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**Exploring determinants of the voluntary adoption of SASB Standards by firms  
that adhered to GRI**

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Mestrado em Contabilidade

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## ABSTRACT

This study aims to examine the influence that company- and country-specific characteristics have on the voluntary adoption of the Sustainability Accounting Standards Board (SASB) Standards in companies that already publish Integrated Reports (IR) in which Global Reporting Initiative (GRI) Standards are also applied.

The sample is made up of an international sample of 8247 firm-year observations with companies preparing IR between 2019 and 2021, with the majority of them complying with GRI standards, and a considerable portion also in applying SASB standards. The findings suggest that the likelihood of preparing an IR that comply with both standards (SASB and GRI) is higher for larger organisations that are more lucrative, leveraged, and have higher ESG scores. Board characteristics such as board size, the number of independent directors, and the specific skills of those directors are identified to be major drivers of that likelihood. Furthermore, firms that have adhered to IR and apply GRI are more likely to voluntarily adopt SASB Standards if they are located in nations with a higher GDP (Gross Domestic Product) per capita. The results, on the other hand, reveal that the market-to-book ratio, gender diversity on the board, or the number of non-executive directors, are not determinants of the use of SASB when the same IR is GRI-compliant.

This study contributes to practitioners, standard setters and researchers, providing an answer to the call for a combination of firm and institutional factors, assuming that IR relies on the connectivity of information of different nature.

### Keywords:

GRI, SASB, voluntary adoption, determinants, firm-specific, country-specific

## RESUMO

Este estudo analisa a influência que as características específicas da empresa e do país têm na adoção voluntária das normas SASB em empresas que já publicam IR nos quais também são aplicadas as normas GRI.

Foi trabalhada uma amostra internacional de 8247 observações anuais de empresas que preparam RI entre 2019 e 2021, sendo que a maioria cumpre as normas GRI e uma parte considerável aplica também as normas SASB. Os resultados sugerem que a probabilidade de preparar um RI que cumpra ambas as normas (SASB e GRI) é maior para organizações maiores, mais rentáveis, alavancadas e com ESG scores mais elevadas. As características do conselho de administração, como a dimensão do conselho, o número de administradores independentes e as competências específicas desses

administradores, são identificadas como os principais fatores que determinam essa probabilidade. As empresas que aderiram ao IR e aplicam o GRI têm maior probabilidade de adotar voluntariamente as normas SASB se estiverem localizadas em países com um PIB (Produto Interno Bruto) per capita mais elevado. Por outro lado, os resultados revelam que o rácio valor de mercado/valor dos capitais próprios, a diversidade de género no conselho de administração ou o número de administradores não executivos não são determinantes para a utilização das normas SASB quando o mesmo IR está em conformidade com o GRI.

Este estudo contribui para profissionais e investigadores, respondendo ao apelo de uma combinação de fatores empresariais e institucionais, partindo do princípio de que o IR assenta na conectividade de informações de natureza diferente.

Palavras-chave:

GRI, SASB, adoção voluntária, fatores determinantes, específicos da empresa, específicos do país



## INTRODUCTION

It is now widely recognised that the traditional financial report no longer provides the full range of information that is increasingly demanded by stakeholders. As a result, the inadequacy of the information it contains has continuously led scholars and practitioners to raise doubts about its usefulness (Lev & Gu, 2016).

This trend has also brought investors (Larry Fink, 2018) and, in general, stakeholders to suggest a quick evolution towards new forms of disclosure and information able to consider aspects related to sustainable and long-term development and, in general, inclusive capitalism and transparency. Even though many, if not most, companies publish Sustainability reports, it remains in most cases a stand-alone document. In other words, a stand-alone and isolated document, there still seems to be a binary division between the "financial" and the "non-financial" drivers of value creation. And this distinction does not ensure the consistency of the information provided to stakeholders, thus resulting misleading for them (Mervelskemper & Streit, 2017).

Since the 1990s, corporate responsibility (CR) reporting has become standard practice for companies around the world (KPMG, 2017). Many guidelines and standards have been developed to disclose non-financial information (NFI), namely: GRI guidelines and standards and SASB industry standards. One of the common elements of these guidelines is the use of Sustainability Performance Indicators (SPIs).

Global Reporting Initiative is the independent, international organisation that helps businesses and other organisations take responsibility for their impacts by providing them with the common global language for communicating those impacts. It provides the world's most widely used standards for sustainability reporting - the GRI Standards (GRI, 2017).

The SASB Standards guide the disclosure of material financial sustainability information by companies to their investors. Available for 77 industries, the Standards identify the subset of environmental, social and governance issues most relevant to financial performance in each industry.

Aiming to help companies and investors develop a common language on the financial impacts of sustainability, in November 2020, SASB and the International Integrated Reporting Council (IIRC) and SASB announced their intention to merge into the Value Reporting Foundation (VRF), which was officially founded in June 2021. Effective from 1 August 2022, the Value Reporting Foundation (SASB Standards Foundation) - consolidated into the IFRS Foundation, which established the first International Sustainability Standards Board (ISSB). The SASB Standards are now under the oversight of the ISSB. The ISSB will build on the SASB Standards and incorporate the SASB's industry-based standards development approach into the ISSB's standards development process. The ISSB actively encourages preparers and investors to continue to provide full support for and use the SASB Standards



until the SASB Standards become the IFRS Sustainability Disclosure Standards. By integrating two entities that are focused on creating business value, the merger signalled significant progress towards simplification. The Value Reporting Foundation offers a comprehensive set of resources - including the Integrated Thinking Principles, the Integrated Reporting Framework and the SASB Standards - designed to help companies and investors develop a shared understanding of enterprise value.

The International Integrated Reporting Framework and Integrated Thinking Principles have been developed and are used around the world, in 75 countries, to advance communication about value creation, preservation and erosion. The cycle of integrated reporting and thinking result in efficient and productive capital allocation, acting as a force for financial stability and sustainable development.

Integrated reporting aims to improve the quality of information available to providers of financial capital to enable a more efficient and productive allocation of capital and promote a more cohesive and efficient approach to corporate reporting that draws on different reporting strands and communicates the full range of factors that materially affect the ability of an organization to create value over time. Also, to enhance accountability and stewardship for the broad base of capitals (financial, manufactured, intellectual, human, social and relationship, and natural), promote understanding of their interdependencies and support integrated thinking, decision-making and actions that focus on the creation of value over the short, medium and long term.

The Integrated Reporting Framework and Integrated Thinking Principles are maintained under the auspices of the IFRS Foundation, a global not-for-profit, public interest organisation established to develop high-quality, understandable, enforceable and globally accepted accounting and sustainability disclosure standards.

The Integrated Reporting Framework is used to connect financial statements and sustainability-related financial disclosures. The IFRS Foundation's International Accounting Standards Board (IASB) and ISSB are jointly responsible for the Integrated Reporting Framework (Integrated Reporting 2022).

SPIs provide significant added value to economic, social and environmental business communication (Schaltegger and Burritt 2000; Tarquinio et al. 2018). In fact, they are useful tools to support internal decision-making processes and to monitor companies' performance, also with regard to their social-environmental commitments (Adams and Frost 2008; Jasch 2009; Skouloudis et al. 2010; Gaudencio et al. 2018). Indicators are suitable to express synthetically the complexity of business management dynamics and to operationalize their sustainable development approach (Wilburn and Wilburn 2013). Moreover, SPIs are effective in transforming some qualitative information into quantitative information, thus increasing the potential for comparison between companies of any type, sector, or country (Olsthoorn et al. 2001; Daub 2007). SPIs can therefore usefully support the dissemination of sustainability information to stakeholders (Adams and Frost 2008; Daub 2007; Mio 2010; Fernandez-Feijoo et al. 2014; Lin et al. 2014; Boiral et al. 2019) and represent one of the most

powerful means to communicate the NFI of relevant companies in a synthetic, structured and comparable way.

Therefore, using an international sample of 8247 firm-year observations between 2019 and 2021 where in 6856 only the GRI standards were adopted and in the remaining 1391 also the SASB standards this study aims to investigate the voluntary adoption of integrated reporting and SASB standards more comprehensively. To this end, it will analyse the influence that both firm-specific and country-specific characteristics may have, thus responding to previous calls for this combination (Girella et al., 2019; Jensen & Berg, 2012).

The results show that firms' characteristics large size, profitability, leverage, ESG score, board size, independent directors and specific skills are found to be significant variables. As for countries characteristics, firms that adhered to the GRI Standards are more likely to voluntary adopt SASB Standards if they are located in countries with a higher GDP per capita. Moreover, the results indicate that the adoption of SASB Standards by firms that have already adhered to GRI is not influenced by a higher market-to-book ratio, gender diversity of the board and the number of non-executive directors on it.

The contribution that the study intends to make on the academic ground is based, firstly, on extending and complementing previous studies in this area. This study contributes to the GRI and SASB literature by providing an answer to prior research works that called for a combination of firm and institutional factors (Frias-Aceituno et al., 2014; Girella et al., 2019; Jensen & Berg, 2012). Moreover, it shows that also a combination of multiple theories could represent a valuable solution to be further used for other studies. Indeed, as mentioned earlier, integrated reporting relies on the connectivity of information of different nature. Therefore, adopting a single theory could limit the potential results that can be found. Secondly, at the level of practice, it offers useful insights to companies that may be willing to adopt these kinds of reporting. This study can accompany companies in their implementation of GRI Standards and SASB Standards.

The rest of the paper is organized as follows. At the beginning, the theories on which the study is based and from which the research hypotheses are derived are illustrated. In particular, it is briefly described, both in general terms and with reference to previous studies, the main features of the theories that have been found in the literature to influence voluntary disclosure. Thus, the hypotheses are formulated, being linked to the theories mentioned above. The methodology used to conduct the research is presented, and the main results obtained are illustrated and then discussed. Finally, the main theoretical, practical, and policy implications are presented, and the contributions and limitations of the study are mentioned.

## 1. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

### 1.1. Background on GRI and the use of SASB

Global Reporting Initiative is the independent, international organisation that helps businesses and other organisations take responsibility for their impacts by providing them with the common global language for communicating those impacts. It provides the world's most widely used standards for sustainability reporting - the GRI Standards. The GRI supports IR as a reporting initiative (GRI, 2017), and IR also aligns with the view of influential supporters of stakeholder capitalism, such as the World Economic Forum (WEF) (WEF, 2022).

GRI exists to help organizations be transparent and take responsibility for their impacts so that can create a sustainable future by setting up the global common language for organizations to report their impacts - which enables informed dialogue and decision making around those impacts (GRI, 2022)

A major stocktake on the state of sustainability reporting around the world has revealed that GRI provides the 'first and foremost' global standards, used by more large companies than ever before (GRI, 2022).

The KPMG Survey of Sustainability Reporting (published 26 October 2022) examined the disclosure practices of the world's biggest 250 companies by revenue (the G250), as well as a larger pool of the top 100 businesses in each of 58 countries (the N100) (GRI, 2022).

The International Integrated Reporting Framework and Integrated Thinking Principles have been developed and are used around the world, in 75 countries, to advance communication about value creation, preservation and erosion (IR, 2022).

The cycle of integrated reporting and thinking result in efficient and productive capital allocation, acting as a force for financial stability and sustainable development (IR, 2022).

Integrated reporting (IR) aims to improve the quality of information available to providers of financial capital to enable a more efficient and productive allocation of capital and promote a more cohesive and efficient approach to corporate reporting that draws on different reporting strands and communicates the full range of factors that materially affect the ability of an organization to create value over time. Also, to enhance accountability and stewardship for the broad base of capitals (financial, manufactured, intellectual, human, social and relationship, and natural), promote understanding of their interdependencies and support integrated thinking, decision-making and actions that focus on the creation of value over the short, medium and long term (IR, 2022).

The Integrated Reporting Framework and Integrated Thinking Principles were under the auspices of IIRC until 2021, but they were incorporated into IFRS Foundation after that. The IFRS Foundation is, a global not-for-profit, public interest organisation established to develop high-quality,

understandable, enforceable and globally accepted accounting standards, and, more recently, sustainability disclosure standards also.

The Integrated Reporting Framework is used to connect financial statements and sustainability-related financial disclosures. The IFRS Foundation's IASB and ISSB are jointly responsible for the Integrated Reporting Framework (Integrated Reporting, 2022).

To better explain, recall that IR began to be promoted and adopted more broadly with the formation of the IIRC in 2011. The role of the IIRC was to promote IR and encourage examples of best practice. However, some have accused the IIRC of being 'captured' by investor interests (Deegan, 2020; Flower, 2020), potentially limiting IR's broader appeal as a reporting innovation. This accusation appears justified based on recent events. In 2020, the IIRC and SASB merged. The SASB, formed in 2011, promotes standards to "guide the disclosure of financially material sustainability information by companies to their investors" (SASB, 2021). The newly merged entity, VRF, which aims to provide a robust toolset to support business and investor decision-making (VRF, 2021). One year later, the IFRS Foundation announced the formation of a new board, the ISSB, to consist of both the recently formed VRF and the Climate Disclosure Standards Board (CDSB). The ISSB aims to "develop—in the public interest—a comprehensive global baseline of high-quality sustainability disclosure standards to meet investors' information needs" (IFRS, 2022). The proposed standards aim to build upon the Task Force on Climate-Related Financial Disclosures (TCFD) recommendations and incorporate industry-based disclosure requirements derived from SASB Standards (IFRS, 2022a). Concurrently, the European Financial Reporting Advisory Group (EFRAG) has been reporting to the European Union (EU) on the development of sustainability standards for EU countries, stating in seeming support of IR that "all dimensions of corporate reporting need to be interconnected under an integrated approach" (IFRS, 2022d).

The contribution that this study intends to make on the academic ground is based, firstly, on extending and complementing previous studies in this area. This study contributes to the GRI and SASB literature by providing an answer to prior research works that called for a combination of firm and institutional factors (Frias-Aceituno et al., 2014; Girella et al., 2019; Jensen & Berg, 2012). Moreover, it shows that also a combination of multiple theories could represent a valuable solution to be further used for other studies. Indeed, as mentioned earlier, integrated reporting relies on the connectivity of information of different nature. Therefore, adopting a single theory could limit the potential results that can be found. Secondly, at the level of practice, it offers useful insights to companies that may be willing to adopt these kinds of reporting. This study can accompany companies in their implementation of Integrated Reporting and SASB Standards.

## 1.2. Theories used in GRI research

As previously referenced, GRI and SASB Standards are practices whose adoption is still largely voluntary in nature. Therefore, this dissertation is in that strand of literature that examines voluntary disclosure, which is conceived here as that which exceeds, and can therefore complement, disclosure required by law, rules and regulations (Meek, Roberts, & Gray, 1995). Thus, six theories were found that mainly explain the choice by companies to voluntarily adopt GRI and SASB Standards, based on other choices made by companies, namely, agency theory (Chow & Wong-Boren, 1987; Cooke, 1989a, 1989b, 1991, 1992; Hossain, Perera, & Rahman, 1995; Watson, Shrives, & Marston, 2002), signalling theory (Campbell, Shrives, & Bohmbach-Saager, 2001; Ross, 1977; Watson et al, 2002; Whiting & Miller, 2008), political cost theory (Gamerschlag, Möller, & Verbeeten, 2011), proprietary cost theory (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 theories is based on the observation that, compared to financial or corporate social responsibility reporting, integrated reporting links a whole range of information from strategy to performance and does not exclusively address shareholders or stakeholders, but both.

Furthermore, the selection of the theories is based on the observation that they already cover aspects of other theories such as legitimacy. As an example, Watson et al. (2002) pointed out how signalling theory can lend the notion of signalling legitimacy (and therefore also the related variable) to legitimacy theory, so an inclusion of the later would not add value to the model.

Through the analysis of these theories both in general terms and with reference to studies that have adopted to examine GRI Standards implementation, we are provided with suggestions and inputs in order to select as many appropriate variables as possible to conduct the research.

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-Gámez (2017) have found that the adoption of GRI Standards can mitigate agency costs.

Like agency theory, signalling theory (Spence, 1978) is based on the existence of information asymmetry between firms 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, while the latter only implicitly refers to it). Thus, the adoption of GRI and SASB Standards could represent a useful device for organisations that want to distinguish themselves from others by signalling their superior quality (Eccles, 2001). Indeed, signals conveyed to the market have been found to result in improved financing costs and increased firm value (Baiman & Verrecchia, 1996; Frankel, Johnson, & Skinner, 1999; Yeo & Ziebart, 1995). In consideration of the existing coherence between agency and signalling theories, these have also been suggested (Morris, 1987) and shown to be adopted in a complementary way to investigate voluntary disclosure (Watson et al., 2002).

According to political cost theory (Watts & Zimmerman, 1978), firms located in countries characterised by a high level of regulation tend to disclose voluntary information in order to reduce the likelihood of incurring taxes and fees and obtaining benefits from governments and constituencies. In fact, they may be criticised if they do not disclose information (Lemon & Cahan, 1997). Therefore, it can be generalised that the political visibility of firms influences their disclosure practices. However, political cost theory has often been adopted unclearly and not following the original conceptualisation by Watts and Zimmerman (Milne, 2002). In this study, we adapted the political cost theory analysis to each country's GDP per capita to be able to study whether there is a significant relationship between a higher GDP per capita and the of GRI and SASB.

The proprietary cost theory states that costs related to the preparation and disclosure of information through disclosure may influence firms' willingness to provide voluntary information. In other words, if firms do not have to bear important costs related to disclosure, they may be more inclined to disclose detailed information about their performances because in this way they could reduce information asymmetry and the cost of capital Grossman (1981) and Milgrom (1981). However, a disincentive may be represented using sensible information by competitors (Elliott & Jacobson, 1994).

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

Institutional theory conceptualises organisations as being 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 conform to the 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 capable of explaining why firms tend to adopt different information practices beyond the financial one, especially if they belong to the same industry. With regard to integrated information,

institutional theory was adopted to the extent by Jensen and Berg (2012). According to them, this theory can be valuable in explaining the determinants of sustainability reporting vis-à-vis integrated reporting. They found that integrated reporting is more likely to arise from companies located in countries with greater investor protection, higher education expenditure, and national corporate social responsibility. Again in relation to institutional theory and country determinants, Frías-Aceituno et al. (2013a) showed that companies located in strictly 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 integrated information, García-Sánchez et al. (2013) showed that companies located in collectivist and feminist countries have a greater interest in disclosing information through this format, while power distance, long-term orientation, or uncertainty/risk were not found as determinants. As control variables, company size and profitability had a positive and significant effect. A study by Frias-Aceituno et al. (2013b) argued that management, because it has a responsibility to stakeholders and wants to reduce information asymmetries, can influence the decision to disclose an integrated report. They only found a significant impact of board size and board diversity, in terms of the number of women on the board, on integrated reporting. In order to understand stakeholders' preference between voluntary and mandatory adoption of integrated reporting in Australia, Stubbs and Higgins (2018) found that the former is favoured.

Although not linked to the above theories, it should be noted that other studies have proven that adopters of integrated reporting have a higher level of Bloomberg environmental and social disclosure ratings than non-adopters. However, no significant relationship is found between size, profitability, leverage, industry, and voluntary IR adoption (Lai, Melloni, & Stacchezzini, 2016).

### 1.3. Hypotheses development

The purpose of this study is to analyse the impact of some firm-specific (and country) characteristics on the voluntary adoption of SASB Standards by firms that already adhered to the GRI Standards. This study intends to contribute to the GRI and SASB literature by providing an answer to prior research works that called for a combination of firm and institutional characteristics.

Prior literature on the firm and country determinants of the voluntary adoption of integrated reporting identified and examined the influence that both firm and country- specific characteristics have on the voluntary up taking of integrated reporting internationally. This dissertation uses similar determinants to apply in exploring the relations between those determinants and the voluntary adoption of SASB Standards by firms that adhered to GRI Standards, as further explained.

## Firm size

Within the strand of literature that investigates the factors that influence voluntary disclosure, firm size is a variable that has been more frequently used. In particular, with reference to agency theory, the larger the firm, the more likely it is to rely on external funds. Therefore, in order to maintain a "normal" level of agency cost, or to reduce it, it will be incentivised to disclose information on a voluntary basis. Similarly, for larger companies, 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 may be unwilling to disclose voluntarily due to the possible occurrence of political costs (Wallace, Naser, & Mora, 1994).

Similar to the signalling theory, and with regard to the stakeholder theory, it can be stated that the larger the size of a company, the greater the number of stakeholders to whom it has to respond. Therefore, the disclosure of a large amount and more detailed information through voluntary reporting formats can be a device to achieve this. In terms of the theory of ownership costs, larger companies may have more funds available to prepare and disseminate new information practices and are thus not highly affected by these costs. Given these arguments, most previous studies have concluded that firm size has a positive impact on voluntary disclosure, although there are still some critical points mainly related to the fact that firm size can be used as a proxy for many influences (Ball & Foster, 1982; Watts & Zimmerman, 1978).

Frias-Aceituno et al. (2014) argued that larger firms have more competitive advantages than small firms in terms of more diversified product lines and more complex distribution network and require greater capital market intensity for financing. Finally, they found a positive association between size and GRI adoption. This result is also confirmed by the other studies by Frías-Aceituno et al. (2013a), Frias-Aceituno et al. (2013b), and García-Sánchez and Noguera-Gámez (2017). However, Lai et al. (2016) found no significant impact of size on GRI disclosure. Based on the main findings of previous studies, the following hypothesis for the study was formulated:

**H1.** Firm size has a positive association with voluntary adoption of SASB Standards by firms that adhered to GRI Standards.



## Profitability

Profitability is one of the most adopted variables in voluntary disclosure studies. Like company size, the higher the level of profitability, the more likely it is that the company will disclose information other than that of a mandatory nature. In fact, this will keep under control, if not reduce, the agency costs that the organisation has to bear for having had access to external funds. Furthermore, a possible relationship with signalling theory can be drawn as a more profitable firm may be interested in signalling this good performance to stakeholders. Along this reasoning, by virtue of this financial wealth, ownership costs may be more easily absorbed. However, profitability may require greater attention from institutions and stakeholders who could scrutinise the sources of this positive performance and eventually push for more detailed disclosure.

Studies focusing on the association between GRI and profitability have produced mixed results. Lai et al. (2016) did not obtain significant results regarding the relationship between profitability and GRI. On the contrary, Frias-Aceituno et al. (2014) found that profitability influences GRI adoption because the higher the firm's profitability, the greater the incentive for firms to disclose more information in order to reduce adverse attractiveness. Thus, we formulate the following hypothesis:

**H2.** Firm profitability has a positive association with voluntary adoption of SASB Standards by firms that adhere to GRI Standards.

## Leverage

Leverage is generally seen as a determinant of a company's voluntary disclosure. Indeed, it provides a useful indication of the funds that companies have received from financial capital providers. Therefore, they are subject to a greater degree of attention from debtors (Eng & Mak, 2003) and, in general, from a wide range of stakeholders who are interested in knowing whether the company will be able to create value in the medium and long term. In order to reduce this information asymmetry situation, managers would be inclined to disclose a greater number, variety (financial and non-financial), and quality of data (Barnea & Rubin, 2010) which is consistent with the agency theory as well as the stakeholder theory. However, it should be noted that firms with greater influence may be wary of using newly emerged information devices, such as GRI and SASB, to communicate to debtors and stakeholders due to their major costs. GRI disclosure and SASB reporting may enable a company to develop this issue. Lai et al. (2016) found no statistically significant relationship. Based on the main results of previous research, we propose the following hypothesis:

**H3.** Leverage has a positive association with voluntary adoption of SASB Standards by firms that adhered to GRI Standards.

#### Market-to-book ratio

In line with agency theory, in firms with a higher market-to-book ratio, information asymmetry between investors and managers increases the cost of external funds, which provides an incentive for voluntary disclosure. However, the risk of informing competitors about sensible information may prevent firms from doing so. This way, the costs may outweigh the benefits.

Although most studies that have so far investigated the factors that may influence the adoption of this reporting format have not included it (and the few that have done so have interpreted it in terms of growth opportunity), I believe it may be a relevant component to be taken into consideration. The more companies give relevance to their intangible resources, the more they will be willing to disclose related information and key performance indicators (KPIs). A wide range of stakeholders and constituencies could appreciate the effort of this signal and would therefore be more oriented to benefit them. With reference to GRI and SASB guidelines, it is interesting to note that both previous studies that included this variable as a main determinant or control variable (Frias-Aceituno et al., 2014; García-Sánchez et al., 2013) did not find a significant association. These results could be explained by the fact that the sample was drawn in both studies by the Forbes Global 2000 list, which is not considered to host integrated reporting. The following hypothesis was formulated:

**H4.** Market-to-book ratio has a positive association with the voluntary adoption of SASB Standards by firms that have adhered to GRI Standards.

#### ESG Score

A materiality assessment can help an organisation determine which environmental, social and governance (ESG) issues are most important to its stakeholders. The ESG score is a measure of a company's exposure to long-term environmental, social and governance risks that are often overlooked during traditional financial analysis. ESG scores allow investors to assess a company's intentions from how they treat their employees to how board decisions are made or whether environmental issues are being prioritised. A high ESG score can persuade investors to invest in a company either because the company's values align with their own, or because the company is sufficiently protected from future risks associated with issues such as pollution or poor governance.

An investor who is concerned about ESG may be turned off by a company with a low ESG score. The following hypothesis was then formulated:

**H5.** A high ESG Score has a positive association with the voluntary adoption of SASB Standards by firms that have adhered to the GRI Standards.

#### Board size

This variable, together with the next four, aims to investigate the link between corporate governance characteristics and a firm's voluntary production of an integrated report. The number of individuals comprising the board of directors has attracted the attention of numerous studies to the difficulties of coordination among members and in relation to agency issues with company management (Fiori et al., 2016; Izzo & Fiori, 2016). However, evidence of the significance of this corporate governance variable in relation to 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 for GRI, it is quite clear that its "understanding" and production, while satisfying the complex GRI principles and content, seems to suggest the need for quite composite knowledge and experience to be present in the framework as well as for SASB Reports. Thus, we formulate the following hypothesis:

**H6.** The board size has a positive association with the voluntary adoption of SASB Standards by firms that have adhered to the GRI Standards.

#### Non-executive board members

In the literature, the role of non-executive directors in controlling management opportunism and protecting the interests of capital providers, thus ensuring the independence of the Board of Directors is well recognised (García Sánchez, Rodríguez Domínguez, & Gallego Álvarez, 2011; Weir & Laing, 2003). In this sense, this category of directors plays a crucial assurance role also for the market and the shareholders of the company. Therefore, the peculiar role of non-executive directors also has a reflection on the quantity and quality of voluntary disclosure (Fama & Jensen, 1983; Fiori et al., 2016). The interest of non-executive directors may be to increase the transparency of the company. GRI often represents a "quantum leap" in the level of voluntary disclosure and information transparency by a firm, and this change can be linked to non-executive directors. Therefore, we assume that the presence of non-executive directors can be an impetus for SASB Standards adoption by firms who already adhered to GRI. Thus, we elaborate the following hypotheses:

**H7.** The presence of non-executive directors has a positive association with the voluntary adoption of SASB Standards by firms that have adhered to the GRI Standards.

#### Independent board members

In this study in addition to non-executive members we will also test, the presence of independent board members. An independent board member, in corporate governance, refers to a member of a board of directors who does not have a material relationship with a company and is neither part of its executive team nor involved in the day-to-day operations of the company. We believe that the presence of independent board members can also contribute to adding more transparent reporting by companies. According to previous literature regarding earnings management, more independent board members are expected to significantly reduce earnings management and therefore increase the quality of the information disclosed (Bar-Yosef & Prencipe, 2009). This is why, we assume that the presence of independent directors can be impetus for SASB Standards adoption by firms that have already adhered to the GRI Standards. The following hypothesis was then formulated:

**H8.** The presence of independent directors has a positive association with the voluntary adoption of SASB Standards by firms that have adhered to the GRI Standards.

#### Gender diversity

Gender diversity is a corporate governance feature that may be related to the preparation by a company of an integrated report. In fact, there are several studies that point to the relevance for non-financial disclosure of the presence of women on boards of directors due to their more developed sensitivity towards sustainability (Barako & Brown, 2008; Prado-Lorenzo & Garcia-Sanchez, 2010) and reputational aspects (Bear, Rahman, & Post, 2010). Given the prosperity towards transparency that GRI and SASB can generate within companies and their boards, it seems interesting to test the association between gender diversity and the production by companies of this new form of external reporting.

**H9.** Gender diversity has a positive association with the voluntary adoption of SASB Standards by firms that have adhered to the GRI Standards.

### Specific skills diversity

We also found it interesting to consider the percentage of board members who have an industry specific background or a strong financial background. We wanted to test whether the diversity of specific skills within companies might have a positive association with the adoption of the SASB Standards by companies that have adhered to the GRI Standards.

**H10.** Specific skills diversity has a positive association with the voluntary adoption of SASB Standards by firms that have adhered to the GRI Standards.

### GDP per capita

As for country-level variable, we measure GDP per capita as the natural logarithm of the ratio of a country's GDP to its population. Eyraud et al. (2013) examine the effect of a range of macroeconomic factors on GI, including GDP and GDP per capita. Their results suggest that higher GDP per capita results in an increase in green investments (GI). In our study we want to see if there is the same relationship with GRI and SASB. Thus, we formulate the following hypothesis:

**H11.** A country's GDP per capita has a positive association with the voluntary adoption of SASB Standards by firms that have adhered to the GRI Standards.

## 2. RESEARCH METHODOLOGY

### 2.1. Dependent and independent variables

The dependent variable represents the company's that adopted GRI Standards choice of reporting and is equal to 1 if the company also adopted SASB Standards, otherwise it is 0. The independent variables are the determinants to be tested.

Accordingly, the variable SIZE is measured by the logarithm of total assets, while the variable PROFIT is measured by the return on assets. These methods of measuring the size and profitability variables were selected as they are consistent with previous studies on IR (Frías-Aceituno et al., 2013a; Frías-Aceituno et al., 2013b, 2014; Lai et al., 2016). Based on Lai et al. (2016), the variable LEVERAGE is measured by debt to asset ratio. The Growth Opportunities variable is calculated as market-to-book ratio (i.e., Frías-Aceituno et al., 2014). The ESG Score is directly retrieved from EIKON database and represents a way to assign a quantitative metric to the environmental, social and governance efforts undertaken by a specific organization. Board size, the number of independent directors, the number of non-executive directors, specific skills and gender diversity on the board is measured, respectively, by the number of directors, the percentage of independent directors, the percentage of non-executive directors, the percentage of board members who have an industry specific background or a strong financial background and the percentage of women on the board (Frías-Aceituno et al., 2013b). The GDP per capita variable is measured by the logarithm of each country's GDP per capita.

The expectations are to find significant coefficients for the coefficients of the independent variables, which reveals their likelihood to explain the choice for Standards on sustainability reporting. The sign of the coefficient informs about the positive or negative effect of that likelihood.

### 2.2. Analytical model

The binary logistic regression model is used to analyze the association between company and country specific characteristics and the voluntary adoption of the SASB Standards, by companies already using GRI Standards, which may influence this adoption by firms. This model has been widely applied in previous studies on the determinants of voluntary IR adoption (Frías-Aceituno et al., 2013a; Frías-Aceituno et al., 2013b, 2014; Girella et al., 2019; Jensen and Berg, 2012). The binary logit model can be expressed as follows in Equation 1:

$$\begin{aligned}
& Prob (GRI\&SASB = 1)_i \\
& = \alpha_0 + \beta_1 SIZE_i + \beta_2 PROFITABILITY_i + \beta_3 LEVERAGE_i + \beta_4 MTB_i \\
& + \beta_5 ESGSCORE_i + \beta_6 BOARDSIZE_i + \beta_7 INDEPDIRECT_i + \beta_8 NONEXDIRECT_i \\
& + \beta_9 GENDERDIVERSITY_i + \beta_{10} SPECIFICSKILLS_i + \beta_{11} GDPPERCAPITA_i + e,
\end{aligned}$$

where:

GRI&SASB: 1 if firm that adopted GRI Standards choice of reporting, also voluntarily adopted SASB Standards, 0 otherwise;

SIZE: natural logarithm of total asset;

PROFITABILITY: return on assets;

LEVERAGE: debt to asset ratio;

MTB: market to book ratio;

ESGSCORE: ESG Score;

BOARDSIZE: number of directors in the board;

INDEPDIRECT: percentage of independent directors on the board;

NONEXDIRECT: percentage of nonexecutive directors on the board;

GENDERDIVERSITY: percentage of women on the board;

SPECIFICSKILLS: percentage of board members who have an industry specific background or a strong financial background;

GDPPERCAPITA: natural logarithm of each country's GDP per capita.

### 2.3. Study population and samples used

This study aims to examine the influence that company- and country-specific characteristics have on the voluntary adoption of the Sustainability Accounting Standards Board (SASB) Standards in companies that already publish according to the Global Reporting Initiative (GRI) Standards.

This study selected an international sample of 10197 firm-year observations between 2019 and 2021 where in 8538 only the GRI Standards were adopted and in the remaining 1659 also the SASB Standards, according to EIKON Database as of July 29, 2022. This study aims to investigate the voluntary adoption of GRI and SASB Standards more comprehensively. To this end, it will analyse the influence that both firm-specific and country-specific characteristics may have, thus responding to previous calls for this combination (Girella et al., 2019; Jensen & Berg, 2012).

From this sample, we removed as firm-year observations that we were unable to obtain all the data we needed for our study. South African organizations were also eliminated due to the nature of existing IR disclosure in this country, which is mandatory. After resorting to a Cooks Distance analysis, we also removed one firm-year observation that we considered to be a possible outlier (Laureano, R.,

2011). The final sample consisted of 8247 firm-years observations between 2019 and 2021, where in 6856 only the GRI Standards were adopted and in the remaining 1391 also the SASB Standards.

The firm-specific data was collected from the EIKON Database in 2022, while the country-specific data was collected from World Development Indicators as of June 30, 2022.



### 3. RESULTS AND DISCUSSION

#### 3.1. Sample by continents and industries

The Standard Industrial Classification Codes (SIC Codes) indicate the company's type of business. The SIC codes are four-digit numerical codes assigned by the U.S. government that categorize the industries to which companies belong, while also organizing industries by their business activities. For example, a company whose business was Metal Mining (SIC 1000) would have its filings reviewed by staffers in the Office of Energy & Transportation. Table 1 reports the distribution of the sample data by continent and industry.

From a continental point of view, the most represented is Asia with a total of 2792 firm-year observations. Asia is also the continent with the most firm-year observations that have adopted only the GRI Standards (2635). However, the American continent has the most firm-year observations that have adopted GRI Standards choice of reporting and voluntarily adopted SASB Standards (941). The continent least represented in all three situations is Africa.

From the SIC Codes point of view, the field Manufacturing (SIC Codes for 20 through 39) is the most represented with a total of 3238 firm-year observations. On the contrary, the field Agriculture (SIC Codes for 01 through 09) is the less represented with a total of 72 firm-year observations.

**Table 1** Sample by continents and SIC Codes

Field	SIC Code	Africa		America		Asia		Europe		Oceania		Total
		GRI	GRI&SASB	GRI	GRI&SASB	GRI	GRI&SASB	GRI	GRI&SASB	GRI	GRI&SASB	
Agriculture	01 to 09	0	0	17	0	25	0	24	0	6	0	72
Mining	10 to 14	0	0	144	84	105	2	93	13	51	12	504
Construction	15 to 17	0	0	29	14	204	11	88	12	7	0	365
Manufacturing	20 to 39	2	0	551	345	1142	60	969	113	44	12	3238
Transportation	40 to 45	0	0	70	22	158	0	94	11	6	3	364
Utilities	46 to 49	6	0	172	137	238	34	214	32	18	3	854
Wholesale Trade	50 to 51	0	0	43	29	89	4	49	0	2	0	216
Retail Trade	52 to 59	0	0	76	59	66	0	102	9	15	2	329
Finance/Insurance	60 to 64	5	0	187	86	363	29	285	35	30	3	1023
Real Estate	65 to 70	0	0	164	72	140	5	185	15	46	0	627
Services	72 to 87	0	0	145	93	105	12	254	15	28	3	655
Total		13	0	1598	941	2635	157	2357	255	253	38	8247

#### 3.2. Descriptive statistics

Table 2 report the descriptive statistics (mean, standard deviation, maximum and minimum) of the independent variables for the total sample, the firms that voluntarily adopted both GRI and SASB

Standards (GRI&SASB = 1) and the firms that only adopted GRI Standards (GRI&SASB = 0). Previously, all the continuous variables were winsorized at 1% and 99% to minimize outliers.

The mean values of SIZE are 15.86, 16.81 and 15.68 for the total sample, for the firms that voluntarily adopted both GRI and SASB Standards and the firms that only adopted GRI, respectively. However, PROFITABILITY, with approximately 0.05, it is equal among the two groups, as well as for the total sample. The mean values of LEVERAGE are 0.29, 0.32 and 0.29 for the total sample, for the firms that voluntarily adopted both GRI and SASB Standards and the firms that only adopted GRI, respectively. At MTB it is where we see the largest divergence with the mean values 2.48, 4.33 and 2.10 for the total sample, for the firms that voluntarily adopted both GRI and SASB Standards and the firms that only adopted GRI, respectively. The mean values of ESGSCORE are 0.62, 0.69 and 0.60 for the total sample, for the firms that voluntarily adopted both GRI and SASB Standards and the firms that only adopted GRI, respectively. The mean values of BOARDSIZE are 10.26, 11.04 and 10.10 for the total sample, for the firms that voluntarily adopted both GRI and SASB Standards and the firms that only adopted GRI, respectively. The mean values of NONEXDIRECT are 0.80, 0.84 and 0.79 for the total sample, for the firms that voluntarily adopted both GRI and SASB Standards and the firms that only adopted GRI, respectively. The mean values of INDEPDIRECT are 0.59, 0.77 and 0.56 for the total sample, for the firms that voluntarily adopted both GRI and SASB Standards and the firms that only adopted GRI, respectively. The mean values of GENDERDIVERSITY are 0.15, 0.18 and 0.15 for the total sample, for the firms that voluntarily adopted both GRI and SASB Standards and the firms that only adopted GRI, respectively. The mean values of SPECIFICKILLS are 0.43, 0.51 and 0.42 for the total sample, for the firms that voluntarily adopted both GRI and SASB Standards and the firms that only adopted GRI, respectively. And finally, the mean values of GDPPERCAPITA are 10.43, 10.84 and 10.34 for the total sample, for the firms that voluntarily adopted both GRI and SASB Standards and the firms that only adopted GRI, respectively.

Table 3 reports the bivariate correlation among the independent variables in the study, evidencing a majority of low correlation coefficients between the independent variables. Although, we can verify a positive significant correlation between SIZE and ESGSCORE, SIZE and BOARDSIZE, NONEXDIRECT and INDEPDIRECT, INDEPDIRECT and GDPPERCAPITA, and a negative significant correlation between NONEXDIRECT and SPECIFICKILLS.

**Table 2** Descriptive statistics

	Mean	Standart deviation	Maximum	Minimum
<b>Total Sample</b>				
<b>SIZE</b>	15.86	1.73	22.25	9.67
<b>PROFITABILITY</b>	0.05	0.08	2.35	-0.83
<b>LEVERAGE</b>	0.29	0.18	3.00	0.00
<b>MTB</b>	2.48	4.27	12.24	-27.32
<b>ESGSCORE</b>	0.62	0.16	0.95	0.05
<b>BOARDSIZE</b>	10.26	3.27	41.00	1.00
<b>NONEXDIRECT</b>	0.80	0.18	1.00	0.10
<b>INDEPDIRECT</b>	0.59	0.26	1.00	0.00
<b>GENDERDIVERSITY</b>	0.15	0.22	0.86	0.00
<b>SPECIFICSKILLS</b>	0.43	0.14	1.00	0.00
<b>GDPPERCAPITA</b>	10.43	0.84	11.66	6.68
<b>GRI&amp;SASB=1</b>				
<b>SIZE</b>	16.71	1.61	21.78	12.80
<b>PROFITABILITY</b>	0.05	0.08	0.48	-0.59
<b>LEVERAGE</b>	0.32	0.16	0.95	0.00
<b>MTB</b>	4.33	4.10	12.24	-6.14
<b>ESGSCORE</b>	0.69	0.14	0.94	0.20
<b>BOARDSIZE</b>	11.04	2.67	26.00	5.00
<b>NONEXDIRECT</b>	0.84	0.13	1.00	0.19
<b>INDEPDIRECT</b>	0.77	0.19	1.00	0.12
<b>GENDERDIVERSITY</b>	0.18	0.13	0.63	0.00
<b>SPECIFICSKILLS</b>	0.51	0.19	1.00	0.00
<b>GDPPERCAPITA</b>	10.84	0.51	11.50	7.57
<b>GRI&amp;SASB=0</b>				
<b>SIZE</b>	15.68	1.70	22.25	9.67
<b>PROFITABILITY</b>	0.05	0.09	2.35	-0.83
<b>LEVERAGE</b>	0.29	0.19	3.00	0.00
<b>MTB</b>	2.10	43.01	5.03	-27.32
<b>ESGSCORE</b>	0.60	0.16	0.95	0.05
<b>BOARDSIZE</b>	10.10	3.35	41.00	1.00
<b>NONEXDIRECT</b>	0.79	0.18	1.00	0.10
<b>INDEPDIRECT</b>	0.56	0.25	1.00	0.00
<b>GENDERDIVERSITY</b>	0.15	0.15	0.86	0.00
<b>SPECIFICSKILLS</b>	0.42	0.22	1.00	0.00
<b>GDPPERCAPITA</b>	10.34	0.87	11.66	6.68

Legend: GRI&SASB: 1 if firm that adopted GRI Standards choice of reporting, also voluntarily adopted SASB Standards, 0 otherwise; SIZE: natural logarithm of total asset; PROFITABILITY: return on assets; LEVERAGE: debt to asset ratio; MTB: market to book ratio; ESGSCORE: ESG Score; BOARDSIZE: number of directors in the board; INDEPDIRECT: percentage of independent directors on the board; NONEXDIRECT: percentage of nonexecutive directors on the board; GENDERDIVERSITY: percentage of women on the board; SPECIFICSKILLS: percentage of board members who have an industry specific background or a strong financial background; GDPPERCAPITA: natural logarithm of each country's GDP per capita.

**Table 3** Bivariate correlations – total sample

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
<b>SIZE (1)</b>	1										
<b>PROFITABILITY (2)</b>	-0,133	1									
<b>LEVERAGE (3)</b>	0,016	-0,131	1								
<b>MTB (4)</b>	-0,015	0,036	-0,021	1							
<b>ESGSCORE (5)</b>	0,375	0,018	-0,010	0,013	1						
<b>BOARDSIZE (6)</b>	0,463	-0,064	0,012	-0,007	0,233	1					
<b>NONEXDIRECT (7)</b>	-0,023	-0,002	0,052	0,007	0,158	0,006	1				
<b>INDEPDIRECT (8)</b>	0,078	0,028	0,083	0,000	0,232	-0,092	0,422	1			
<b>GENDERDIVERSITY (9)</b>	0,013	0,048	0,022	0,006	0,090	0,001	0,187	0,195	1		
<b>SPECIFICSKILLS (10)</b>	0,055	-0,009	0,021	-0,009	-0,010	-0,080	-0,427	0,109	-0,010	1	
<b>GDPPERCAPITA (11)</b>	-0,004	-0,035	0,018	-0,007	0,104	-0,043	0,204	0,408	0,075	0,123	1

Legend: GRI&SASB: 1 if firm that adopted GRI Standards choice of reporting, also voluntarily adopted SASB Standards, 0 otherwise; SIZE: natural logarithm of total asset; PROFITABILITY: return on assets; LEVERAGE: debt to asset ratio; MTB: market to book ratio; ESGSCORE: ESG Score; BOARDSIZE: number of directors in the board; INDEPDIRECT: percentage of independent directors on the board; NONEXDIRECT: percentage of nonexecutive directors on the board; GENDERDIVERSITY: percentage of women on the board; SPECIFICSKILLS: percentage of board members who have an industry specific background or a strong financial background; GDPPERCAPITA: natural logarithm of each country's GDP per capita.

### 3.3. Independent sample t-test

Table 4 report the independent sample t-test of the independent variables for the firms that voluntarily adopted both GRI and SASB Standards (GRI&SASB = 1) and the firms that only adopted GRI (GRI&SASB = 0).

Except for PROFITABILITY, the null hypothesis of equality of the mean values between the two groups can be rejected. This means that the sample provides strong evidence, given by the p-values lower than 0.05, the two population means (i.e., GRI&SASB=0 or GRI&SASB=1) are not equal in terms of SIZE, LEVERAGE, ESGSCORE, BOARDSIZE, NONEXDIRECT, INDEPDIRECT, GENDERDIVERSITY, SPECIFICSKILLS and GDPPERCAPITA. To reject the null for the equality of MTB, the confidence interval decreases from 95% to 90%.

**Table 4** Independent sample t-test

	Mean		Mean difference (1-0)	p-value
	GRI&SASB=0	GRI&SASB=1		
<b>SIZE</b>	15.68	16.71	1.025	0.000
<b>PROFITABILITY</b>	0.05	0.05	0.004	0.143
<b>LEVERAGE</b>	0.29	0.32	0.029	0.000
<b>MTB</b>	2.10	4.33	2.228	0.076
<b>ESGSCORE</b>	0.60	0.69	0.088	0.000
<b>BOARDSIZE</b>	10.10	11.04	0.933	0.000
<b>NONEXDIRECT</b>	0.79	0.84	0.046	0.000
<b>INDEPDIRECT</b>	0.56	0.77	0.216	0.000
<b>GENDERDIVERSITY</b>	0.15	0.18	0.031	0.000
<b>SPECIFICSKILLS</b>	0.42	0.51	0.091	0.000
<b>GDPPERCAPITA</b>	10.34	10.84	0.493	0.000

Legend: GRI&SASB: 1 if firm that adopted GRI Standards choice of reporting, also voluntarily adopted SASB Standards, 0 otherwise; SIZE: natural logarithm of total asset; PROFITABILITY: return on assets; LEVERAGE: debt to asset ratio; MTB: market to book ratio; ESGSCORE: ESG Score; BOARDSIZE: number of directors in the board; INDEPDIRECT: percentage of independent directors on the board; NONEXDIRECT: percentage of nonexecutive directors on the board; GENDERDIVERSITY: percentage of women on the board; SPECIFICSKILLS: percentage of board members who have an industry specific background or a strong financial background; GDPPERCAPITA: natural logarithm of each country's GDP per capita.

### 3.4. Logistic Regressions

Table 5 reports the results obtained by the logistic regression model. Because we are analyzing a logistic regression model, it is not necessary to test the assumptions of regression standardized residual, collinearity statistics and autocorrelation in the sample. A Nagelkerk R Square of 0.308 shows us that 30.8% of the variance in the outcome can be explained by the presented variables. Table 5 also reports the results if the Equation with the original model is extended to include controls for all the industries (by Sic codes) and all the geographies (by continents), including binary variables (coded as 0 or 1). In that case, Nagelkerk R Square increases to 0.314. After including these variables, the statistically significant results are maintained. To avoid duplication of text, the findings detailed explained in the next paragraphs are for the original model as presented in section 2.

#### Firm size

The variable Firm size is positive and significant ( $\beta = 0.260$ ;  $p = 0.000$ ). Therefore, in line with the main results of the previous studies (Frías-Aceituno et al., 2013a; Frías-Aceituno et al., 2013b, 2014; Girella et al., 2019), we observe a positive influence of firm size. The result is consistent with the agency

theory, signalling theory, stakeholder theory and theory of proprietary costs, arguments used by the majority of the previous studies to conclude that company size has a positive impact on voluntary disclosure since the larger the firm is, the higher is the probability that it will rely on external funds, as well as the major is the number of stakeholders to whom it has to respond. We do not reject Hypothesis H1.

#### Profitability

The variable Profitability is also positive and significant ( $\beta = 1.147$ ;  $p = 0.002$ ). This result agrees with Frías-Aceituno et al. (2013a), Frías-Aceituno et al. (2013b, 2014), García-Sánchez et al. (2013) and Girella et al. (2019). This means that firms with higher profit in the industry often attract more attention from other stakeholders. As a result, the choice of GRI and SASB Standards may facilitate them in satisfying the examination from different constituencies. Consequently, the higher level of profitability is, the likely is that the firm will disclosure information other than those mandatory in nature, like GRI or SASB Standards. This is in accordance with the signalling theory when defends that can be draw as more profitable companies may be interested in signalling this good performance to interested parties. We do not reject Hypothesis H2.

#### Leverage

The variable Leverage is positive and significant ( $\beta = 0.790$ ;  $p = 0.000$ ). Therefore, consistent with the results of Eng & Mak (2003) and Barnea & Rubin (2010). Based on agency and stakeholders' theory it is confirmed that companies with higher leverage are subject to a higher degree of attention by debtors and other stakeholders which leads managers to disclosure more quality data (financial and nonfinancial). We do not reject Hypothesis H3.

#### Market-to-book ratio

The variable Market-to-book ratio, although shows a positive impact association with voluntary adoption of SASB Standards by firms that adhered to IR, has not a statistical significance ( $\beta = 0.001$ ;  $p = 0.216$ ). This is consistent with the results of Frías-Aceituno et al. (2014) and García-Sánchez et al. (2013) and this confirms that the voluntary adoption of SASB Standards by firms that adhered to GRI Standards is not influenced by the companies' market-to-book ratio. We reject Hypothesis H4.

## ESG Score

The variable ESG Score is positive and significant ( $\beta = 1.952$ ;  $p = 0.000$ ). Therefore, we can conclude that when a company has higher ESG Score it is more likely to voluntarily adopt SASB Standards if it has already adhered to GRI Standards. Companies are aware that stakeholders are increasingly concerned about ESG and may be turned off by a company with a low ESG score. We do not reject Hypothesis H5.

## Board size

The variable Board size also is positive and significant ( $\beta = 0.075$ ;  $p = 0.000$ ). This result is in accordance with the studies of Frias-Aceituno et al. (2013b) and Girella et al. (2019), which proves 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, thus, it is more likely for a company to voluntarily adopt SASB Standards if it has already adhered to GRI Standards. We do not reject Hypothesis H6.

## Non-executive board members

The variable Non-executive board members is negative and significant ( $\beta = -1.386$ ;  $p = 0.000$ ). This means that the presence of non-executive directors has a negative association with the voluntary adoption of SASB Standards by firms that have adhered to the GRI Standards. Therefore, when we have calculated that the interest of non-executive directors may be to increase the transparency of the company, it is not relevant to our thesis that their presence contributes positively to the adoption of the SASB Standards by companies that have already adhered to GRI Standards. This result contrasts with the previous studies. We reject Hypothesis H7.

## Independent board members

The variable Independent board members is positive and significant ( $\beta = 3.799$ ;  $p = 0.000$ ). Therefore, we can assume that the presence of independent board members can also contribute to adding more transparent reporting by companies. This can lead to conclude that it is also more likely that companies that already adhered to GRI Standards can also adopt SASB Standards. We do not reject Hypothesis H8.

#### Gender diversity

The variable Gender diversity is positive but not significant ( $\beta = 0.342$ ;  $p = 0.164$ ). With this result we can conclude that the presence of women in the board does not help companies to pay more attention to sustainable information, which contrast with the study of Frias-Aceituno et al. (2013b) and agrees with Girella et al. (2019). We reject Hypothesis H9.

#### Specific skills diversity

The variable Specific skills diversity is positive and significant ( $\beta = 1.735$ ;  $p = 0.000$ ). We can conclude that the diversity of specific skills within companies has a positive association with the adoption of the SASB Standards by companies that have adhered to the GRI Standards. We do not reject Hypothesis H10.

#### GDP per capita

As for the country-level variable, results show that is also positive and significant ( $\beta = 0.511$ ;  $p = 0.000$ ). Eyraud et al. (2013) concluded that higher GDP per capita results in an increase in green investments (GI). In our study, we conclude that with higher GDP per capita it is more likely that attention to sustainable information increase. We do not reject Hypothesis H11.



**Table 5** Logistic regression

	Logit model			Logit model, controls for industry and geography		
	$\beta$	S.E.	p-value	$\beta$	S.E.	p-value
<b>Constant</b>	-15.920	0.819	0.000	-14.900	1.109	0.000
<b>SIZE</b>	0.260	0.024	0.000	0.274	0.025	0.000
<b>PROFITABILITY</b>	1.147	0.377	0.002	1.082	0.382	0.005
<b>LEVERAGE</b>	0.790	0.184	0.000	0.771	0.187	0.000
<b>MTB</b>	0.001	0.001	0.216	0.002	0.001	0.202
<b>ESGSCORE</b>	1.952	0.258	0.000	1.972	0.263	0.000
<b>BOARDSIZE</b>	0.075	0.012	0.000	0.069	0.013	0.000
<b>NONEXDIRECT</b>	-1.386	0.317	0.000	-1.379	0.321	0.000
<b>INDEPDIRECT</b>	3.799	0.244	0.000	3.667	0.246	0.000
<b>GENDERDIVERSITY</b>	0.342	0.246	0.164	0.348	0.249	0.164
<b>SPECIFICKILLS</b>	1.735	0.180	0.000	1.678	0.182	0.000
<b>GDPPERCAPITA</b>	0.511	0.071	0.000	0.494	0.071	0.001
<b>Industry dummies</b>		-			Included	
<b>Geography dummies</b>		-			Included	
<b>Nagelkerke R Square</b>		0.308			0.314	

Legend: SIZE: natural logarithm of total asset; PROFITABILITY: return on assets; LEVERAGE: debt to asset ratio; MTB: market to book ratio; ESGSCORE: ESG Score; BOARDSIZE: number of directors in the board; INDEPDIRECT: percentage of independent directors on the board; NONEXDIRECT: percentage of nonexecutive directors on the board; GENDERDIVERSITY: percentage of women on the board; SPECIFICKILLS: percentage of board members who have an industry specific background or a strong financial background; GDPPERCAPITA: natural logarithm of each country's GDP per capita.

#### 4. CONCLUSIONS

The purpose of this study has been to analyse the impact of some firm-specific (and country) characteristics on the voluntary adoption of SASB Standards by firms that already adhered to the GRI Standards. This study contributes to the GRI and SASB literature by providing an answer to prior research works that called for a combination of firm and institutional characteristics. In addition, it has shown that also a combination of multiple theories could represent a valuable solution to be further employed for other studies. Indeed, the adoption of a single theory could limit the potential results that can be found. The aim of this study is to contribute to the recent “wake-up call” that traditional financial reporting is no longer considered sufficient to manage the business and support the decision-making of stakeholders (Lev & Gu, 2016).

The study covers the analysis of an international sample of 8247 firm-year observations between 2019 and 2021 for companies that adhered to the GRI Standards. From this sample, 6856 the GRI standards were adopted while in the remaining 1391 also the SASB standards were in use together with the GRI. Firm characteristics, such as size of the firm, profitability, leverage, ESG score, board size, independent directors and specific skills have been found to be determinants in the voluntary adoption of the SASB Standards in companies that already publish according to the GRI Standards. As for countries’ characteristics, firms that adhered to the IR are more likely to voluntarily adopt SASB Standards if they are located in countries with a higher GDP per capita.

The majority of the study results are in accordance with the six theories found that mainly explain the choice by companies to voluntarily adopt GRI and SASB Standards, based on other choices made by companies. The six theories are interrelated and compatible, and thus individually and collectively address different dimensions of sustainability performance in creating stakeholder value.

Despite the above merits, the study has also limitations at a theoretical and methodological level, which can be in turn translated into future research avenues. The limitations of this study therefore stem from both the nature of the sample and the theoretical basis on which the data was examined.

With reference to the theoretical level, this study has focussed its analysis based on six theories considered relevant in the voluntary disclosure arena. Future research may be willing to take into consideration other theories to both formulate and test new hypotheses.

As for the methodology, the lack of available data is a limitation, which has reduced the number of sampled firms. Further research could replicate a larger sample which would lead to more accurate results. Therefore, future investigations may be willing to test the same hypotheses on a larger scale.

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