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ScienceDirect

The International Journal of Accounting 49 (2014) 231 – 247

The International Journal of Accounting

Mandatory Environmental Disclosures by Companies Complying with IASs/IFRSs: The Cases of France, Germany, and the UK☆

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Received 30 November 2011
Available online 13 May 2014

Abstract

This study investigates whether the adoption of a single set of accounting standards, such as IASs/IFRSs, guarantees the harmonization of accounting practices within a country and across countries, or whether differences in reporting practices persist because of dissimilarities in reporting habits and institutional settings. To this end, we investigate whether the level of environmental disclosure under IFRSs is related to the size of the reporting firm, and the strength of legal and regulatory constraints on environmental disclosures in the country where the firm is domiciled. Results indicate (1) that environmental disclosures imposed by IFRSs increase with firm size, and (2) that firms domiciled in countries with constraining environmental disclosure regulations (i.e., France and the UK) report more on environmental issues than firms domiciled in countries with weakly constraining regulations (i.e., Germany). This suggests a strong impact of national regulations on IFRS reporting. Taken as a whole, our results support the view that IFRSs are not applied consistently across firms and across countries, notably because of persistence of reporting traditions and discrepancies in national legal requirements.

☆ This research was funded by the University of Grenoble (IAE and CERAG/CNRS) and the Romanian National Research Council (CNCSIS) PN2-IDEAS Code 1859, contract no. 837/2009.

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http://dx.doi.org/10.1016/j.intacc.2014.04.003
0020-7063/

JEL classification: M14 Social Responsibility; M41 Accounting
Keywords: Environmental disclosure; Environmental accounting regulations; International Accounting Standards/International Financial Reporting Standards (IASs/IFRSs); France; Germany; UK

1. Introduction

The accelerated process of globalization, increased interdependence of financial markets, and high capital mobility have all contributed to increased awareness of the necessity for a common set of accounting standards. In light of this, IASs/IFRSs were adopted to enhance financial statement comparability across firms. However, opportunities and motives for differences in financial reporting remain due to the flexibility provided by accounting standards and because of differences in reporting traditions and national legal, taxation, and financing systems.

To determine whether reporting habits and national characteristics may affect environmental information reported by firms complying with IASs/IFRSs, we took three steps:

1. We analyzed all IASs/IFRSs and IFRIC to create a grid aimed at calculating a score quantifying the environmental information available in financial statements.
2. We analyzed the regulatory environmental framework prevailing in France, Germany, and the UK, the three countries under study, to determine the magnitude of the non-accounting information requirements imposed by environmental regulations in each country.
3. We used regression techniques to determine whether environmental disclosure scores differ depending on the country where the reporting firm is domiciled (i.e., a proxy for the strength of national regulations), and the size of the reporting firm (i.e., a proxy for its reporting habits concerning environmental disclosures).

This paper is divided into seven parts. The next part introduces the literature review to demonstrate the contribution this article makes to the literature. The third part presents the environmental regulatory framework of the three countries and the hypotheses. The fourth part explains the sample. The fifth presents the creation of our environmental information grid and the empirical models used to test the hypotheses. The sixth part discusses the results. The last section provides interpretations and draws conclusions.

2. Literature on determinants of environmental disclosure

As suggested by Ball, Robin, and Wu (2003), Ball (2006), Nobes (2006), Bradshaw and Miller (2008), Holthausen (2009), and Kvaal and Nobes (2010), the adoption of a single set of accounting standards does not systematically ensure comparability of financial statements. The suggested reasons for persistent differences in financial reporting notably include differences in national regulations and in reporting traditions. Therefore, compliance with IAS/IFRS environmental requirements may differ across countries because of national environmental disclosure regulation differences, and across firms because of differences in reporting practices.

Until the late 1980s, there was no great need for environmental disclosure (Milne & Chan, 1999; Solomon & Solomon, 2006). Investors started attaching importance to environmental information from the 1990s (De Villiers & Van Staden, 2010; Deegan & Rankin, 1997; Epstein

& Freedman, 1994; Goodwin, Goodwin, & Konieczny, 1996). Corporate environmental information then became a topic of considerable research that was notably aimed at investigating the factors affecting voluntary environmental disclosure.

This research has provided unambiguous results regarding the positive impact of both firm size and exposure to environmental risk on voluntary disclosures. Patten (1992) in the US, Gray, Kouhy, and Lavers (1995) in the UK, Hackston and Milne (1996) in New Zealand, Deegan and Gordon (1996) in Australia, Richardson and Welker (2001) in Canada, Cormier and Magnan (2003) and Cormier, Magnan, and van Velthoven (2005) in France and in Germany, Gao, Heravi, and Xiao (2005) in Hong Kong, and Liu and Anbumozhi (2009) in China have all shown a positive relationship between firm size and corporate environmental disclosure. Gamble, Hsu, Kite, and Radtke (1995), Deegan and Gordon (1996), Frost and Wilmshurst (2000), Gray, Javad, Power, and Sinclair (2001), Freedman and Jaggi (2005), Gao, Heravi, and Xiao (2005), and Liu and Anbumozhi (2009) have found evidence indicating that environmental disclosures are industry-specific: environmentally-sensitive companies are more likely to release environmental information than are less sensitive companies.

Finally, research recognizes that environmental disclosures are country specific. They depend on the legal, social, financial, cultural, and political contexts in which the company operates (Adams, Hill, & Roberts, 1998; Adams & Kuasirikm, 2000). All these studies observe the voluntary disclosure of environmental information, without taking into consideration the requirements set by accounting standards in general and IASs/IFRSs in particular.

Branco and Rodrigues (2007) analyze the state of the literature on corporate and environmental reporting from diverse methodological and theoretical standpoints. Baker and Barbu (2007) identify over 200 articles, from the 1960s to 2005 (i.e., the year of IFRS implementation in Europe), related to international accounting harmonization and IAS/IFRS application. These two literature reviews suggest that to date, no study has linked environmental reporting to the mandatory implementation of IASs/IFRSs. For that reason, we try to identify in international accounting standards all means that could be used by companies to present environmental information (our grid), and we use it to analyze the level of environmental information by country and by company size.

3. Regulatory environmental frameworks in the UK, France, and Germany and hypotheses

As suggested by Nobes (2006), national accounting traditions are likely to continue influencing financial reporting behavior despite the generalized adoption of IASs/IFRSs, notably because of cross-country differences in national regulations and legal systems. Firms in countries with constraining regulations regarding environmental disclosure can therefore be expected to comply more closely with environmental requirements of IFRSs than firms domiciled in countries with less constraining regulations.

In several countries, various regulations impose corporate reporting requirements concerning environmental issues. This section explores the regulation on mandatory environmental reporting for publicly-listed companies in the UK, Germany, and France.

In the UK, the Companies Act of 1985 forced all listed companies to publish an annual operating and financial review (OFR) that had to include information on significant corporate environmental impacts. These disclosure requirements were extended to large non-listed companies by the Companies Act of 2006, which imposed disclosure of key environmental performance indicators in the Business Review section of annual reports. However, the Companies Act gives managers considerable discretion in the information to be disclosed, which potentially undermines the integrity of the reported information (Williamson & Lynch-Wood, 2008).

In France, the regulation entitled "Nouvelles Régulations Economiques" (New Economic Regulations) was enforced in 2002. This regulation states that all listed companies have to provide information on the environmental impact of their operations in their annual reports. The legal obligation concerns reporting, yet there is no specific constraint on the type of information to be released. The Second Grenelle Act of 2009, applicable from 2011, extends environmental reporting to any polluting activity initiated by companies with more than 500 employees. The mandatory disclosures cover both financial information and non-financial information, and refer to the environmental impact of a company's operations (air, water, emissions, energy, materials), as well as to the firm's commitment to environmental protection, remediation, and limitation of adverse consequences of economic activities on the natural environment.

In Germany, there is no specific regulation on environmental disclosure. However, in 1997, the National Institute for Standard-Setting (DeutcheInstitut Fur Normierung) issued a memo entitled "Leitfadenfür Umweltberichte" (Guidelines for Environmental Reports to the Public). This guide, which was later repealed, established the minimum amount of information to be included in corporate environmental reports.

Table 1 synthesizes the main characteristics of the environmental disclosure regulations in the three countries under study. While France and the UK have promulgated regulations on environmental information that apply to listed and large non-listed companies, Germany only has disclosure guidelines. They are, however, applicable to all entities, irrespective of their size. Moreover, while environmental information is mandatorily an integral part of annual reports in France and the UK, the German guidelines recommend release of separate environmental reports.

If environmental disclosures are more regulated in France and the UK than in Germany there are, nevertheless, significant differences between these first two countries. The French standards provide a comprehensive list of environmental information to be disclosed by target companies. Conversely, British managers have broad discretion when selecting information to be included in the Business Review section of their annual reports. Furthermore, it is worth noting that there is no obligation for auditing environmental information in any of the countries under study.

As suggested earlier, empirical research provides clear evidence on the positive impact of firm size on the magnitude of voluntary environmental disclosure. Larger firms, with long traditions of providing extensive information on environmental issues, are likely to comply more closely with environmental IAS/IFRS requirements than are smaller firms. By positing that environmental disclosure helps firms alleviate political and social pressure related to environmental issues (which increases with firm size and with exposure to environmental risk), the stakeholder theory and the legitimacy theory provide arguments

Table 1
Environmental regulations in the UK, France and Germany.

	UK	France	Germany
Legal framework	Environmental Protection Act (1990) Environment Act (1995) Companies Act (1985) Companies Act (2006)	Nouvelles Régulations Economiques (2001) Grenelle 1 Act (2008) Grenelle 2 Act (2009)	Guidelines for environmental reports for the public (1997) — now repealed
Target firms	Listed and large non-listed companies	Listed companies and firms with more than 500 employees	All companies
Minimum information requirements	– Environmental matters (including the impact on the environment); – To the extent necessary for an understanding of the development, performance, or position of the company, the review must include, where appropriate, analysis using key performance indicators including information relating to environmental matters	– Environmental aspects (consumption and emissions): water, raw materials, energy, greenhouse gas emissions, toxic waste; – Preventive measures for environmental protection; – Certification and implementation of dedicated management systems; – Legal compliance and anticipation of legal changes; – Expenses incurred for environmental remediation measures; – The existence of specialized internal services for environmental assessment; – The recognition of provisions for risks and charges; – The rules imposed to subsidiaries overseas, regarding all the above elements; – The centralized coordination of these requirements at board level	– Basic information block: a description of the organization's activities, a presentation of the organization's environmental policy and program, a description of the organization's environmental management system; – Presentation of significant environmental figures; – Assessment of all significant environmental issues; – Declaration of formal requirements
Disclosure document	Annual report	Annual report	Specific environmental report
Target audience	Shareholders, investors, lenders	All stakeholders	All stakeholders
Verification/ audit requirements	The auditors must state in their report on the company's annual accounts whether the information given in the directors' report is consistent with those accounts.	The present requirements do not include a specific certification of environmental information other than that usually provided by the financial auditors of the firm.	Providing specialized assurance for environmental reports is not required, but it is recommended.

for the positive association of environmental disclosure with firm size and environmental sensitivity.

Conforming to this idea, we propose the following hypothesis:

H1. *Ceteris paribus*, compliance with the environmental requirements of IASs/IFRSs, is positively related to size.

Our previous analysis indicates that Germany is the country with the least constraining regulation on environmental disclosures. Therefore, in conformity with the idea that IAS/IFRS compliance depends on the regulatory environment of reporting firms, we state the following hypothesis:

H2. *Ceteris paribus*, compliance with the environmental requirements of IASs/IFRSs, is stronger in countries with constraining regulation on environmental disclosure, i.e., the UK and France, than in countries with less constraining regulations, i.e., Germany.

4. Sample

The sample consists of large German, French, and UK listed companies that are potentially concerned with environmental issues and are included in the Stoxx 600. We selected large companies because they are exposed to greater stakeholder pressure. They are therefore expected to be more thorough in satisfying their disclosure requirements than smaller companies. The three countries were selected because of their tradition in environmental protection. Moreover, the UK, France, and Germany represent the largest European economies. Their contribution to the European Union's budget amounts to approximately 48% of the total.

At the same time, these three countries are the largest polluters in the EU. They account for a cumulative 43% of total EU-27 greenhouse gas emissions (EEA, 2010). Finally, the companies under study belong to the five super-sectors within the Dow Jones and Stoxx classifications that are expected to be the most exposed to environmental issues. These sectors are basic materials, technology, healthcare, industrials, cyclical consumer goods,

Table 2
Number of firms in the sample per country and industry.

	France	Germany	United Kingdom	Total per industry
Basic materials (BM)	6	10	8	24
Technology (Tech)	3	4	4	11
Healthcare (Health)	3	6	3	12
Industrials (Indus)	18	8	13	39
Cyclical Consumer Goods and Services (CCGS)	11	7	10	28
Total per country	41	35	38	114

and services. There are 35 German companies, 41 French ones, and 117 British firms in the Stoxx 600 that belong to the selected super-sectors. We randomly selected 38 British companies to obtain a sample for the UK that is roughly the same size as the samples for Germany and France. The sample is described in Table 2.

5. IAS/IFRS disclosure index and empirical models

To determine whether substantial differences persist in environmental reporting practices, our research links environmental disclosures, which became mandatory following the adoption of IASs/IFRSs, to the environmental regulation in the country where the firm is domiciled. This requires the use of a disclosure index aimed at quantifying the environmental information.

To build this index, we analyzed all IASs–IFRSs and IFRIC to identify instruments or information for the recognition, measurement, and disclosure of environmental issues. This identification helped us create a grid of environmental information that we used to analyze the 2007 financial statements of the 114 selected German, French, and UK companies and to quantify their mandatory environmental disclosures complying with IASs/IFRSs.

Our analysis of IASs/IFRSs shows that no international standard is exclusively dedicated to environmental information, but environmental issues are mentioned in several standards and interpretations. They deal directly or indirectly with the recognition, measurement, and disclosure of environmental expenses, assets, and liabilities.

The analysis of IASs/IFRSs helps us propose a disclosure index including 12 disclosure items listed in Table 3. The information relative to each item is divided into a monetary and a descriptive component that is coded as disclosed or not disclosed. For each firm in the sample, based on these 12 items, we computed an un-weighted compliance score for both monetary information and descriptive information. The compliance score corresponds to the number of mandatory disclosures actually provided by a firm. The maximum possible score for each component is 12, with a total possible combined score of 24.

Since all firms are not identically implicated in environmental matters, in addition to the overall score based on the 12 items described in Table 3, we also calculated a restricted score based on four items (environmental tangible assets, environmental provisions, environmental expenses, and environmental contingent liabilities), assuming that regarding these items, most firms have descriptive or monetary information to provide.

To determine whether national environmental disclosure regulations and firm size affect corporate compliance with IAS/IFRS environmental requirements, we first estimate the following model:

$$\mathrm{DISC} = \alpha_0 + \alpha_1 \mathrm{LnTA} + \alpha_2 \mathrm{EE} + \alpha_3 \mathrm{FR} + \alpha_4 \mathrm{GER} + \varepsilon \quad (1)$$

where

DISC	IAS/IFRS disclosure environmental disclosure index
LnTA	natural logarithm of total assets
EE	dummy variable equal to 1 if the firm is environmentally sensitive
FR	dummy variable equal to 1 if the firm is French
GER	dummy variable equal to 1 if the firm is German.

Table 3
Environmental reporting grid related to IASs/IFRSs.

Items [a]	IASs/IFRSs with direct influence on items [b]	Monetary information	Descriptive information
1. Intangible assets with exploration of mineral resources	IFRS 6, IAS 36		
2. Emission rights assets	IAS 38, IAS 36		
3. Concessions, licenses, trademarks, and similar items	IAS 38, IAS 36		
4. Other intangible assets	IAS 38, IAS 36		
5. Tangible assets*	IAS 16, IAS 36		
6. Tangible assets with exploration of mineral resources	IFRS 6, IAS 36		
7. Inventories (waste)	IAS 2		
8. Environmental provisions (provision for dismantling, removal of assets and the site restoration; provision for CO_2 emissions; provision for insurance, environmental litigation, etc.)*	IAS 37 IFRIC 5 IFRIC 6 IFRIC 1		
9. Emission rights governmental grant	IAS 20		
10. Fines and taxes for environmental purposes	IAS 37		
11. Other environmental expenses*	IAS 8, IAS 38, IFRS 6		
12. Contingent liabilities and assets*	IAS 37		

[a] The overall disclosure index (overall score) is based on the 12 items listed in the table. The restricted score is based on the four items marked with an asterisk (*).

[b] Other standards used in financial reporting and having an indirect influence on environmental reporting are: IAS 1 *Presentation of Financial Statements*; IFRS 8 *Accounting Policies, Changes in Accounting Estimates and Errors*; IAS 10 *Events after the Balance Sheet Date*; IFRS 3 *Business Combinations*; and IAS 12 *Income Taxes*. Several standards are not used in our study because the sample does not ask for standards concerning financial instruments (IAS 32, IAS 39, IFRS 7, IFRS 9) or biological assets (IAS 41).

The dummy variable characterizing environmentally-sensitive firms (EE) aims to control firm exposure to environmental issues. All things being equal, environmentally-sensitive firms are likely to report more environmental information than those firms that are less environmentally sensitive. To split the sampled firms between those that operate in environmentally-sensitive industries and those that do not, we used the same criteria as Deegan and Gordon (1996), Richardson and Welker (2001), and Cho and Patten (2007). Firms with strong environmental exposure are those with a primary SIC code of 10XX (metal mining), 12XX (coal and lignite mining), 13XX (oil exploration), 26XX (paper), 28XX (chemical and allied products), 29XX (petroleum refining), 32XX (glass), 33XX (metals), and 45XX (air transportation). Our sample is comprised of 33 environmentally-sensitive firms and 81 environmentally non-sensitive ones.

According to hypothesis H1, IAS/IFRS compliant environmental disclosure should increase with firm size. Therefore, the null hypothesis H1 will be rejected if α_1 is positive. According to hypothesis H2, German firms are expected to provide less environmental

information than British ones. Therefore, the null hypothesis H2 will be rejected if α_4 is positive. As German firms are also expected to provide less environmental information than French ones, the null hypothesis H2 will be rejected if $(\alpha_3 - \alpha_4)$ is negative. Finally, because of the positive impact of environmental exposure on environmental disclosure, α_2 is expected to be negative.

Since compliance with IAS/IFRS environmental disclosures is of primary importance for firms strongly exposed to environmental issues, we also estimate the following model:

$$DISC = \beta_0 + \beta_1 LnTA + \beta_2 FR + \beta_3 GER + \beta_4 EEXFR + \beta_5 EEXGER + \beta_6 EEXUK + \varepsilon \quad (2)$$

where EEXFR, EEXGER, and EEXUK are interaction dummy variables that equal to 1 if the firm is environmentally sensitive and respectively French, German, and British. The other variables are the same as in the previous model.

β_0, β_2 and β_3 capture differences in environmental disclosure for environmentally non-sensitive firms. β_4, β_5 and β_6 capture differences in environmental disclosure for environmentally-sensitive firms. Since environmentally non-sensitive firms are not expected to report environmental information intensively, β_0, β_2, and β_3 are not expected to differ significantly. In contrast, regarding environmentally-sensitive companies, the null hypothesis H2 will be rejected if $(\beta_4 - \beta_5)$ is negative, since French firms are not expected to disclose more IFRS compliant environmental information than German firms. In the same way, British firms being expected to disclose more than German ones (H2) will be rejected if $(\beta_5 - \beta_6)$ is positive. The null hypothesis H1 will be rejected if disclosure scores decrease with firm size, i.e., if β_1 is negative.

Table 4
Number of firms providing environmental information in compliance with IASs/IFRSs.

Items	Germany	France	UK	Descriptive	Monetary	Total
1. Intangible assets with exploration of mineral resources	0	3	4	6	1	7
2. Emission rights assets	2	9	2	9	4	13
3. Concessions, licenses, trademarks, and similar items	2	1	0	1	2	3
4. Other intangible assets	1	0	0	1	0	1
5. Tangible assets	0	4	6	7	3	10
6. Tangible assets with exploration of mineral resources	1	4	8	8	5	13
7. Inventories (waste)	0	1	1	2	0	2
8. Environmental provisions	35	23	35	49	44	93
9. Emission rights governmental grant	0	8	0	6	2	8
10. Fines and taxes for environmental purposes	0	1	2	3	0	3
11. Other environmental expenses	4	14	6	16	8	24
12. Contingent liabilities and assets	5	11	8	20	4	24
Total	50	79	72	128	73	201

6. Results

Table 4 provides a breakdown of environmental disclosure scores per item and per country for both descriptive information and monetary information. The sum of disclosure scores is higher for French and British firms than for German ones, 79 and 72 vs. 50. The sum of disclosure scores for descriptive information is much higher than the one for monetary information, 128 vs. 73. It is worth noting that environmental matters are primarily reported through provisions and, to a lesser extent, through contingent assets–liabilities and environmental expenses. In contrast, the information related to intangibles other than exploration of mineral resources, wastes, and environmental fines and taxes is extremely rare.

Table 5 presents a breakdown of the sampled firms by the number of environmental items covered. It is worth noting that most of the sampled firms do not report IAS/IFRS compliant environmental information. Half of the firms do not report any environmental

Table 5
Breakdown of sampled firms by number of environmental items covered.

# of items	France	Germany	UK	Environmentally non-sensitive firms	Environmentally sensitive firms
Panel A: Descriptive information					
Breakdown of firms by number of items					
6	1	0	0	0	1
5	0	0	0	0	0
4	2	1	0	1	2
3	0	0	0	0	0
2	3	2	7	2	10
1	8	13	10	22	9
0	27	19	21	56	11
Total	41	35	38	81	33
Proportion of firms by number of items					
3 to 6	0.073	0.029	0.000	0.012	0.091
1 to 2	0.268	0.429	0.447	0.296	0.576
0	0.659	0.543	0.553	0.691	0.333
Panel B: Monetary information					
Breakdown of firms by number of items					
7	1	0	0	0	1
6	0	1	1	0	2
5	4	0	1	1	4
4	0	0	2	0	2
3	3	0	5	4	4
2	4	4	4	7	5
1	7	15	6	19	9
0	22	15	19	50	6
Total	41	35	38	81	33
Proportion of firms by number of items					
6 to 7	0.024	0.029	0.026	0.000	0.091
3 to 5	0.171	0.000	0.211	0.062	0.303
1 to 2	0.268	0.543	0.263	0.321	0.424
0	0.537	0.429	0.500	0.617	0.182

information at all. Sixty-six percent of French firms, 54% of German firms, and 55% of UK firms do not report descriptive information. Fifty-four percent of French firms, 43% of German firms, and 50% of UK firms do not report monetary information. German firms report the highest quantity of descriptive information: 45.8% of them provide more than one type of narrative information, compared with 34.1% for French firms and 44.7% for UK firms.

However, French and UK firms are those that provide the higher volume of monetary information. Twenty-three-point-six percent of UK firms and 19.5% of French firms give more than three types of narrative information, versus 2.9% of German firms. Not surprisingly, the 81 environmentally non-sensitive firms are those that disclose the least: 69% of these firms do not report any descriptive information whatsoever, while 62% do not report monetary data.

Table 6
Descriptive statistics of disclosure scores.

	France	Germany	United Kingdom	France	Germany	United Kingdom
Panel A: All disclosures						
	Sensitive firms (73) — Overall score (max = 12)			Sensitive firms (73) — Restricted score (max = 4)		
Mean	4.70	2.43	4.44	2.90	2.07	2.89
Median	4.00	2.00	5.00	3.00	2.00	3.00
Standard deviation	4.24	2.44	3.35	2.56	1.54	1.54
	Non-sensitive firms (41) — Overall (max = 12)			Non-sensitive firms (41) — Restricted (max = 4)		
Mean	1.03	0.76	1.00	0.74	0.71	0.93
Median	0.00	0.00	0.00	0.00	0.00	0.00
Standard deviation	1.87	1.09	1.54	1.15	1.01	1.38
Panel B: Monetary disclosures						
	Sensitive firms (73) — Overall score (max = 12)			Sensitive firms (73) — Restricted (max = 4)		
Mean	3.00	1.36	3.11	1.70	1.14	1.89
Median	3.00	1.00	3.00	2.00	1.00	2.00
Standard deviation	2.49	1.44	1.76	1.42	0.77	1.05
	Non-sensitive firms (41) — Overall (max = 12)			Non-sensitive firms (41) — Restricted (max = 4)		
Mean	0.68	0.48	0.57	0.48	0.43	0.54
Median	0.00	0.00	0.00	0.00	0.00	0.00
Standard deviation	1.14	0.68	0.92	0.72	6.00	0.84
Panel C: Descriptive disclosures						
	Sensitive firms (73) — Overall score (max = 12)			Sensitive firms (73) — Restricted (max = 4)		
Mean	1.70	1.7	1.33	1.20	0.93	1.00
Median	2.00	1.00	2.00	1.00	1.00	1.00
Standard deviation	2.00	1.07	0.87	0.23	0.83	0.71
	Non-sensitive firms (41) — Overall (max = 12)			Non-sensitive firms (41) — Restricted (max = 4)		
Mean	0.35	0.29	0.43	0.26	0.29	0.39
Median	0.00	0.00	0.00	0.00	0.00	0.00
Standard deviation	0.80	0.46	0.63	0.51	0.46	0.57

Environmentally-sensitive firms disclose more: 67% report at least one descriptive item, while 72% provide monetary data.

Table 6 displays the mean, median, and standard deviation of total scores (panel A), descriptive scores (panel B), and monetary scores (panel C). The mean and median scores of firms weakly exposed to environmental issues are low, and they do not differ between countries. Their overall scores, based on 12 items, are not significantly larger than their restricted scores, based on four items, suggesting that these firms provide only the most usual environmental information. Environmentally-sensitive firms exhibit higher overall scores than non-sensitive ones. Furthermore, the mean and median overall scores of environmentally-sensitive French and British firms are significantly higher than those of German firms.

However, the differences in the overall scores come primarily from the monetary scores, which are much higher than the descriptive ones. The mean overall monetary scores of French and British sensitive firms (respectively 3.00 and 3.11) are 2.2 and 2.29 times larger than the one of German firms (1.36). The mean overall descriptive scores of French and British sensitive firms (respectively 1.70 and 1.33) are only 1.6 and 1.2 times larger than the score of German firms (1.07).

Table 7
Regression results on the determinants of IFRS environmental disclosures.

$DISC = \alpha_0 + \alpha_1 LnTA + \alpha_2 EE + \alpha_3 FR + \alpha_4 GER + \varepsilon$

	Overall score		Restricted score	
	Monetary disclosures	Descriptive disclosures	Monetary disclosures	Descriptive disclosures
α_0	−2.663	−0.767	−1.236	−0.717
	(−1.795)	(−0.730)	(−1.295)	(−0.952)
	0.08	*0.47*	*0.20*	*0.34*
α_1	0.225	0.077	0.122	0.071
	(2.318)	(1.127)	(0.950)	(1.451)
	0.03	*0.26*	*0.05*	*0.15*
α_2	1.739	0.967	1.009	0.695
	(6.277)	(4.93)	(5.656)	(4.94)
	0.00	*0.00*	*0.00*	*0.00*
α_3	−0.146	−0.035	−0.193	−0.117
	(−0.475)	(−0.17)	(−0.976)	(−0.748)
	0.64	*0.87*	*0.33*	*0.45*
α_4	−0.839	−0.271	−0.420	−1.172
	(−2.622)	(−1.197)	(−2.040)	(−0.41)
	0.01	*0.24*	*0.04*	*0.29*
$\alpha_3 - \alpha_4$	0.693	0.236	0.227	0.055
	(5.262)	(1.224)	(1.366)	(0.13)
	0.03	*0.27*	*0.24*	*0.72*
Adjusted R^2	0.308	0.181	0.252	0.190
F	(13.48)	(7.16)	(10.43)	(7.56)
	0.00	*0.00*	*0.000*	*0.00*

Notes: DISC is the disclosure score. LnTA is the natural logarithm of total assets. EE is a dummy variable that equals to 1 if the firm is environmentally exposed; it is 0 otherwise. FR and GER stand for France and Germany respectively. T or F statistics are in parentheses. P-values are in italics.

Regarding the restricted scores of environmentally sensitive firms, differences are less clear. The mean restricted monetary scores of French and British sensitive firms (respectively 1.70 and 1.89) are 1.5 and 1.65 times larger than that of German firms (1.14). The mean restricted descriptive scores of French and British sensitive firms (respectively 1.20 and 1.00) are only 1.3 and 1.1 times larger than the one of German firms (0.93).

Table 7 presents the results of model (1) for the overall and restricted scores related to monetary and descriptive information. As expected, α_2 is always statistically positive, suggesting that environmentally sensitive firms disclose systematically more IFRS compliant environmental information than do non-sensitive firms. Since α_1 is statistically positive for monetary disclosures only, hypothesis H1 is rejected for descriptive disclosure scores, but not for monetary ones.

This suggests that larger firms report more environmental IAS/IFRS compliant monetary information than smaller ones. As our model controls for environmental sensitivity, and as there is no reason to believe that larger sampled firms are systematically more exposed to environmental issues than smaller firms, this implies that all firms do not comply with IASs/IFRSs identically regarding environmental matters.

In the same way, hypothesis H2 is accepted for monetary disclosures only. German firms disclose less environmental IAS/IFRS compliant monetary information than British ones: α_4 is statistically negative for monetary disclosure models. German firms also disclose less monetary information than French ones: $(\alpha_3 - \alpha_4)$ is statistically positive for monetary disclosure models.

On the other hand, as expected, French firms provide as much environmental monetary accounting information as British firms, since α_3 is statistically significant. These results show that, concerning environmental issues, compliance with IASs/IFRSs is higher for French and British firms than for German ones, probably because of the differences in the environmental disclosure regulations applied in the countries.

Table 8 presents the results of model (2). They help discriminate disclosures of environmentally-sensitive firms against the results of environmentally non-sensitive firms. These results show that differences in mandatory environmental reporting come from environmentally sensitive firms. β_2, β_3, and $(\beta_2 - \beta_3)$ do not differ statistically from zero, suggesting that British, German, and French non-environmentally sensitive firms exhibit the same overall and restricted disclosure scores for both monetary information and descriptive information. β_4, β_5 and β_6 are all statistically positive, suggesting that environmentally sensitive firms report more IAS/IFRS compliant environmental information than non-environmentally sensitive ones, regardless of the country where they are domiciled.

Finally, the model using the overall monetary scores as the dependent variable shows that $(\beta_4 - \beta_5)$ is statistically positive, and $(\beta_5 - \beta_6)$ is statistically negative. This implies that environmentally-sensitive French firms disclose more monetary information, and environmentally-sensitive British firms disclose less monetary information, than their German counterparts. The same result does not hold for descriptive disclosures and restricted scores, since $(\beta_4 - \beta_5)$ and $(\beta_5 - \beta_6)$ do not statistically differ from the other models. H2 is only accepted for the overall monetary scores.

On the other hand, since β_1 is systematically positive at the 10% level, H1 is accepted for the overall and restricted monetary scores related to both descriptive information and monetary information. This confirms that compliance with IAS/IFRS environmental disclosure requirements increases systematically with firm size.

Table 8
Regression results on the determinants of IFRS environmental disclosures conditional to environmental exposure.

$DISC = \beta_0 + \beta_1 LnTA + \beta_2 FR + \beta_3 GER + \beta_4 EEXFR + \beta_5 EEXGER + \beta_6 EEXUK + \varepsilon$

	Overall score		Restricted score	
	Monetary disclosures	Descriptive disclosures	Monetary disclosures	Descriptive disclosures
β_0	−2.294	−1.070	−1.143	−1.029
	(−1.494)	(−0.968)	(−1.134)	(1.301)
	0.14	*0.33*	*0.26*	*0.20*
β_1	0.195	0.102	0.114	0.097
	(1.889)	(1.377)	(1.6870)	(1.819)
	0.06	*0.17*	*0.095*	*0.07*
β_2	−0.178	−0.222	−0.218	−0.276
	(−0.487)	(−0.845)	(−0.91)	(−1.464)
	0.63	*0.40*	*0.36*	*0.14*
β_3	−0.387	−0.295	−0.278	−0.252
	(−0.967)	(−1.026)	(−1.059)	(−1.222)
	0.34	*0.31*	*0.29*	*0.22*
β_4	2.363	1.3671	1.240	0.962
	(−5.080)	(4.081)	(4.062)	(4.01)
	0.00	*0.00*	*0.00*	*0.00*
β_5	0.910	0.801	0.731	0.657
	(2.062)	(2.522)	(2.5256)	(2.890)
	0.04	*0.01*	*0.01*	*0.00*
β_6	*2.212*	*0.687*	*1.109*	*0.4000*
	(3.950)	(1.776)	(3.145)	(1.445)
	0.00	*0.08*	*0.02*	*0.15*
$\beta_2 - \beta_3$	*0.209*	*0.073*	*0.060*	*−0.024*
	(0.332)	(0.081)	(0.065)	(0.017)
	0.56	*0.78*	*0.78*	*0.89*
$\beta_4 - \beta_5$	*1.458*	*0.566*	*(0.509)*	*0.305*
	(5.55)	(1.512)	*(1.458)*	(0.852)
	0.02	*0.22*	0.22	*0.36*
$\beta_4 - \beta_6$	*0.156*	*0.680*	*0.131*	*0.562*
	(0.111)	(1.729)	(−0.084)	(2.314)
	0.76	*0.19*	*0.78*	*0.13*
$\beta_5 - \beta_6$	*−1.302*	*0.114*	*−0.378*	*0.257*
	(3.000)	(0.05)	(−0.682)	(0.498)
	0.08	*0.82*	*0.41*	*0.48*
Adjusted R^2	0.332	0.182	0.249	0.193
F	(16.79)	(5.15)	(7.19)	(5.45)
	0.00	*0.00*	*0.000*	*0.00*

Notes: DISC is the disclosure score. LnTA is the natural logarithm of total assets. EE is a dummy variable that equals to 1 if the firm is environmentally exposed; it is 0 otherwise. FR and GER stand for France and Germany respectively. T or F statistics are in parentheses. P-values are in italic.

7. Conclusion

In a context where environmental reporting is a major challenge for accounting practice and research, this study analyzes whether companies complying with IFRSs apply IFRS

environmental requirements consistently. The analysis of the international accounting standards and interpretations shows that there is no international standard exclusively dedicated to environmental issues. However, several standards have explicit or implicit provisions related to the recognition, measurement, and reporting of environmental expenses, assets, and liabilities. After a detailed analysis of accounting standards and accounting reporting practices, we proposed a grid of environmental information that should be reported by companies having to comply with IFRSs. We used this grid to analyze the 2007 financial statements of 114 selected German, French, and UK companies and to quantify their mandatory environmental disclosures complying with IASs/IFRSs. The results show that:

- Half of the firms do not report any environmental information at all.
- Environmentally-sensitive firms exhibit higher overall disclosure scores than do non-sensitive firms, and this difference comes primarily from disclosed monetary information.
- Larger firms report more environmental information than do smaller ones.
- German firms disclose less environmental monetary information than do British and French ones. This could be explained by the fact that while France and the UK have opted for a regulated framework of environmental information, mostly for listed and large non-listed companies, Germany has provided only disclosure guidelines.

These results show that, regarding environmental issues, compliance with IASs/IFRSs depends on the reporting firm's environmental disclosure tradition, insofar as firm size is a relevant proxy for this tradition. The results also show that compliance with IFRSs depends on national regulatory constraints on environmental disclosures.

Taken as whole, our results suggest that IASs/IFRSs are applied differently from one firm to another and from one country to another. The adoption of similar accounting standards is therefore not a sufficient condition to guarantee full convergence of accounting practices and full comparability of accounting information across firms and countries. Full convergence and full comparability are driven by factors other than mere accounting standards. Incentives and enforcement are both necessary to reach this outcome. Indeed, if the accounting standards in force are the same in the three countries studied in this work, it appears that monitoring, enforcement, and market incentives differ greatly.

Acknowledgments

We thank Trevor Wilkins (National University of Singapore) and Charles Cho (ESSEC) for their helpful comments on earlier versions of the paper. We are grateful for the comments made by participants at the 2011 Symposium of the International Journal of Accounting, the 34th European Accounting Association Congress and the 32nd Francophone Congress in Accounting. We also thank the anonymous reviewers of The International Journal of Accounting and the editor Rashad Abdel Khalik for many constructive suggestions.

References

Adams, C., Hill, W., & Roberts, C. (1998). Corporate social reporting practices in Western Europe. Legitimating corporate behavior? *British Accounting Review*, *30*(1), 1–721.

Adams, C. A., & Kuasirikm, N. (2000). A comparative analysis of corporate reporting on ethical issues by UK and German chemical and pharmaceutical companies. *European Accounting Review*, *9*(1), 53–79.
Baker, C. R., & Barbu, E. M. (2007). Trends in research on international accounting harmonization. *The International Journal of Accounting*, *42*(3), 272–304.
Ball, R. (2006). *IFRS: Pros and cons for investor.* Accounting & business research (International Accounting Policy Forum), 5–27.
Ball, R., Robin, A., & Wu, J. S. (2003). Incentives versus standards: Properties of accounting income in four East Asian countries. *Journal of Accounting and Economics*, *36*, 235–270.
Bradshaw, M. T., & Miller, G. (2008). Will harmonizing accounting standards really harmonize accounting? Evidence from non-U.S. firms adopting U.S. GAAP. *Journal of Accounting Auditing and Finance*, *23*, 233–263.
Branco, M. C., & Rodrigues, L. L. (2007). Issues in corporate social and environmental reporting research: An overview. *Issues in Social and Environmental Accounting*, *1*(1), 72–90.
Cho, C. H., & Patten, D. M. (2007). The role of environmental disclosures as tools of legitimacy: A research note. *Accounting, Organizations and Society*, *3*(7/8), 639–647.
Cormier, D., & Magnan, M. (2003). Environmental reporting management: A European perspective. *Journal of Accounting and Public Policy*, *22*(1), 43–62.
Cormier, D., Magnan, M., & van Velthoven, B. (2005). Environmental disclosure quality in large German companies: Economic incentives, public pressures or institutional conditions. *European Accounting Review*, *14*(1), 3–39.
De Villiers, C., & Van Staden, C. J. (2010). Shareholders' requirements for corporate environmental disclosures: A cross country comparison. *The British Accounting Review*, *42*(4), 227–240.
Deegan, C., & Gordon, B. (1996). A study of the environmental disclosure practices of Australian corporations. *Accounting and Business Research*, *26*(3), 187–199.
Deegan, C., & Rankin, R. (1997). The materiality of environmental information to users of annual reports. *Accounting, Auditing & Accountability Journal*, *10*(4), 562–583.
Epstein, M. J., & Freedman, M. (1994). Social disclosure and the individual investor. *Accounting, Auditing & Accountability Journal*, *7*(4), 94–109.
European Environmental Agency (2010). The European environment – state and outlook. http://www.eea.europa.eu
Freedman, M., & Jaggi, B. B. (2005). Global warming, commitment to the Kyoto protocol, and accounting disclosures by the largest global public firms from polluting industries. *The International Journal of Accounting*, *40*, 215–232.
Frost, G., & Wilmshurst, T. (2000). The adoption of environment related management accounting. An analysis of corporate environment sensitivity. *Accounting Forum*, *24*(4), 344–365.
Gamble, G., Hsu, K., Kite, D., & Radtke, R. R. (1995). Environmental disclosures in annual reports and 10Ks: An examination. *Accounting Horizons*, *9*(3), 34–54.
Gao, S. S., Heravi, S., & Xiao, J. Z. (2005). Determinants of corporate social and environmental reporting in Hong Kong: A research note. *Accounting Forum*, *29*(2), 233–242.
Goodwin, D., Goodwin, J., & Konieczny, K. (1996). The voluntary disclosure of environmental information — A comparison of investor and company perceptions. *Accounting Research Journal*, *9*(1), 29–39.
Gray, R., Javad, M., Power, D., & Sinclair, C. (2001). Social and environmental disclosure and corporate characteristics: A research note and extension. *Journal of Business Finance and Accounting*, *28*(3/4), 327–356.
Gray, R., Kouhy, R., & Lavers, S. (1995). Methodological themes: Constructing a research database of social and environmental reporting by UK companies. *Accounting, Auditing and Accountability Journal*, *8*(2), 78–101.
Hackston, D., & Milne, J. M. (1996). Some determinants of social and environmental disclosures in New Zealand companies. *Accounting, Auditing & Accountability Journal*, *9*(1), 77–108.
Holthausen, W. R. (2009). Accounting standards, financial reporting outcomes and enforcement. *Journal of Accounting Research*, *47*(2), 447–458.
Kvaal, E., & Nobes, C. W. (2010). International differences in IFRS policy choice: A research note. *Accounting and Business Research*, *40*(2), 173–187.
Liu, X., & Anbumozhi, V. (2009). Determinant factors of corporate environmental information disclosure: An empirical study of Chinese listed companies. *Journal of Cleaner Production*, *17*(6), 593–600.
Milne, M. J., & Chan, C. (1999). Narrative social disclosures: How much of a difference do they make to investor decision-making. *The British Accounting Review*, *31*(4), 439–457.

Nobes, C. (2006). The survival of international differences under IFRS: Towards a research agenda. *Accounting and Business Research*, *36*(3), 233–245.

Patten, D. (1992). Intra-industry environmental disclosure in response to the Alaskan oil spill: A note on legitimacy theory. *Accounting, Organizations and Society*, *17*(5), 471–475.

Richardson, A., & Welker, M. (2001). Social disclosure, financial disclosure and the cost of equity capital. *Accounting, Organizations and Society*, *26*, 597–616.

Solomon, J. F., & Solomon, A. (2006). Private social, ethical and environmental disclosure. *Accounting, Auditing & Accountability Journal*, *19*(4), 564–591.

Williamson, D., & Lynch-Wood, G. (2008). Social and environmental reporting in UK company law and the issue of legitimacy. *Corporate Governance*, *8*(2), 128–140.