A CLOSER LOOK AT GLOBAL REPORTING INITIATIVE SUSTAINABILITY REPORTING: A WORLDWIDE SECTOR ANALYSIS

Abstract

This study analyses the worldwide diffusion of the Global Reporting Initiative's (GRI) Sustainability Report in all economic sectors from 1999-2011. The logistic curve model (s-shaped curve) is used to assess the current situation on both a global scale and a local scale. Additionally, instability and concentration indices are used to analyse whether the diffusion process developed in a homogeneous manner across economic sectors. Close attention has been paid to the two leading sectors worldwide, although for different reasons: the financial and energy sectors. Findings suggest that energy sector has adopted GRI reporting in an effort to be more sustainable as being more visible, polluting and international. On the other hand, the financial sector could regain market credibility and attract new investors, and GRI reporting could help it to construct a new identity defined by legitimate behaviours and an improved image The paper concludes with some reflections on the usefulness of these reports and trends.

Key Words:

Global Reporting Initiative; GRI; sustainability reporting; sustainability reporting diffusion; stakeholders; sustainable development; environmental policy.

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1. INTRODUCTION

Currently, information beyond what is available in financial statements is crucial for companies to maintain a trusting relationship with their stakeholders (Krajnc and Glavic, 2005; Gilbert and Rache, 2007; Alonso-Almeida, 2009). In the past two decades, environmental and social concerns have continuously been increasing (Melé et al., 2006; Skouloudis et al., 2009). Even governments have started applying greater pressure on companies to be more compliant with regulations or recommendations (Delmas and Toffel, 2008; Prado-Lorenzo et al., 2009; Delmas and Montes-Sancho, 2010).

Therefore, some authors (Prado-Lorenzo et al, 2009; Lozano and Huisingh, 2011) have stated that sustainability reports (SRs) have been configured as (1) a broadly applicable and reliable set of standards used to communicate with internal and external stakeholders, (2) a framework to assess the company and (3) a source of public information. Thus, SRs disclose both financial and non-financial information, such as environmental management and cleaner production practices within the company as well as the development of social activities both internally and externally. However, since the beginning, SR adoption has been voluntary, and this type of information disclosure has been performed in a non-default format (Moneva, 2005). Nevertheless, the globalisation of markets and companies has required harmonised, standardised and objective reports from firms worldwide to understand what companies are doing and to facilitate comparisons across companies (Prado-Lorenzo et al, 2009). For these reasons, different SR standards with basic content have been developed since the nineties (Ligteringen and Zadek, 2004; Moneva, 2005)

Among all the SR initiatives, the *Global Reporting Initiative* (GRI) is the most widely used global standard for sustainability reporting, according to a number of researchers (e.g., Skouloudis et al., 2009; Prado-Lorenzo et al., 2009; Tsang et al., 2009; Brown et al., 2009; Rasche, 2009; Levy et al., 2010; Roca and Searcy, 2012; Christofi et al., 2012; Marimon et al., 2012). It has even become part of the framework for mandatory sustainability reporting in some countries (Ioannou and Serafeim, 2011).

In spite of humble beginnings, the GRI has turned into a global reference, which increases its adoption every year (Moneva, 2005; Brown et al., 2009; Lozano and Huisingh, 2011; Marimon et al., 2012). Although a pioneering work from Marimon et al. (2012) breaks the GRI's global diffusion down by geographical area, we have not found any studies that identify and explain the diffusion patterns by sector, as has been performed for other management standards, such as ISO 9001, ISO 14001 and other national standards (Franceschini et al. 2004; Marimon et al. 2006; Casadesus et al. 2008; Marimon et al. 2010; Casadesus et al. 2010; Delmas and Montes-Sancho, 2010; Llach et al. 2011). Identifying diffusion patterns helps to foretell the future trends and disclosure requirements of the market. Therefore, there is still room for improvement in this matter given the scarce research on GRI diffusion.

It is also interesting to pay attention to the two leading sectors in terms of GRI adoption: the financial and energy sectors. Both have played the "leading role" in this diffusion phenomenon, but their motivations are different. The image of the financial sector has suffered due to the recent economic crisis, which some have claimed was at least partly caused by the industry's lack of transparency (Melé et al., 2006; Ioannou and Serafeim, 2011; Acosta-Gonzalez et al., 2012). Meanwhile, the energy sector has the reputation of being a "dirty" sector (Mio, 2010; Clarkson et al., 2011).

Thus, the aims of this study are threefold. The first aim is to identify the diffusion of the GRI standard using the logistic curves pattern, similar to Franceschini et al. (2004), Casadesus et al. (2008 and 2010), Marimon et al. (2006, 2009, 2010, 2011, 2012) and Llach et al., (2011), to demonstrate the different stages and patterns of the dissemination of the GRI in different sectors on a global scale in the period from 1999-2011. The second aim is to assess the homogeneity of GRI diffusion across different sectors of activity, especially the financial and energy sectors. Two indices – instability and concentration – are used during the same period (Cabral, 1997; Marimon et al., 2011 and 2012; Llach et al., 2011). Finally, the third aim is to compare the diffusion pattern of different sectors across the main geographical regions.

This study therefore contributes to the existing research in two ways. First, this study increases the understanding of the diffusion of the GRI standard across sectors. Second, this study provides an exploratory analysis of GRI diffusion in two sectors that use it with different purposes and thus with different strategies.

Pursuant to these objectives, the remainder of the paper is organised as follows. The second section provides a review of the literature and a description of the working model. The employed methodology and statistical results are explained in the third section. The conclusions and practical implications are presented in the fourth section.

2. LITERATURE REVIEW

2.1 Sustainability Reporting: the need for a standard

Waddock (2008) conducted an analysis on the evolution of how organisations communicate with their stakeholders. From the sixties until the eighties, companies developed some philanthropic programmes as well as passive communication methods through their public relations or customer relations departments. Since the eighties, companies have adopted codes of ethics and started to inform their stakeholders about social issues. This information was considered useful in establishing trustful communication between the organisation and its stakeholders (Alonso-Almeida, 2009). Pioneering countries include some European countries as well as the United States, although they employed different approaches. European companies emphasised on environmental issues, while US companies focused on internal social issues or made philanthropic donations (Ioannou and Serafeim, 2011). Additionally, during the 1980s, ethical investment funds began to exclude firms operating in some controversial sectors, such as alcohol or tobacco.

In the nineties, complaints from ecologists and growing concern about environmental problems caused individual disclosure of environmental and social reports to spread. In the past decade, these types of reports have been combined into an integrated report that publically exposes what companies do with regards to these issues. This report therefore is used as a management tool that enables companies to exhibit their sustainability and social responsibility initiatives. At the same time, it provides enough information for benchmarking. Thus, it also provides clues as to what is going wrong (Greenwood, 2007). Table 1 summarises the evolution of the voluntary disclosure of non-financial information.

Table 1. Evolution of the voluntary disclosure of non-financial information

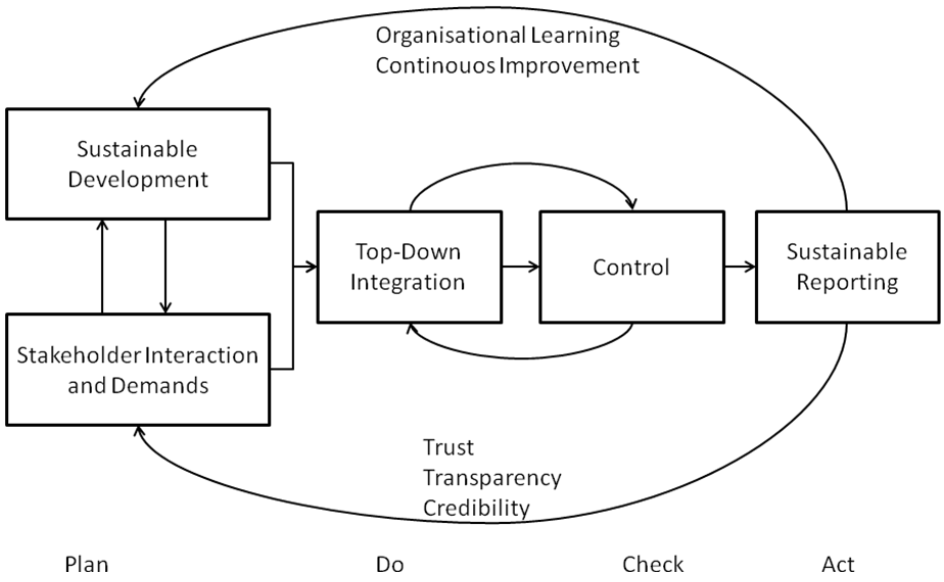
Period	Indicators	Stakeholders	Diffusion method
1960-1979	- Human resource tools - Philanthropic programmes	- Employees - Community where the organisation is located	- Internal - External, through marketing actions
80s	- Structural transformation of the organisation - Behavioural codes	- Consumers - Shareholders and investors - Society - Government	- Specialised departments - Communicated in the financial report
90s	- Environmental indexes - Social indexes	- Shareholders and investors - Society - Lobbies	- Communicated in the financial report - Environmental report - Social report
2000-present	- Development of environmental and social indexes	- Shareholders and investors	- Environmental report - Social report - GRI - AA1000

	- Standardised and certified international systems		- ISO26000

Some studies have shown that sustainability reporting and disclosure has different effects: (i)increasing the social responsibility of business managers, (ii) making sustainable development turn into a higher priority for companies, (iii) strengthening supervision over management and (iv) preventing companies from losing credibility (Ioannou and Serafeim, 2011).

Thus, sustainability has been integrated into strategy and operations (Christofi et al., 2012) with the involvement from different stakeholders in corporate strategies (Banerjee and Bonnefous, 2011). Following this reasoning, disclosure helps to prevent damaging economic behaviour and social imbalances as well as helping to build transparency and trust in the company (Melé et al., 2006; Alonso-Almeida, 2009). Figure 1 shows the key role of SR in a company's sustainable development and long-term survival. Companies' behaviours are thereby continually subject to public scrutiny (Bravo et al., 2012).

Figure 1. Role of Sustainable Reporting



Source: Based on Asif et al. (2011).

However, companies disclose this information following their own formats. For this reason, investors, analysts and other stakeholders have requested a broadly applicable and reliable set of standards for corporations across the world (Lozano and Huisingh, 2011). The GRI was created with this purpose. As Marimon et al. (2012) asserted, "*…its objective is to provide information guidelines to present a clearer vision of the human and ecological impacts of an enterprise. In addition, one of the GRI's main functions is to enable shareholders and other stakeholders to make well-informed decisions regarding investments and the purchasing of goods and services*

from the company.(..) Thus, the GRI is a framework from which to judge records of sustainability. Furthermore, the GRI framework provides the opportunity to compare information and conduct benchmarking among the different organisations involved". Ioannou and Serafeim (2011) also noted that the GRI framework elevates SR "*to the same rigor as financial reporting*".

Nevertheless, similar to other management systems, GRI reporting is not without criticism. Goel (2005) asserted that it is very general and contains many indicators that are not used by companies. On the other hand, Asif et al. (2011) asserted that the GRI is a good starting point for reporting on sustainability initiatives, making sustainable measurement more systematic and allowing for the comparison of different companies in sectors that use the same set of indicators. Finally, Moneva (2005) noted that the GRI does not capture all the relevant sustainability development indicators, but it is a good starting-point for the disclosure of this type of information. Although in some sectors additional guidelines have been required (Toppinen et al., 2012).

Currently, the GRI has become the most widely used standard for sustainability reporting worldwide (Skouloudis et al., 2009; Prado-Lorenzo et al., 2009; Tsang et al., 2009; Brown et al., 2009; Rasche, 2009; Levy et al., 2010; Marimon et al., 2012). It has been evolving since its creation to adapt to stakeholder and market demands and to continue building transparency and trust.

2.1 GRI reporting and the disclosure of environmental and social issues

The GRI was founded in 1997, although the organisation achieved international scope due to a strategic partnership with the United Nations Environment Programme in 1999. Since the beginning, GRI reporting has maintained a strong commitment to environmental issues. For example, the GRI 2006 guide included thirty indicators of environmental performance. As Marimon et al. (2012) reported in 2011, GRI G.3.1 incorporated ten new indicators related to efficiency, improvements, future plans for managing impact on biodiversity and initiatives to reduce greenhouse gas emissions. Specifically, this guide now includes an indicator of clean production (EN30) that identifies the costs of prevention and environmental management based on extra expenditures required to install cleaner technologies or for green purchases. Currently, the GRI is working on its G4 guidelines, editing the EN11-15 performance indicators and looking for new biodiversity performance indicators and approaches to biodiversity disclosures. In the case of greenhouse gas emissions, the G4 will include the EN16, EN17 and EN18 performance indicators, ensuring consistence with current indicators and a new approach to greenhouse gas emission disclosure (GRI, 2012).

Moreover, the GRI has provided some sector guidance supplements because "*many sectors face unique sustainability issues that should be captured in sustainability reports. These issues may not be covered in the original Reporting Guidelines*" (GRI, 2012). Currently, sector supplements

are available for airport operators, construction and real estate companies, electric utilities, event organisers, financial services firms, food processors, mining and metal companies, NGOs, oil and gas companies and media companies.

This effort to promote better environmental care has yielded positive results. In fact, the adoption of GRI reporting has been correlated with superior environmental performance. Clarkson et al. (2008) found that there is a positive correlation between environmental performance and the level of discretionary disclosure in GRI reporting among 191 firms with a high propensity for pollution and subject to strong regulations from the pulp and paper, chemical, oil and gas, metals and mining and utilities industries in United States. These authors stated that GRI reporting is used by companies with proactive environmental strategies as a tool to inform investors and other stakeholders because environmental performance may not be easily and directly observable to them. Conducting the same type of analysis among 51 Australian firms from the mining and manufacturing sectors, Clarkson et al. (2011) indicated that higher-polluting firms disclosed a greater quantity of environmental information and relied on GRI reporting to verifiably communicate their actions and results to the market. Gamerschlag et al. (2011) also found that more profitable companies are associated with more environmental disclosure.

Moreover, sectors with very strong regulatory frameworks, such as utilities (Mio, 2010) or mining (Fonseca, 2010), have adopted GRI reporting more widely and earlier than other sectors (Tsang et al., 2009). Thus, sectors with high chemical processes seem to be more aware of putting a bigger effort into the disclosure of environmental impacts and improvements in their operations (Noronha et al., 2012). In this line of reasoning, other authors (Mitchell and Hill, 2009; Frynas, 2010; Gamerschlag et al., 2011; Kuo et al., 2012) have reported that more hazardous sectors, such as mining, oil, chemical and automotive, or highly environmentally sensitive sectors, such as the forest industry (Toppinen et al., 2012) have adopted GRI reporting. Before authors also found that financial services firms are engaging in GRI reporting even though this type of company has a low impact on the environment. The main reason for this is that financial services companies "*seek improved marketability of their stock by subscribing to sustainability indices*". Thus, GRI adoption seems to be influenced by industry (Marimon et al., 2012; Legendre and Coderre, 2012).

Regarding social issues, the GRI also committed to the improvement of social issues. Thus, the GRI G.3 contained forty social performance indicators. Moreover, the GRI organisation has a global strategic partnership with the United Nations Global Compact and the Organisation for Economic Co-operation and Development (GRI, 2012). Additionally, the G4 guidelines will include anticorruption and occupational health and safety performance indicators. Specifically, performance indicators SO2-SO4 are being edited, and new performance indicators and approaches for anticorruption disclosure are being sought. In the case of occupational health and

safety, the G4 will include the development of the LA6-LA9 performance indicators, ensuring consistency with current indicators and new approaches to occupational health and safety disclosures (GRI, 2012).

According to Ioannou and Serafeim (2011), the adoption of the GRI increases socially responsible practices and can prevent opportunistic managerial behaviour and corruption both inside and outside the company.

Thus, the majority of sectors that depend on their stakeholders for a continued supply of resources, such as the financial (Asif et al., 2011) or utilities (Mio, 2010) sectors, need to communicate how social initiatives are managed. Financial services firms are therefore taking CSR more seriously than they did in the past. This is mainly due to legal pressure and activism as well as the fact that current markets across the world consider the financial services sector partly responsible for the current financial crisis (Noronha et al., 2012; Marimon et al., 2012). Bravo et al. (2012) also reported that financial firms are adopting GRI reporting to show their commitment to good citizenship.

Noronha et al. (2012) noted that other reasons to adopt sustainability reporting are the increase in the number of listed companies worldwide, which makes companies more visible, and the growth of foreign trade between more regulated markets and developing countries. Thus, human rights, labour safety and community support are relevant concerns in the growth of countries such as China. In developed countries, these same reasons have also been crucial drivers in the adoption of the GRI (Gamerschlag et al., 2011). Moreover, although more research is needed, previous research has found a significant relationship between market value and responsibility disclosure under GRI guidelines (Schadewitz and Niskala, 2010).

Gamerschlag et al. (2011) also indicated that sector membership could explain the diffusion of the GRI, with driving factors including company visibility, dispersed shareholder structure and international relationships. Other authors (Delmas and Toffel, 2008; Delmas and Montes-Sancho, 2010; Marimon et al., 2012) have stated that diffusion may change patterns if new incentives, such as strengthened regulations or more disclosure requests from stakeholders, increase companies' motivation to fulfil the GRI requirements.

As a consequence, this GRI diffusion study helps to predict the future evolution of this standard and could identify future trends.

3. Methodology

This section begins with a descriptive analysis of the available GRI data on a worldwide scale. Next, a closer analysis is performed on the activities of two sectors: financial services and energy.

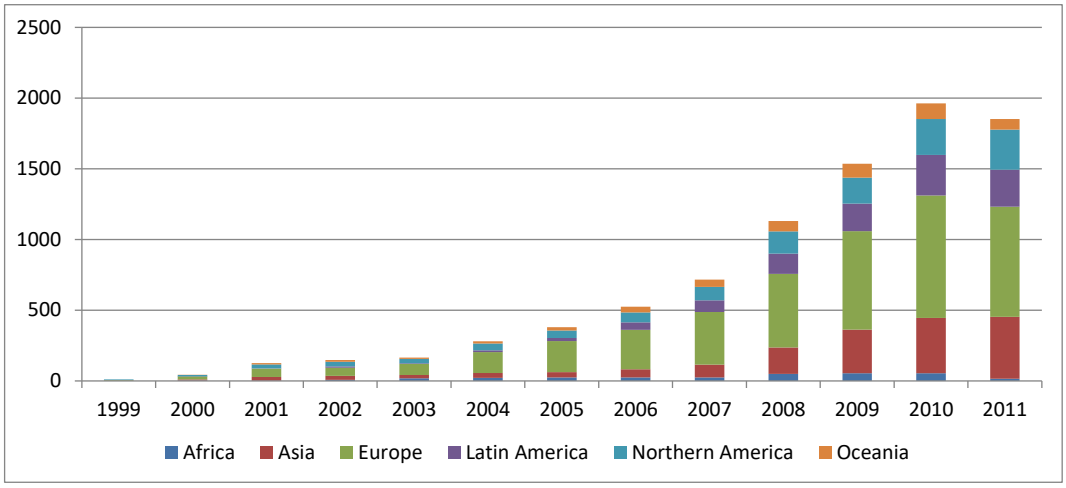
The next step consists of a dynamic analysis of all the economic sectors during the first decade of this century.

3.1. Global Reporting Initiative data

Data provided by the Global Reporting Initiative was used to undertake this study. The organisation's official database is divided into various categories (company name, size, sector, country, region or type, among others), which allows for analyses from different perspectives.

According to the most recent data, 1,852 firms completed the GRI report in 2011. The number of GRI reports has steadily grown each year since 1999. Figure 2 shows the increase in the total number of reports from 1999 – 2011 by region (nomenclature from the Global Reporting Initiative (GRI)).

Figure 2. Evolution of the total number of GRI reports from 1999-2011 (by region).



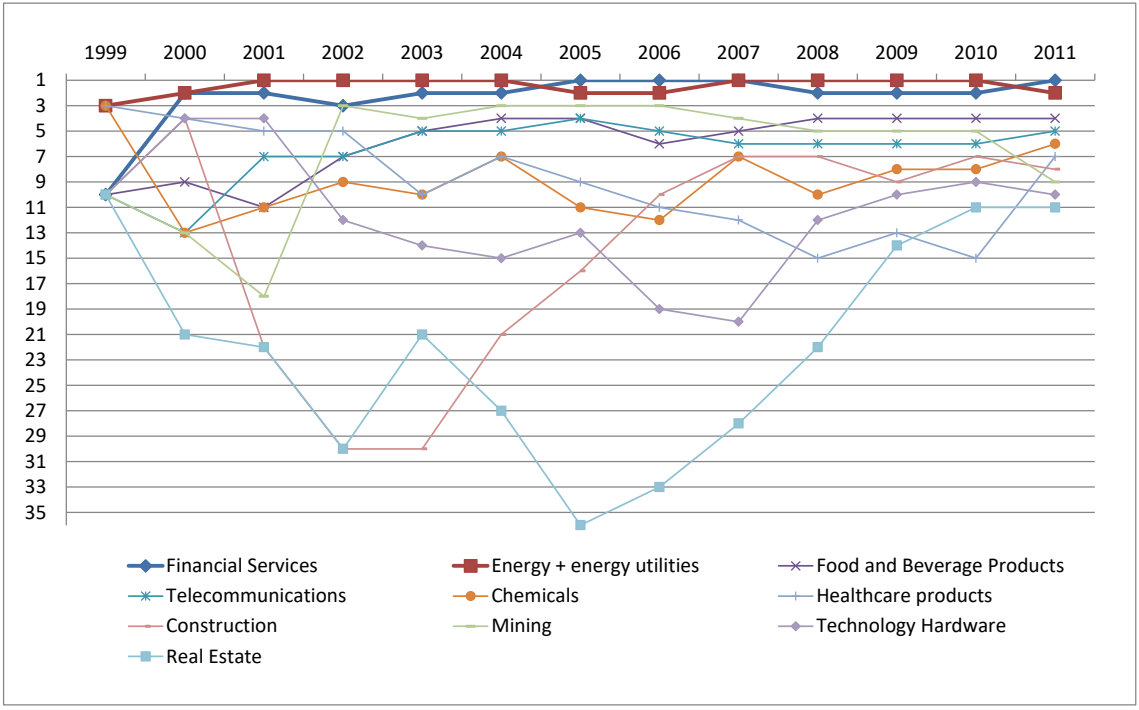
The regions with the most GRI reports in 2011 are, in descending order: Europe (n=778), Asia (n=437), Northern America (United States and Canada, n=283) and Latin America (Central and South America, n=263). Oceania (n=75) and Africa (n=16) are far behind the other regions in terms of number of reports.

However, when we analyse the data by country, we realise that the country with the most GRI reports in 2011 is United States of America (USA), which belongs to Northern America. On the other hand, Europe is the region with the most countries submitting at least one GRI report: 33 in total.

GRI reporting has spread into 38 sectors. Most of the 2011 GRI reports (51,2%) are concentrated in the top 10 sectors of the GRI report ranking. The three sectors with the most GRI reports are, in descending order: Financial Services (n=245), Energy & Utilities (n=212) and Food and Beverage Products (n=106). It must be emphasised that the respondent decides what sector the firm is listed under, and not the GRI organisation. This detail means that the "Other sector" category, which is part of the sector list provided by the GRI, has been excluded from this analysis

due to its uncertain nature, although is quite large (176 reports in 2011). Figure 3 presents the evolution of the top ten sectors of the 2011 GRI sector ranking from 1999 – 2011.

Figure 3. Evolution of GRI reporting from 1999-2011 on a global scale (by sector)



Since the beginning, the financial and energy sectors have consistently been among the top-ranked. On the other hand, the steady evolution of the telecommunications sector is remarkable, as the sector is showing an increasing interest in GRI reporting.

In addition, table 2 ranks GRI adoption by sector, both worldwide and by main geographical areas. As can be observed, the leading sectors in adopting the GRI standards have mainly been the ones that the organisation created specific sector supplements for.

Table 2. Top ten ranking of GRI reports by geographical area in 2011*

RANKING	WORLDWIDE	EUROPE	ASIA	NORTHERN AMERICA	LATIN AMERICA
1	**Financial Services (245)**	**Financial Services (109)**	**Financial Services (55)**	**Energy + Utilities (32)**	**Energy + Utilities (44)**
2	**Energy + Utilities (212)**	**Energy + Utilities (91)**	**Energy + Utilities (39)**	**Financial Services (28)**	**Financial Services (40)**
3	Food & Beverage products (106)	Food & Beverage products (36)	Technology Hardware (34)	Food & Beverage products (25)	Food & Beverage products (26)
4	Telecommunications (64)	Construction (28)	Chemicals (24)	Chemicals (15)	Healthcare Services (13)
5	Chemicals (61)	Telecommunications (28)	Conglomerates (18)	Healthcare Products (15)	Mining (13)
6	Healthcare Products (57)	Healthcare Products (25)	Food & Beverage products (17)	Computers (14)	Conglomerates (8)

7	Construction (55)	Non-Profit Services (25)	Telecommunications (17)	Mining (13)	Agriculture (7)
8	Mining (52)	Real Estate (22)	Real Estate (15)	Telecommunications (10)	Construction (7)
9	Technology Hardware (49)	Construction Materials (19)	Automotive (13)	Retailers (7)	Construction Materials (7)
10	Real Estate (47)	Public Agencies (19)	Construction (13)	Commercial Services (6)	Non-Profit Services (7)

** between parenthesis the number of GRI reports certificated in 2011*

"Energy + Utilities" has consistently taken the top position in the ranking during the past decade, both worldwide and at the local level. The same applies to the "Financial services" sector, although for different reasons. Moreover, table 2 shows that the rankings are stable across continents. The "energy + utilities" sector is considered to be "dirty," and its companies have the image of being "damaging agents to the environment". The GRI report is a communication tool for them to state that they really respect the planet and are committed to cleaner operations. On the other hand, the "Financial services" sector is pursuing another aim with the GRI report. In this case, the GRI report provides an image of transparency and honesty to the management of the industry.

As can be observed, there are some differences in the positions of each sector on the global and local levels. Nevertheless, the top two sectors are the same everywhere.

3.2. Analysis of diffusion by sector of activity

The model used to analyse the diffusion of GRI reporting by sector of activity in different regions is the one proposed by Franceschini et al. (2004), and later adapted by Marimon et al. (2006, 2009), Casadesus et al. (2008) and Llach et al. (2011). The model is based on the assumption that the growth of reporting is proportional to the number of existing reports in both the general economy and in different economic sectors. It is thus assumed that the growth rate is at its lowest in the beginning, when there are very few certified organisations, but the subsequent diffusion of certifications causes an increase in the growth rate. Finally, as the diffusion becomes saturated, the curve flattens out again. The model can be expressed as follows:

$$N = \frac{N_0 K}{(K - N_0)e^{-r_0 t} + N_0}$$

in which:

N represents the number of certificates (a function of time);

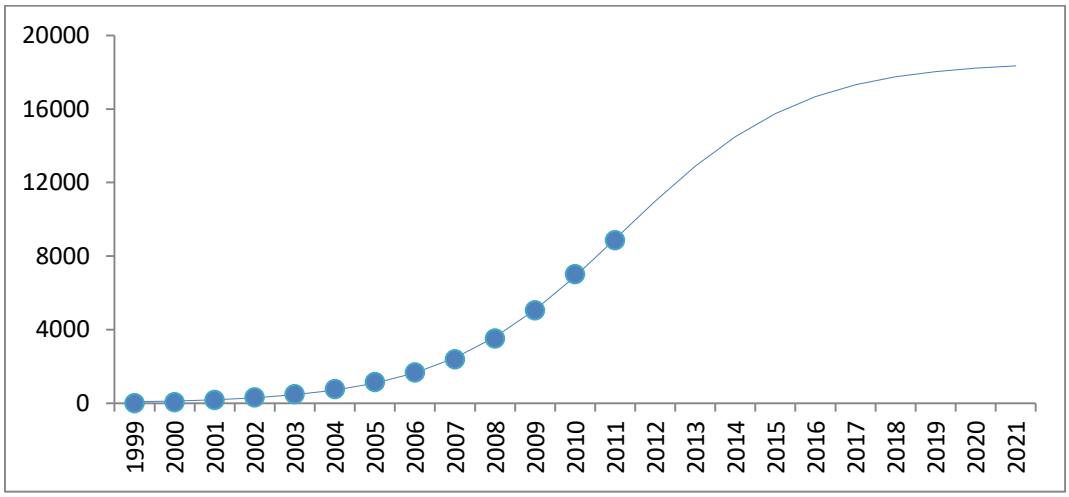
N_0 represents the number of certificates at the starting point;

K is the maximum level that can be reached (the saturation level); and

the initial growth rate is determined by r_0.

Before analysing in depth and by region the evolution of GRI reports in the two sectors (Financial Services and Energy) Figure 4 presents the worldwide evolution of the GRI reports.

Figure 4. Evolution of the logistic curve of the GRI reports



3.2.1. Financial Services

Figure 5 shows that Europe has taken the lead, while Oceania and Africa are the areas with the lowest diffusion of the GRI in this sector.

Figure 5. Evolution of GRI reporting in financial services by region

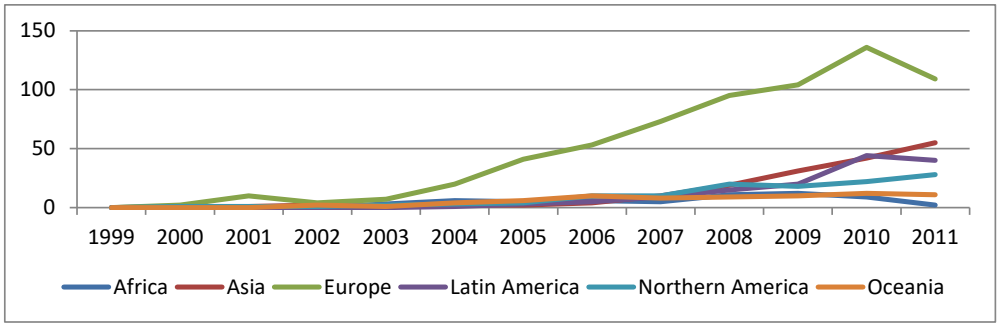
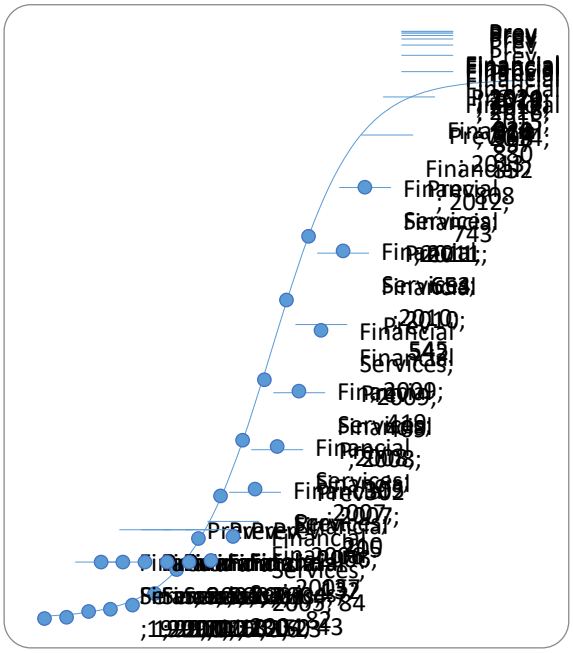


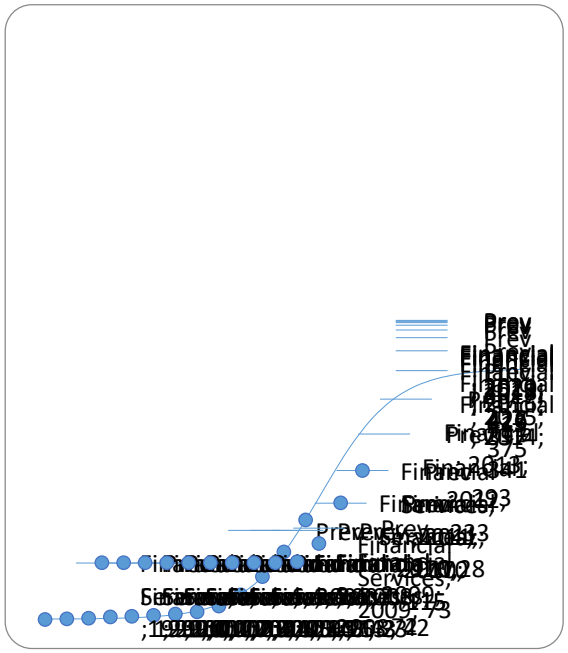
Figure 6 shows that the logistic curve fits with the data and that the same pattern that explains worldwide diffusion in the financial sector also explains diffusion at the local level.

Figure 6. Forecast of GRI reporting in Financial Services by region and statistical application of the logistic curve

EUROPE



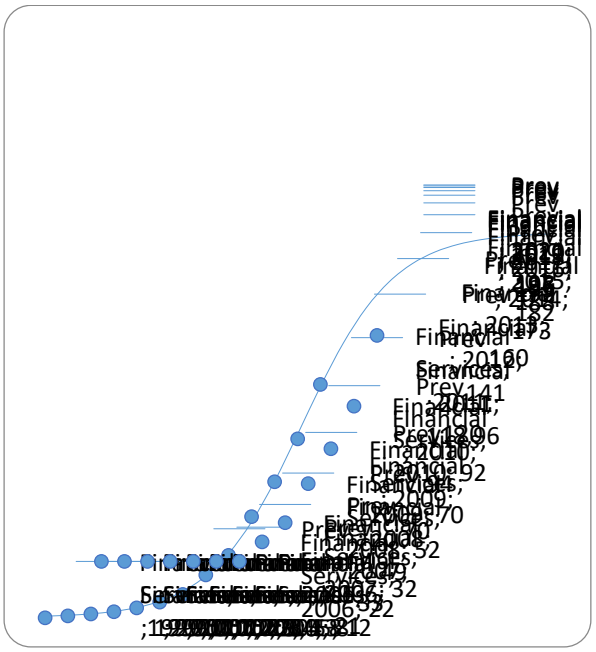
ASIA



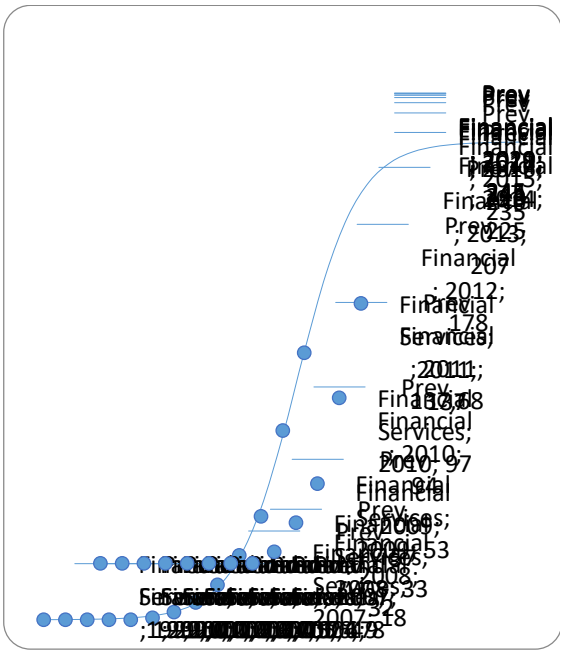
	DF	Sum of squares		DF	Sum of squares
Regression	3	1,057,446	Regression	3	50,061
Residual	10	307.982	Residual	10	30.488
Uncorrected total	13	1,057,754	Uncorrected total	13	50,092
(corrected total)	12	599,784	(corrected total)	12	33,530
R squared	0.999		R squared	0.999	

	Value	LL	UL		Value	LL	UL
N_0	3.632	2.645	4.618	N_0	.233	.104	.361
K	922	849	996	K	428	282	575
r_0	.535	.500	.570	r_0	.592	.529	.655

NORTHERN AMERICA



LATIN AMERICA



	DF	Sum of squares		DF	Sum of squares
Regression	3	32,205	Regression	3	32,465.483
Residual	10	17.924	Residual	10	32.517
Uncorrected total	13	32,223	Uncorrected total	13	32,498
(corrected total)	12	18,718	(corrected total)	12	22,966
R squared	0.999		R squared	0.999	

	Value	LL	UL		Value	LL	UL
N_0	.699	.441	.957	N_0	.056	.008	.105
K	198.409	166	230	K	245	186	303
r_0	.504	.457	.551	r_0	.719	.625	.813

LL: Lower limit of the 95% confidence interval
UL: Upper limit of the 95% confidence interval

The diffusion of GRI reporting in the Financial Sector is growing worldwide; in other words, it is in an expansionist stage (Casadesus et al., 2010). Thus, this sector will continue to adopt this standard because it is still far from reaching its saturation point, which will be reached close to 2017. Thus, the GRI reporting may promote socially responsible management practices in this strongly regulated sector and could improve competitiveness by increasing trust in the sector (Ioannou and Serafeim, 2011).

3.2.2. Energy

Figure 7. Evolution of GRI reporting in the Energy sector by region

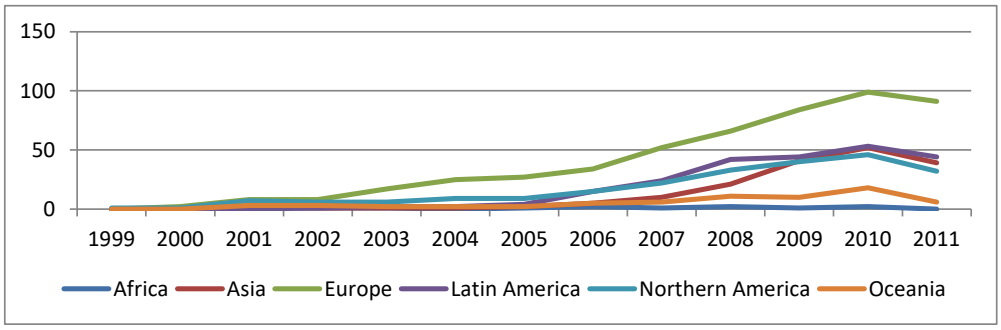
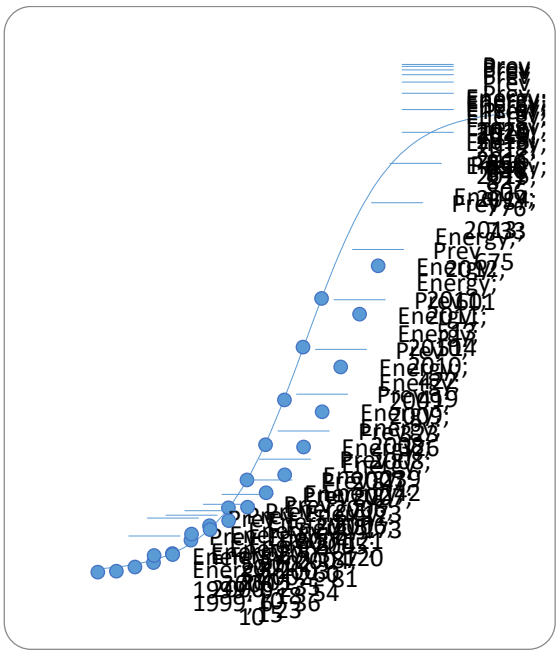
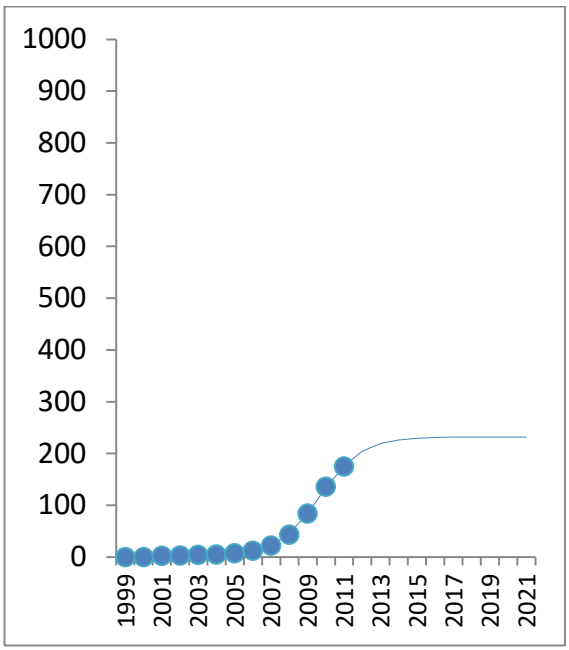


Figure 8. Forecast of GRI reporting in the Energy sector by region and statistical application of the logistic curve

EUROPE



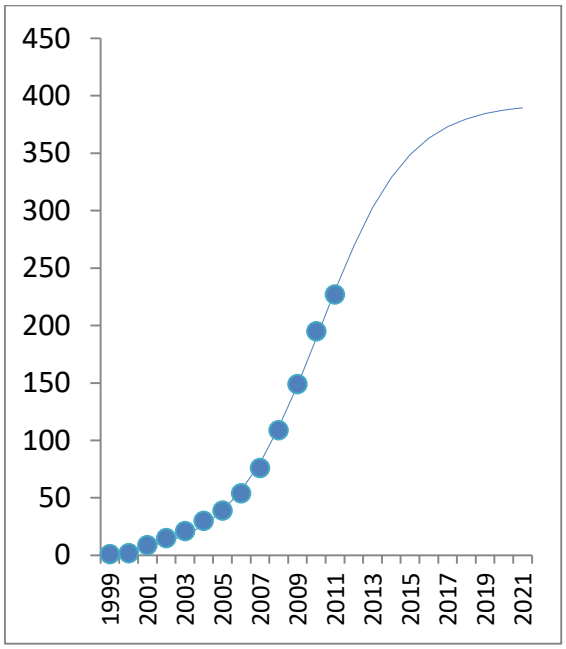
ASIA



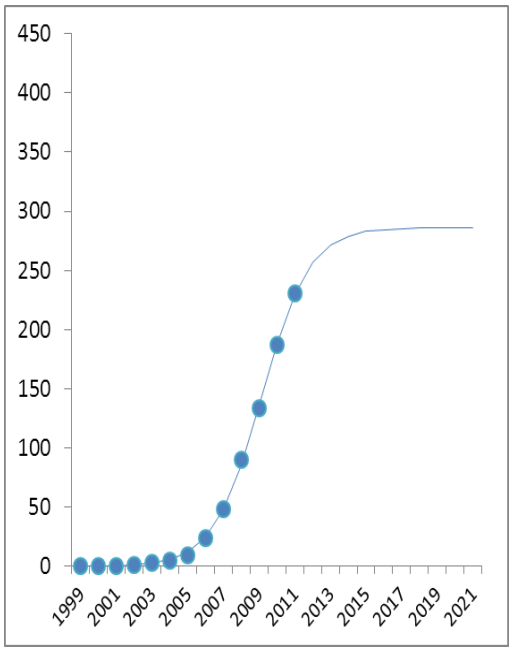
	DF	Sum of squares		DF	Sum of squares
Regression	3	659,843	Regression	3	58,697.852
Residual	10	251.540	Residual	10	59.148
Uncorrected total	13	660,095	Uncorrected total	13	58,757
(corrected total)	12	351,478	(corrected total)	12	40,060
R squared	0.999		R squared	0.999	

	Value	LL	UL		Value	LL	UL
N_0	6.321	4.754	7.888	N_0	.027	.001	.053
K	867.500	748	98	K	231	204	259
r_0	.441	.406	.475	r_0	.852	.747	.956

NORTHERN AMERICA



LATIN AMERICA



	DF	Sum of squares		DF	Sum of squares
Regression	3	135,366	Regression	3	117,343
Residual	10	134.609	Residual	10	38.712
Uncorrected total	13	135,501	Uncorrected total	13	117,382
(corrected total)	12	69,398	(corrected total)	12	76,164
R squared	0.969		R squared	0.999	

	Value	LL	UL		Value	LL	UL
N_0	3.289	2.032	4.546	N_0	.141	.078	.204
K	393	303	482	K	286	269	302
r_0	.427	.373	.480	r_0	.752	.701	.803

LL: Lower limit of the 95% confidence interval
UL: Upper limit of the 95% confidence interval

As it can see in Figure 8 the adoption of the GRI in the energy sector is in its expansionist phase worldwide, but at an advanced stage. This finding is consistent with prior research about energy sector concerns and efforts by the sector to explain environmental improvements in operations and beneficial community activities.

Table 3 compares the behaviour of these two sectors in different geographical areas. Both are at similar stages of saturation worldwide. Both have similar saturation levels (see the tables in figure 4) and equal initial growth rates. The global behaviour of both is very similar. Nevertheless, there are discrepancies at the local level.

In terms of geographical area, diffusion in financial services sector has achieved 65.07% of its saturation worldwide. This is higher than the global average. Marimon et al. (2012) asserted that GRI diffusion had reached a level of 59.5 % worldwide. This finding indicates the importance of

this sector and the need to observe its behaviour (Acosta-Gonzalez et al., 2012). According to Marimon et al. (2012), an in-depth look at Europe revealed that it had reached 50.6 percent of its saturation by 2010. However, as this study shows, diffusion follows a different pattern across geographical areas and sectors.

Nevertheless, in Asia and Latin America, diffusion in the Energy sector has reached a high degree of saturation and thus low growth is expected. This finding is the opposite of what is observed in the financial sector, where more growth is expected in Asia and Latin America. Aforementioned situation occurs because in energy sector Asia and Latin America are close to the maturity while Europe and North America are growing in GRI adoption, as both are below the average saturation point of worldwide diffusion. Therefore, it could therefore be expected that GRI adoption will increase faster in the latter areas than in the former areas, where its adoption could come to a standstill or even decrease if they enter the retrocession stage (Casadesus et al., 2010).
On the other hand, in the financial sector in Latin America and Asia, a high number of new GRI reports is expected in absolute numbers (see figure 6). Figure 7 also shows future potential for the energy sector in Europe to grow from the current number of reports to its saturation level, while in Asia there is a small potential.

Table 3. Accumulated number and saturation level of the logistic curve by sector and region at the end of 2011

		World	**Europe**	**Asia**	**Northern America**	**Latin America**
Financial services	N	1213	654	170	120	137
	%	65.07	74.60	41.73	63.66	58.82
Energy	N	1227	513	175	227	231
	%	62.64	62.24	79.44%	60.74	84.95

3.3. Stability and concentration indices

In addition, to analyse diffusion by sector across regions, two indices have been included in the analysis: the stability and concentration indices.

3.3.1. Stability index

To analyse the stability of the 5 top-ranking sectors in each region in more detail, the present study utilises the index proposed by Llach et al. (2011) and later used by Marimon et al. (2012). The McR index measures instability in terms of position in the ranking, rather than in terms of the quotas or shares of the sectors. It measures changes from one year to another (or, generally, from any one moment in time to another). It is defined as (a) when the number of sectors is even, and (b) when it is odd:

(a) $$McR = \frac{\sum_{i=1}^{n} \left| r_{i,2} - r_{i,1} \right|}{\frac{n^2}{2}}$$

(b) $$McR = \frac{\sum_{i=1}^{n} \left| r_{i2} - r_{i1} \right|}{(n-1)^{*}\left[\frac{n-1}{2}+1\right]}$$

in which:

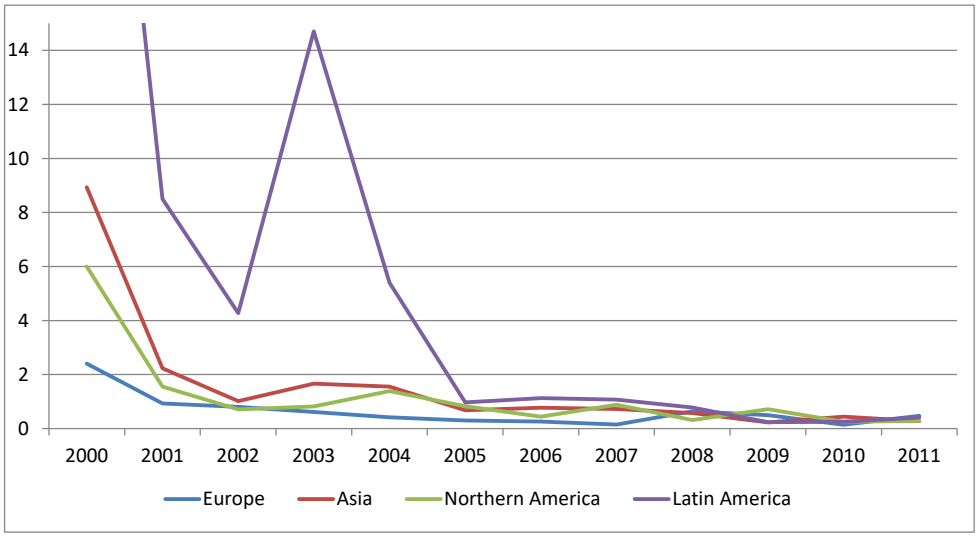
r_{i1} represents the ranking of one specific sector in the first year of the comparison;

r_{i2} represents the ranking of one specific sector in the second year; and

n is the total number of sectors.

By analysing the regional evolution of the McR instability index (see Figure 9), we can confirm that the trend is evolving toward lower values of instability. As Marimon et al. (2012) affirms, the GRI standard is maturing, and over time, the positions in the rankings are becoming more stable. Europe, the leader in GRI reports, has been stable across sectors since the beginning of the century. On the other hand, Latin America did not stabilise until some years later, around 2004. However, all the regions currently have similar levels of stability.

Figure 9. Evolution of the McR instability index from 1999 – 2011 by region



3.3.2. Concentration index

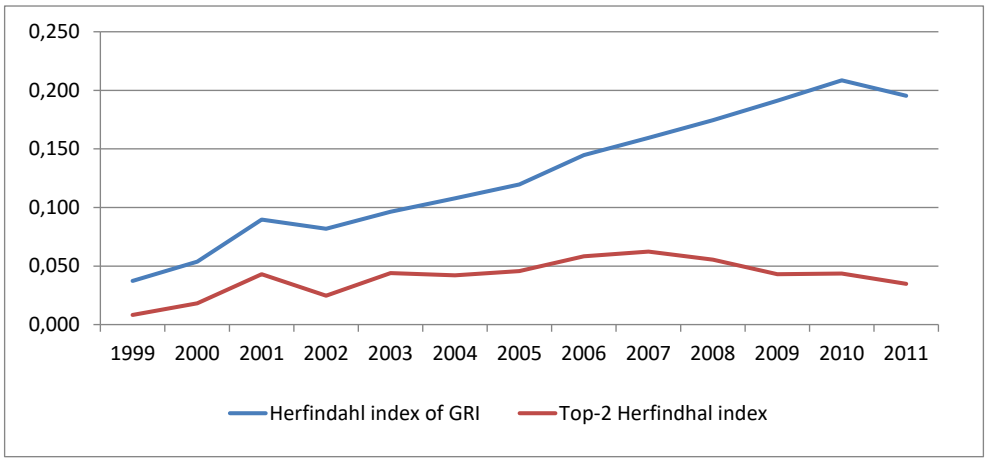
The Herfindahl index was used for the purpose of studying the degree of concentration. Greer (1992) and Cabral (1997) are among those who maintain that this index constitutes a useful means of analysing concentration because it was originally designed to measure the concentration of the market share held by particular suppliers in a market and is defined as follows:

$$H = \sum_{i=1}^{n} s_i^2$$

where s_i is the share of sector i, and n is the number of sectors. The value of H varies between 1/n (minimum concentration) and 1 (maximum concentration).

Figure 10 presents both the evolution of the index for all the sectors and the evolution of the index for just the top 2 sectors (Financial services and Energy). These sectors present a stable evolution throughout the period because they have always occupied the top positions of the ranking, as shown in Figure 2. However, when we analyse the global trend of the concentration index, we realise that this trend has been evolving towards higher values in the past few years. The diffusion of the GRI report in sectors that initially were uninterested in adopting this tool is increasing. This is the case of the telecommunications sector in figure 3.

Figure 10. Evolution of the Herfindahl concentration index in relation to the number of GRI reports



The stabilization and concentration trend of the GRI reports is similar to other standards. Llach et al. (2011) in their study of the worldwide evolution of the ISO 9001 by sector of activity affirm that the evolution of the instability and concentration index of this quality management standard show both a trend towards stability and concentration over time. Marimon et al. (2011) in their study about the evolution of the ISO 14001 and Marimon et al. (2012) regarding GRI worldwide diffusion by geographical area also reach similar conclusions. In all cases, the authors justify this trend due to the fact that most-extended sectors increasingly tend to occupy positions of greater authority, in terms of number of certificates, due to their higher growth rates.

4. DISCUSSION OF THE RESULTS

Many companies could adopt GRI standard reporting. Most of the sectors that are more active in GRI reporting are either characterised by the driving factors defined by Gamerschlag et al. (2011) or undertake more hazardous business activities (Mio, 2010).

The adoption of the GRI standard could be economically important for a number of reasons. First, SRs increase transparency because they provide information that would otherwise not have been disclosed. Second, they can change internal management practices. Third, they can reinforce the relationship between firms and local communities by explaining the contribution of companies to these communities. Finally, SRs could provide early warnings about future mismanagement (Chirstofi et al., 2012).

Following the methodology proposed by Marimon et al. (2006, 2011), this study examines the evolution of the instability and concentration of GRI rankings to compare diffusion across sectors and regions. The findings could shed light on future trends as well as reasons to adopt GRI reporting.

As can be observed in table 2, there are few differences in the sector rankings of GRI reporting adoption among the different geographical areas. The main sectors that have adopted GRI reporting in an effort to be more sustainable are the ones noted by previous research as being more visible, polluting and international. The leaders are the financial services and energy sectors, which have been discussed in detail. Furthermore, the diffusion has been greater among the sectors that have been given sector-specific versions of the Sustainability Reporting Guidelines. This fact therefore reinforces some ideas. As the GRI (2012) advises, specific guidelines provide some benefits. First, they emphasise sector-specific content in the report. Second, they allow for improvements in the sustainability performance of organisations in a sector. Finally, they increase the number and quality of GRI reports in specific sectors. Thus, some sectors, such as Toys, Tobacco or Rail, which currently occupy the bottom of the GRI report rankings due to low GRI reporting adoption, could be targeted due to their specificity for the implementation of sector-specific guidelines to improve their levels of SR reporting.

As previously mentioned, the financial services sector has been in the lead in recent years. A number of authors in both developed and developing countries have noted that companies in the banking sector have the highest ranking in terms of sustainability reporting (Outtes Wanderley et al., 2008; Noronha et al., 2012; Marimon et al., 2012) mainly because their stakeholders are especially sensitive to these issues (Bravo et al., 2012).

The financial sector map is changing, partly due to the current crisis that has brought out some of the “bad” practices that some banks have been using for years (Acosta-Gonzalez et al., 2012):

subprime loans, lack of control, politicised boards of directors and risky investments. Thus, the market's distrust of financial services could explain GRI adoption as a means of gaining trust and developing closer relations with the sector's main stakeholders (Callan and Thomas, 2009). The financial sector has lost an average of over 50 % of its stock value since the financial crisis began. For this reason, it needs to regain market credibility and attract new investors, and GRI reporting could help it to construct a new identity defined by legitimate behaviours and an improved image (Bravo et al., 2012).

Since the beginning of the crisis, GRI diffusion in the financial services sector has sped up in all the analysed geographical areas except Asia. Surprisingly, in North America, GRI adoption in this sector has been wide-spread, unlike in other sectors, given that Northern America exhibited the lowest growth rate in terms of the number of enterprises reporting to the GRI. This fact could indicate that financial services firms are making an effort to deliver value to all their stakeholders (Levy et al., 2010). Thus, it can be concluded that, because the current crises originated in these areas, companies in Europe and Northern America need to clean up their images, achieve market trust and attract or maintain investors. These outcomes are also supported by previous research in the adoption of CSR and environmental activities (see Konrad et al., 2006; Gilbert and Rasche, 2007; Delmas and Toffel, 2008; Waddock, 2008; Perez-Batres et al., 2010).

In the case of Latin America, the opposite occurs: the geographical area has a higher saturation level that the sector. This could be caused by the fact that financial services firms are mainly from Europe and North America and can therefore use one GRI report to disclose their global CSR activities without having to issue country-specific reports (Outtes Wanderley et al. 2008).

Asia shares the same situation as Latin America, but for other reasons. The financial services industry in this area seems to be healthy, even helping other geographical areas during the current crisis and continuing to grow and attract capital flows during the past decade. These characteristics suggest little concern about voluntary disclosure of CSR and environmental management activities, as reported in previous research (Saleh, 2009; Noronha et al., 2012).

Thus, this finding confirms differences in stages of adoption, therefore showing that diffusion may also follow another pattern if new causes, such as changes in the environment, affect the motivation to disclose more information, as in the financial services sector (Welford, 2004; Prado-Lorenzo et al., 2009; Delmas and Toffel, 2008; Tsang et al., 2009; Marimon et al., 2012).

The energy sector has been experiencing significant growth and economic importance worldwide. Thus, it is essential to note how companies in this sector are working to reduce their environmental damage and contribute to the community. A number of authors have noted that energy has been among the leading industry sectors in championing CSR activities by publishing social reports

and showing environmental sensitivity (Brammer and Pavelin, 2008; Gamerschlag et al., 2011; Frynas, 2010; Mio, 2010; Mitchell and Hill, 2009; Marimon et al., 2012).

This study suggests that the adoption of the GRI in the energy sector is in its expansionist phase worldwide, but at an advanced stage.. It could therefore be expected that GRI adoption will increase faster in Europe and North America than in the Asia and Latin America areas, where its adoption could come to a standstill or even decrease if they enter the retrocession stage (Casadesus et al., 2010).

The differences in GRI reporting adoption among geographical areas in the energy sector can be explained by a number of reasons. First, the strong regulation of this sector in Europe and North America could cause it to use channels other than voluntary disclosure to build close relationships with stakeholders. Second, as consequence, the lack of or weak regulation in the other regions acts as a driver for the adoption of GRI standards (Konrad et al., 2006; Gilbert and Rasche, 2007; Delmas and Toffel, 2008; Waddock, 2008; Perez-Batres et al., 2010). In fact, in Latin America and Asia, this sector has been accused of environmental devastation and the creation of unhealthy conditions for the communities located where companies operate. Thus, activists could be pressuring companies to emphasise their strategic environmental and social actions (Konrad et al., 2006). Third, developing countries could be focussing on complying with basic international requirements related to environmental and social issues, such as human rights, and may adopt GRI reporting to communicate their advances and legitimate their activities (Bravo et al., 2012). Finally, this sector required a huge amount of investment, so GRI reporting could be a way of ensuring that the company is doing the right things to attract investors (Callan and Thomas, 2009), which could be especially effective when certified by a third party.

In summary, although there could be saturation among some pioneering sectors, this is not yet the case in either the financial services or energy sectors. Therefore, GRI reporting adoption can be expected to increase in the next years in all sectors, including the ones where higher adoption has already occurred, although most likely with a different level of intensity. These findings also reinforce the idea that certain drivers, such as environmental and market conditions, external pressures or the search for investors, can accelerate or slow the adoption of this standard, which is used to develop closer and more trusting relations with stakeholders.

5. CONCLUSIONS

The findings of this study provide a number of general and specific conclusions that deserve more detailed explanation.

First, this study has found that GRI is growing in particular sectors, while its adoption is almost nonexistent in other sectors. Marimon et al. (2012) suggest that the decision to participate in this initiative may be informed by internal and external motivations. Internal motivations could include ignorance on the part of the companies, the cost and complexity of reporting and even the lack of specific CSR developments in a company. External motivations could include low incentives from the market to spend internal resources on this type of communication due to its poor visibility and influence (Levy et al., 2010).

Second, the adoption of the GRI has occurred earlier and more rapidly in those sectors that place the environment and society at increased risk and that have higher visibility in capital markets (Callan and Thomas, 2009). This pattern is consistent with other international standards as well, such as ISO 14001 (Llach et al., 2011). Notwithstanding, this study also notes that some emergent sectors, such as public agencies and non-profit organisations, are starting to adopt GRI reporting (see table 2) in both developed and developing countries. This finding could be consistent with the needed that organizations feel to legitimate their behavior and existence and SRs could act as a just explanation (Vormedal and Ruud, 2009).

Third, this last trend suggests that the GRI standards must become more flexible to accommodate the perspectives of different sectors (Marimon et al. 2012). Some specific standard indicators in one sector could be inadequate for others (e.g., public agencies). Therefore, more sector-specific guidelines should be developed with the aim of creating a common language that can be used by others to form judgments about reported performance, and that, over time, can lead to the emergence of a societal consensus about what constitutes acceptable norms of sustainability behaviour in a specific sector (Brown et al., 2009). Moreover, some promotional actions in some sectors, such as Toys, Tobacco or Rail, which are at the bottom of the ranking with less than ten reports, could be useful to promote their GRI reporting adoption.

Fourth, GRI is continually evolving. For this reason, GRI is developing its fourth generation of Sustainability Reporting Guidelines, which will be launched in May 2013. As GRI (2012) assures "*These Guidelines' development is influenced by changes in the reporting field, such as the introduction of new concepts, trends and tools, and requests by new players. GRI believes that G4 will improve sustainability reporting guidance by making it more focused, helping reports be more relevant"*. In other words, as Marimon et al. (2012) noted, these new guidelines will redesign the format to offer major comparability between sectors and countries.

In addition, some implications for public policy could be pointed out. GRI could act as a soft law (Vormedal and Ruud, 2009) given that mandatory reporting seems not produce satisfied results due to companies fails to provide useful and detailed information (Kolk, 2008). Thus, these authors recommended strengthen joint efforts by national governments, international

organizations and firms to compromise with sustainability. Moreover, it can add that these efforts demand a stronger monitoring about the quality of the information provided to gain in credibility and in-deph study of benefits achieved (Fifka and Drabble, 2012). One way to do so, it is by means of external verification of the report. External verification helps to asses quality, continuous improvement, responsibility and enhance credibility (Kolk, 2008).

With regard to companies, Brammer and Pavelin (2008) advices that there are big differences among the quality of SRs. This situation supposes a problem because the information is not suitable and, therefore, lack of transparency could produce distrust. In this sense, GRI reporting makes comparable the information inside a same sector and contribute to measure real efforts in achieving sustainability. For these reasons GRI reporting suppose an advanced step, especially given that cultural and socio-economic factors seem to have a limited impact in its adoption (Fifka and Drabble, 2012). In addition, GRI provides benefits for both market and companies. For market, companies adopting GRI reporting disclose a higher level of information (Galani et al., 2012). As consequence companies could receive a significant premium in financial markets (Schadewitz and Niskala, 2010; Berthelot et al., 2012) and be used as a tool to address reputational risk (Legendre and Coderre, 2012). Moreover, GRI reporting could consider an internal organizational learning tool (Hedberg and von Malmborg, 2012). But more international support is required to continue its growing adoption.

Finally, it seems clear that companies want their efforts to be more transparent. However, there is still little evidence about the role and impacts of SRs on stakeholders. Therefore, research should focus on exploring this issue in more depth. According to this line of reasoning, Asif et al. (2011) asserted that top-down integration of stakeholder demands and company strategy and operations is needed to achieve sustainability. Previous research has considered the benefits of adopting other standards and has highlighted the joint effects of the adoption of an integrated management system. Considering this research, it would be interesting to measure the impact of the integration of management standards and SR standards into a company's integrated management system both inside the company and on stakeholders (Reynolds and Yuthas, 2008).

These ideas should be taken into account for future research. Another possible line of future research might include an in-depth study of business cases with the purpose of analysing the motives for and impacts of the adoption of social standards.

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