



A decade of environmental accounting reporting: What we know?

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ABSTRACT

This study presents a literature review of environmental reports based on papers published in 20 accounting journals between 2006 and 2015. A majority of the papers were published in journals, such as Accounting, Auditing & Accountability Journal, Accounting Forum, Critical Perspectives on Accounting, and Accounting, Organizations and Society. For each article, the aims and results obtained, methodologies adopted, data sources, industrial sectors, and countries involved were identified. Most of the studies present a longitudinal approach and use content analysis as their methodology. The most extensively used theories are the legitimacy and stakeholders theories. The purpose of this study is to contribute to the reflection of the state of the art of research in social and environmental accounting.

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1. Introduction

Environmental information since the mid-1980s of the last century has been a matter of growing interest of firms, academic communities, accounting regulatory bodies, and professional associations among others. This growing interest, owing to its social and environmental issues, has resulted in the increment of academic publications, which have adopted different perspectives with most of the research focusing on the analysis of social and environmental reports (SER) and in search of the theoretical statements that justify these practices.

Previously, studies made in this field used only a few accounting journals as sources, the present one has analysed papers published in 20 leading accounting journals, similar to Parker (2005), Eugénio et al. (2010), Mata et al. (2015) and Deegan (2017) between 2006 and 2015, this study aims to contribute to the review of the published studies, thus allowing a knowledge of the state of the art of research in accounting on the issue of environmental reporting.

The analysis intended to identify the following dimensions for each article: methodologies adopted, data sources, industrial sector, and the countries involved in the research, aims and results obtained, practices and motivations for the environmental report, relationship between the environmental report and organizational

development and theoretical bases.

This work is structured in the following manner: it begins with the introduction of an historical perspective of research on social and environmental accounting (SEA), followed by the explicit methodology adopted for the sample screening. The next section shows the results, and its systematisation and discussion. Finally, we present the conclusions and limitations.

2. Historical perspective of social and environmental accounting

The growing interest of social and environmental issues propelled the increment of academic publications. In this regard, the literature on SEA is vast and develops several lines of research not only in a theoretical, but also in an empirical perspective, on the study of SER and SEA practices from both internal and external viewpoints.

Several authors present a systematisation of the theoretical and empiric research on SER and SEA, and can be highlighted in Mathews (1997, 2003, 2004), Gray (2002), Owen (2008), Parker (2005, 2011), Eugénio et al. (2010), and Deegan (2017).

Mathews (1997) classified the main topics addressed in the literature in the last 25 years, dividing them into three distinct periods: from 1971 to 1980, 1981 to 1990, and 1991 to 1995.

Gray (2002) presented a critical analysis of the literature in SEA published in the last 25 years, highlighting the studies published in the Accounting, Organization and Society (AOS) journal.

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Owen (2008) presented a critical review of the development as well as the state of the art of SEA through papers published in Accounting, Auditing & Accountability Journal (AAAJ) between 1988 and 2007, and other publications from top journals, between 2004 and 2007, highlighting that SEA should answer environmental and social changes and that there should be a greater focus on the public sector, non-profit organizations, and non-governmental organizations (NGOs).

Eugénio et al. (2010) presented an analysis on SEA, while focusing on papers published between 2000 and 2006 in 19 leading accounting journals, dividing the empirical studies into four categories: SEA, SER, relationship between the report and performance, and the impact of regulation, concluding that the area of focus is the dissemination of social and environmental information. The methodologies adopted, the origin and type of data used, and the country studied were also analysed. In relation to the most used methodologies, it was found that content analysis and interviews were more extensively used, thus concluding that most of the studies considered a sample of companies of the pollutant sectors. The data used are a result of the annual reports as there is a trend for the analysis of other documents of companies, such as autonomous environmental reports, websites, press releases, and newsletters. Concerning the countries, the studies mainly focused on the United Kingdom, Australia, and the United States of America (the United States).

Parker (2011) showed a longitudinal analysis of the studies published between 1988 and 2008 in four leading accounting journals (AAAJ, Accounting Forum (AFo), Critical Perspectives on Accounting (CPA), and AOS) and two journals specifically dedicated to research in SEA (Social and Environmental Accounting Journal and Journal of the Asia Pacific Centre For Environmental Accountability). 199 published papers were analysed from the four leading accounting journals. The papers published in the AAAJ present a greater balance between the social and environmental aspects. The author highlights the dominance of European and Australian researchers in the AAAJ, AF, and CPA journals, and the growing focus on the public/governmental sector as well as on NGOs. Parker (2011) further highlighted the fact that some organizations expressed their concern with SEA as a method of managing reputation risks, while answering institutional interests and pressures involving the community. In other words, companies adopt a reactive strategy considering the exterior pressures. It is important to highlight the focus attributed to the research undertaken in three non-Anglo-Saxon countries (Spain, The Netherlands, and Finland).

Deegan (2017) reflected on 25 years of research in SEA published in the CPA, having selected 62 papers. Assuming that the increase in reporting could represent an improvement in its quality through global initiatives, such as the Global Reporting Initiative (GRI) and integrated reporting, the author states that several researchers conclude that the quality of reporting has not improved. Deegan (2017) also considered that research in SEA published in other journals, explains the motivations for SER, particularly the voluntary report, concluding that the explanation goes predominantly through the legitimacy theory, using the methodology of content analysis of corporate reports and through external factors, such as the community expectancies, media pressures, and critical social/environmental developments. Finally, he states that after 25 years, the quality of corporate report and accountability have not improved, and the state of the environment and social situation in some societies has degraded furthermore.

3. Research design

This study aims to contribute to the knowledge of

environmental reporting, through the review of research in SER, based on the analysis of papers published in 20 leading accounting journals,¹ between 2006 and 2015.

“Traditional” scientific journals of the accounting field were selected. Worthy of note is that journals like the AAAJ, CPA, AOS, AFo are recognized as leading research editors in SEA.

In order to collect the papers that were published in the journals, the methodology adopted by Parker (2005), Eugénio et al. (2010), Mata et al. (2015) and Deegan (2017) was followed. By adopting this methodology and through the database query of journals, which occurred between January and February 2017, the keywords ‘Environmental Disclosure (ED)’ and ‘Environmental Reporting (ER)’ were used to identify 342 papers.

For the selection of papers, we chose to exclude the papers that had the keyword(s) only in the references or in the article as an example. In other words, we excluded the papers that did not have the keyword(s) as the objectives of the study. In addition, the papers in which the keyword(s) appeared in the editorials, call for papers, and book reviews were also excluded. It is also important to highlight that in the cases where the article was identified by both the keywords, but only one of them met all the requirements to exclude the article, we chose the article for analysis. Thus, among the 342 papers initially identified, 161 papers were selected² (Fig. 1).

Within the scrutinised period, these journals published several “Special Editions” over SEA/SER.

2013 was the year with biggest number of selected papers, resulting from the special editions in the journals AFo “Social and Environmental Accounting in Emerging and Less Developed Economies”, CPA “Accounting for the Environment” e AAAJ “Accounting for Biodiversity”.

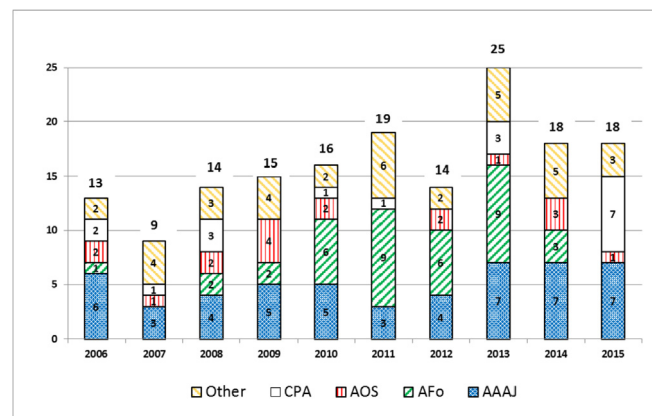


Fig. 1. Papers selected based on journal title and year.

¹ Accounting Review (AR); Accounting, Organizations and Society (AOS), Journal Accounting Research (JAR); Contemporary Accounting Research (CAR); Journal of Accounting and Economics (JAE); Review of Accounting Studies (RAS); Abacus (A); Accounting and Business Research (ABR); Accounting and Finance (AFI); Accounting Business & Financial History (ABFH); Accounting Horizons (AH); Accounting, Auditing & Accountability Journal (AAAJ); Accounting, Management and Information Technologies (AMIT); European Accounting Review (EAR); The International Journal on Accounting (IJA); International Journal of ISAFM (IJIASAFM); Journal of International Financial Management and Accounting (JIFMA); Review of Quantitative Finance and Accounting (RQFA); Critical Perspectives on Accounting (CPA); Accounting Forum (AFo).

² The journals (JAE, AMIT, IJIASAFM, and RQFA) that did not publish any papers on ED or ER in the period under analysis were excluded and the journals (JAR and RAS) that did not meet the criteria selection of the papers were also excluded.

In 2011, journals as Afo “Social and Environmental Accounting and Accountability” and AAAJ “Climate Change and Greenhouse Gas” also contributed for the results above mentioned.

During 2014, the journal AAAJ “Integrated Reporting”, is the highlight.

We found that most of the papers were published in the AAAJ (32%), followed by Afo (24%). In the third position were CPA and AOS, both with 11%, the others journals represent the remainder 22%.

Following the proposals of Parker (2005), Eugénio et al. (2010), Mata et al. (2015), and Deegan (2017), we chose to classify the papers analysed into three categories: practices and motivations for the environmental reports, relationship between the environmental report and organizational performance, and theoretical bases. However, it is important to highlight that an article maybe classified into more than one category due to its complementarities.

4. Results

This study analysed the following dimensions for each article: methodologies adopted, data sources, industrial sector, the countries studied, and aims and results obtained. Consecutively, the aims and results of the sample papers in view of the following categories were presented: practices and motivations for the environmental reports, relationship between the environmental report and organizational performance, and theoretical bases.

4.1. Methodology and data sources

Most of the papers in our sample aim to analyse the environmental information disclosed by companies in their annual reports and sustainability or environmental reports, the most common methodology being: content analysis, such as in Deegan (2017) and Eugénio et al. (2010). However, this method shows some limitations due to the subjectivity in the interpretation of the information collected and in the decision of inclusion in one of the defined categories.

Thus, some of the studies of the sample develop grids, having the GRI as a base, so as to determine the index of environmental report. For example, Clarkson et al. (2008) who considered 95 items, divided them into 7 categories – structure of governance and

management systems, credibility, environmental development indicators, environmental expenses, vision and strategy, environmental profile, and environmental initiatives. Highlighting the study of Barbu et al. (2014a), it is the only study that considers the IAS/IFRS.

In the analysis, there is an increase in the number of researches that use interviews with content analysis. It is further noted that most of the studies are empirical, such as Mathews (2003).

The reviewed papers' methodologies are exemplified in Fig. 2. They can be divided into non-empirical (Theoretical/Commentary Literature) and empirical approaches (content analysis, interviews, content analysis + interviews, surveys, statistical models).

From the papers revised (161 papers), 70,8% were empirical studies and 29,2% were theoretical approaches.

Content analysis represents 38,5% of the total empirical studies. The rest are divided in: interviews (10,6%), content analysis + interviews (8,7%), statistical models (6,8%) and surveys (6,2%).

It should be noted that in order to decrease the possible subjectivity of the method of content analysis and evaluate stakeholder's perceptions, some studies appeal to interviews with managers, accountants, or various groups of stakeholders, such as employees as noted in Belal and Owen (2015), Thomson et al. (2014), Contrafatto (2014), Rimmel and Jonäll (2013), Vinnari and Laine (2013), Bebbington et al. (2012), O'Sullivan and O'Dwyer (2009), Grosser and Moon (2008), and Islam and Deegan (2008).

There are other studies that only use a survey (Thoradeniya et al., 2015; Wong and Millington, 2014; Thorne et al., 2014; Williams et al., 2011; Kuruppu and Milne, 2010; Henri and Journeault, 2010) or only interviews (Momin, 2013; Beddewela and Herzig, 2013; Monfardini et al., 2013; Belal and Cooper, 2011; O'Dwyer, 2011; Qian et al., 2011; Jones and Solomon, 2010; Edgley et al., 2010; Bebbington et al., 2009; Farneti and Guthrie, 2009; Belal and Owen, 2007; Spence, 2007; Solomon and Solomon, 2006; Deegan and Blomquist, 2006).

Most of the studies (see Fig. 3), such as Loh et al. (2015), Lanis and Richardson (2013), Bouten et al. (2011), Cowan and Deegan (2011), Lynch (2010), Cho et al. (2010), Tilling and Tilt (2010), Islam and Deegan (2010), Samkin and Schneider (2010), Laine (2010, 2009), Islam and Deegan (2008), Guthrie et al. (2008), Frost (2007), Murray et al. (2006), and De Villiers and Staden (2006) use the annual report as a source to gather information on

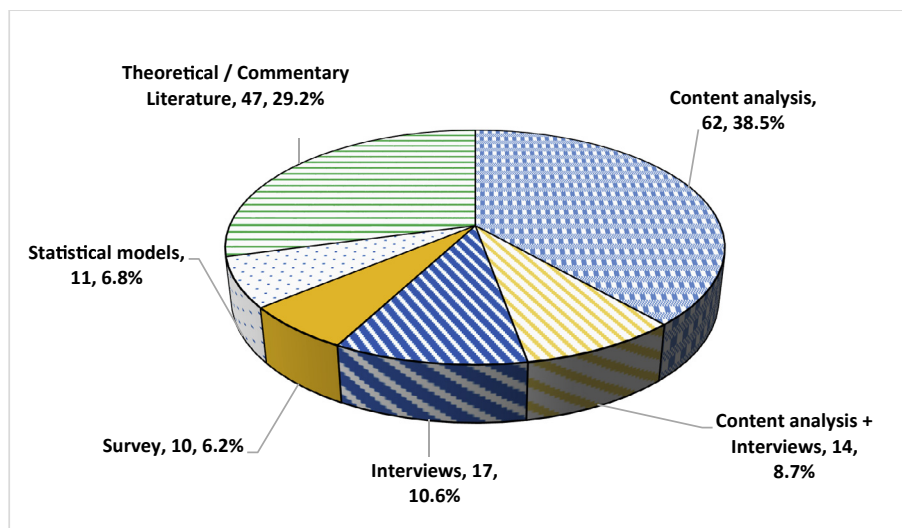


Fig. 2. Methodologies used.

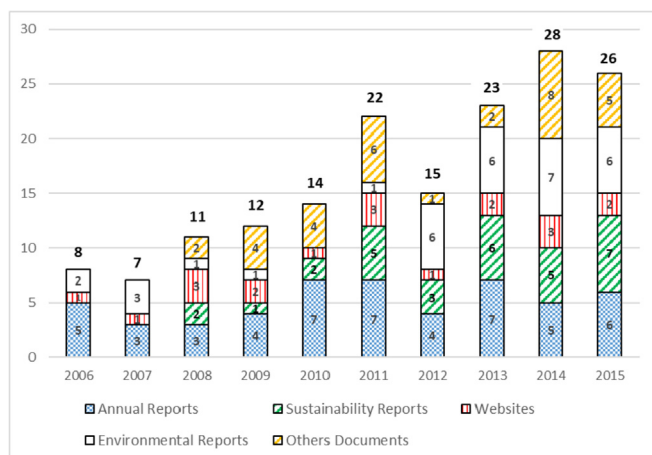


Fig. 3. Data sources used.

environmental report due to its credibility, regularity, easy access, and usefulness for various stakeholders.

However, companies have started to use other sources of information, such as CEO declarations, sustainability or environmental reports, institutional brochures, media news, press releases, and websites (Liesen et al., 2015; Rodrigue, 2014; Chelli et al., 2014; Van Liempd and Busch, 2013; Lodhia and Jacobs, 2013; Moroney et al., 2012; Joseph and Taplin, 2011; Clarkson et al., 2011; Ten-Elijido et al., 2010; Aerts and Cormier, 2009; Laine, 2009; Guthrie et al., 2008; Grosser and Moon, 2008).

The longitudinal approach allows an analysis of the possible relationship between the context and behaviour of disclosure of environmental information. Several works resort to this approach, such as Liesen et al. (2015), Belal and Owen (2015), Loh et al. (2015), Comyns and Figge (2015), Tregidga et al. (2014), Chelli et al. (2014), Hassan and Kouthy (2013), Vinnari and Laine (2013), Lodhia and Jacobs (2013), Cho et al. (2012b), Mäkela and Laine (2011), Clarkson et al. (2011), Islam and Deegan (2010), Tilling and Tilt (2010), Samkin and Schneider (2010), Lynch (2010), Laine (2010, 2009), Camara et al. (2009), Islam and Deegan (2008), Freedman and Stagliano (2008), Frost (2007), Campbell et al. (2006), De Villiers and Staden (2006), and Murray et al. (2006).

Among the studies analysed, the larger samples are approximately 1447 companies with 100 or more employees, with 330 answers to the questionnaire (Henri and Journeault, 2010), 431 European companies (Liesen et al., 2015), 510 companies (Mahoney et al., 2013), 200 Australian companies (Hrasky, 2012a), 339 listed companies of the Australian extractive and energy sectors (Herbohn et al., 2014), 191 companies from the United States (Clarkson et al., 2008), 190 companies (Cho et al., 2010), 187 companies (Rankin et al., 2011), 158 non-financial corporations (Aerts and Cormier, 2009), and 119 listed companies (Cho et al., 2012b). In the public sector, we highlight the studies of 190 local governments (Williams et al., 2011) and 139 local authorities (Joseph and Taplin, 2011).

4.2. Industrial sector and countries

Several studies conclude or defend that the industrial sector is a factor that influences the practices of SER (Monteiro and Guzman, 2010; Branco and Rodrigues, 2008; Hahn and Kühnen, 2013). Companies that encounter more environmental risks are sensitive sectors and exposed to regulation, such as the chemical sector, paper industry, oil companies, metal-mechanics industry, extractive industry, and electricity industry (Michelon et al., 2015;

Herbohn et al., 2014; Barbu et al., 2014a; Cho et al., 2008, 2012b; Coetzee and Staden, 2011; Freedman and Jaggi, 2011; Clarkson et al., 2011, 2008; Aerts and Cormier, 2009; Laine, 2010, 2009; Cho, 2009; Freedman and Stagliano, 2008; Burnett and Hansen, 2008; Frost, 2007; Cho and Patten, 2007; De Villiers and Staden, 2006; Deegan and Blomquist, 2006; Magness, 2006). Companies in these industries tend to disseminate more information in comparison to the companies that are not subjected to such risks, and consequently to the pressure of the community in general and of the government in particular.

Cho et al. (2015b) concluded that the relationship between the legitimacy factors for the differences of SER remain unaltered over time, considering the size of the company and the sensitive environment sectors. However, the levels of SER between companies and sectors, which are considered sensitive to the environment and otherwise, have been decreasing. Patten and Zhao (2014) argued that companies elaborate their autonomous reports by providing references of the GRI as a base, with greater emphasis on environmental information, even for companies of the sectors considered to be critical. For example, on an average, retail companies of the United States provided more environmental information than social information. However, Cho and Patten (2007) found that dissemination is higher in companies that operate in sectors considered sensitive to the environment and that the extension of the monetary environmental information is significantly more than similar disseminations of the best performances.

Rankin et al. (2011) defended that companies, such as those in the extractive and electricity industries that disclose more credible information are more likely of more disseminations (greater exposure). De Villiers and Staden (2006) also consider companies with operations that change the environment, such as the extractive sector, most likely to disseminate more environmental information.

Thus, the sectorial framework of organizations is important to understand certain aims, strategies, and capacities related to the practices of environmental reporting. This factor allows the creation of groups of observations so as to identify the similarities and differences between the groups of companies of distinct sectors. The literature suggests that companies of the same industrial sector have similar dissemination practices (Branco and Rodrigues, 2008), in other words is the mimetic isomorphism.

Some studies do not take the industrial sector into consideration, but factors such as the dimension (more than 100 workers) (Henri and Journeault, 2010) and if they are listed on the stock exchange (Liesen et al., 2015; Barbu et al., 2014a; Hrasky, 2012a; Cho et al., 2010, 2012b; Mahadeo et al., 2011; Bouten et al., 2011; Jones, 2011; Grosser and Moon, 2008; Frost, 2007; Spence, 2007; Cho and Patten, 2007; Clatworthy and Jones, 2006; Murray et al., 2006) are considered, observing that it represents social pressure, where they are subjected to a greater public scrutiny by the media (Luo et al., 2012).

It is important to highlight the growing research involving governmental organizations (Thomson et al., 2014; Lodhia and Jacobs, 2013; Monfardini et al., 2013; Qian et al., 2011; Joseph and Taplin, 2011; Williams et al., 2011; Samkin and Schneider, 2010; Lynch, 2010; Farneti and Guthrie, 2009), a trend identified by Parker (2011) and Mata et al. (2015).

In most cases, the analysed country is associated with the country of affiliation of the authors (Table 1). The authors who published the most number of papers were Dennis Patten with 12 papers, Charles H. Cho with 10 papers, Rob Gray and Robin Roberts with 6 papers each, and Craig Deegan and Matias Laine with 5 papers each.

Concerning the most analysed countries, our results allow us to

Table 1
Affiliation of the authors.

Australia	63
United Kingdom	51
United States	33
Canada; New Zealand	16
Italy	13
France	10
Spain	9
Belgium; Netherlands	6
Denmark	5
Finland	4
Sweden	3
Romania; Ireland; South Africa; Mauritius	2
Saudi Arabia; Malaysia; Bangladesh; Germany; Singapore	1

highlight that the papers, such as Eugénio et al. (2010), predominantly focused on Anglo-Saxon countries (see Table 2). The most studied countries from Europe were United Kingdom, France, Italy, Finland and Germany.

Within the sample, studies were found that perform a comparative analysis between countries, such as: Germany, France, and the United Kingdom (Barbu et al., 2014a), between Germany, France, United Kingdom, Canada, Japan, United States, and India (Freedman and Jaggi, 2011), between South Korea, Malaysia, Philippines, Thailand, and Indonesia (Loftus and Purcell, 2008) and studies that involve more than 13 countries (Bozzolan et al., 2015; Liesen et al., 2015; Barkemeyer et al., 2014; Luo et al., 2012; Kolk et al., 2008).

It is important to highlight the analyses of developing countries, such Bangladesh and Sri Lanka. It is noted that the motivations for the practices of SER in Bangladesh can be explained by the pressure of western customers, media, and institutions, through the imposition of operational policies and codes of conduct (cohesive isomorphism) (Islam and Deegan, 2010). The conclusion shared by Momin (2013) and Belal et al. (2015) highlighted the role of NGOs and international funds due to the vulnerability of the country, with high levels of poverty, lack of governance, dependency on external help, and owing to political and corporate partnering the elites in corruption. Belal et al. (2015) added the lack of legal requisites, the imperative of profit, bad performance and fear of bad reputation to justify the absence of responsible social corporate reports, concluding that they serve corporate interests and benefit the stakeholders with power, such as the management and shareholders.

In this regard, Belal and Owen (2015) concluded that the variation, increase, and decrease in SER of an European multinational affiliate of the tobacco sector is a result of a complex combination of global forces (influence of parent company, World Health Organization, and international institutions) and locals (a government

tobacco policy, the media, and an NGO).

These results reflect the importance of activist stakeholders and stakeholder pressure for SER, in the absence of mandated disclosure, it's critical that society rewards "good" corporate citizens for their positive social and environmental policies and actions (Mahoney et al., 2013). The stakeholder pressure can motivate companies to adopt various environmental practices (Brennan and Merkl-Davies, 2014; Deegan and Blomquist, 2006).

In relation to Sri Lanka, Beddewela and Herzig (2013) concluded that a group of multinational companies are more concerned about the head offices being located in developed countries, up to a point of ignoring the concerns of the local stakeholders, due to the absence of external coercive pressures and the restricted effects of the normative isomorphism. However, Thoradeniya et al. (2015) noted that the attitude of the managers of listed companies, due to the sustainability of the report, is influenced by the belief of pressure of the stakeholders.

The practices of providing environmental reports by organizations are specific to each country due to the legal, social, economic, cultural, and political context prevalent in the specific country.

4.3. Practices and motivations for environmental reports

In this category, we include the studies whose practices and motivations are analysed for the environmental report of the organizations. An extensive body of research has examined environmental disclosure and reporting practices, these studies take into account different aims, such as analysing the extension and nature of practices of environmental reporting before and after the introduction of the legal standards (Frost, 2007); content analysis of sustainability reports and corporate actions (Cho et al., 2015a); comparative reports (Bebbington et al., 2012); analysis of the certification of climate alterations through different reports (Aguilar and Bebbington, 2014); analysis of the effect of environmental report certification (Edgley et al., 2010; Moroney et al., 2012); understanding the environmental reporting practices of governmental departments (Lynch, 2010); examining report strategies of an industrial sector (Cuganesan et al., 2010); and analysis of the interaction between the SER of a company and external institutional pressures (Laine, 2009).

Motivations for environmental reporting are intrinsically related to the organization's reputation management, due to corporate internal factors (size, organizational performance, position in the value chain, and others), the pressure of stakeholders (media, regulators, clients), environmental accidents, legislative input or because the organization has an environmental management system. Some studies suggest that companies engage in SER mainly to secure their own position and private interests.

The environmental information can be provided in many forms (qualitative statements, quantitative facts, financial statements, graphics or photos, CEO declarations, amongst others) and can be included in the annual report, stand-alone reports, sustainability reports according to GRI, press releases, company websites, and others.

The objective of some of the studies is to analyse the evolution of the quality and extension of dissemination in annual reports, sustainability reports, and corporate promissory notes after accidents (Coetzee and Staden, 2011; Ten-Elijido et al., 2010; Cho, 2009). The results show that environmental dissemination tends to base itself on a strategy that aims to legitimise the activity instead of promoting greater accountability. They also conclude that after an environmental accident, there is a tendency to increase information dissemination in environmental reports and press releases, showing the reasons for the accident or the corrective measures. To manage their reputation risk some organizations extensively use

Table 2
Countries analysed.

United States	28
United Kingdom	27
Australia	24
Canada	11
France	10
Italy	8
Bangladesh; Finland; South Africa; Japan; Germany	7
New Zealand; Spain; Belgium	6
Sweden; Netherlands; South Korea	5
Malaysia; Denmark; Ireland	4
Singapore; India; Thailand; Switzerland; Norway	3
Sri Lanka; Hungary; Philippines; Greece; Austria; Brazil; Mexico	2
Indonesia; Ecuador; Mauritius; Nigeria; Romania; Poland; Portugal; Luxembourg; China; Israel	1

SER on their websites (Arora and Lodhia, 2017).

According to Guthrie et al. (2008), companies use reports, accounts, and their websites to disseminate different types of environmental information. Websites are preferred as they show a greater dissemination of environmental information in comparison to reports and accounts due to the increased use of the Internet by companies to communicate their performances.

There is a growing elaboration of reports of sustainability according to the GRI. However, to Moneva et al. (2006), some organizations that use the GRI do not behave responsibly in view of sustainability. Similar to Michelon et al. (2015), they consider that the use of GRI does not increase the process of accountability and the information disseminated to stakeholders as companies may appear to perform reasonable dissemination without increasing the quality of their dissemination. Contained in the literature is the general perception that the overall quality of these reports is relatively low (Clarkson et al., 2011).

The concept of reputation risk management allows an understanding of the practices of reporting of the corporate social/environmental responsibility and the language used (Craig and Brennan, 2012; Higgins and Walker, 2012).

Generally, it appears that studies on environmental reports are based on the quantity or thematic context of the report. However, the use of language constitutes an important tool for the use of public opinion. Considering this, several studies, such as Barkemeyer et al. (2014), Brennan and Merkl-Davies (2014), Craig and Brennan (2012), Higgins and Walker (2012), Mäkelä and Laine (2011), Laine (2010), Cho et al. (2010), and Bebbington et al. (2008) approach this topic. Hrasky (2012a) and Jones (2011) studies analysed the use of graphics and photographs in environmental and sustainability reports. Jones (2011) concluded that companies with a high environmental impact show more graphics for the environmental information in comparison to the ones with reduced environmental impact. In addition, there is a trend of resorting to graphic representation when there is more positive news. Hrasky (2012a) concluded that companies that are more focused on sustainability depend more on graphics in comparison to the less sustainable companies. In addition, there is a similar observation for the use of photographs.

Thus, organizations carefully choose the images they intend to use in their reports. In annual reports, images are associated with technical efficiency and management competency, while they are considered as pleasant in environmental reports (Crowther et al., 2006). However, the significant use of the same images in SER is observed to appeal to memorisation and feeling (Pesci et al., 2015).

Analysing the disclosures of the 50 largest companies of the United States and Japan who included the triple bottom line, Ho and Taylor (2007) noted that the extension of reports is significantly higher, particularly of non-financial information, for companies with a greater dimension, less profitability, less liquidity, and those in industrial sectors. The reports are more in Japanese companies as the main facilitator is environmental dissemination, which can be explained by the cultural differences (Ho and Taylor, 2007), ratification of the Kyoto Protocol, and the definition of limits for the emission of gases with greenhouse effects (Freedman and Jaggi, 2011). However in Nigeria's case, the Kyoto Protocol participation is not enough to result in net decreases in carbon dioxide emissions (Hassan and Kouhy, 2013).

Vinnari and Laine (2013) concluded that the reduction of the extension of SER appears to have occurred as a result of economic pressures and the inefficient interpretation of SER in relieving the political pressures or in producing benefits. The inefficiency resulted owing to internal factors, such as organizational change, loss of internal leaders, lack of connection of the management control

systems to obtain the intended measures, and lack of external pressures. Bouten and Everaert (2015) and Lodhia and Jacobs (2013) also observed that SER is a result of organizational practices and internal staff.

As a result, the voluntary disclosure of the environmental report maybe a result of three factors (Bebbington et al., 2009), the corporate characteristics (such as the dimension, industrial sector and country of origin), and internal and external contextual factors.

When analysing the mandatory environmental report through the International Accounting Standards/International Financial Reporting Standards (IAS/IFRS), Barbu et al. (2014a) concluded that companies residing in countries with regulations on environmental dissemination (France and the United Kingdom) report more on environmental information in comparison to domiciled companies in countries with reduced regulations on environmental thematic (Germany). These results suggest that the IAS/IFRS are not applied in a consistent manner between companies and countries due to 'traditions' and discrepancies of the legal requirements of each country. However, the study only analysed the year 2007 (Wilkins, 2014). In this regard and in the future, they intend to analyse a longitudinal period between 2002 and 2012, thus allowing a period of voluntary and mandatory application of the IAS/IFRS as well as the cultural factors (Barbu et al., 2014b).

Emcompassed in their own legal environment context, managers must decide on the appropriate reporting practices to obtain maximum benefits from their decisions. So the legal system is one of the most important institutional factors (Aceituno et al., 2013).

Gray (2006), in his analysis on accountability and SER, argued that the accountability of a company can assure the survival of its shareholders. However, Contrafatto (2014) considered that the institutionalisation of the concept of social and environmental responsibility and the creation of a formal structure allows increasing and consolidating the practices of accounting and SER, making them a part of the operational process.

An important factor for the credibility of the environmental report is its certification. Moroney et al. (2012) concluded that the quality of voluntary environmental dissemination is superior for companies with certified reports and that the experience improves the quality of environmental disseminations. Rankin et al. (2011) concluded that the credibility and extension of dissemination is related to the existence of the system of certified environmental management and the use of the GRI. However, Michelon et al. (2015) did not find a relationship between the certification and quality of dissemination, which can be interpreted as a symbolic practice that companies use to influence the perception of stakeholders over the corporate compromise.

Darnall et al. (2009) noted that internal regulations and supply chain stakeholders influence the decisions of managers to purchase environmental assurance. Thus, the report of environmental certification offers double benefits as it adds value to the management and stakeholders (Edgley et al., 2010), given that the certification is positively related to the evaluation that stakeholders undertake on the value of SER (Wong and Millington, 2014).

It is determined that a few companies disclose information on biodiversity (Rimmel and Jonäll, 2013). However, Siddiqui (2013) considered that accountability of biodiversity may be useful for governments during negotiations with powerful stakeholders on issues such as the financial assistance after natural disasters.

4.4. Relationship between the environmental report and organizational performance

In this category, we include the studies intended to analyse the relationship between the environmental report and the

environmental, social, and economic performance of companies.

Murray et al. (2006) aimed to explore the relationships between the environmental report and performance of the financial market of 100 listed firms in the United Kingdom. The authors conclude that there is no significant association between the profitability of shares and SER in the short term, but in a 9 year period, the highest levels of dissemination appear to be correlated with the evaluation of the market. However, when analysing the impact of extreme events on the risk of volatility and profitability of the top firms, Smolarski and Vega (2013) noted that if dissemination is considered as negative, then the volatility of firms increases; and if it is considered as positive, then the return volatility of firms stabilises. If an extreme event occurs, the result of dissemination is a significant impact on the profitability of the company. Griffin and Sun (2013), show a positive association between corporate political contributions and excess share returns.

Therefore environmental information disclosure influences investment allocation decisions (Holm and Rikhardsson, 2008).

Herbohn et al. (2014) identified a positive association between the sustainability report and sustainability performance of companies. The result is consistent with the study of Clarkson et al. (2008). However, Cho and Patten (2007) and Aerts and Cormier (2009), Cho et al. (2012a) identified a negative relationship between the environmental report and environmental performance of companies.

To encourage companies to become more accountable in environmental performance it's necessary to complement voluntary corporate environmental reporting with mandatory requirements (Braam et al., 2016).

Cho et al. (2012a) analysed the measures that reflect the environmental performance in the perception of environmental reputation of the company and if the environmental report is sufficient to mediate the negative aspects of a weak environmental performance. The authors concluded that environmental performance is negatively related to the index of reputation, being a member of the Dow Jones Sustainability Index (DJSI), and the level of environmental dissemination. It was also noted that there is a significant positive relationship between dissemination, the index of reputation, and being a member of the DJSI. In other words, integrating the DJSI positively influences the perception of the reputation. As such, environmental dissemination is presented as a risk management tool of reputation. The results are in consonance with Cho and Patten (2007) and Cowan and Deegan (2011).

As a suggestion for future research, could be analysed if the integration within Dow Jones Sustainability index influence the financial performance of the organizations.

According to Schneider (2011), the environmental performance of a company is reflected in the value of the shares, considering that in case there is a weak environmental performance, there is a significant risk of a decrease in the value of shares due to the costs of cleanliness and conformity. In addition, managers and investors are significantly concerned about the effect of the environmental performance on the value of the company. Bozzolan et al. (2015) noted that a good performance in terms of corporate social responsibility can reduce the cost of capital of a company and increase its value. The authors also concluded that adopting social responsibility practices have different impacts on the capital cost in comparison to the legal regimes of countries. However, Cho et al. (2015a, b) concluded that the disclosure of corporate social responsibility is not positively associated to the differences in the value of the company.

Considering this, we share Hopwood (2009) opinion that accountability can play an important role in relation to the environment and sustainability, observing that environmental questions should be included in accountants' activities, taking into

consideration that environmental risk is a risk component of bankruptcy (Schneider, 2011). However, 'financial accounting per se has no obvious interest in environmental matters' (Gray, 2013:460). Ball (2007) considered that SEA is used by employees in order to provide an organizational answer to the environmental issues.

Burnett and Hansen (2008) examined the relationship between the environmental performance and environmental productivity of the electrical industry sector of the United States. The results indicate that a proactive environmental management allows a reduction of environmental costs and can contribute to an adoption of a management system that considers environmental costs.

An organization with an environmental management system will influence the environmental performance and reporting because the managers and others stakeholders are involved in these matters.

Henri and Journeault (2010) attempted to understand if a financial control method is strategic for environmental management to influence the economic and environmental performance. The authors concluded that there is no direct resource effect to a financial control method by an economic performance. However, there is an indirect relationship between environmental and economic performances in specific contexts, such as companies that have high environmental exposure, high public visibility, high environmental concern, and great dimension.

Magness (2006), subsequent to an environmental accident, attempted to understand if financial performance that is based on the power of the stakeholders, influences the practices of the report. The author concluded that companies pressured by the regulations and that obtained external financing one year after the accident reveal more environmental information. She further highlighted that companies use non-financial information for the management of stakeholders' perceptions. However, there is no evidence that the content of the report is influenced by the financial performance.

Cho et al. (2010), when analysing the language in the practices of environmental reporting and environmental performance, noted that companies change their discourse according to the environmental performance of the company. As such, companies with poor environmental performance use optimist language in their environmental dissemination. However, Cowan and Deegan (2011) noted that companies with negative perception of poor environmental performance have a propensity for greater dissemination of information on carbon emissions. In addition Hassan and Kouthy (2013) noted that the changes in emission levels also affects amount of disclosure.

Concerning carbon emissions, Matsumara et al. (2014) concluded that the market penalised companies for their carbon emissions and for their non-dissemination of its emissions. Thus, dissemination as well as their own carbon emissions affects the value of the company.

Although the existence of a positive association between environmental performance and economic performance is generally accepted in the literature, the results analysed are not conclusive.

4.5. Theoretical frameworks

Some studies adopted one or multiple theories as an explanatory theory of SER and the behaviour of organizations in view of the environment. Different authors highlight legitimacy theory, stakeholders theory, institutional theory, voluntary disclosure theory, and signalling theory. These different theoretical perspectives provide different information, which are at times complementary to the understanding of the corporate practices.

The theoretical frameworks applied by the reviewed papers are depicted in Fig. 4. The legitimacy theory was the most applied

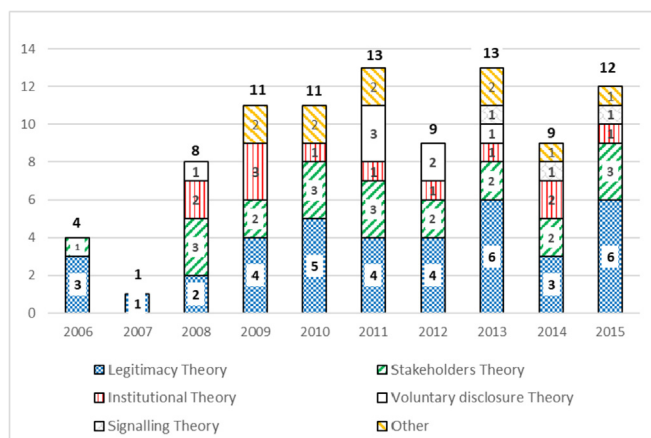


Fig. 4. Theoretical frameworks applied.

theory in 38 articles, stakeholders theory (21), institutional theory (12), voluntary disclosure theory (7), signalling theory (3) and others theories (10). The others theories includes, for example, the contingency theory, media agenda setting theory, media richness theory, amongst others.

4.5.1. Legitimacy and stakeholders theories

Several researchers have applied the legitimacy theory to explain the practices of SER. According to [Cho and Patten \(2007\)](#), the legitimacy theory suggests that SER is the answer of companies to the political and social pressures searching to legitimise its activity in the long term, stabilising a voluntary 'social contract'.

Thereby, [De Villiers and Staden \(2006\)](#) concluded that in response to those pressures, companies change the type (specific/general) and extension (increase/decrease) of the environmental information provided, in order to preserve their image and legitimacy. This is also [Hopwood \(2009\)](#) concern that environmental disclosure may be used to construct a different image of the organization so as to protect it from external pressures.

[Cho et al. \(2008\)](#) concluded that a sample of chemical and oil companies make political donations to influence the legislators with the aim to reduce or mitigate the weight of environmental regulations and consequently reduce the political pressure and its public exposure. The authors concluded that companies attempt to avoid sanctions derived from the non-conformity of existing legislations in the institutional environment, such that its image may not be affected. Furthermore, [Tregidga et al. \(2014\)](#) noted that organizations managed to oppose themselves to the material change through an apparent process of identity transformation in order to avoid a more demanding regulation. However, [Rodrigue \(2014\)](#) noted that the dissemination dynamic on environmental issues comprises of multiple patterns (confirmation, complementary, opposition, and combined). These patterns are related to different interactions with the stakeholders.

According to [Hassan and Kouthy \(2013\)](#), SER undertaken by oil companies, do not reflect the social and environmental local impacts at times, except when they are exposed. The conclusion shared by [Buccina et al. \(2013\)](#) when analysing the dissemination strategies as a result of the oil drilling in Equator, noted that the company only disclosed these passives subsequent to negative 'advertising' on the case, having focused its speech on the shareholders in order to maintain legitimacy in the United States.

While analysing the notes of the Greenpeace press and six athletic clothes brands, [Brennan and Merkl-Davies \(2014\)](#) considered the use of certain chemicals in their productive processes and

concluded that the language used performed an important role in the settlement of disputes, while the power of negative 'advertising' contributed in compromising the elimination of the use of chemical products.

Thus, the standards of SER correspond to the risk management of reputation and to the answer of community pressures or institutional interests ([Parker, 2011](#); [Loh et al., 2015](#)). Considering this, corporate communication practices consist of a strategy to legitimise an image of environmental responsibility. The dissemination may be interpreted as a management of the pressures of the stakeholders and the exhibition of the organizations ([Campbell et al., 2006](#)). Moreover, for any legitimising strategy to be effective, communication between organizations and society is essential ([De Villiers and Staden, 2006](#)).

[Archel et al. \(2009\)](#) appealed to the theory of legitimacy to conclude that companies legitimise a new process of production through the 'manipulation' of the social perceptions and the ideological alignment with the State. However, [Lanis and Richardson \(2013\)](#) established a statistically significant association between the tax aggressiveness of companies and the dissemination of corporate social responsibility, which was consistent with the legitimacy theory due to the higher public awareness of taxes and being part of corporate social responsibility.

The stakeholders theory considers the interaction and communication between the organization and stakeholders.

[Herbohn et al. \(2014\)](#) identified a positive relationship between the sustainability report and sustainable performance of companies. This result is consistent with the stakeholders theory where the companies with the best performances, on an average, disclose more on its sustainability performance.

[Mahadeo et al. \(2011\)](#), resorting to the legitimacy and stakeholders theories, analysed rated Mauritian companies. They concluded that there was a significant but selective growth of the quantity and quality of SER, which is related to the needs of companies demonstrating their commitment to social objectives (moral legitimacy) and to the need to manage their relationship with some specific stakeholders (pragmatic legitimacy). However, an answer to the reviews on corruption and business practices are rather unethical.

In consonance with previous studies, we determined that SER is a manager's tool to communicate to the society that the organization is behaving according to its standards and values. As such, the motivation for the provision of autonomous corporate social responsibility reports is supported by the legitimacy theory ([Thorne et al., 2014](#); [Beddington et al., 2008](#); [Bebbington et al., 2009](#)) and in the relationship of perceptions of stakeholders ([Thorne et al., 2014](#)).

[Coetzee and Staden \(2011\)](#) showed that companies react to the threats of loss of legitimacy through the increase of environmental information disclosure and in particular, about environmental safety after accidents. [Cho \(2009\)](#) achieved the same results.

[Harsky \(2012b\)](#) evaluated if companies adjusted their disseminations related to the carbon footprint in the perspective of legitimacy, concluding that the level of disclosure has grown and the intensive sectors in carbon are changing its disclosure to a strategy of moral legitimacy, while reflecting the actions in the reports they develop to reduce the carbon footprint.

[Liesen et al. \(2015\)](#) analysed the pressures of stakeholders that influence the corporate report of greenhouse gas emissions between 2005 and 2009 in 431 European listed companies. They concluded that companies answered the external pressures of stakeholders, thus being consistent with the stakeholders theory, as well as that the companies answer through incomplete dissemination, possibly in order to be voluntary, allowing it to have a symbolic function of legitimisation. [Cho et al. \(2010\)](#) also

concluded that companies perform some dissemination in an apparent attempt to increase corporative legitimacy.

When analysing the reaction of 24 French listed companies, Chelli et al. (2014), after the introduction of the 'New Economic Regulations' French law, which requires the disclosure of environmental information by listed companies, concluded that the law changed the level of disclosure of environmental information more positively. The results are consistent with the institutional vision of the legitimacy theory as companies have started complying with the law so as to guarantee organizational legitimacy. This result is reinforced due to the fact that companies have started complying with the law so as to guarantee organizational legitimacy and also by the fact that the law does not include penalties for its non-compliance.

4.5.2. Institutional theory

The concept of legitimacy and the search for legitimacy are the focus of institutional theory. This theory seeks to identify and analyse the institutional pressures that could explain the behaviours and practices of organizations. DiMaggio and Powell (1983) considered that organizations can only survive through an isomorphic change, which occurs through three mechanisms: coercive isomorphism, normative isomorphism, and mimetic isomorphism.

Laine (2009) expected to understand how the environmental report is used as an answer to the institutional pressures resulting from the social context. Considering this effect, he analysed the environmental disclosures of a Finnish chemical company from 1972 to 2005, and concluded that the report standards have altered due to changes in the social and institutional context as an answer to institutional pressures in order to maintain its legitimacy in the society.

In response to such institutional pressures, organizations are increasingly adopting voluntary environmental strategy in order to effectively manage the environmental impacts on their processes, products or services (Adams and Larrinaga, 2007).

Cowan and Deegan (2011) stated that an environmental regulation can act as a boost for the changes in practices of environmental reporting (coercive isomorphism), with a significant increase in disseminations of emissions in reports and accounts, despite the quality of the dissemination being questionable. Comyns and Figge (2015) also determined that legitimacy may be attained despite lower quality sustainable reports. In this sense, they considered that the introduction of regulation can improve reports.

Analysing the situation before and after the introduction of the specific legislation, Frost (2007) concluded that institutional pressure and the new legislation (coercive isomorphism) resulted in a significant increase in the level of environmental reporting, which induced an increase of dissemination of a mandatory character, which is a detriment to voluntary dissemination.

It should be noted that the process of drafting the standard has an impact on its application, as Bebbington et al. (2012) found when comparing the reporting regime between Spain and UK. Thus, future investigations should examine whether the process of elaborating financial and non-financial standards and laws influences reporting practices.

Lynch (2010) noted that some Australian governmental departments decreased the level of reporting due to lack of external pressure. Deegan and Blomquist (2006) concluded that the groups interested influence the practices of reporting, generating a positive phenomenon of mimicry or mimetic isomorphism. Contrafatto (2014) noted that the first environmental report of a company was a result of the internal organizational dynamics due to the influences (normative and mimetics) of institutional factors.

4.5.3. Voluntary disclosure and signalling theories

The voluntary disclosure and signalling theories suggest that companies use information to signal their values to address social and environmental issues, while ensuring that the stakeholders are aware that the issues are being handled by the companies (Clarkson et al., 2011, 2008).

In this perspective, Mahoney et al. (2013) considered that there are two guidelines, signalling or 'ecologic washing' for the disclosure of autonomous reports of social responsibility. Concerning signalling, companies disseminate the report as a sign of its high commitment. However, in relation to 'ecologic washing', companies use reports to introduce themselves as 'good' corporative citizens. Thus, the theory of signalling may explain the motivation for the provision of autonomous reports after negative experiences with the media (Thorne et al., 2014; Bebbington et al., 2008).

Clarkson et al. (2008) evaluated the voluntary level of environmental disclosure in environmental reports and websites of 191 companies in the United States. The authors concluded that there is a positive association between the environmental performance and level of voluntary environmental disclosure, which was consistent with the voluntary disclosure theory. It should further be noted that the dimension of a company, its financing needs, debt, and recent acquisition of assets are significantly related to the level of environmental reporting.

Clarkson et al. (2011) concluded that companies with a higher pollution index disclose more information on the environment, being consistent with the stakeholders and legitimacy theories, but contradicting the voluntary disclosure theory. This study completes Frost (2007) who approached the mandatory report.

Cho et al. (2012b) expected to understand why companies disseminate environmental expenses, through the analysis of the environmental report 10-K between 1996 and 2005 of 119 listed companies. They concluded that both the companies that disclose as well as the ones that do not disclose are improving their environmental performance. They further determined that dissemination is not conducted to signal a worse environmental performance in the future as the voluntary disclosure theory suggests. However, it is important to consider the corporative motivations.

5. Conclusions

The research on environmental report is mainly centred on environmental information voluntarily disclosed through corporative reports and other means of communication used by organizations, attempting to test theories that explain the factors that influence the practices of environmental reporting. The legitimacy and stakeholders theories are the predominant perspectives in the studies that explain the practices of SER.

Concerning the research methodology, the analyses of reports and accounting and/or environmental reports, sustainability reports, websites, press releases, and declarations of the CEO prevail, having an application scope a sample of companies of one or more companies of great dimension, listed in stock exchanges, pertaining to industrial sectors sensitive to the environment (extraction of mineral, chemical industry, oil, cellulose or paper pulp, and electricity). The content analysis is the most widely used method but it would be pertinent to combine it with other methodological approaches like interviews.

In synthesis, several aspects influence the performance and environmental reporting practices of organizations (see Fig. 5), such as the level of implementation of the environmental management system, the determinants that may result from organizational factors, external factors and stakeholders pressure.

For external stakeholders, the reporting of environmental information can arise from different means and with different quality

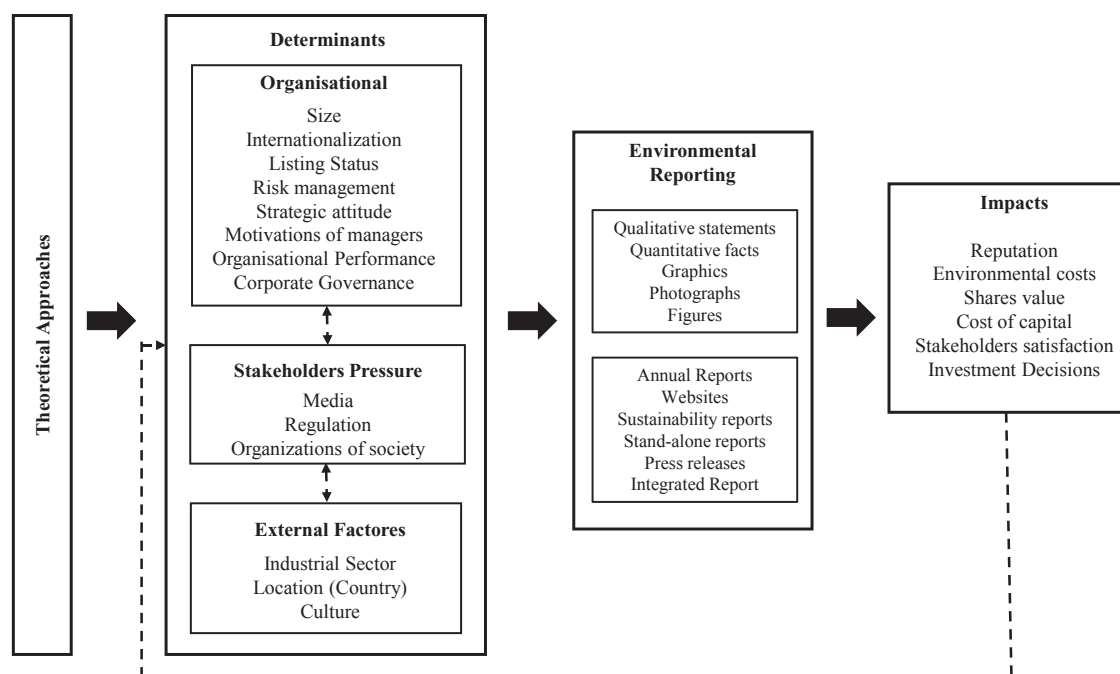


Fig. 5. The environmental management system. Source: Adapted of Alrazi et al. (2015).

levels. These practices can have an impact on the environmental reputation of the organizations themselves and on stakeholders' satisfaction (customers, shareholders, lenders and others creditors), eventually having a direct effect, for example in the capital and/or, environmental costs or even in the share value, consequently improving business financial performance.

Most of the studies analyse companies in sensitive environmental industrial sectors. Thus, at all times, the results have an impact (negative) on the society. However, will the other sectors also not have impacts (negative) on the environment is a question that is yet to be answered.

Although the studies apply to several geographical areas, they tend to privilege Anglo-Saxon countries, such as the United States, the United Kingdom and Australia. Highlighting the studies on developing countries, such as the Equator, Nigeria, Sri Lanka, and Bangladesh that evidence the vulnerability and exploitation of the local communities, there is a need for more studies that expose these situations which allow an improvement of SER.

The studies are predominantly about one specific country. Thus, international comparative studies and analyses through reporting are important to understand the environmental reporting strategies and the determinant factors that might influence positive or negatively these relationships, i.e., further research on the influence of country-of-origin and of a different regulatory regimes (mandatory financial reporting system) or culture is needed.

It's relevant to analyse the role of environmental accounting as part of the environmental reporting within organizations; what's the impact that voluntary guidelines and mandatory standards have in the organizations environmental accountability practices.

Research about the impact of environmental reporting on financial performance tends to result in inconsistent findings, as well as concepts such as: managerial attitudes, regulation and governance, reporting quality and stakeholder perception, audit activities and governmental policies are fields where it's important to explore more in the future.

If the research about voluntary reporting is extensive, the mandatory reporting, particularly according to IAS/IFRS is limited

so there are opportunities for further investigation.

There are some research opportunities in integrated reporting, for example, what information do the stakeholders consider relevant and if that could affect their decisions, as well as the impact on the capital costs and on assurance judgments.

Our study provides an assessment of the state of art for understand the issue under investigation at certain levels based on the methodologies used in the researches published from 2006 to 2015 in the set of journals selected for analyses.

Although the results are congruent with similar studies, they present certain limitations. In the list of journals, specific reviews on SEA were not considered, such as those in the Journal of the Asia Pacific Centre for Environmental Accountability, the Social and Environmental Accountability Journal, and Advances in Environmental Management and Accounting. Furthermore, in the articles selection, only two keywords were used: "Environmental Reporting" and "Environmental Disclosure" with an inherent subjectivity in the researchers' decision. In future researches, we consider relevant to select more keywords (e.g. sustainability reporting; integrated report; Global Reporting Initiative, and others) and a broader scope of journals, namely including non-Anglo-Saxon publications.

We share the Deegan (2017) perspective that we should have a commitment to the society and environment, thus positively contributing for a better report of accountability and the state of the environment.

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