

# Integrated reporting: an international overview

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*This article analyses the determinants associated with the use of the Integrated Report (IR) as a corporate reporting model for sustainability information. IRs provide information regarding the use and interdependence of different company resources. The previous literature has identified determinants behind the presentation of IRs at the country level (legal system, investor protection, economic development, cultural characteristics) as well as at the company level (size, industry, verification of the sustainability report). Our work contributes to the literature by using a novel statistical approach that addresses the likelihood of the non-independence of data: companies in the same country are more similar to one another than are companies from different countries. Our results confirm significant inter-country variance, which may be partially explained by the existence of specific regulations and the individualism vs. collectivism dimension. Although we confirm the effect of company-level determinants, our results do not support the role of specific variables tested as determinants.*

## Introduction

The objective of this article is to analyse the determinants associated with the use of the Integrated Report (IR) as a corporate reporting model for sustainability information. Our analysis is at two levels: the country level and the firm level. We focus on the IR because it represents the next step in the evolution of corporate reporting (Cohen & Simnett 2015) and provides high potential for further research.

Corporate reporting seeks to communicate a company's performance to its stakeholders. Voluntary disclosure, a part of this communication process, has grown exponentially over the last two decades (Kolk 2008, KPMG 2011) and has become a key issue for regulators, accountants and researchers. To facilitate a holistic understanding of the different types of information disclosed, some companies publish IRs to demonstrate the use and interdependence of their different resources (financial, productive, human,

intellectual, social, or natural) and the outcomes of their activities (products and services, effects on the environment, social outcomes, and so forth). Thus, the disclosed information can be used to improve the long-term assessment of the company's viability as well as to identify possible uncertainties. As Eccles and Krzus (2010) state, companies should produce IRs because they play a key role in corporate social responsibility (CSR) commitments and because a true sustainability strategy requires a true commitment to transparent reporting. According to KPMG (2011), CSR must be integrated into a company's core business. The integration of CSR into corporate strategy implies that tools should be designed to manage and report on the business while also recognizing that the IR 'is not just a tool for internal and external communication but also a formal account of strategic process seeking continuous improvements in the business culture' (Perrini & Minoja 2008). Although the use of the IR as a reporting

model is no guarantee that CSR is integrated into the corporate strategy, it may be an opportunity to 'rethink the role of business and the interrelatedness of all its activities' (Painter-Morland 2006: 363).

As Stubbs and Higgins (2014) assert, the IR is not a 'radical innovation'. However, significant change is occurring in corporate reporting. Little is known about this new way of reporting, which opens paths to new research (Cheng *et al.* 2014, Adams 2015, Simnett & Huggins 2015). It is particularly interesting to consider the determinants that affect the decision to issue an IR. Currently, a limited number of empirical studies have found that the likelihood of presenting an IR is associated with country-level features (political and legal systems, economic development, and cultural characteristics) (Jensen & Berg 2012, García-Sánchez *et al.* 2013, Frías-Aceituno *et al.* 2013a) as well as company features (size, profitability, or industry) (Frías-Aceituno *et al.* 2013a, 2014, Sierra García *et al.* 2013) and board characteristics (Frías-Aceituno *et al.* 2013b). Prior research has highlighted the influence of determinants at the country level using samples in which companies are the sole unit of analysis. No attention has been given to the existence of two levels of analysis: country and company. Our article distinguishes between drivers at these two levels using a generalized linear mixed model for a sample structured into two-level units.

Our work contributes to the literature by using a distinct statistical approach that addresses the likelihood of non-independence of data: companies in the same country are more similar to one another than are companies from different countries. This implies the existence of a multilevel data structure. Our findings, consistent with previous research, confirm the importance of regulations and individualism. However, our results are inconclusive in terms of investor protection and are non-significant for other country variables. Our results show no influence from company-level characteristics (size, industry, dependence on capital markets, and the existence of an assured sustainability report) on the decision to prepare and release an IR.

The remainder of the article is structured as follows. The next section discusses integrated reporting and its theoretical framework. We then present a brief review of the literature on the determinants of integrated reporting to support our hypotheses. This

is followed by sections presenting the basic elements of the empirical study and the results. The last section discusses implications and conclusions.

## Reporting framework for integrated reporting

In reviewing previous research, we find that both institutional and stakeholder theories provide a rationale for the reporting framework of the IR. Institutional theory often analyses the effects of pressure from supra-level structures, such as countries, on organizational practices (Aguilera & Jackson 2003, Delmas & Toffel 2004, Jackson & Apostolakou 2010), such as reporting. Stakeholder theory has been used to analyse value creation at a firm level resulting from the collective efforts described in the IR (Haller & van Staden 2014, Dumitru *et al.* 2015, Vidal *et al.* 2015).

According to institutional theory, organizations will change their structures or operations to meet external expectations surrounding important issues (Deegan 2002). Institutional theory focuses on the influence of political, social, and economic systems on company behavior and legitimacy. The institutional context may affect the development of accounting regulations (Nurunnabi 2015) as well as the characteristics of sustainability reports (Chen & Bouvain 2009). At the organizational level, DiMaggio and Powell (1983) identify three types of institutionalization mechanisms: coercive, normative, and mimetic. According to Larrinaga (2007), coercive mechanisms focus on rule setting, monitoring, reward, and punishment. The existence of regulation affecting the issuing of IRs in South Africa is an example of this mechanism. Normative mechanisms are based on non-imposed values and norms. In this context, the issuing of an IR can be explained by the fact that the company believes IRs are the best way to communicate its impact on society to its stakeholders. In the case of mimetic mechanisms, companies imitate fellow companies that they perceive to be successful. According to this mechanism, similar behavior concerning IRs can be expected within an industry or country. These three mechanisms can be observed within a global environment that includes political, financial, educational, and labor

characteristics as well as cultural systems (Matten & Moon 2008, Jamali & Neville 2011, Abreu *et al.* 2015), all of which may affect a company's CSR behavior. Currently, institutional pressure exerts a positive effect on integrated reporting (Villiers *et al.* 2014).

The two main initiatives promoting the use of the IR are the International Integrated Reporting Committee (IIRC), created in 2010, and the King Report on Corporate Governance in South Africa (King III) (King Committee on Corporate Governance 2009). The IIRC is a global coalition of regulators, investors, companies, standard setters, accounting professionals, and NGOs. Its mission, as presented on its webpage, is 'to establish integrated reporting and thinking within mainstream business practice as the norm in the public and private sectors' (<http://integratedreporting.org/the-iirc-2/>). The IIRC not only promotes integrated reporting but also promotes integrated thinking. The King Report on Corporate Governance in South Africa is a national initiative. This code of corporate governance applies to companies listed on the Johannesburg Stock Exchange. It requires these companies to present an IR in accordance with the 'comply or explain' principle (according to which compliance with codes or rules is not mandatory, but companies must disclose their reasons for non-compliance).

Stakeholder theory (Freeman 1984) addresses the expectations of specific groups within society (Smith *et al.* 2011). It considers the effect of stakeholders' expectations on informative disclosure given that some groups are more powerful than others. Stakeholder support is crucial to the long-term survival of companies, and thus companies must adjust their activities to address stakeholder concerns (Gray *et al.* 1995). In so doing, managers are incentivized to disclose information on their programs and activities to demonstrate to stakeholders that the company is meeting their expectations (Deegan 2002). CSR reporting is a tool that fosters dialogues with different stakeholder groups; it supports striking a balance and meeting a range of stakeholder interests. According to Du *et al.* (2010), the biggest challenge in communication is to overcome stakeholder scepticism. In fact, companies that are highly committed to their stakeholders are especially aware of the need to address and uncover risks to sustainability

(Michelon 2011). Hence, traditional stakeholder theory should evolve from a one-way model of communication towards a real dialogue between the company and its stakeholders (Roberts 1992, Reynolds & Yuthas 2008, Sridhar 2011).

In line with stakeholder theory, Perrini and Tencati (2006: 297) defend the need to create a communication system based on 'the strategic value of linkages with stakeholders'. Their proposal, the sustainability evaluation and reporting system, is structured around three modules. The first of these modules is the overall reporting system. It includes an annual report, a social report, an environmental report and a set of integrated performance indicators to assess the company from a business perspective. The second module, the integrated information system, enables the organization to collect, process, and share data. The third module includes key performance indicators for corporate sustainability, which map the company's ongoing assessment of its relationship with stakeholders. Part of Perrini and Tencati's proposal is partially represented in the IIRC framework. According to this committee, an IR is 'a concise communication about how an organization's strategy, governance, performance, and prospects, in the context of its external environment, lead to the creation of value over the short, medium and long term' (IIRC 2013: 7). This very broad definition may encompass several types of self-declared IRs (Global Reporting Initiative [GRI] 2013a). It could be understood as an informative sustainability structure that meets GRI sustainability requirements without any clear links between the organization's financial information and its sustainability report. It could also be a one-cover structure, published as a single publication. Finally, it could be an embedded structure that clearly evidences interlinkages between both types of information. This third category is related to the term 'one report' (Eccles & Krzus 2010), which implies a real commitment towards a truly sustainable strategy.

### **Determinants of the use of IRs and development of hypotheses**

Using institutional theory, Jensen and Berg (2012) analyse the external and internal determinants that explain the choice between presenting an IR and

keeping financial and non-financial information separate. They used a sample of 309 companies in 43 countries and grouped these companies according to several criteria at the country level. Regarding political systems, they found that the shareholder/stakeholder orientation of the country, as measured by the legal system, had no effect on the decision to publish IRs. Additionally, they found that companies in countries with high investor protection indices (according to data from the International Finance Corporation and The World Bank) and companies in countries with weak employment protection (according to data from the OECD) are more likely to prepare IRs. Additionally, they concluded that companies in market-based economies are more likely to produce IRs because of higher stakeholder pressure and a positive association between integrated reporting and economic development. In terms of cultural factors, the authors found a positive correlation between integrated reporting and high values on the national corporate responsibility index, which was developed by AccountAbility in 2005 as a proxy for a country's social development. Frías-Aceituno *et al.* (2013a) applied the same theoretical framework to 750 non-financial companies in 20 countries. They concluded that companies located in civil law countries with strong law enforcement mechanisms are more interested in disclosing IRs. This result shows that stakeholders influence reporting strategy and thus compel companies to be more proactive and adaptive regarding CSR communication trends. Consequently, these companies are more likely to publish IRs.

Based on stakeholder theory, García-Sánchez *et al.* (2013) reported a link between cultural country factors (Hofstede 2001, Hofstede & Hofstede 2005) and responses to stakeholder preferences specifically in the case of IRs. They used a sample of 3,042 observations from 1,590 companies in 20 countries for the period 2008–2010. Their results indicate that the values of collectivism and feminism, which are related to concern for the public good, both determine the publication of IRs. In contrast, the other cultural dimensions have no impact on integrated reporting. Sierra-García *et al.* (2013) used 7,344 reports from different countries registered in the GRI to identify why companies opt for integrated reporting. They noted that Africa is the geographical region with the

highest likelihood of its countries presenting IRs because IRs have been mandatory for companies listed on the Johannesburg Stock exchange on a 'comply or explain' basis since 2010.

Previous literature states that the influence of social structures (*institutions*) or stakeholder pressures could justify determinants at the country level. Therefore, our first hypothesis focuses on differences among countries and the issues that may account for these differences. Thus, our first hypothesis is as follows:

**H1:** *There is a significant difference among countries concerning the use of integrated reports.*

We test this hypothesis with an unconditional or intercept-only model in which *Country* is a random effect.

The previous literature explained countries' IR differences based on legal, economic, and social/cultural features. We develop the following hypotheses to further analyse the first hypothesis and explain the causes of differences among countries.

Regarding legal frameworks, countries can be classified on the basis of two different legal systems: civil or code law (Roman law) and common law (Anglo-Saxon law). The first of these systems pertains to stakeholder-orientated countries and the second pertains to shareholder-oriented countries (Ball *et al.* 2000, Simnett *et al.* 2009, Kolk & Perego 2010). Moreover, regulations of any kind connected to IRs affect the disclosure of integrated information (e.g. South Africa). Based on these variables, we propose:

**H1.1:** *There is a positive association between integrated reporting and belonging to code-law countries.*

**H1.2:** *There is a positive association between integrated reporting and investor protection.*

**H1.3:** *There is a positive association between integrated reporting and the existence of IR regulations.*

In terms of economic features, companies in countries with higher economic development are

apparently more likely to present an IR (Jensen & Berg 2012). Thus, we propose:

**H1.4:** *There is a positive association between integrated reporting and economic development.*

Regarding social/cultural features, Hofstede's index of cultural dimensions, which refers to the measurement of individualism vs. collectivism and masculinity vs. femininity, explains the differences among countries: companies in collectivist and feminist countries are more likely to produce an IR (García-Sánchez *et al.* 2013). Based on these variables, we propose:

**H1.5:** *There is a positive association between integrated reporting and collectivism in Hofstede's sense.*

**H1.6:** *There is a positive association between integrated reporting and feminism in Hofstede's sense.*

Based on stakeholder theory, Frías-Aceituno *et al.* (2013b) analysed the impact of board characteristics on integrated reporting. Based on panel data from 568 companies in 15 countries, they concluded that size and gender diversity are positively correlated with integrated reporting and that large companies with high growth opportunities produce more IRs. In contrast, García-Sánchez *et al.* (2013) reported that larger, more profitable and lower growth opportunity companies are more likely to present IRs. García-Sánchez *et al.* (2013) analysed other internal determinants. They discovered a significant association between integrated reporting and assured sustainability report, company size and industry supplemental reports. Frías-Aceituno *et al.* (2013a, 2014) found that profitable companies are more likely to produce an IR. Previous literature states that the industry membership variable is linked to sustainability (Mock *et al.* 2007, Kolk & Perego 2010, Sierra-García *et al.* 2013). Firms belonging to high-environmental impact or high-visibility industries generally face higher stakeholder pressure (Fernandez-Feijoo *et al.* 2014a). However, Sierra-García *et al.* (2013) and Frías-Aceituno *et al.* (2014) demonstrated the specific neutral effect of industry membership on integrated reporting.

The previous literature states that specific characteristics of companies could explain and be used to categorize company behaviour regarding the disclosure of an IR. Therefore, our second cluster of hypotheses centres on those proposals establishing significant differences among companies driving their use of IRs. The scarcity of literature on the topic leaves ample room for further research. Thus, we aim to test the basic variables, at the company level, that are generally accepted as having an impact on corporate reporting.

According to Frías-Aceituno *et al.* (2013b, 2014) and Sierra-García *et al.* (2013), company size and IRs correlate positively. Thus:

**H2.1:** *There is a positive association between integrated reporting and company size.*

Generally, voluntary disclosure is beneficial for listed companies (Healy & Palepu 2001) because it reduces information asymmetries between firms and external actors (Brammer & Pavelin 2006). IRs are a way to reduce investor information risks. In addition, the GRI (2013b) highlights the value of IRs for providers of financial capital. Based on this variable, we propose:

**H2.2:** *There is a positive association between integrated reporting and being a listed company.*

Industry is another variable that is well known for its impact on reporting issues. We expect to confirm the influence of this variable, but we do not forecast its direction. Based on this variable, we therefore propose:

**H2.3:** *Industry membership affects disclosure through integrated reports.*

The verification of the SR by an independent party is related to credibility, which is considered to be a proxy for quality of the SR (Hammond & Miles 2004). Sierra-García *et al.* (2013) find that external verification of sustainability information and the presentation of an IR are positively correlated. Based on this variable, we propose:

**H2.4:** *There is a positive association between integrated reporting and the decision to verify sustainability information.*

Table 1: Summary of related research

IR determinants		Previous literature		Hypotheses	
Country		Frías-Aceituno <i>et al.</i> (2014) Sierra-García <i>et al.</i> (2013)	Found evidence	H1	
Country level	Legal system	Jensen and Berg (2012)	Found no evidence	H1.1	
		Frías-Aceituno <i>et al.</i> (2013a)	Civil law		
	Investor protection	Jensen and Berg (2012)	Strong protection	H1.2	
	Legal enforcement mechanisms	Frías-Aceituno <i>et al.</i> (2013a)	Found evidence	H1.3	
	Economic development	Jensen and Berg (2012)	Highly developed countries	H1.4	
	Individualism vs. collectivism	García-Sánchez <i>et al.</i> (2013)	Collectivism	H1.5	
	Masculinity vs. femininity	García-Sánchez <i>et al.</i> (2013)	Femininity	H1.6	
Company level	Company size	Frías-Aceituno <i>et al.</i> (2013a,b); García-Sánchez <i>et al.</i> (2013); Sierra-García <i>et al.</i> (2013)	Large companies measured by total assets	H2.1	
		Listed company	Healy and Palepu (2001)	Voluntary disclosure	H2.2
		Industry	Sierra-García <i>et al.</i> (2013)	Negatively related to others	H2.3
	External assurance of the SR	Frías-Aceituno <i>et al.</i> (2013a, 2013b); García-Sánchez <i>et al.</i> (2013)	Found no evidence	H2.4	
		Sierra-García <i>et al.</i> (2013)	Found evidence		

Table 1 summarizes previous related research and our hypotheses.

Figure 1 represents the model we want to test.

## Methodology

### Data selection

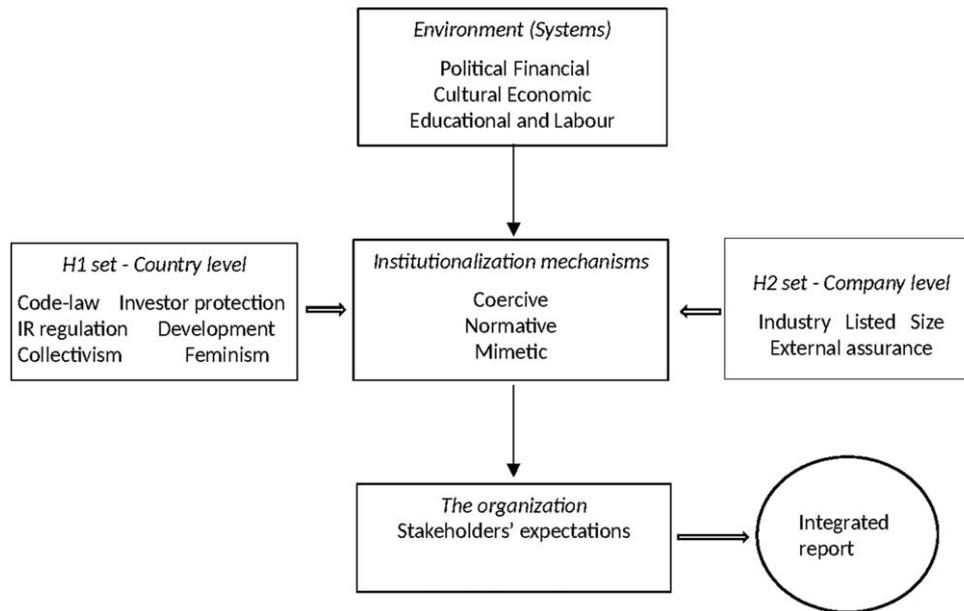
We used the GRI database (accessed 8 November 2013). The number of companies registered in the GRI with sustainability reports in 2012 totalled 3,646. First, we selected all companies in 13 countries (1,856 companies); this represented 50.9% of the total database. We selected countries according to the number of GRI reports and geographical distribution. In addition, we checked and completed data by hand using company web pages. We also removed companies with incomplete data. The final sample consisted of 1,449 companies registered in the GRI database with sustainability information in either of two formats, a separate SR (75.7%) or an IR (24.3%). Table 2 presents the distribution of countries used in our sample. South Africa shows the highest percentage of IRs (80.3%), and the USA shows the lowest (3.6%).

Listed companies represent 57.3% of the sample, and large or multinational companies represent 88.8% of the sample. The most-represented industries in the sample are Consumer Goods (14.6%), Energy and Chemicals (15.9%), and Finance (11.2%). The descriptive statistics also show that companies in civil law countries represent 46.7% of the sample. South Africa, the only country that regulates integrated reporting, represents 4.9% of the sample. Finally, 31% of the companies in the sample have externally verified sustainability information (Table 2).

### Variable description

Our dependent variable is *IR*. It adopts the value 1 if the company presents an IR and 0 if the company does not present an IR. Regarding the explanatory variables, we first use *Country* to test the non-independence of data, considering that companies in the same country may behave similarly to companies from other countries. *Country* is a nominal variable (with 13 values) that indicates the country of the reporting company. We decided to further analyse the effect of *Country* on the dependent variable by testing the following variables at the country level:

Figure 1: Determinants of integrated reports



- *LegalSystem*. We used two different legal systems to classify countries: civil law or code law (Roman law) and common law (Anglo-Saxon law). This variable has a value of 1 if the country is a civil law country and 0 if it is a common law country.
- *InvProtection*. We used the index created by The World Bank to measure the strength of minority shareholder protection against the misuse of corporate assets by directors for personal gain. This index ranges from 0 to 10.

- *GDP*. We used 2011 gross domestic product *per capita* (The World Bank – US dollars) as a proxy for economic development.
- *Individualism*. We used Hofstede’s index of cultural dimensions referring to individualism vs. collectivism.
- *Masculinity*. As with the previous variable, we used Hofstede’s index of cultural dimensions referring to masculinity vs. femininity.
- *Regulation*. This variable reflects the existence of any sort of regulation connected to IRs. In our sample, South Africa is the only country with IR regulations for listed companies. This variable has a value of 1 for companies from South Africa and 0 otherwise.

Table 2: Distribution of the sample

Country	N	% sample	IR	% IR
Australia	60	4.1	18	30.0
Brazil	155	10.7	24	15.5
Canada	93	6.4	12	12.0
Finland	73	5.0	39	53.4
Netherlands	51	3.5	27	52.9
Russian Federation	68	4.7	24	35.3
Singapore	87	6.0	37	42.5
South Africa	71	4.9	57	80.3
Spain	115	7.9	32	27.2
Sweden	124	8.6	13	10.5
Switzerland	90	6.2	33	36.7
Thailand	70	4.8	24	34.3
USA	392	27.1	14	3.6
Total	1,449	100.0	354	24.43

Concerning company-level variables, we included the following:

- *Size*. This variable has a value of 1 for large or multinational companies and 0 for small and medium companies.
- *Listed*. This is a dichotomous variable that has a value of 1 if the company is listed and 0 otherwise.
- *Industry*. Companies in the sample belong to 37 industries according to the GRI database. We created this variable by recoding it into 10 sets (Deegan & Gordon 1996, Wilmshurst & Frost 2000,

Amran & Haniffa 2011, Fernandez-Feijoo *et al.* 2014b). The defined sets are as follows: (1) Construction (Construction, Construction materials); (2) Consumer goods (Consumer durables, Food and beverages, Healthcare products, Household and personal products, Retailers, Textiles apparel, Tobacco); (3) Energy and Chemicals (Chemicals, Energy, Energy utilities); (4) Finance (Financial services); (5) Manufacturing (Automotive, Equipment, Metal products); (6) Other (Conglomerate, Other); (7) Primary sector (Agriculture, Forest and paper, Mining); (8) Services (Commercial services, Healthcare services, Media, Non Profit/ services, Public agency, Real Estate, Tourism/leisure, Universities, Waste management, Water utilities); (9) Technology (Computers, Technology hardware, Telecommunications); and (10) Transportation (Aviation, Logistic, Railroad).

- *External assurance*. This variable has a value of 1 if the SR is verified by an independent assurer and a value of 0 otherwise.

### Statistical methodology

We first used a bivariate analysis to identify associations and correlations between variables. Next, we decided to use a generalized linear mixed model that considers two analysis unit levels (companies as a first level and countries as a second level). We applied the statistical model in two steps. First, we tested for the existence of a multilevel structure in our data to analyse whether companies in the same country behaved in a way similar to companies from other countries. For this test, we used an unconditional model using only *Country* as a random effect (Hox 2002, Pardo & Ruiz 2012). Second, we introduced fixed effects to test our hypotheses by applying the following model:

$$Y_{ij} = \beta_{0j} + \beta_{1j}X_{1ij} + \dots + \beta_{nj}X_{nij} + \epsilon_{ij} \quad (1)$$

where

$Y_{ij}$  is the dependent variable in every model, referring to the company  $i$  in country  $j$ .

$X_{1ij}, \dots, X_{nij}$  represent the  $n$  explanatory variables at the company level.

$\epsilon_{ij}$  represents the error or random variation around the average.

$\beta_{0j}, \beta_{1j}, \dots, \beta_{nj}$  are not constants but variables with values that may change from one country to another. These parameters can be expressed as:

$$\begin{aligned} \beta_{0j} &= \gamma_{00} + \gamma_{01} Z_{1j} + \dots + \gamma_{0m} Z_{mj} + U_{0j} \\ \beta_{1j} &= \gamma_{10} + \gamma_{11} Z_{1j} + \dots + \gamma_{1m} Z_{mj} + U_{1j} \\ &\dots \\ \beta_{nj} &= \gamma_{n0} + \gamma_{n1} Z_{1j} + \dots + \gamma_{nm} Z_{mj} + U_{nj} \end{aligned} \quad (2)$$

where:

$\gamma_{i0}$  represents the global average of IR presentation in every country.

$Z_{1j}, \dots, Z_{mj}$  are the explanatory variables at the country level.

$U_{0j}, \dots, U_{nj}$  represent the variability of the means of the dependent variables in the different countries with respect to global variability.

We used a binomial distribution with a logit link given that our dependent variable was a binary variable resulting from a logistic regression model.

## Results and discussion

### Bivariate analysis

We used a cross-tabulation analysis for categorical variables and a correlation analysis for quantitative variables to test for associations and correlations.

Table 3 shows the association between *IR*, our dependent variable, and each of the explanatory variables selected from the literature. Considering the result of this first analysis, we decided to exclude *Size* and *Listed* from further analysis (as we found no association) and to include *Industry* (significant at 90%), *Masculinity* and *External assurance* (significant at 95%) and *LegalSystem*, *InvProtection*, *GDP*, *Individualism* and *Regulation* (significant at 99%).

### Test of the hypotheses

We created an unconditional or intercept-only model, considering one factor as a random effect

Table 3: Bivariate analysis

	Pearson's chi-squared test ( $\chi^2$ )		Pearson's correlations	
	Value	Sig. asym. (2-sided)	Value	Sig. asym. (2-sided)
<i>LegalSystem</i>	10.827	0.001		
<i>InvProtection</i>			-0.128	0.000
<i>GDP</i>			-0.116	0.000
<i>Individualism</i>			-1.990	0.000
<i>Masculinity</i>			-0.065	0.014
<i>Regulation</i>	126.142	0.000		
<i>Size</i>	0.789	0.374		
<i>Listed</i>	0.753	0.386		
<i>Industry</i>	16.760	0.053		
<i>ExternalAssurance</i>	5.858	0.016		

(*Country*), to analyse whether this variable was a grouping criterion. The model fits 79.1% of the data and the Bayesian Information Criterion is 7,229.522. As we can see in Table 4, the inter-country variance is 1.333, and 0.968 is the intra-country variance. The Z test is significant at 95%, meaning that the likelihood of presenting an IR is not the same for all countries. Hence, the variability of the dependent variable can be explained by inter-country as well as intra-country differences. The proportion of the total variance of the dependent variable, explained by the grouping structure, can be measured by the intra-class correlation coefficient (Hox 2002, Pardo & Ruiz 2012). The intra-class correlation coefficient is 0.579 (1.333/1.333 + 0.968). This means that 57.9% of the variability in presenting IRs can be explained by country-level determinants. The use of a multilevel approach is therefore justified.

In addition to justifying the use of a multilevel model, the random effects test confirms H.1: country-level determinants are significant drivers for publishing IRs. To further analyse this result, we designed a second model with a random effect (*Country*) and other fixed effect variables related to

both the country and the company levels. Table 5 shows that *Regulation* is significant at 99% ( $p$ -value = 0.001), *Individualism* is significant at 95% ( $p$ -value = 0.021) and *InvProtection* is significant at 90% ( $p$ -value = 0.060). No significance was found in the remaining variables.

Table 6 includes the coefficients of the significant variables (at least 90%) from our previous analysis (*InvProtection*, *Individualism*, and *Regulation*). All else being equal, the odds of presenting IRs for companies in countries without regulation are 0.017 times the corresponding odds for companies in countries with regulation. All else being equal, an increase of one unit in the *Individualism* index decreases the odds of presenting an IR, which are 0.968 times the corresponding odds of the former unit. Regarding the *InvProtection* variable, and again all else being equal, an increase of one unit decreases the odds of

Table 4: Estimates of the variance (unconditional model)

Variance	Estimate	Std Error	Z	Sig.
Residual	0.968	0.036	26.794	0.000
Country	1.333	0.573	2.326	0.020

Table 5: Fixed effects (second model)

Explanatory variable	F	Sig.
Correct model	1.438	0.115
<i>LegalSystem</i>	1.774	0.183
<i>InvProtection</i>	3.540	0.060
<i>GDP</i>	1.997	0.158
<i>Individualism</i>	5.369	0.021
<i>Masculinity</i>	2.284	0.131
<i>Regulation</i>	11.534	0.001
<i>Industry</i>	0.594	0.803
<i>ExternalAssurance</i>	1.970	0.161

Table 6: Fixed coefficients (second model)

Model Term	Coeff.	Std. Error	t	Sig.	Exp (coeff.)
Intercept	8.389	2.671	3.141	0.002	4,396.702
<i>InvestProtect</i>	-0.559	0.297	-1.882	0.060	0.572
<i>Individualism</i>	-0.033	0.014	-2.317	0.021	0.968
<i>Regulation = 0</i>	-4.085	1.203	-3.396	0.001	0.017

presenting an IR, which is 0.572 times the corresponding odds of the former unit.

The variance of *Country* is 0.710 (Table 7). This represents a remarkable reduction with respect to the 1.333 variance of *Country* in the intercept-only model (Table 4). Thus, the country-related variables introduced in the model have reduced the variability of level 2 (country). It is worth noting that the intra-class correlation coefficient is 0.4132 (0.710/(0.710 + 1.008)) if the random effect and the significant explanatory variables are controlled. According to this result, 41.32% of the variability of the dependent variable can still be explained by the differences in means among countries, but these country-level determinants must be different from those used in our model. Moreover, the intra-class correlation coefficient also expresses the percentage of variability of the dependent variable that is due to company characteristics (first level of grouping), which happens to be the complementary 58.68%. However, the variables used in our model do not justify this variability.

In sum, by using a generalized linear mixed model, we found that ‘comply or explain’ regulation is a significant driver of IR presentation and that companies in less individualistic countries are more likely to present an IR. Although the investor protection index is slightly associated with IR, the coefficient sign expresses that the higher the index, the lower the odds of presenting an IR. The characteristics of the reporting company (size, listed, industry) have no significance in explaining the decision to prepare an IR.

Table 8 summarizes our results. Our results confirm that there are significant differences among

Table 7: Estimates of the variance (second model)

Variance	Estimate	Std. Error	Z	Sig.
Residual	1.008	0.038	26.683	0.000
Country	0.710	0.445	1.571	0.115

countries in terms of presenting IRs. More than half of this variability depends on country-level determinants. Our first hypothesis, which states that there is a significant difference among countries on the issue of IRs, is therefore accepted. In terms of country characteristics, companies in countries with a ‘comply or explain’ IR regulation and companies in less individualistic countries (with a higher collectivism dimension), which are apparently more concerned about public good, are more likely to present an IR. The first determinant, the ‘comply or explain’ regulation, as a set of rules that monitors the reporting outcomes of a firm, can be observed as one of the coercive mechanisms of institutional theory (Larrinaga 2007). The individualism vs. collectivism dimension can be a reflection of the normative mechanism of institutional theory: social structures or institutions, applying non-required values and norms, exert pressure on and influence the behaviour of companies. Companies in collective countries (e.g. Finland) are more likely to present IRs than companies in individualistic countries (e.g. the United States). These results are in agreement with those of Sierra-García *et al.* (2013) and García-Sánchez *et al.* (2013).

However, contrary to our expectations, our results show that the likelihood of presenting an IR is lower in companies located in countries with higher investor protection. This result must be taken with reservations because the effect is slightly significant (at the 90% level), and it contradicts the results of Jensen and Berg (2012), who find that companies in countries with high investor protection are more likely to prepare IRs. The composition of our sample, collected from the GRI, could be conditioning this result. Similar to Jensen and Berg (2012), but contrary to Frías-Aceituno *et al.* (2013a), we find no evidence of an effect from the type of legal system on the likelihood of presenting an IR. Both

**Table 8: Test of hypothesis**

H1	There is a significant difference among countries concerning the use of integrated reports	Accepted
H1.1	There is a positive association between integrated reporting and belonging to code-law countries	Rejected
H1.2	There is a positive association between integrated reporting and investor protection	Rejected
H1.3	There is a positive association between integrated reporting and the existence of IR regulations	Accepted
H1.4	There is a positive association between integrated reporting and economic development	Rejected
H1.5	There is a positive association between integrated reporting and collectivism in Hofstede's sense	Accepted
H1.6	There is a positive association between integrated reporting and feminism in Hofstede's sense	Rejected
H2.1	There is a positive association between integrated reporting and company size	Rejected
H2.2	There is a positive association between integrated reporting and being a listed company	Rejected
H2.3	Industry membership affects the disclosure through integrated reports	Rejected
H2.4	There is a positive association between integrated reporting and the decision to assure sustainability information	Rejected

globalization and the evolution of the countries, regardless of the origin of their laws, could explain this result. Furthermore, we did not find evidence confirming economic development as a significant determinant of IR presentation. In developed countries, financial markets exert great pressure on companies in terms of voluntary disclosure. The same effect (of financial market pressure on voluntary disclosure) can be found in developing countries because they are highly interested in promoting confidence in capital markets. Moreover, the composition of the sample is unbalanced towards developed countries; this could also help to clarify this result.

Interestingly, our model shows that 41.32% of the variability of the dependent variable, IR presentation, can still be explained by the differences in means among countries, but these determinants at the country level must be different from those used. We tested other variables unused in the previous literature (e.g. the accounting model as proxy for the reporting model; the other Hofstede variables as proxies for country behaviour), but none of them were statistically significant. Thus, new research questions arise about other country-level determinants that could shed light on the variability that has yet to be explained.

Regarding company characteristics, contrary to the results obtained by other authors (Frías-Aceituno *et al.* 2013a, García-Sánchez *et al.* 2013,

Sierra-García *et al.* 2013), variable size is not significant in our model. The metrics used to identify company size might explain this outcome. Because we built our sample based on the GRI database, we are using their size metric. We introduced the variable listed to show whether the company is public, even though this variable had not been previously tested. We assume that investors are highly interested in IR presentation as a type of holistic and voluntary reporting by firms. However, our results do not support our second set of hypotheses: size, listed, industry, and the existence of external assurance do not influence the presentation of an IR. These four determinants can be observed to be components of the mimetic mechanism of institutional theory, and none of them was significant in explaining the dependent variable, IR. Our results concur with the previous literature in terms of the inconclusiveness of the industry variable. Although our results are not definite, some sort of firm-level determinants must affect IR presentation. Future research should therefore introduce and test new variables at the company level. These firm-level determinants may be related to the characteristics of CEOs and other members of the board who decide on company communication strategies (Frías-Aceituno *et al.* 2013b, KPMG 2013) or to the company's commitment to GRI guidelines, especially G4 because it recommends integrating sustainability and financial information.

## Conclusion

Firm communication strategies are changing. The disclosure of an IR, the result of applying a holistic approach to both managing and reporting on business, is a rising trend in CSR communication. This article aims to contribute to the knowledge of country and company features that may explain a firm's decision to employ the new model of corporate reporting represented by the IR. The scarce literature on this topic concludes that legal, political, economic, and cultural characteristics (at a country level) and size, profitability, and industry (at a company level) explain the decision to present an IR. Furthermore, despite the use of multi-year samples, previous studies do not use the nested data structure resulting from a statistical approach with independent observations. This double level of analysis, including both country and companies, is precisely the feature that is necessary to investigate this topic. This article contributes to the literature by offering a new procedure for understanding the decision to present an IR. As mentioned above, we use a 1-year sample to analyse a double-level structure (country, company) and apply a statistical approach that addresses the likelihood of non-independence of data.

We find significant differences among countries presenting IRs. More than half of the variability depends on the country-level determinants we have analysed. This result leads to two conclusions. First, there is still significant variability in the dependent variable (IR) that must be explained through different determinants than those used. This finding opens an avenue for future research on other country-level determinants that could explain the more or less frequent use of IRs as communication tools. This finding could be an interesting focal point for future investigations. Second, similar to previous research, we find that companies in countries with a 'comply or explain' IR regulation and companies in less individualistic countries (with a higher collectivism dimension), which are apparently more concerned about the public good, are more likely to present an IR. Thus, it can be confirmed that both coercive and normative institutional mechanisms exert pressure to present IRs. However, we must reject all of our hypotheses concerning the effects of company char-

acteristics on the presentation of IRs. The mimetic mechanism (the imitation of fellow companies perceived as successful and represented in our model by company characteristics) appears to be ineffective in prompting the presentation of IRs. This imitation process is not immediate; on the contrary, it requires a certain amount of time to develop. Integrated reporting is quite a new approach to CSR reporting, and it might be that more time is required before the effects of mimetic mechanisms can be observed.

Our results consider national differences and can therefore help international agencies involved in promoting integrated reporting. Our results can also offer insights to both companies and countries seeking to assess their strategies for promoting and implementing IRs as communication tools and seeking to apply a holistic approach to CSR reporting.

We are aware of certain limitations to our research. Integrated reporting is currently in an experimental phase, and approaches to it lack homogeneity (KPMG 2011). The use of a 1-year sample (2012) collected from the GRI database could bias our results. Nevertheless, our article contributes to previous research by using a different statistical approach, which allows for more reliable results. To the best of our knowledge, this approach has never been applied to this research question. It also opens new opportunities for research and provides an innovative methodology in the field of corporate behavior. Future research could focus on the analysis and consideration of other explanatory variables at the country and company levels as well as on the role of the G4 GRI guideline.

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