characteristics, in constant change, affect the alignment scores towards the IIRF. These influences, are, in the end, combining between them through a wide range of possible combinations which are all oriented at maintaining the organization's access to natural resources (Dowling & Pfeffer, 1975). In addition, the variance analysis expresses in a holistic way the combination of internal conditions which have been leading to an increase in alignment scores. In doing so, the proposed solutions cover different possibilities for the occurrence of the outcome also in contradictory cases, where the number of employees decreased and increased as well as cases with the absence of the sector's sensitivity and the absence of guidelines and assurance.

The results will be useful to academics, given the sample adopted as well as the methodology included in the current investigation. They will be useful to practitioners, as some of the recipes included in the study can reflect their situations and consequently can lead them to approach the IR movement with the objective of responding to external pressures. They will be useful to policymakers, as the results demonstrate how similar organizations are reacting to different conditions, but still providing high IRDs, and therefore providing a holistic perspective on a generalised issue, the disclosure of non-financial information in this case.

The resulting recipes for the occurrence of high IRDs and improvement, demonstrate the advantage of adopting this particular methodology. Additionally, the current paper tackles a niche of organizations that have been receiving some interest from academics (Guthrie et al., 2017; Montecalvo et al., 2018; Farnett et al., 2019; Rimmel, 2019), but given the relevance these organizations have in societies (Kowalski, 2013; OECD, 2015; Greiling et al., 2015; Guthrie et al., 2017), scholars involved in the IR development should increase their attention towards these organizations. The current investigation is among the few studies investigating the IR phenomena in the case of SOEs. In addition, the present paper is also among the first studies of disclosure to adopt a different methodology, as previously this methodological tool was employed in the case of research on IR proposed by Rivera-Arrubla& Zorio-Grima (2016).

Despite the novelty of the sample and the methodology applied, the current investigation is subject to certain limitations. First, the results are valid only for the organizations investigated and cannot be generalised, as the methodology only explains the facts covering this sample. A second limitation relies on the small sample adopted, as it does not cover all the European SOEs but just those adhering, to some extent, to the IR movement. Third, the internal factors included in the investigation are limited for two main reasons: (a) in QCA it is not possible to apply too many conditions to a few cases studies (Schneider & Wagemann, 2012) and (b) in QCA it is not possible to determine whether higher profits lead to the outcome, as the profitability can be reflected only through the set of organizations having profits or having losses. Moreover, this study does not include the board characteristics of the investigated organizations.

Accordingly, the current investigation suggests possibilities for future studies as the adopted methodology should be applied to others, maybe, a larger sample of SOEs, in particular, comparing those SOEs not applying the IR with those applying it. In addition, the same methodology should be adopted to investigate another type of organization in order to confirm similar results obtained by this analysis and, in particular, to contribute to the actual debate on corporate characteristics affecting the IR adoption or disclosure, which is still providing contradictory results. Moreover, future studies can focus on the board characteristics determining high IRDs, following Cuadrado-Ballesteros et al. (2017). Similarly, future studies could compare the results that emerged from the current investigation with an analysis done on a sample of private organizations with the goal of extending the comprehension of the motivation behind the voluntary disclosure pushing private organizations and SOEs. Finally, future studies should review the existing studies based on MRA and reconsider them under the QCA perspective. In this vein, contradictory results can be lead to stronger results.

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Annex 1

Disclosure categories	Disclosure items
Organizational overview and operating context	Reporting boundary Mission and value Business Overview Operational Context Summary Statistics
Governance	Governance Structure Governance Strategy Remuneration and Performance Governance and Others
Risks Opportunities	Risks Opportunities
Strategy and Resource Allocation	Strategic Objectives Links Between strategy and Other Elements Competitive Advantage Stakeholder Consultations
Business Model	Business Model Description Links between Business Model and Others Stakeholder Dependencies
Performance and Outcomes	KPIs against Strategy Explanation of KPIs Stakeholder Relationship Past, Current, and Future Performance Financial Implications of Other Capitals Supply Chain Performance The quality of Quantitative Indicators
Future Outlook	Anticipated changes Potential Changes Estimates
Other Elements	Conciseness and Link Materiality Determination Process The Board Sign-Off