

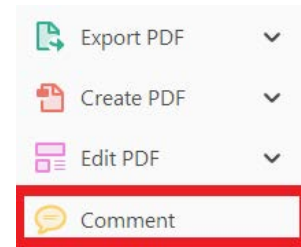
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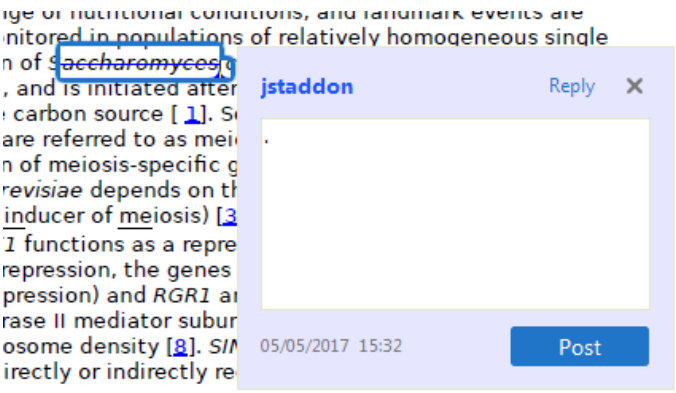
**1. Replace (Ins) Tool – for replacing text.**

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
*...age or nutritional conditions, and landmark events are monitored in populations of relatively homogeneous single n of **Saccharomyces**, and is initiated after carbon source [1]. Spore are referred to as meiosis of meiosis-specific genes in *S. cerevisiae* depends on the inducer of meiosis) [3]. I functions as a repressor repression, the genes RME1 (repression) and RGR1 (arase II mediator subunitosome density [8]. SIM directly or indirectly re*



**2. Strikethrough (Del) Tool – for deleting text.**

 Strikes a red line through text that is to be deleted.



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- The text will be struck out in red.



... experimental data if available. For ORFs to be had to meet all of the following criteria:

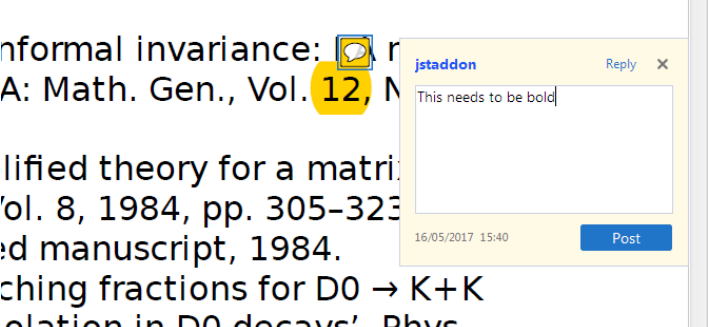
1. Small size (35-250 amino acids).
2. Absence of similarity to known proteins.
3. Absence of functional data which could not be the real overlapping gene.
4. Greater than 25% overlap at the N-terminal terminus with another coding feature; over both ends; or ORF containing a tRNA.

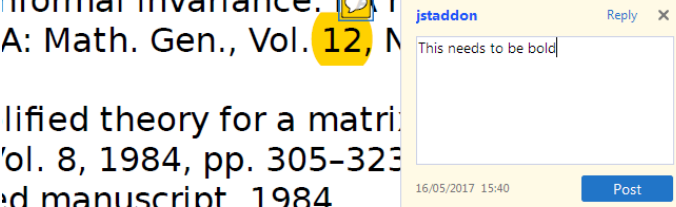
**3. Commenting Tool – for highlighting a section to be changed to bold or italic or for general comments.**

  Use these 2 tools to highlight the text where a comment is then made.


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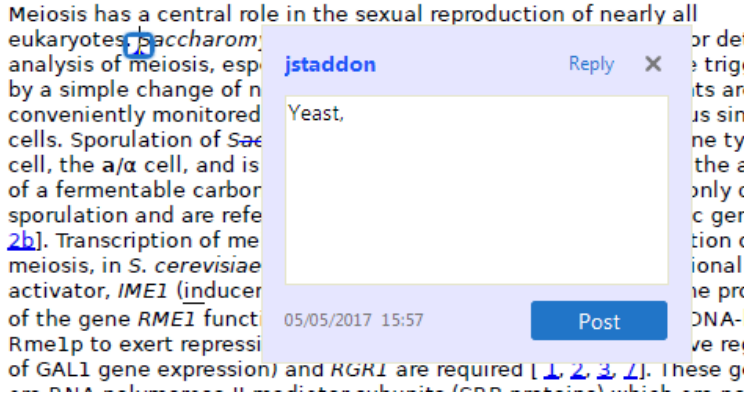


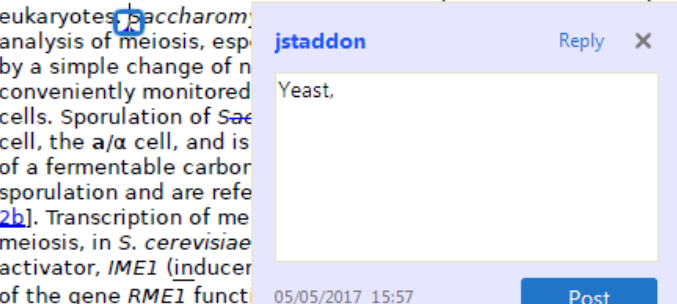
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Meiosis has a central role in the sexual reproduction of nearly all eukaryotes.  *Saccharom* analysis of meiosis, especially by a simple change of conveniently monitored cells. Sporulation of *Sac* cell, the a/α cell, and is of a fermentable carbon sporulation and are referred [2b]. Transcription of meiosis, in *S. cerevisiae* activator, *IME1* (inducer of the gene *RME1* function Rme1p to exert repression of GAL1 gene expression) and *RGR1* are required [1, 2, 3, 4]. These genes are DNA-dependent RNA polymerase II-mediated subunits (RNAP II) which are



**5. Attach File Tool – for inserting large amounts of text or replacement figures.**

 Inserts an icon linking to the attached file in the appropriate place in the text.


**How to use it:**

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- Click on the proof to where you'd like the attached file to be linked.
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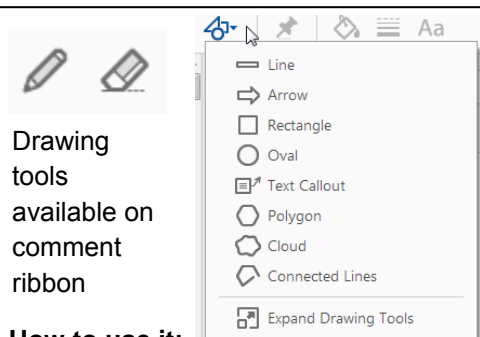
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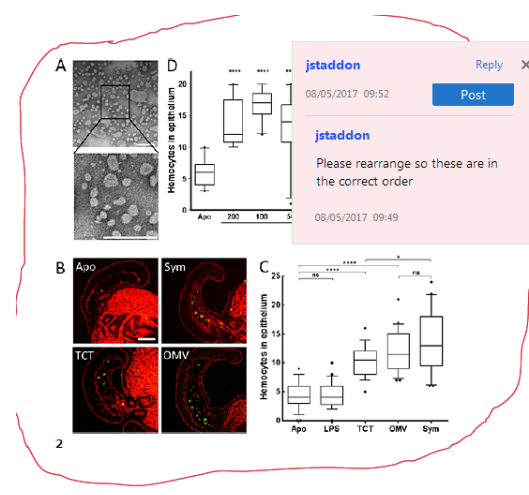


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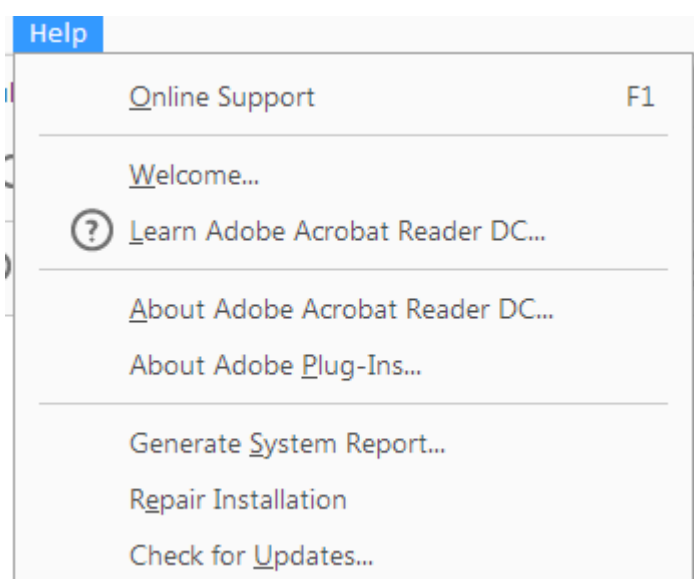
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- Click on the proof at the relevant point and draw the selected shape with the cursor.
- To add a comment to the drawn shape, right-click on shape and select *Open Pop-up Note*.
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Q34	AUTHOR: Please explain the significance of “*” in Table 6.	
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# Exploring the firm and country determinants of the voluntary adoption of integrated reporting

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## Abstract

Information used to manage the business and support the decision-making of stakeholders has been subject to an evolution. In this context, traditional financial reporting is considered not sufficient anymore. This has translated into a sharp increase in the number of firms that have started to adopt emerging reporting practices. This study aims to examine the influence that both firm- and country-specific characteristics have on the voluntary adoption of integrated reporting internationally. In order to do so, it analyses a total sample of 349 international listed companies that have adopted this reporting form in 2016. The results show that firms are more likely to adopt integrated reporting if they are located in countries with a higher level of corruption perception and a safer rating and that are considered a collectivist and feminist and with a long-term orientation. Legal system has resulted to be not significant. As for firms' characteristics, large size, profitability, market-to-book ratio, and the size of the board are found to be significant variables. Moreover, the results indicate that the adoption of integrated reporting is not influenced by a higher level of leverage, efficiency, board diversity, and independence.

## KEYWORDS

country-specific determinants, firm-specific determinants, integrated reporting, voluntary adoption

## 1 | INTRODUCTION

It is nowadays widely accepted that traditional financial report does not provide the whole set of information increasingly required by stakeholders. Therefore, the inadequacy of the information contained in it has steadily led scholars and practitioners to raise doubts about its usefulness (Lev & Gu, 2016).

This trend has also yield investors (Larry Fink Annual Letter to CEOs, <https://www.businessinsider.com/blackrock-larry-fink-investors-esg-metrics-2018-11?IR=T>) and, in general, stakeholders (The purpose of finance by London Business School, <https://www.london.edu/faculty-and-research/lbsr/future-of-finance/the-purpose-of-finance>) to call for a rapid development of new forms of reporting able to take into consideration aspects related to sustainable development and, in general, to inclusive capitalism and transparency. Sustainability report has only partially responded to this call. Despite the fact that many, if not the majority of companies release this type of report, this remains in most of the cases a stand-alone document. In other words, there still seems to be a binary divide between the "financial" and the "nonfinancial" drivers of value creation. And this distinction does not ensure the coherence of the information provided to stakeholders, therefore resulting as misleading for them (Mervelskemper & Streit, 2017). Indeed, the picture presented in a financial statement or in an annual report often differs significantly from that in a sustainability report. In certain cases, these reports

Despite the work is an outcome of a joint effort, Sections and are to be attributed to Laura Girella, Sections and are to be attributed to Stefano Zambon, and Sections and are to be attributed to Paola Rossi.

seem to represent the same company in a completely different way. Integrated reporting (IR) was advanced to contribute to fill this gap (International Integrated Reporting Council [IIRC], 2013). It tries to connect, through a concise and voluntary document, those material quantitative and qualitative information about the past, present, and future that can be derived from the sustainability and intangibles (or intellectual capital) report and the financial statements; it is in fact based on a multicapital view, in order to provide a comprehensive picture of the value creation process of an organisation. In so doing, it aims to improve at first the information released to financial capital providers, thereby ensuring a better and more efficient decision-making and fund allocation. In addition, it also reports a set of information that can be useful for all the stakeholders, other than shareholders and investors, for understanding how companies create value. Considering this ambitious objective, many scholars have started to pay attention to this phenomenon and investigate its implementation. To date, it can be noted that the plethora of literature on this new type of reporting is mainly focussed on the benefits that can be derived from it (Barth, Cahan, Chen, & Enter, 2017; Serafeim, 2015; Steyn, 2014); in general, on its adoption in different organisational settings, and mainly on employing qualitative and interpretive methodologies (Busco, Frigo, Riccaboni, & Quattrone, 2013; Feng, Cummings, & Tweedie, 2017; Girella, Zambon, & Rossi, 2019; Guthrie, Manes-Rossi, & Orelli, 2017; Macias & Farfan-Lievano, 2017; Mio, Marco, & Pauluzzo, 2016; Stubbs & Higgins, 2014; Veltri & Silvestri, 2015). Probably also because of the limited availability of comparable data, a marginal number of studies have investigated which are the determinants of the voluntary adoption of IR through quantitative methods. And also in this case, they have focussed on specific features, such as the effect of the cultural system (García-Sánchez, Rodríguez-Ariza, & Frías-Aceituno, 2013) or of the country (Jensen & Berg, 2012; Frías-Aceituno, Rodríguez-Ariza, & García-Sánchez, 2013); of firm's characteristics such as company size and profitability (García-Sánchez et al., 2013; Frías-Aceituno, Rodríguez-Ariza, & García-Sánchez, 2014), the board, and, in general, corporate governance (Fiori, di Donato, Izzo, 2016; Frías-Aceituno, Rodríguez-Ariza, & Garcia-Sanchez, 2013; Izzo & Fiori, 2016); or a combination of them (Busco, Malafrente, Pereira, & Starita, 2019). Thus lacking to provide a comprehensive view. To the best of the authors' knowledge, to date, only Vaz et al. (2016) have taken into consideration both firm and country variables to investigate the voluntary adoption of IR, but their sample is based on reports extracted from the Global Reporting Initiative Database, which is the one mainly devoted to showcase sustainability reports. Hence, it may lack accuracy in terms of numbers and quality of integrated reports.

Other scholars (Amran, Lee, & Devi, 2014; Baldini, Dal Maso, Liberatore, Mazzi, & Terzani, 2016; Cowen, Ferreri, & Parker, 1987; Fifka, 2013; Frías-Aceituno et al., 2013; Hahn & Kühnen, 2013; Kuzey & Uyar, 2017; Reverte, 2009) have examined the determinants of the adoption of sustainability or of ESG report, which is however different from integrated report. Indeed, the former focusses on two of the six capitals on which the latter is based (namely, social

and natural capitals), and it is organised from an external stakeholder viewpoint. Put it differently, what is relevant for a sustainability report is to explain how organisations impact society and the environment. Conversely, integrated report illustrates how society impacts business, in demonstrating how an organisation is dependent upon a wide range of, financial and nonfinancial, resources to create value (<http://integratedreporting.org/news/will-integrated-reporting-improve-sustainability/>).

Therefore, our study aims to contribute to close this gap. It investigates the voluntary adoption of IR. In order to do so, it will analyse the influence that both firm- and country-specific characteristics can have, thus responding to previous calls for this combination (Jensen & Berg, 2012). Results suggests that at the firm level, size, profitability, market-to-book ratio, and the size of the board are positively and significantly associated with IR disclosure. On the contrary, leverage, efficiency, diversity of the board, and its independence do not impact this decision. At a macrolevel, companies located in countries considered as collectivist and feminist and with a long-term orientation are found to have a positive orientation towards the uptake of IR. The same is the case for countries with a higher corruption perception index (CPI) and a safer rating. The legal system has not resulted to be of relevant influence.

The contribution that our study intends to provide to the extant academic literature, practice, and policy-making is threefold. First, on the academic ground, we extend on, and complement, previous studies by taking into consideration firm's characteristics and institutional factors that have not been investigated as yet (such as the CPI and the risk rating), thereby providing a unique perspective and a more comprehensive picture. In addition, always in this view, we combine firm and country characteristics in a single analysis. Second, on the practice level, we offer insights to companies that may be willing to start the "integrated reporting journey," especially in terms of potential relevance of their financial performance (profitability and leverage), their intangibles resources (market-to-book ratio), and corporate governance mechanisms (size of the board). Third, on the policy-making side, the findings of this work could provide useful suggestions both to governments and the IIRC in order to better determine and put in place their business and economics strategies especially in those countries that have demonstrated to be more sensible towards themes of inclusive capitalism and transparency (collectivist, feminist, with orientation towards long term, a higher corruption index, and a lower risk rating).

The remainder of the paper is organised as follows. At first, we illustrate the theories that we rely on and from which we derive the research hypotheses. In particular, we briefly describe, both in general terms and with reference to studies on IR (when possible), the main features of the seven theories that have been found in the literature to influence voluntary disclosure. Then the hypotheses are formulated, being linked to the above-mentioned theories.

The methodology used to conduct the investigation is presented, and the main results obtained are illustrated and discussed. Finally, we derive the main theoretical, practical, and policy implications and outline the contributions and limitations of our study.



## 2 | THEORY AND HYPOTHESES DEVELOPMENT

### 2.1 | The theoretical framework

As previously mentioned, IR is a practice whose adoption is still largely voluntary in nature. Despite over the years, various international bodies have recommended its uptake (for instance in 2013, the Brazilian Stock Exchange, BM&FBOVESPA, made a recommendation to listed companies to "Report or Explain for Sustainability or Integrated Report," and more recently, the Securities and Exchange Board of India—SEBI—has published a circular asking the top 500 listed companies in the country to adopt IR); to date, its implementation is mandated only in South Africa by the Johannesburg Stock Exchange (Atkins & Maroun, 2015; Barth et al., 2017; Rensburg & Botha, 2014; Setia, Abhayawansa, Joshi, & Huynh, 2015). Therefore, this paper is located in that strand of literature that analyses voluntary disclosure that is here conceived as the one in excess to and that can therefore complement, the disclosure required by law, standards and regulations (Meek, Roberts, & Gray, 1995). Within it, seven theories have been found to mainly explain, both independently or in combination, the choice by companies to voluntarily disclose information, namely, agency theory (Chow & Wong-Boren, 1987; Cooke, 1989a, 1989b, 1991, 1992; Hossain, Perera, & Rahman, 1995; Watson, Shrivs, & Marston, 2002), signalling theory (Campbell, Shrivs, & Bohmbach-Saager, 2001; Ross, 1977; Watson et al., 2002; Whiting & Miller, 2008), theory of cost of capital (Cheynel, 2013), theory of political cost (Gamerschlag, Möller, & Verbeeten, 2011), theory of proprietary cost (Healy & Palepu, 2001; Prencipe, 2004), institutional theory (Zeng, Xu, Yin, & Tam, 2012), and stakeholder theory (Huang & Kung, 2010; Whiting & Miller, 2008). The choice to focus on all these seven theories relies on the observation that, as compared with financial or corporate social responsibility reports, integrated report connects a whole range of information from strategy to performance and it is not exclusively addressed either to shareholders or to stakeholders but to both of them. As previously maintained, the International <IR> Framework states in fact that the primary target are providers of financial capital and then other stakeholders. Accordingly, as maintained by Cotter, Lokman, and Najah (2011), the choice of the relevant disclosure theory(ies) depends on the type of voluntary disclosure under study.

In addition, the selection of the theories relies on the observation that they already cover aspects of other theories (e.g., legitimacy). As an example, Watson et al. (2002) have pointed out how signalling theory can borrow the notion of signalling legitimacy (and therefore also the related variable) from legitimacy theory; thus, an inclusion of the latter will not add value to the model.

In the following paragraphs, we will briefly illustrate the theories both in general terms and with reference to studies that have adopted them to examine the implementation of IR (when possible). This review will provide suggestions and inputs in order to select the most suitable variables that we will use to conduct our investigation.

According to the agency theory (Jensen & Meckling, 1976), shareholders (the principals) engage managers (the agents) "to perform

some service on their behalf which involves delegating some decision-making authority to the agent." (ibid., p. 308). However, drawing on the separation between the ownership and control of the firm (Berle & Means, 1932), this contract is based on the assumption that these two actors may have different interests, then giving rise to the so-called agency costs. In this view, managers, knowing that shareholders will try to control their activities, may be willing to voluntarily disclose information in order to provide more details on their (good) performance. This, in turn, is in fact expected to reduce information asymmetry and therefore investors' uncertainty and cost of capital. In a study on a large-scale sample of international listed companies, Garcia-Sanchez and Noguera-Gamez (2017) have found that IR can mitigate agency costs.

Similarly to agency theory, signalling theory (Spence, 1978) is based on the existence of an information asymmetry between companies and shareholders (as pointed out by Morris, 1987, signalling and agency theories are consistent, even though a necessary condition of the former is information asymmetry, whereas the latter only implicitly refers to it). Therefore, voluntary disclosure could represent a useful device for those organisations that want to distinguish themselves from the others by signalling their higher quality (Eccles Robert, 2001). Indeed, signals conveyed to the market have been found to result in better financing costs and increase in the value of the firm (Baiman & Verrecchia, 1996; Frankel, Johnson, & Skinner, 1999; Yeo & Ziebart, 1995). In consideration of the existing consistency between agency and signalling theories, these have also been suggested (Morris, 1987) and demonstrated to be adopted in a complementary way to investigate voluntary disclosure (Watson et al., 2002).

According to the theory of political cost (Watts & Zimmerman, 1978), firms located in countries characterised by a high level of regulation tend to disclose voluntary information in order to reduce the probability to incur in taxes and fees and obtain benefits from governments and constituencies. Indeed, they may be criticised if they not release information (Lemon & Cahan, 1997). Therefore, it can be generalised that the political visibility of companies influences its disclosure practices. However, the theory of political cost has been found to be often adopted in a blurred way and not following the original conceptualisation by Watts and Zimmerman (Milne, 2002).

The theory of proprietary cost asserts that the costs related to the preparation and dissemination of information through disclosure can influence the willingness of companies to provide voluntary information. To put it differently, if companies do not have to sustain major costs related to disclosure, they may be more inclined to release detailed information on their performances, because in this way, they could reduce information asymmetry and the cost of capital Grossman (1981) and Milgrom (1981). However, a disincentive can be represented by the use of sensible information by competitors (Elliott & Jacobson, 1994).

As for previous studies that have linked the above theories to the voluntary adoption of IR, Frias-Aceituno et al. (2014) found that company size and profitability have a positive impact on the voluntary adoption of IR, whereas business growth opportunities and industry are not significant ones.

Institutional theory conceptualises organizations as embedded in a complex system of political, cultural, and economic forces (Granovetter, 2000; Jackson & Apostolakou, 2010; Matten & Moon, 2008). Within this system, organisations tend to adapt to those rules and norms that prevail in this system (DiMaggio & Powell, 1983; Meyer & Rowan, 1977). This conformity of behaviour, whether imitational or independent, results in the so-called institutional isomorphism. Institutional theory has been found to be able to explain why companies tend to adopt dissimilar reporting practices beyond the financial one, especially if they belong to the same industry. With regard to IR, institutional theory has been adopted insofar by Jensen and Berg (2012). According to them, this theory can be a valuable one in order to explain the determinants of sustainability report vis-à-vis integrated report. They found that IR is more likely to emerge from companies located in countries with a higher investors' protection, expenditure for tertiary education, and a national corporate social responsibility. Always in relation to institutional theory and country determinants, Frías-Aceituno et al. (2013) showed that companies located in strictly enforced regulated countries and companies located in civil law countries are more inclined to publish an integrated report.

Finally, stakeholder theory is probably the most often employed to examine the factors that influence the adoption of voluntary disclosure. First, advanced by Freeman (1984), it mainly relies on the conceptualisation that a social contract is implicitly signed between companies and its stakeholders. In virtue of this, companies receive a higher stakeholders' pressure to disclose information. However, some authors have also advanced that stakeholder theory still suffers from misunderstandings (Phillips, Freeman, & Wicks, 2003; Wagner Mainardes, Alves, & Raposo, 2011).

With reference to studies on stakeholder theory and the determinants of IR, García-Sánchez et al. (2013), analysing the impact of the Hofstede national cultural system on the adoption of IR, showed that firms located in collectivist and feminist countries have a greater interest in disclosing information through this format, whereas power distance, long-term orientation, or uncertainty/risk have not been found as determining factors. As control variables, company size and profitability had a positive and significant effect. A study by Frías-Aceituno et al. (2013) argued that the board, because it has a responsibility towards stakeholders and aims to reduce information asymmetries, can influence the decision to disclose an integrated report. They only found a significant impact of board size and the board diversity, in terms of the number of women on the board, on IR. In order to understand the stakeholders' preference between voluntary and mandatory adoption of IR in Australia, Stubbs and Higgins (2018) have found that the former is privileged.

Despite not linked to the above theories, it is however to be pointed out that other studies proved that the IR adopters have a higher level of Bloomberg environmental and social disclosure ratings than the nonadopters. However, no significant relationship is found between the size, profitability, leverage, industry, and the voluntary adoption of IR (Lai et al., 2014).

## 2.2 | The hypotheses development

On the basis of the theoretical framework above described, we have developed the following hypotheses. In order to reduce the number of variables, we have focussed on those that have resulted to be significant in previous studies with the inclusion of two new ones, namely, CPI, and risk rating. The hypotheses can be categorised into firm- and country-specific.

### 2.2.1 | Firm-specific hypotheses

#### Firm size

Within the strand of literature that investigates the factors that influence the disclosure of voluntary information, firm size is a variable that has been most often used. In particular, with reference to agency theory, the larger the firm is, the higher is the probability that it will rely on external funds. Therefore, in order to maintain "a normal" level of agency cost, or to reduce it, it will be incentivized to disclose information on a voluntary basis. In a similar vein, for companies of larger dimension, it would be easier to signal their higher quality, thanks to their public visibility. However, this visibility could also affect them negatively. They could be more exposed to pressure from governments and generally institutions, and therefore, they may be not willing to voluntarily disclose due to the possible incurrence in political costs (Wallace, Naser, & Mora, 1994).

Similarly to signalling theory, and with regard to stakeholder theory, it can be maintained that the larger the size of a firm is, the major is the number of stakeholders to whom it has to respond. Therefore, the disclosure of a major quantity and more detailed information through voluntary reporting formats can be a device to achieve this. In terms of theory of proprietary costs, firms of larger size can have more funds available to prepare and disseminate new reporting practices, thus not being highly affected by these costs. Given these arguments, the majority of previous studies have concluded that company size has a positive impact on voluntary disclosure, even though some criticalities mainly related to the fact that firm size can be used as a proxy for many influences still exist (Ball & Foster, 1982; Watts & Zimmerman, 1978). With regard to IR, it has to be pointed out that the International <IR> Framework was initially conceived for large listed companies. Furthermore, with regard to the theory of proprietary costs, large-size organisation has often already in place processes for the collection, elaboration, and dissemination of nonfinancial information. This is because these companies, in most of the cases, are already releasing sustainability reports.

Accordingly, Frías-Aceituno et al. (2014) argued that larger firms have more competitive advantages than small firms in terms of more diverse product lines and more complex distribution network and require a more intense of the capital market for financing. Finally, they found a positive association between the size and adoption of IR. This result is confirmed also by the other studies of Frías-Aceituno et al. (2013), Frías-Aceituno et al. (2013), and García-Sánchez and Noguera-Gámez (2017). However, Lai, Melloni, and Stacchezini (2016) found no significant impact of size on IR disclosure. On the

basis of the main results of previous studies, we formulate the following hypothesis:

**H1.** *Firm size has a positive association with voluntary adoption of IR.*

### Profitability

Profitability is probably another of the most adopted variables in the studies of voluntary disclosure. Similarly to firm size, the higher the level of profitability is, the likely is the possibility that the company will disclose information other than those mandatory in nature. Indeed, this will maintain under control, if not reduce, those agency costs that the organisation has to sustain for having had access to external funds. Furthermore, a possible relationship with signalling theory can be drawn as more profitable companies may be interested in signalling this good performance to interested parties. Along this reasoning, in virtue of this financial wealth, proprietary costs may be more easily absorbed. However, profitability may call for a greater attention from institutions and stakeholders that could scrutinise the sources of this positive performance and eventually exert pressure towards the release of more detailed information.

The studies that focus on the association between IR and profitability have yielded mixed results. Lai et al. (2016) obtained not significant results with regard to the relationship between profitability and IR. On the contrary, Frias-Aceituno et al. (2014) found that the profitability influences the adoption of IR because the higher the profitability firm earns, the more is the incentive for firms to reveal more information in order to reduce adverse attraction. Thus, we formulate the following hypothesis:

**H2.** *Firm profitability has a positive association with voluntary adoption of IR.*

### Leverage

Leverage is often seen as a determinant of voluntary company disclosure. Indeed, it provides a useful indication of the funds that companies have received from providers of financial capital. Therefore, they are subject to a higher degree of attention by debtors (Eng & Mak, 2003) and, in general, a wide range of stakeholders who are interested to know if the company will be able to create value in the medium and long terms. In order to reduce this situation of information asymmetry, managers would be inclined to disclose an increased number, variety (financial and nonfinancial), and quality of data (Barnea & Rubin, 2010). However, it has to be noted that the companies with a higher leverage may be conscious towards the use of newly emerged reporting devices, such as IR, to communicate to debtors and stakeholders, due to their major costs. Disclosing IR can enable a company to elaborate on this. Lai et al. (2016) found no statistically significant relationship. On the basis of the main results of previous researches, we propose the following hypothesis:

**H3.** *Leverage has a positive association with the voluntary adoption of IR.*

### Market-to-book ratio

According to agency theory, in companies with a higher market-to-book ratio, the information asymmetry between investors and managers increases the cost of external funds, this providing an incentive to release voluntary disclosure. Nonetheless, the risk to inform competitors on sensible information can hinder companies to do so. This way, costs could outweigh the benefits.

Market-to-book ratio has been here selected as a main determinant due to the multicapital nature of IR. Despite the majority of studies that have so far investigated the factors that can influence the adoption of this reporting format have not included it (and the few ones that have done so have interpreted it in terms of growth opportunity), in our view, it is a relevant component to be taken into consideration. Indeed, three of the six capitals of IR are of intangible nature (social and relationship, human, and intellectual/organisational). Therefore, a rough proxy that can be used to appreciate the intangible capital of a company is fundamental in an organisational setting that implements this reporting practice (Lev, 2001; [Study of the European Commission, 2003](#)). The more companies give relevance to their intangible resources, the more they will be willing to disclose related information and KPIs. A wide range of stakeholders and constituencies could appreciate the effort of this signal and, hence, would be more oriented to benefit them. With reference to IR, it is interesting to highlight that both previous studies that have included this variable as either main determinant or control variable (Frias-Aceituno et al., 2014; García-Sánchez et al., 2013) have not found a significant association. These results could be explained by the fact that the sample was extracted in both studies by Forbes Global 2000 list, which is not deemed to host integrated reports. This selection could suffer from a lack of accuracy. Furthermore, the adopted time range was ahead the official launch of the IIRC and the related concept.

**H4.** *Market-to-book ratio has a positive association with the voluntary adoption of IR.*

### Manufacturing industry

Firms operating in different sectors have divergent trends with regard to their reporting methods. Manufacturing firms that operate in high-risk industries, which have direct effects on society and the environment, often express more willingness to highlight their interest towards protecting common surroundings (Dierkes and Preston, 1977; Roberts, 1992; Hackston & Milne, 1996). These firms are under stricter regulation from the government as well as higher pressure from stakeholders. High-risk industry manufacturing firms are predicted to have a higher possibility of releasing a sustainability or ESG report in order to gain the trust of the people, thereby implying that the services/products they produce may be harmful to sustainability. Further, firms in such industries also appear to be detrimental to other stakeholders—for example, employees who work directly with toxic substances. On the contrary, firms that operate in the service sector—for example, human resources consultation services or financial services—are less obliged to disclose corporate social responsibility information. First, they are subject to lower regulations and are under

less pressure from stakeholders with regard to sustainability. Thus, the motivation to incur into an additional cost for preparing and disseminating this disclosure is not strong in service sector firms. The main results of empirical studies about sustainability reporting found a strong relationship between industry and disclosure (Brammer & Pavelin, 2008; Cormier, Magnan, & Van Velthoven, 2005; Reverte, 2009; Tagesson, Blank, Broberg, & Collin, 2009). However, to date, the studies about the determinants of voluntary adoption of integrated IR (Frias-Aceituno et al., 2013; Frias-Aceituno et al., 2013, 2014; Lai et al., 2014) showed no association between the belonging to a specific sector and the decision to adopt this reporting practice.

Therefore, we formulate the following hypothesis:

**H5.** *The manufacturing industry has a positive relationship with the voluntary adoption of IR.*

### Size of the board

This variable, together with the following two, aims to investigate the link between corporate governance characteristics and the voluntary production by a company of an integrated report. The number of individuals composing the board has attracted the attention of numerous studies for the difficulties of coordination between members and in relation to agency issues with the company management (Fiori et al., 2016; Izzo & Fiori, 2016). Yet the evidence of the significance of this corporate governance variable vis-à-vis voluntary disclosure is still uncertain (e.g., Pearce & Zahra, 1992, Dalton, Daily, Johnson, & Ellstrand, 1999, vs. Prado-Lorenzo & Garcia-Sanchez, 2010). On the other hand, as to IR, it is quite clear that its “understanding” and production, while meeting the complex <IR> Framework principles and contents, seems to suggest the need for a rather composite knowledge and experience backgrounds to be present in the board.

**H6.** *The board size has a positive relationship with the voluntary adoption of IR.*

### Gender diversity of the board

This is a corporate governance feature that may relate to the preparation by a company of an integrated report. Indeed, there are several studies pointing to the relevance for company nonfinancial disclosure of the women's presence in the boards owing to their more developed sensitivity in regard to sustainability (Barako & Brown, 2008; Prado-Lorenzo & Garcia-Sanchez, 2010) and reputational aspects (Bear, Rahman, & Post, 2010). Considering the thrive towards transparency that IR can generate inside companies and their boards, it appears interesting to test the association between gender diversity and the production by companies of this new form of external reporting.

**H7.** *Gender diversity has a positive relationship with the voluntary adoption of IR.*

### The presence of nonexecutive directors on the board

In the literature, the role of nonexecutive directors for monitoring managerial opportunism and protecting the interest of capital

providers, thus ensuring independence to the Board, is well recognised (García Sánchez, Rodríguez Domínguez, & Gallego Álvarez, 2011; Weir & Laing, 2003). In such a sense, this category of directors plays a crucial guarantee role also for the market and company shareholders. Accordingly, the peculiar function of nonexecutive directors has a reflection also on the quantity and quality of voluntary disclosure (Fama & Jensen, 1983; Fiori et al., 2016). The interest of nonexecutive directors can be that of increasing company transparency. IR often represents a “quantum leap” in the level of voluntary disclosure and information transparency by a company, and this change can be linked to nonexecutive directors. Therefore, we assume that the presence of nonexecutive directors can be a drive for the adoption of IR.

**H8.** *The presence of nonexecutive directors has a positive relationship with the voluntary adoption of IR.*

## 2.2.2 | Country-specific hypotheses

### CPI

Firms that are doing business or are based in countries where there is a high perception of corruption (i.e., Denmark, Finland, New Zealand, Sweden, and Switzerland) are recognised as often voluntarily disclosing more nonfinancial information. In these countries, citizens are not only interested in information on the price or quality of products or services, but they are also concerned with long-term development and sustainability, which is reflected by, for example, their choice of bioproducts or recyclable packaging. Moreover, the institutional setting may put pressure on companies to pay attention to these topics. Governments of such countries strictly observe firms in order to ensure that they rely on sustainable practices and resources. Numerous regulations have also been enacted. People in these countries also have also higher degrees of press freedom and good access to information. Thus, due to pressure from consumers and, in general, stakeholders and governmental enforcement, firms are somehow directed to publish additional information. In contrast, in countries where the corruption perception is low (i.e., Yemen, North Korea, Syria, Somalia, South Sudan, and Sudan), both citizens and governments show no particular interest in ensuring that businesses have taken sustainability and, in general, nonfinancial factors into consideration. Firms in such countries have no restrictions and, hence, are not inclined to incur in major costs for disclosing more information than the necessary. Few papers have investigated the impact of corruption on the social and environmental disclosure. Baldini et al. (2016), using a worldwide sample, investigated the association between the political system such as the level of corruption and the social and environmental disclosure. They argued that in countries with high levels of corruption, companies have generally lower levels of this disclosure because such companies “are more likely to engage in unethical practices” (Ioannou & Serafeim, 2012, p. 840). According to these arguments, we propose the following hypothesis:

**H9.** *The CPI has a positive relationship with the voluntary adoption of IR.*

## Overall country risk rating

Firms that engage in business in countries where there is a high overall risk need to disclose more information than needed in order to show their stability and concern for sustainability-related aspects. Put it differently, they have to adapt to the economic context of the “partner country.” However, if the country is a D-rated country (the highest level of risk), then the release of nonfinancial information does not add any value. The stakeholders in such countries do not seriously consider this information as important. Further, firms that engage in business in countries whose overall risk rating is positive would be more encouraged to provide additional information in order to prove that they are concerned about sustainability. Stakeholders in A-rated countries would expect it to be safer and would pay more attention to aspects such as whether companies take care of their employees or what is the environmental and social impact of the business. Hence, firms in A-rated countries may also have the incentive to unveil additional information. Firms in average-rated countries (B or BB) have the highest level of expectation of the adoption of IR. Stakeholders in such countries would have a certain need to investigate sustainability findings—not sufficiently safe to ignore but too risky to take such information for granted. Therefore, we propose the following hypothesis:

**H10.** Overall risk rating has a positive impact on the voluntary adoption of IR.

## Collectivism

First, advanced by Hofstede (2001), collectivism embodies one of the fifth cultural variables that have been used to assess the similarities and differences that exist among countries. Collectivism corresponds to the way in which individuals perceive their actions that are thought to have an impact uniquely not only on the individual itself but also to the whole group. Accordingly, it can be related to a sense of community that actors that live in a country have. In this perspective, a clear association can be advanced between this cultural feature and stakeholder and signalling theories. If a company is located in a collectivist country, its managers would be more oriented towards the sharing (or signalling) of information to a whole range of internal and external actors. Therefore, also the eventual pressure from institutions would not be perceived as a coercive action. As for agency theory, this sense of community will also yield to the reduction of its related costs and, in general, of information asymmetry. The previous study by García-Sánchez et al. (2013) has found a positive and significant association between this cultural dimension and the likelihood of IR adoption.

On the basis of these assumption, we formulate the following hypotheses:

**H11.** Collectivist countries have a positive impact on the voluntary adoption of IR.

## Feminism

According to Hofstede's conceptualisation, the composition of the society in terms of role of males and females represents another important variable for the understanding of the similarities and differences among countries. In particular, the presence of a male-oriented

culture will be more inclined towards the achievements of tangible and thus financial and economic results, whereas in female-oriented cultures, well-being is prioritised. Similarly to collectivist countries, feminist ones would reduce the tensions that exist between principal and agents and, in general, between companies, stakeholders, and companies and institutions. Therefore, both agency and proprietary costs would diminish. The previous study by García-Sánchez et al. (2013) has found a positive and significant association between this cultural dimension and the likelihood of IR adoption.

**H12.** More feminist-oriented countries have a positive impact on the voluntary adoption of IR.

## Long-term orientation

Included as last dimension (Hofstede & Hofstede, 2005), long-term orientation can be translated into the future orientation of citizens in a society. As compared with short termism, these individuals will be more inclined to save and invest for the future and, in general, to achieve results in a medium and long-time perspective. With reference to stakeholders' relationships, the longer the business perspective is, the most important would be the establishment of sound connections. In addition, it has to be evidenced that stakeholders' engagement takes time as different actors communicate dissimilar needs and can be reached through a variety of channels. As for IR, it has to be noted that one of its fundamental characteristics relates to the long-term orientation. It calls for a communication that is able to explain how organisations will be able to continue to create value in the short, medium, and long terms.

The previous study by García-Sánchez et al. (2013) has found a not significant association between this cultural dimension and the likelihood of IR adoption.

**H13.** Long-term orientation countries have a positive impact on the voluntary adoption of IR.

## 3 | RESEARCH METHODOLOGY

### 3.1 | Study population and samples used

This study selected the entire population of international companies (180) that have adopted IR and that have been considered as leading practices by the IIRC according to the IR Examples Database as of May 31, 2017.

This database is publicly accessible from the IIRC official website (<http://examples.integratedreporting.org>).<sup>1</sup> Within this sample of 180 organisations, 44 companies operating in financial, insurance, and public sectors have been excluded due to their inherent characteristics and leverage structure. Furthermore, we eliminated eight private companies and 57 companies without availability of financial data.

<sup>1</sup>Please note that the IIRC Examples Database have been reorganised in the second half of 2018. In view of this reorganisation, several organisations have been excluded or added in all the three sections. Accordingly, the number of the companies here reported will not correspond to the one currently included into the database.

The financial data are in fact fundamental for the measurement of the firm's variables used in this work. South African organisations have also been eliminated due to the extant nature of IR disclosure in this country (which is mandatory). The final sample of companies adopting integrating reporting thus consisted of 71 listed companies (see Appendix A). Considered that within this sample, there are both firms that adopted IR since 2013 (date of release of the International <IR> Framework) or even before (following the preparatory documents of the Framework) and others that have adopted it starting from the financial year 2016, we decided to focus our investigation on this last year (2016). In order to isolate the effect of the determinants, we included a control sample in the model. To determine it, companies were selected by applying a matching approach, based on the primary SIC code (two digits) and revenues ( $\pm 20\%$ ). The control sample is composed of 278 firms that do not adopt IR but that belong to the same countries of the ones of our sample. These data were extracted from the Orbis Database. In addition to this control sample, we also included two control variables, being efficiency and legal system (civil law/common law).

The total sample is composed of 349 firms (71 firms that adopt IR and are considered as leading practices by the IIRC as of May 2017, financial year 2016, and 278 that do not adopt IR and that are thus used as control sample).

In terms of geographical spread, the companies being analysed are based in four continents, as shown in Table 1. The majority are from Europe (56% of the companies, with a prevalence in the total sample of U.K. firms for 33%), followed by Asia (26%, the highest percentage are represented by Japanese firms for 17% of the total sample).

With regard to the distribution by industry, Table 2 provides a synthesis. As previously mentioned, two main sectors have been

**TABLE 2** Sample distribution by industry

	No integrated reporting	%	Integrated reporting	%
Manufacturing industry (1)	123	44	31	44
Services industry (0)	155	56	40	56
Total sample	278	100	71	100

considered for the analysis, namely, manufacturing and services. The services sector has the largest proportion of firms adopting IR (56%), followed by the manufacturing (44%).

The cultural variables were extracted from the website of Geert Hofstede TM Cultural Dimensions (<https://geerthofstede.com/research-and-vsm/dimension-data-matrix/>), whereas the classification of countries in civil and common law was derived from Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998).

The firm-specific data (financial data and corporate governance characteristics) and the information about the overall country risk rating were collected for both samples from the Orbis Database in 2017, whereas the data on the CPI were extracted from the website of Transparency International in 2017 (<https://www.transparency.org/>). It is an index published annually by Transparency International since 1995 that ranks countries "by their perceived levels of public sector corruption, as determined by expert assessments and opinion surveys" (Transparency International, 2011).

### 3.2 | Dependent and independent variables

The dependent variable represents firm's reporting choice, and it is equal to 1 if firm adopted IR, otherwise, it is 0. With reference to

**TABLE 1** Sample distribution by country

Continent	Freq.	Percentage	Country	Freq.	Percentage
Americas	40	25%	Brazil	15	4%
			United States of America	25	7%
Asia	92	26%	India	5	1%
			Japan	60	17%
			Kuwait	4	1%
			Republic of Korea	8	2%
			Russian Federation	10	3%
			Taiwan	5	1%
			Europe	197	56%
			France	13	4%
			Germany	9	3%
			Italy	15	4%
			Luxembourg	5	1%
			Netherlands	15	4%
			Spain	13	4%
			Switzerland	9	3%
			United Kingdom	114	33%
Oceania	20	6%	Australia	15	4%
			New Zealand	5	1%
	349	100	Total	349	100.0

the independent variables, the variable SIZE is measured by the logarithm of total asset, whereas the variable PROFITABILITY is measured by the return on asset. These methods of measurement of size and profitability variables have been selected as they are consistent with the previous studies on IR (Frías-Aceituno et al., 2013; Frías-Aceituno et al., 2013, 2014; Lai et al., 2014). Drawing from Lai et al. (2014), the variable LEVERAGE is measured by the debt to asset ratio. The variable Growth Opportunities is calculated as market-to-book ratio (i.e., Frías-Aceituno et al., 2014). Regarding corporate governance characteristics, the size of the board, the diversity on the board, and the number of nonexecutive directors are measured, respectively, by the number of the directors, the percentage of women on the board, and the percentage of nonexecutive directors (Frías-Aceituno et al., 2013).

Always in line with the previous research about the relationship between IR and the cultural system (García-Sánchez et al., 2013), the variables collectivism, feminism, and long-term orientation are treated as dummy variables: the variable collectivism assumes the value 1 if the company is located in a country where levels of collectivism are higher than the average for the countries analysed, and 0 otherwise. The variable feminism assumes the value 1 if the company is located in a country where levels of feminism are higher than the average for the countries analysed, and 0 otherwise. The variable long-term orientation takes the value 1 if the company is located in a country where the long-term orientation is higher than the average for the countries analysed, and the value 0 otherwise.

As for the CPI, it is based on a scale from 100 (low corruption) to 0 (high corruption). There are also two qualitative variables that identify the industry classification and EIU overall country risk rating, respectively. The variable industry is a dummy and equal to 1 if firm operates in the manufacturing industry, and 0 if firm operates in the service sector in line also with the previous researches about corporate social responsibility disclosure (i.e., Tagesson et al., 2009). To date, there are in fact no studies on the determinants of IR that have categorised the industry in the same way.

The EIU overall country risk rating measures three levels of risk analysed in the report that are sovereign risk, currency risk, and banking sector risk. They also take into consideration ratings for political risk and economic structure risk, as well as an overall country credit rating. The ratings are measured on a scale of 0–100, divided into ten overlapping bands: AAA, AA, A, BBB, BB, B, CCC, CC, C, and D. The EIU overall country risk rating collected from Orbis have six values: A, AA, B, BB, BBB, and CCC. This variable will be treated as categorical. Five binary extra variables have been created from the list of six values as reported in Table 3.

### 3.3 | Control variables

In order to avoid a bias in the results of our study, we have used two control variables: efficiency (as firm control variable) and legal system (as country variable).

**TABLE 3** The transformation of country rating to binary variable

	A	AA	B	BB	BBB	CCC
A	0	0	0	0	0	0
AA	0	1	0	0	0	0
B	0	0	1	0	0	0
BB	0	0	0	1	0	0
BBB	0	0	0	0	1	0
CCC	0	0	0	0	0	1

With regard to efficiency, it is measured by the net asset turnover. It is expected that the higher the net asset turnover is, the more likely firms are sufficiently financially stable to cover the additional high cost of IR (Cormier & Magnan, 1999, 2003; Reverte, 2008; Roberts, 1992). Some previous studies have proved that higher turnover result in a positive choice of voluntary information disclosure (Gul & Leung, 2004; Khanna et al., 2004), whereas others found no relationship at all (Larrán & Giner, 2002; Marston & Polei, 2004; Oyelerere et al., 2003; Prencipe, 2004).

As for the legal system of a country, it could influence the decision of company to publish the IR. In fact, in the common law countries, the aim of corporate reporting is to satisfy the needs of shareholders, and for this reason, the financial information is more important. On the contrary, in the civil law countries, the companies have interest to satisfy the needs of all the stakeholders, and in order to reduce the information asymmetry between the managers and the stakeholders, they should disclose not only financial data but also sustainability and intangibles ones (Kolk & Perego, 2010; Van der Laan Smith, Adhikari, & Tondkar, 2005). Accordingly, the legal system variable is treated as dummy variable that distinguishes between common law (0) and civil law (1).

### 3.4 | Analytical model

The binary logistic regression model is used to analyse the association between firm- and country-specific characteristics and the voluntary adoption of IR, which may influence such adoption by listed companies. This model has been widely applied in previous studies about the determinants of voluntary adoption of IR (Frías-Aceituno et al., 2013; Frías-Aceituno et al., 2013, 2014; Jensen and Berg, 2012). In addition, in order to take into consideration the specific composition of our dataset, we performed a model considering robust errors for industry clusters, so as to reduce the impact of a different numerosness between manufacturing and service firms. To make the interpretation of the coefficients easier, the study will report odds ratio (ORs) instead of regression coefficients. ORs transforms the regression coefficients, allowing us to understand in percentage terms the contribution of every single regressor to the probability estimation.

The binary logit model can be expressed in the following manner:

$$\begin{aligned} \text{Prob} (IR = 1)_{it} = & \alpha_0 + \beta_1 \text{SIZE}_i + \beta_2 \text{PROFITABILITY}_i \\ & + \beta_3 \text{LEVERAGE}_{it} + \beta_4 \text{MTB}_{it} + \beta_5 \text{INDUSTRY}_{it} \\ & + \beta_6 \text{SIZEBOARD}_{it} + \beta_7 \text{WOMEN}_{it} \\ & + \beta_8 \text{EXDIRECT}_{it} + \beta_9 \text{CPI} + \beta_{10} \text{RATING} \\ & + \beta_{11} \text{COLLECTIVISM}_{it} + \beta_{12} \text{FEMINISM}_{it} \\ & + \beta_{13} \text{LONGTERMOR}_{it} + \beta_{14} \text{EFFICIENCY} \\ & + \beta_{15} \text{CIVIL} + e, \end{aligned}$$

where

IR: 1 if voluntarily IR-adopter, 0 otherwise;

SIZE: natural logarithm of total asset;

PROFITABILITY: earnings before interests and taxes on assets;

MTB: market value on book value;

LEVERAGE: total debt on total assets;

INDUSTRY: 1 if manufacturing industry, 0 service sector;

SIZE BOARD: number of the directors in the board;

WOMEN: percentage of women on the board;

EX DIRECT: percentage of nonexecutive director on the board;

COLLECTIVISM: takes value 1 if companies are located in countries with a collectivist level that is higher than the average for the countries analysed, 0 otherwise;

FEMINISM: takes value 1 if companies are located in countries with a feminist level that is higher than the average for the countries analysed;

LONGTERMOR: take value 1 if companies are located in countries with a higher long-term orientation than the average for the countries analysed;

CPI: corruption perception index;

RATING: EIU overall country risk rating;

EFFICIENCY: sales revenue divided by capital employed;

CIVIL: take value 1 if the company is located in civil law countries, 0 otherwise.

Finally, logistic regression will be validated by Hosmer-Lemeshow Test and LRchi2.

## 4 | RESULTS

### 4.1 | Descriptive statistics

Table 4 reports the descriptive statistics (mean and standard deviation) for the independent variables, and Table 5 presents the absolute and the relative numbers for CPI and risk rating country.

It is found that 20% of firms operates in countries with a high level of corruption ( $\text{CPI} \leq 39$ ), and a similar percentage of companies (23%) operates in countries with a low level of corruption (CPI value higher or equal to 80). The main part of total sample (57%) is concentrated in countries with a medium level of CPI ( $40 \leq \text{CPI} \leq 79$ ). These trends are present in the two subsamples, created dividing total sample with attention to IR presence and respectively called "IR = 1" if IR is present, and "IR = 0" otherwise. These similar distributions between the two subsamples are confirmed by a lack of significance in the chi-square test ( $\chi^2(2) = 0.127, p = .630$ ). Observing subsequently overall country rating, they register a high concentration of the total sample in country with Level A (52%) and concentration that is present in the two subsamples too (IR = 1, Rating A = 48%; IR = 0, Rating A = 46.69%). Observing Rating AA, we note a higher percentage (14%) of firms in subsample IR = 1 (subsample composed by firms that

**TABLE 4** Descriptive statistics

	Mean	Standard deviation
SIZE	5.87	0.9
ROA	3.57	5.21
MTB	1.47	1.75
LEVERAGE	0.57	0.17
BORD SIZE	10.08	2.4
WOMEN	0.0647	0.15
EXDIRECT	0.68	0.2
CPI	60.84	22.6

**TABLE 5** CPI and rating country frequencies

CPI range	Absolute	Relative (%)	IR = 1		IR = 0		$z/\chi^2$	p
			Absolute	Relative (%)	Absolute	Relative (%)		
High (0–39; highly corrupt)	70	20	13	18	71	26	0.127	.630
Medium (40–79)	199	57	40	56	141	51		
Low (80–100; very clean)	80	23	18	25	66	24		
Rating (%)								
A	180	52	34	48	140	46.69	4.589	.421
AA	25	7	10	14	14	8.82		
B	4	1	1	1	8	1.84		
BB	105	30	17	24	90	29.78		
BBB	24	7	8	11	20	9.19		
CCC	13	4	1	1	6	3.68		



have adopted IR in 2016) than in IR = 0 (8.82%). A difference is noted about Rating BB (30% in the subsample IR = 1, 29.78% in the subsample IR = 0) and Rating BBB (7% in the subsample IR = 1, 11% in the subsample IR = 0). Although the chi-square test performed on this table related to country risk rating did not report any kind of statistical difference ( $\chi^2(5) = 4,589, p = .421$ ), it is necessary to verify the actual impact of the country risk rating on the adoption of integrating reporting at the light of a more powerful statistical tool, as the logistic regression.

Table 5 reports the bivariate correlation among the quantitative variables selected in the analysis, evidencing a series of low correlation coefficients among independent variables.

## 4.2 | Logistic regressions

Table 6 reports the results obtained by the logistic regression model.

The variable SIZE is positive and significant (odds = 1.57,  $p = .011$ ). Therefore, consistent with the main results of studies that investigated the factors that influence the adoption of IR (Frías-Aceituno et al., 2013; Frías-Aceituno et al., 2013, 2014), we observe a positive influence of company size. We can then accept Hypothesis H1. As previously maintained (Section 2.2.1), this result can be linked to the fact that initially, the <IR> Framework was mainly addressed to large and listed companies. In addition, this category of organisations is more likely to have in place a reporting system inherited from the previous adoption of sustainability reports. Therefore, within the company, there is already a sensitivity towards topics related to value creation, sustainable development, and transparency. This could also reduce the costs related to its preparation and dissemination.

PROFITABILITY (odds = 1.07,  $p = 0.01$ ) has a positive and significant relationship with the voluntary adoption of IR. Therefore, Hypothesis H2 is also accepted. This result is in line with Frías-Aceituno et al. (2013), Frías-Aceituno et al. (2013, 2014), and García-Sánchez et al. (2013). This means that firms with higher profit in the industry often attract more attention from policymakers, a supervision from financial intermediaries, or the tight scrutiny from auditing firms. As a result, the choice of IR may facilitate them in satisfying the examination from different constituencies. Moreover, the voluntary adoption of IR is nevertheless affected by firm's financial situation because, as compared with traditional financial report, integrated report requires more funds. Firms have to collect more information and integrate them. Consequently, the higher profitability is, the likely is the possibility to absorb costs eventually related to IR. These results also contrast the observation that companies decide to adopt this

reporting format to do impression management (that is to hide their lower performance; Melloni, Caglio, & Perego, 2017).

LEVERAGE, although shows a positive impact on IR, has not a statistical significance on it (odds = 2.62,  $p = .317$ ), so Hypothesis H3 is rejected. As consistent with the results of Lai et al. (2014) and with what above stated, this finding confirms that the voluntary adoption of IR is not influenced by the external pressure from banks. Moreover, the positive relationship between the leverage and the adoption of IR confirms that having a high debt ratio can withhold companies from disclosing an integrated report because they are afraid that this information will lead to negative forecasts and will scare potential investors and stakeholders.

MTB (odds = 1.14,  $p = .06$ ) has a positive and significant relationship with the voluntary adoption of IR. Therefore, Hypothesis H4 is also accepted. This result is in line with the study of Frías-Aceituno et al. (2013) but in contrast with the research of the same authors of 2014 and with García-Sánchez et al. (2013). This result could be interpreted in light of the fact that on the one hand, companies with a high market to book value disclose different type of information (especially of intangibles nature) in order to reduce the information asymmetry between investors and stakeholders. Releasing integrated information and consequently information about future prospective could help the investors to decide whether invest in the company or not. On the other one, the different results from Frías-Aceituno et al. (2014) could be justified by the sample and time range considered. Companies are in fact drawn from the Forbes Global 2000 list, which may not be accurate in terms of quantity and quality of integrated reports. Most importantly, the time period taken into account is far ahead of the official launch of the IIRC (2010) and of IR (2013).

INDUSTRY reports a negative effect on the adoption of IR, and this result is characterised by a statistical significance (odds = 0.71,  $p = .000$ ). This means that manufacturing firms are less disposed towards the adoption of IR. Therefore, Hypothesis H5 is rejected. This result is in contrast with the study of Frías-Aceituno et al. (2013), Frías-Aceituno et al. (2013, 2014), and Lai et al. (2014). This can be explained by differences in the sample selection of IR adopters because we included only IR adopters that are considered as leading practices by the IIRC. Moreover, this result could be depending on what type of disclosure prevails in the IR. For example, Lai et al. (2014) found that health care industry is negatively and significantly associated with the governance disclosure, but the relationship between this industry and environmental and social disclosures are positive and not significant.

**TABLE 6** Bivariate correlations—total sample

	Size	Profitability	Market-to-book ratio	Leverage
SIZE	1,000			
ROA	0.1630*	1,000		
MTB	0.2984	0.1646	1,000	
LEVERAGE	0.2527	-0.3024 <sup>†*</sup>	-0.1802	1,000

As for corporate governance variables, the BOARD SIZE has a significant and positive (odds = 1.26,  $p = .004$ ) impact on the voluntary adoption of IR, and therefore, Hypothesis H6 is accepted. This result is in line with the study of Frias-Aceituno et al. (2013), demonstrating that when the board is large, there are many possibilities to have different people with diversified knowledge and background able to understand not only the financial information but also other type of information such as sustainability and of intangible nature.

The variable on board diversity and in particular the presence of WOMEN is positive but not significant (odds = 1.1,  $p = .676$ ). Therefore, Hypothesis H7 is rejected. This means that the presence of women in the board does not help companies to have a more ethical vision and to pay more attention at the sustainability information. This result is in contrast with the study of Frias-Aceituno et al. (2013). However, it has to be noted that the sample used by this study refers once again to an antecedent time period vis-à-vis the emergence of IR. Therefore, discourses on the effect that diversity could have on IR were preliminary. This interpretation is confirmed also by the findings of Fiori et al. (2016). They demonstrated a positive and significant relationship between gender diversity and IR. However, also, their sample was composed of organisations that started to adopt IR since a very limited time (they belong to the so-called IIRC Pilot Programme, aimed to collect feedbacks from companies about the initial conceptualisations of IR).

The EX DIRECT has a positive but not significant effect on the voluntary adoption of IR (odds = 1.35,  $p = .943$ ). Therefore, we reject Hypothesis H8. The sign of association is in line with the study of Frias-Aceituno et al. (2013) and in contrast with the research of Fiori et al. (2016). This result demonstrates that the independence and objectivity of the nonexecutive directors does not lead to an increase of quality and quantity of the information disclosed and consequently to the decision to uptake IR. In short, although the nonexecutives are not influenced by competitors or shareholders, they are not incentivized to improve corporate reporting of companies also to enhance their reputation.

CORRUPTION PERCEPTION INDEX has a positive and significant effect on IR (odds = 1.04,  $p = .025$ ), so evidencing that an increase of CPI has a positive impact on the firms, urging them to adopt IR. So Hypothesis H9 is accepted. Consistent with the findings of Baldini et al. (2016), in a country where the level of corruption is high, companies are more likely to engage in unethical practices, which they are unwilling to reveal through disclosure. Conversely, in a country where the level of corruption is low, managers will try to attract high-skilled employees, which consider the integrated disclosure as an indicator of good career prospects.

Moreover, we show two statistical significances about rating. Regarding the variables, RATING, AA-class, and BB-class are significant at 5% ( $p = .024$ ,  $p = .032$ ). Specifically, Rating AA reports an OR equal 1.72 ( $p = .024$ ), so denoting that firms operating in an AA-class country are more likely (72%) to adopt IR than firms operating, on the contrary, in an A-class country. Meanwhile, the OR of Rating BB (1.90) is positive referring to the statement that firms operating in a BB-class country are more likely to adopt IR than firms that work in

an A-class country. More specifically, firms that operate in countries with BB-rating have a higher probability to adopt IR, with a likelihood equal to 90% if we compare these firms with those that operate in countries with A-rating. For better understand our result, we have chosen to compare all rating classes with the A-class, because it is important to understand in which measure a class rating could influence the likelihood of adoption if compared it with a class (as A-class exactly) that it is not the highest.

Regarding the cultural variables, COLLECTIVISM (odds = 1.18,  $p = .036$ ), FEMINISM (odds = 2.48,  $p = .044$ ), and LONGTERMOR (odds = 1.05,  $p = .070$ ) are positive and significant. Specifically, our results show that firms located in collectivist and feminist countries have more interest to adopt the IR because in these countries, the individuals would improve the quality of the life, of the society, and not uniquely of the single individual. Therefore, the stakeholder requires a company to disclose more social and environmental information. A justification of the positive and significant relationship between the long-term orientation and the voluntary adoption of IR could be that the manager of companies located in countries long term oriented have a future perspective, and so they have interest in the forward-looking information disclosed in IR. Moreover, as mentioned earlier, long-term orientation is one of the main features of IR. In addition, being its implementation considered "a journey," the relevance of engagement with stakeholders is high.

Finally, the result of the model in relation to the control variables shows that the efficiency has a negative and not significant impact on the IR adoption (odds = 0.74,  $p = .425$ ), whereas the variable civil legal system is positive and not significant. The negative sign could be explained by the distribution of sample by industry that shows a prevalence of manufacturing companies over services. Moreover, relating to the legal system, our results could be influenced by the data inconsistency because the classification of countries by legal system were extracted from Porta et al. (1998), whereas data for the dependent variable are from 2016.

Logistic regression is validated by Hosmer-Lemeshow Test ( $\chi^2 = 4.5$ ,  $p = .6726$ ) for which a big  $p$  value means the goodness of fit for the performed logistic regression. To ensure the perfect suitability of logistic regression to our data, we performed also a likelihood ratio  $\chi^2$  ( $\chi^2 = 23.55$ ,  $p = .0009$ ), from which we derive an excellent goodness of fit for logistic regression to our study, removing in this way any doubt about the suitability of logit model to study relationships among some determinants factor and a voluntary adoption of IR by firms (Table 7).

## 5 | DISCUSSION OF THE THEORETICAL, PRACTICAL, AND POLICY IMPLICATIONS

In view of the results obtained, it is possible to derive implications on a theoretical, practical, and policy ground. On a conceptual level, this research contributes to the IR literature by providing an answer to prior research works that called for a combination of firm and institutional factors (Frias-Aceituno et al., 2014; Jensen & Berg, 2012). In

**TABLE 7** Logistic regression

	IR			
	Odd	Standard error	z	p >  z
SIZE	1.57	0.23	2.44	.011
ROA	1.07	0.01	6.79	.000
MTV	1.14	0.14	5.23	.006
LEVERAGE	2.62	3.27	0.77	.441
MANUFACTURING INDUSTRY	0.71	0.07	-3.50	.000
SIZEBOARD	1.26	0.18	6.02	.004
WOMEN	1.1	0.04	7.48	.676
EX DIRECT	1.35	0.10	1.21	.943
COLLECTIVISM	1.18	0.33	4.32	.036
FEMINISM	2.48	3.04	5.05	.044
LONGTERMOR	1.05	0.40	2.24	.070
CPI	1.04	0.02	2.35	.025
Rating				
AA	1.56	0.16	2.26	.024
B	1.72	2.13	0.42	.676
BB	1.12	3.17	2.15	.032
BBB	1.90	0.33	-0.49	.627
CCC	1.18	0.83	0.14	.886
EFFICIENCY	0.74	0.06	-3.86	.425
CIVIL	1.53	0.42	3.35	.738
Constant	0.01	0.01	-2.34	.019
Hosmer-Lemeshow Test	4.5			
p value HR	.6726			
LR $\chi^2$	30.23			
p value LR	.0005			

addition, it has shown that also a combination of multiple theories could represent a valuable solution to be further employed for other studies. Indeed, as previously mentioned, IR relies on the connectivity of information of different nature. Therefore, the adoption of a single theory could limit the potential results that can be found. From our examination, agency, stakeholder, institutional, and proprietary costs, theories have emerged as the most explanatory ones.

On the practical side, the work can accompany companies in their implementation of IR. This is particularly true in terms of financial performance, intangible resources, and corporate governance mechanisms. Companies that are willing to start the "integrated reporting journey" may in fact be encouraged to pay attention to their profitability, to the relevance that they pay to intangible resources, and to the size of their boards. This is consistent with the claim that some authors have done, advancing that intangible capitals have found a new life through IR (Abhayawansa, Guthrie, & Bernardi, 2019). Moreover, the buy-in from the board has been identified as one of

the fundamental steps (although not the only one) for a successful implementation (French Institute of Directors, 2017; IIRC, 2017).

Finally, in terms of policy implications, it is possible to state that these results could be of support to the strategy development and, in general, the activities of governments and of the IIRC. Governments and, in general, constituencies of countries with a lower CPI could in fact find ways to promote the benefits of adopting IR, whereas those with a higher perception index could further support the implementation through recommendations and other regulatory channels. As for the IIRC, by analysing both the firm and country characteristics, the paper provides useful and unique insights on what can be the most relevant listed companies and countries to be considered for its wider adoption. The IIRC is in fact nowadays in its phase of strategy shift from the so-called *Breakthrough Phase* to the *Momentum Phase*; this means that it is undertaking a strategic repositioning in order to normalise IR and thinking in the public and public sector to make them become the global norm. Therefore, a work suggesting to promote the adoption of IR in countries where there is a high level of corruption, collective values, feminism, and long-term orientation along with a low rating score is well aligned to this mission and objective.

## 6 | CONCLUSIONS

The purpose of this paper has been to analyse the impact of both firm- and country-specific characteristics on the voluntary adoption of IR. With the analysis of 349 international publicly listed firms, including 71 firms that adopted IR in 2016 and 278 firms that have not yet adopted IR, the common characteristics of IR adopters have emerged. In terms of firm characteristics, size of the firm, profitability, market-to-book ratio, industry, and board size have been found to be determinants in the voluntary adoption of IR. As for country characteristics, the same association has emerged with reference to CPI, country risk rating, collectivism, feminism, long-term orientation.

Despite the above merits, the study has also limitations on a theoretical and methodological levels, which can be translated into future research avenues. With reference to the former, the paper has focussed its analysis on a selection of seven of the theories considered the most relevant in the voluntary disclosure arena. Future works may be willing to take into consideration other theories to formulate and test new hypotheses.

As for the methodology, a first limitation is the lack of available data, which has reduced the number of sampled firms. Indeed, the investigation has taken into consideration only those companies that have been considered leading practices by the IIRC as of May 2017. Therefore, future examinations may be willing to test the same hypotheses on a larger scale (including all those organisations that release an integrated report). A second limitation of the analysis concerns the time period that in our paper, covers only the financial year 2016. Future works may be directed to the adoption of a longitudinal perspective that could also improve the comparability of data.

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## APPENDIX A

List of companies	
Company name	Sector
Aggreko PLC	Industrials
American Electric Power	Utilities
Anglo American PLC	Basic materials
Antofagasta PLC	Basic materials
Arcelormittal S.A.	Industrials
Asahi Group Holdings Ltd.	Consumer goods
Astellas	Healthcare
Astrazeneca PLC	Healthcare
Atlantia S.P.A.	Industrials
BAE Systems PLC	Industrials
BASF SE	Basic materials
BHP Billiton PLC	Basic materials
BP PLC	Oil and gas
British American Tobacco P.L.C.	Consumer services
Cair Energy	Oil and gas
CCR S.A.	Industrials
Clorox CO	Consumer goods
Coca Cola	Consumer goods
Danone	Consumer goods
ENBWE	Utilities
Enel SPA	Utilities
Eni S.P.A.	Oil and gas
Energy Corporation	Utilities
Far Eastone Telecommunications	Telecommunications
Ferrovial, S.A.	Professional services
Fibria Celulose S.A.	Basic materials
Fresnillo PLC	Basic materials
G4S PLC	Industrials
Gecina SA	Real Estate
General Electric	Technology
Hammerson PLC	Real Estate
Hyundai Engineering & Construction	Industrials
Iberdrola SA	Utilities
Intercontinental Hotel Group	Consumer Services
Interserve PLC	Industrials
Itochu Corporation	Basic materials
J Sainsbury PLC	Consumer services
JSC Atomenergomash	Industrial
Kingfisher PLC	Consumer services
Konica Minolta, INC.	Industrials
Koninklijke DSM N.V.	Healthcare
Lawson, Inc.	Consumer goods

(Continued)

List of companies	
Lifehealthcare Group Limited	Healthcare
Mark & Spenser	Consumer goods
Mitsubishi Corporation	Basic materials
Mondi PLC	Industrials
National Grid PLC	Utilities
Natura Cosméticos S.A.	Consumer goods
Novo Nordisk A/S	Healthcare
Omron Corporation	Healthcare
Philips	Technology
Randstad Holding NV	Real Estate
RIO TINTO Limited	Basic materials
SAGE	Technology
Sanford Ltd	Consumer goods
SAP SE	Technology
SGS S.A.	Consumer services
SK Telecom Co., Ltd.	Telecommunications
SSE PLC	Oil and gas
Stockland	Real Estate
Syngenta Ag	Healthcare
Takeda	Healthcare
Tata Steel Limited	Industrials
TUI Travel	Consumer services
Tullow Oil PLC	Oil and gas
TVEL	Basic materials
Unilever PLC	Consumer goods
United Utilities	Utilities
Vodafone	Telecommunications
Woodside Petroleum Limited	Oil and gas
Xstrata	Basic materials

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