Causes and Consequences of Choosing Different Assurance Providers: An International Study of Sustainability Reporting

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An increasing number of companies voluntary disclose information about their social and environment performance in sustainability reports. This study investigates the causes and consequences of choosing different assurance providers for companies seeking independent verification of their sustainability reports. We employ a logistical regression analysis from an international sample of 136 companies to document that companies domiciled in countries with a weaker governance system are more likely to choose a big-4 accounting firm as assurance provider. We additionally examine the association between the type of assurance provider and the quality of a sustainability assurance statement. Using a content analysis based on an existing framework (O'Dwyer and Owen, 2005), we provide evidence that big-4 accounting firms positively affect assurance quality in terms of reporting format and assurance procedures. In contrast, the quality of the recommendations and opinions in a sustainability assurance statement is positively associated with non-accounting assurance providers.

1. Introduction

An increasing number of companies disclose information about their social and environmental performance in, so-called, sustainability reports to demonstrate a commitment to corporate responsibility. Recent evidence documents the rise of external assurance services that independently verify this type of non-financial reports (Beets and Souther, 1999; FEE, 2004; Ifac, 2006). According to a recent worldwide survey, between 1997 and 2007 the average annual growth rate in assurance statements has been 20%, with a current proportion of assured reports settled at 25% (Corporateregister, 2008). From the 2005 KPMG survey of corporate responsibility reporting, it appears that one-third of the fortune global 250 companies adopt an assurance statement of their sustainability report (KPMG/UVA, 2005). The voluntary demand of independent verification by reporting companies can be explained by their willingness to enhance a report's credibility. These claims are consistent with prior research in auditing indicating that third-party assurance provides greater user confidence in the reliability of the information disclosed (see Carey *et al.,* 2000).

Since the market for sustainability assurance services is in its formative stages and is evolving rapidly, there is limited understanding of the nature and extent of the demand and supply of this novel auditing practice (Hasan *et al.*, 2005). O'Dwyer and Owen (2005), drawing on a sample of assurance statements of firms short-listed for the *2002 ACCA sustainability reporting award*, identify major differences among assurance levels since there is no generally accepted standard in this area. Three approaches have taken a dominant role, namely the global reporting initiative guidelines (GRI, 2002), the

AA1000 assurance standard (AA1000AS) of accountability (2003), and the IAASB's international standard on assurance engagements (ISAE3000) (IAASB, 2003). As a consequence, sustainability assurance statements reveal great variability across countries with regard to definitions, methodology and content of assurance engagements (cf. Deegan *et al.*, 2006).

Similarly, cross-country variation of type of assurance provider is apparent from a survey sponsored by CPA Australia (2004). In the four major geographic regions classified from a sample of 161 assurance statements, large audit firms provided assurance on 87% of reports in Japan, 60% in continental Europe, 23% in the UK, and 15% in Australia. A recent paper by Mock *et al.* (2007) examined a sample of 130 firms worldwide that issued a sustainability report between 2002 and 2004. Their analysis suggested that different characteristics inherent to the level of assurance provided are significantly associated with the type of assurance provider, lending support to higher level of expertise in non-financial assurance by auditing firms (big-4 accounting firms) in comparison with other types of assurance providers (e.g. Environmental consultants).

The objective of this paper is twofold. First, we extend the study by mock *et al.* (2007) by proposing a predicting model of the choice of an assurance provider for a worldwide sample of 136 companies that were short-listed for the *2005 ACCA Sustainability Reporting Award*. We draw on current research in international accounting and finance to predict the likelihood of a firm's voluntary choice of a big-4 accounting firm as sustainability assurance provider. Second, we provide exploratory evidence about the role of big-4 assuror firms in explaining varying levels of sustainability assurance by content analyzing 69 available statements from the selected sample.

The remainder of the paper is organized as follows. In the next section we develop a set of testable predictions about choice of assuror and expected impact on the quality of assurance provided. Section 3 presents the sample data and the variables used to test our hypotheses. Section 4 reports the empirical results and section 5 concludes the paper with suggestions for further research.

2. Hypothesis development

2.1. Choice of assurance provider

The first research objective of this paper is to investigate the choice of a specific assurance provider to independently verify a sustainability report. Globally, over 350 different providers produced an assurance statement during 2007 (Corporateregister, 2008). Three major assuror types can be distinguished, namely accounting firms (big-4), certification bodies and specialist consultancies. In 2007, these assurance providers held respectively 40%, 25% and 24% of the market for a total of 89% of the entire market of sustainability assurance services (Corporate Register, 2008).

In line with most auditing research, we classify big-4 accounting firms as high quality assurance providers compared to other assurors types (see Francis, 2004). Accounting firm size is a proxy for quality (auditor independence) because no single client is important

to a large auditor and the auditor has a greater reputation to loose (their entire clientele) if they misreport. Due to their size, big-4 firms are also better able to enforce internal mechanisms of control to ensure consistent quality of the assurance reports issued by their members.

We draw on recent international accounting and finance literature that examined the choice of auditing and assurance practices using various cross-country comparative studies. This line of enquiry notes that national legal environments are key determinants of auditing procedures around the world. While controlling for firm- and industry-level effects, our empirical prediction is that a country-level legal environment is a significant determinant of the choice of assurance provider. Findings by Durnev and Kim (2005) and Choi and Wong (2007) indicate that governance mechanisms, such as having an independent audit or assurance, can serve as a substitute for absent or weak country-level institutions that constrain the behavior of contracting parties. These papers argue that, in countries with stronger legal systems and other institutions, a firm has less to gain from independent audits because existing country-level institutions impose constraints on contracting parties and may therefore provide sufficient protection.

The empirical prediction that emerges under this view is that the likelihood to choose a high quality assurance provider (big-4) is greater in countries with weaker legal regimes because auditing serves as a substitute for the absence of other institutions that facilitate private contracting. In addition, when litigation risks are sufficiently low in presence of weak enforcement mechanisms, auditing services from big-4 firms may become more affordable since the benefits of auditors of acquiescing to clients outweigh the potential penalties. Hence our first hypothesis:

H1:   the likelihood of choosing a big-4 firm as assurance provider for a sustainability report is higher for companies domiciled in countries with a weak legal environment.

2.2. Quality of assurance

The second research objective of this study is to investigate whether the choice of an independent assuror has an effect on the quality of the assurance provided. A substantive difference in the quality of assurance provided by assurors coming from different backgrounds, namely big-4 versus other type of verifiers, can be expected. On the one hand, it can be posited that accounting firms bring in their experience from providing financial assurance services and have a competitive advantage with respect to the provision of assurance services in general. On the other hand, it is possible that other assurance providers (e.g. Environmental consultant specialists) have a better expertise in this area, since sustainability assurance requires knowledge about complex environmental and social processes.

We draw on a recent study by mock *et al.* (2007) that examined a sample of 130 firms worldwide issuing a sustainability report between 2002 and 2004. Mock *et al.* (2007) is the first study that applies multivariate statistics to identify relationships between assurance statement characteristics and big-4 assurance providers. Their findings reveals that the

type of assurance statement (positive or negative), the reporting categories assured, the restriction of the usage of assurance statements and the application of assurance frameworks are significant predictors of a big-4 assurance provider.

In our opinion, the model proposed by Mock *et al.* (2007), with the choice of assurance provider as dependent variable and selected criteria of assurance quality as predictors, is not appropriate. We argue instead that the analysis should reversely focus on the differential effects of assurance provider's choice on varying level of assurance quality. Furthermore, we refine their model by classifying the quality of a sustainability assurance statement using the evaluative framework proposed by O'Dwyer and Owen (2005). Three categories of assurance quality are identified, namely "reporting format", "assurance procedures" and "recommendations and opinion". A description of the categories is provided in the variable measurement section.

Our empirical prediction is that big-4 firms put more emphasis on aspects related to "reporting format" (which includes formal aspects such as clear references and respective responsibilities of reporter and assuror) and "assurance procedures" (which refers to specific adherence to standardized approaches and recognized assurance standards) compared to other assurors. Accounting firms are expected to benefit from their long experience of financial audits and are likely to outperform other type of assurors in the formal application of non-financial assurance services. On the contrary, when quality of assurance refers to "recommendations and opinion" contained in a statement, it can be expected that non-big-4 firms are more elaborate and informative. This is consistent with Deegan *et al.* (2006) who provide evidence that accountants regularly apply a more conservative and cautious approach than, for instance, environmental consultants. Accountants are hesitant to draw clear and precise conclusions from the assurance engagement given the uncertainties surrounding the domain of sustainability assurance provision. Since no mandatory reporting guidelines exist and since many firms make use of a combination of different guidelines, it seems that accountants are cautious to report on compliance and provide high levels of assurance. Following this line of reasoning, we posit the following hypotheses:

H2a: The quality of sustainability assurance is positively associated with a big-4 assurance provider for the category "reporting format".

H2b: The quality of sustainability assurance is positively associated with a big-4 assurance provider for the category "assurance procedures".

H2c: The quality of sustainability assurance is negatively associated with a big-4 assurance provider for the category "recommendations and opinion".

3. Research method

3.1. Sample

The sample used to test the hypothesis comprises those firms that are short listed for the *2005 ACCA Sustainability Reporting Award*. One criterion in the evaluation scheme of the sustainability awards is third-party assurance. Thus, this sample selection increases

the probability to obtain a sample that provides sufficient assured sustainability reports to conduct a meaningful statistical analysis. In total, 200 companies are short-listed for the individual sustainability awards. The final sample is reduced due to the fact that, for a variety of firms, either the data for the independent variables cannot be collected, or no sustainability report can be obtained. Sustainability reports are obtained by scanning both the companies' websites and the database by *Corporateregister*, which is the world's largest database of non-financial reports (Mock *et al.*, 2007), or by requesting the report directly to the firm. This leads to a final sample consisting of 136 firms.

Table 1. Country origin of sampled firms

Country	No. of firms	No. of Assurance statements
Australia/NZ	34	23
Hong Kong	8	4
Ireland	6	2
Malaysia	12	2
North America	15	4
Pakistan	4	2
Singapore	5	0
South Africa	19	9
Sri Lanka	7	2
UK	14	13
European countries (others)	12	8
Total	136	69

Table 2. Summary statistics per industry

Sector	No. of firms
Energy	9
Materials	17
Industrials	18
Consumer discretionary	11
Consumer staples	13
Health care	6
Financials	29
Information technology	4
Telecommunications services	7
Utilities	22
Total	136

Table 1 displays the number of companies entering the sample from the respective regions. Table 2 presents the distribution of the companies in our sample per industry. The largest fraction comes from the financial sector, which represents roughly 21% of the sampled firms. The industry with the lowest fraction of firms in the sample is the information technology sector representing 3% of the total sample. The sampling procedure results in the identification of 69 assurance statements distributed across the sample countries as shown in table 1. Thus, a proportion of 51% published a sustainability report that was accompanied by independent assurance. The reports assured by a big-4 firm are 46%.

3.2. Empirical models, variables and descriptive analysis

For the model predicting the choice of assurance provider, we set up the following logistic regression model (1):

$$Aud_i = \alpha + \beta_1 gotr_j + \beta_2 enf_j + \beta_3 lit_j + \beta_4 ncri_j + \beta_5 size_i + \beta_6 prof_i + \beta_7 ind_i + \varepsilon$$

Where, for every country j and firm i in our sample:

Aud = 1 if a firm's sustainability report is assured by a big-4 firm and otherwise 0;

Gotr = corporate governance transparency at country level developed by bushman *et al.* (2004);

Enf = quality of national legal environment composed of a law enforcement index and an investor protection index provided by la porta *et al.* (1998);

Lit = liability standard index developed by la porta *et al.* (2006) incorporating the ease with which investors can sue auditors;

Ncri = national corporate responsibility index computed by accountability (2005);

Size = firm's size measured by the natural log of a firm's sales;

Prof = firm's profitability measured by the natural log of a firm's return on assets;

Ind = 1 if a firm is a member in environment sensitive industry and otherwise 0. Industry affiliation to a sensitive industry is determined using a slightly modified version of patten (1991). It included industries in the petroleum, chemical, forestry and paper products.

Model (1) predicts that the choice of a big-4 accounting firm as assurance provider is negatively associated with the quality of governance and legal country regime proxied by three indexes commonly used in most accounting and finance studies (*gotr*, *enf*, *lit*). We introduce four control variables in the model. *Ncri* ranks country regimes with respect to a broad range of social and environmental-related institutional factors. Further, three variables control for industry- (*ind*) and firm-related (*size*, *prof*) characteristics. Since our sample comprises 91% of firms domiciled in common law countries, the variable about legal tradition that is commonly used in cross-country studies was not included.

For robustness analysis, we also run an ordered probit regression (model 2) with the same predictors and a dependent variable having the value of 0 for firms not issuing a

sustainability assurance statement, a value of 1 for firms issuing a statement not verified by a big-4 firm, and a value of 2 for firms that accompany a report with an assurance statement issued by a big-4 firm. In fact, the decision of a firm to assure a sustainability report by an accounting assurance provider is conditional upon the decision of issuing a statement in first place. Model (2) allows testing these two decisions in combination.

For the quality analysis, the following regression models are set up:

$$Rep_i = \alpha + \beta_1 aud_i + \beta_2 gotr_j + \beta_3 enf_j + \beta_4 lit_j + \beta_5 ncri_j + \beta_6 size_i + \beta_7 prof_i + \beta_8 ind_i + \varepsilon \quad (3);$$

$$Proc_i = \alpha + \beta_1 aud_i + \beta_2 gotr_j + \beta_3 enf_j + \beta_4 lit_j + \beta_5 ncri_j + \beta_6 size_i + \beta_7 prof_i + \beta_8 ind_i + \varepsilon \quad (4);$$

$$Opi_i = \alpha + \beta_1 aud_i + \beta_2 gotr_j + \beta_3 enf_j + \beta_4 lit_j + \beta_5 ncri_j + \beta_6 size_i + \beta_7 prof_i + \beta_8 ind_i + \varepsilon \quad (5);$$

Where *rep*, *proc* and *opi* capture respectively the quality of assurance statement for the categories "reporting format", "assurance procedures" and "recommendations and opinion". Models (3), (4) and (5) contain the same variables defined above, with *aud* now examined as independent variable and the country- and firm-level variables from model (1) inserted as control variables.

The quality of assurance statements is determined by means of a content analysis based on the evaluative framework provided by O'Dwyer and Owen (2005), which introduces the minimum requirements of a high quality assurance statement as defined by the three most commonly used international guidelines accountability (2003), FEE (2004) and Gri (2002). Overall, 19 aspects and the accompanying coding rules used for the content analysis are reported in appendix. A coding procedure that involved both authors was followed to ensure high levels of reliability as suggested by Neuendorf (2002). *Rep* comprises the scores of the aspects 1-9, *proc* covers the categories 10-15, and *opi* measures the aspects 16-19 listed in appendix A.

The theoretical range of scores obtained from the content analysis is from 0 to 19. The average score across the whole sample amounts to 13.47, thus approximately 71% of the total maximum score. The region that scores best is south africa with an average of 14.33 points, whereas Hong Kong still represents the lower end with an average score of 10 points. The assurance statement of Rabobank (the Netherlands) achieved the highest score of 18 points, while the lowest score was attained by Thiess (Australia) with 7 points. Table 3 presents the descriptive statistics and the correlation among variables for those firms issuing a sustainability assurance statement in our sample (n=69). It appears that the correlations are relatively low, thus suggesting that multicollinearity is not likely to be a serious concern in the estimation of the regression models.

4. Results

The results of the logistic regression (model 1) with dependent variable *aud* are reported in table 4. Because the number of observations varies across countries, we use weighted logistic regression (which weights each country equally) for all estimations so that observations receive more (less) weight in countries with fewer (more) observations (Cohen *et al.*, 2003, p. 309). The model is significant with a pseudo r^2 of 31%. The

Table 3. Descriptive statistics and correlation matrix

	Mean	S.D.	Min	Max	Aud	Gotr	Enf	Lit	Ncri	Size	Prof	Ind	Rep	Proc	Opi	Quas
Aud	0.46	0.50	0	1	1.000											
Gotr	85.07	5.63	63.15	89.87	-0.269*	1.000										
Enf	8.45	1.06	5	10	-0.412**	0.168	1.000									
Lit	0.56	0.21	0.22	1	0.075	-0.495**	-0.031	1.000								
Ncri	64.34	7.85	39.2	73.5	-0.093	0.324**	0.418**	-0.223	1.000							
Size	22.09	2.10	15.34	26.28	0.097	-0.087	-0.108	-0.198	0.025	1.000						
Prof	2.65	0.47	0.86	3.92	0.121	0.041	-0.161	0.122	-0.269*	-0.074	1.000					
Ind	0.19	0.39	0	1	0.072	-0.110	-0.077	0.199	-0.278	0.281*	0.308*	1.000				
Rep	6.39	1.37	3	8	0.521**	0.121	-0.144	-0.044	-0.016	-0.136	0.187	0.052	1.000			
Proc	4.56	1.04	2	6	0.195	-0.005	0.027	-0.002	0.258*	0.015	0.077	0.168	0.535**	1.000		
Opi	2.45	1.32	0	4	-0.429**	0.252*	0.204	-0.119	0.334**	0.056	-0.122	-0.024	0.145	0.434**	1.000	
Quas	13.41	2.82	7	18	0.125	0.175	0.036	-0.078	0.244	-0.034	0.063	0.076	0.752**	0.832**	0.699**	1.000

N = 69; **Pearson correlations significant at the $p<0.01$ level (two-tailed); *Pearson correlations significant at the $p<0.05$ level (two-tailed).

The variable *quas* is the sum of the variables *rep*, *proc* and *opi* and it is reported only for descriptive purposes.

coefficient on *gotr* and *enf* are significantly negative at less than 5% level. Similarly, the coefficient on *lit* is significantly negative at 10% level. The results from model (1) lend support to hypothesis 1. The likelihood of having a sustainable report assured by a big-4 accounting firm is significantly higher for firms domiciled in countries with a weak legal environment. This is consistent with a growing body of research in accounting and finance documenting that high quality auditing firms may play a stronger governance role in weak legal environments than in strong legal environments. The *ncri* control variables is significant at 10% level, suggesting that firms operating in countries with a higher sustainability profile are more likely to choose a big-4 firm as assurance provider. The remaining control variables are not significant.

Table 4. Choice of assurance provider

Variable (pred. sign)	Model (1) Logistic Regression§	Model (2) Ordered probit regression§
Gotr (-)	-0.434** (0.045)	-0.194 (0.609)
Enf (-)	-2.281** (0.012)	-0.219* (0.080)
Lit (-)	-6.240* (0.100)	-2.017*** (0.004)
Ncri	0.179* (0.090)	0.115 (0.516)
Size	0.071 (0.656)	0.149** (0.023)
Prof	-0.037 (0.962)	0.144 (0.325)
Ind	1.118 (0.516)	0.367* (0.066)
Constant	46.362** (0.031)	
Pseudo r^2	0.313	0.105
Wald chi-square	63.91	88.35
P-value	0.000***	0.000***
N	69	136

Dependent variable model (1): aud (1 assurance provider big-4; 0 otherwise)

Dependent variable model (2): aud (2 assurance provider big-4; 1 assurance provider non-big-4; 0 no assurance statement)

*** significant at the *p*<0.01 level

** significant at the *p*<0.05 level

* significant at the *p*<0.1 level

§ all *z*-statistics (in parentheses) are computed based on clustered standard errors.

Next, we run an ordered probit regression (model 2) to provide robustness to our analysis. The model is significant with a pseudo r^2 of 10.5%. The coefficients on enf (z<0.10) and lit (z<0.01) are significantly negative. In contrast, gotr is not statistically significant. Despite the partial support for the coefficient on gotr, the evidence does not contradict the results of the logistic regression model. Among the control variables, size and ind are significantly positive.

Table 5 shows the standardized coefficients of the regression analysis with respectively *rep, proc* and *opi* as dependent variables capturing three aggregated dimensions of

Table 5. quality of assurance

Variable (pred. Sign)	Model (3) Ols regression§	Model (4) Ols regression§	Model (5) Ols regression§
Aud (+, + , -)	1.843*** (0.000)	0.587** (0.025)	-0.670** (0.042)
Gotr	0.494 (0.230)	-0.039 (0.145)	0.259 (0.484)
Enf	-0.077 (0.619)	-0.042 (0.775)	-0.099 (0.529)
Lit	-1.189 (0.274)	-0.894* (0.086)	-0.504 (0.569)
Ncri	-0.003 (0.090)	0.522*** (0.001)	0.340 (0.175)
Size	0.067 (0.637)	0.069 (0.472)	0.221** (0.033)
Prof	0.607** (0.034)	0.680* (0.078)	0.365 (0.877)
Ind	0.222 (0.628)	0.581* (0.067)	-0.023 (0.970)
Constant	-4.245 (0.941)	1.603 (0.706)	-5.651 (0.195)
R^2	0.569	0.405	0.315
F	45.29	23.60	6.17
P-value	0.000***	0.000***	0.001***
N	69	69	69

Dependent variable model (3): *rep*

Dependent variable model (4): *proc*

Dependent variable model (5): *opi*

*** significant at the *p*<0.01 level

** significant at the *p* <0.05 level

* significant at the *p* <0.1 level

§ all *t*-statistics (in parentheses) are computed based on clustered standard errors.

assurance quality. The country-level variables *gotr, enf* and *lit* that have been used in the previous analysis as independent variables now serve as control variables. Similarly to model (1) and (2), we use weighted least squares regression to analyze the data to adjust for the uneven representation of countries in our sample.

All three models are significant with r^2 of respectively 57%, 40% and 31%. As predicted by hypothesis 2a, the results indicate that *rep* is positively associated by a big-4 firm ($p<0.01$). Similarly, hypothesis 2b is confirmed since the coefficient on *aud* is significantly associated with *proc* ($p<0.05$). Notably, it appears that the level of assurance provided with regards to the assurance approach is negatively associated with the litigation level ($p<0.10$) and positively associated with the sustainability ranking ($p<0.01$) of the country in which the report is issued. Next, we can also confirm hypothesis 2c, since the coefficients on *aud* is significantly negative ($p<0.05$), thus suggesting that the level of recommendations and final opinion provided by a big-4 firm is lower than other types of assurors. From the content analysis performed, it appears that specialist consultancies and certification bodies make extensive use of the AA1000AS approach. This standard focuses heavily on the stakeholder perspective and emphasizes aspects of materiality, completeness and responsiveness. The subcategory "conclusion" (see appendix a) is made up of four different aspects, three of which are covered by AA1000AS. Thus, although accountants tend to deliver higher quality assurance from an overall perspective, it can be inferred that other types of assurors have a relative advantage in terms of providing higher quality recommendations.

5. Conclusions

This study adds to the limited prior descriptive evidence in the area of sustainability assurance (e.g. O'Dwyer and Owen, 2005; Deegan et al., 2006). In particular, it extends prior findings of Mock et al. (2007) about the choice and effects of an assurance provider for sustainability reporting. Given that assurance services for sustainability reporting is a fairly recent and unregulated field, this paper also contributes to the literature on the adoption of voluntary non-financial assurance services (Hasan et al., 2005).

The conclusions of the paper can be summarized as follows. First, we investigated which factors explain the choice of a big-4 assurance provider. Consistently with recent studies in accounting and finance showing the importance of national legal environments, we predicted that firms domiciled in weaker legal systems are more likely to choose a large accounting firm as assuror of their sustainability reports. Our findings confirm this line of reasoning, in line with prior research on the determinants of governance mechanisms (e.g. Durnev and Kim, 2005) and auditor choice for financial reporting (e.g. Choi and Wong, 2007). Sustainability assurance services may serve as a good corporate governance substitute role when legal protection of corporate investors and stakeholders is weak in ensuring control over the credibility and quality of disclosed social and environmental information.

Second, we extend the model by Mock *et al.* (2007) by investigating whether the quality of assurance statements depends upon the choice of an assurance provider. We performed a content analysis of a representative sample of sustainability assurance statements relying

on a coherent evaluation approach of assurance quality proposed by O'Dwyer and Owen (2005). Our findings indicate that big-4 assurors provide a higher quality of assurance in comparison with other assurance providers on aspects related to reporting format and procedures used when conducting the verification. On the contrary, assurance statements issued by big-4 firms rank lower for aspects associated to recommendations and opinion.

The results of this study have managerial implications for the selection of sustainability assurance providers. There are country-level factors related to the quality of the legal environment that should be considered before choosing the appropriate independent assuror. Similarly, reporting companies should be aware that the added value of assurance statements issued by a big-4 accounting firm depends on the criteria used to assess the accuracy and completeness of an assurance engagement.

This study suffers from a series of limitations about the empirical modelling, sampling and data examined. First, the substantial lack of data in the area of corporate sustainable management represents a severe practical constraint to extend the investigation to additional explanatory factors, particularly when data is collected from different countries. Second, although the diffusion of sustainability reports and assurance statements is increasing, it is virtually impossible to obtain sufficient observations based on a strict random sample to conduct meaningful statistical tests.

Despite these weaknesses, the results of our paper warrant future investigations. Future research should focus on the replication of this study in different settings, with larger samples and with a longitudinal design in order to substantiate the findings obtained. Further, there is a need to refine the theoretical framework investigated in this study, by considering in particular additional firm-level drivers of sustainability assurance services, such as a company's experience in reporting, its scale of operations, and the specific demands of its stakeholders.

References

Accountability (2003). *AA1000 assurance standard*. London: accountability.

Accountability (2005). *National corporate responsibility index*. London: accountability.

Beets, S.D. and Souther, C.C. (1999). Corporate environmental reports: the need for standards and an environmental assurance service. *Accounting horizons, 13*(2), 129-145.

Bushman, R.M., Piotroski, J.D. and Smith, A. (2004). What determines corporate transparency. *Journal of accounting research, 42*(2), 207-252.

Carey, P., Simnett, R. and Tanewski, G. (2000). Voluntary demand for internal and external auditing by family businesses. *Auditing: a journal of practice & theory, 19*, 37-57.

Choi, J-H. and Wong, T.J. (2007). Auditors' governance functions and legal environments: an international investigation. *Contemporary accounting research, 24*(1), 13-46.

Cohen, J., P. Cohen, West, S. G. and Aiken, L.S. (2003). *Applied multiple regression and correlation analysis for the behavioral sciences*. Mahwah, New Jersey: Lawrence Erlbaum Associates.

Corporateregister (2008). *The csr assurance statement report*. London: Corporateregister.

CPA Australia (2004). *Triple bottom line. A study of assurance statements worldwide*. CPA Australia's audit and assurance centre of excellence, Melbourne.

Deegan, C., Cooper, B.J. and Shelly, M. (2006). An investigation of tbl report assurance statements: UK and European evidence. *Managerial Auditing Journal, 21*, 329-371.

Durnev, A. and Kim, E. (2005). To steal or not to steal: firm attributes, legal environment, and valuation. *Journal of Finance, 60*, 1461-1493.

FEE (2004). *FEE call for action: assurance for sustainability*. Brussels: Federation des Experts Comptables Europeens.

Francis, J.R. (2004). What do we know about audit quality? *British Accounting Review, 36*(4), 345-358.

GRI (2002). *2002 sustainability reporting guidelines*. Boston: Global Reporting Initiative.

Hasan, M., Maijoor, S., Mock, T.J., Roebuck, P., Simnett, R. and Vanstraelen, A. (2005). The different types of assurance services and levels of assurance provided. *International Journal of Auditing, 9*, 91-102.

IAASB (2003). *International standard on assurance engagements 3000 - assurance engagements other than audits or reviews of historical information*. New York: International Federation of Accountants IFAC.

KPMG/UVA (2005). *KPMG international survey of corporate sustainability reporting 2005*. Amsterdam: KPMG Global Sustainability Services.

La Porta, R.F., Lopez-de-Silanes, A. and Shleifer, A. (2006). What works in securities laws? *Journal of Finance, 61*(1), 1-32.

La Porta, R.F., Lopez-de-Silanes, A., Shleifer, A. and Vishny, R.W. (1998). Law and finance. *Journal of Political Economy, 106*, 1113-1155.

Mock, T.J., Strohm, C. and Swartz, K.M. (2007). An examination of worldwide assured sustainability reporting. *Australian Accounting Review, 17*(1), 67-77.

Neuendorf, K.A. (2002). *Content analysis guidebook*. London: Sage Publications.

O'Dwyer, B. and Owen, D.L. (2005), Assurance statement practice in environmental, social and sustainability reporting: a critical evaluation. *The British Accounting Review, 37*, 205-229.

Patten, D.M. (1991). Exposure, legitimacy, and social disclosure. *Journal of Accounting and Public Policy, 10*, 297-308.

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Appendix A

The table contains the aspects used for the content analysis of the assurance statements following the framework proposed by O'Dwyer and Owen (2005). For each aspect, we indicate in parentheses the guidelines elaborated by accountability (2003), FEE (2004) and GRI (2002). Each variable has been coded 0 in case of no reference, or 1 in case of reference in the assurance statement.

Categories (guidelines)	Definition
Category "reporting format" (*rep*):	
1. Title (FEE, GRI)	Title of the assurance statement
*2. Addressee (*AA1000, FEE, GRI)	Party to whom the assurance statement is formally addressed (either in title, separate addressee line, or within text)
3. Name of assuror (FEE, GRI)	Name of the firm that conducts the assurance engagement
4. Location of assuror (FEE, GRI)	Location of the office of the assurance provider
5. Report date (FEE, GRI)	Reference to the date at which the assurance exercise was finished
6. Responsibilities of reporter (FEE, GRI)	Explicit statement that reporter is responsible for preparation of report (keywords: responsible, responsibility)
7. Responsibilities of assuror (FEE, GRI)	Explicit statement that the reporter is responsible to express an (independent) opinion on the subject matter (the sustainability/environmental/social report)
8. Independence of assuror from reporting organization (AA1000, FEE, GRI)	Statement expressing the independence of the two parties involved
9. Impartiality of assuror towards stakeholders (AA1000)	Assuror's declaration of impartiality with respect to stakeholder interests
Category "assurance procedures" (*proc*):	
10. Scope of the assurance engagement (AA1000, FEE, GRI)	Assurance statement coverage (a 1 was assigned if anywhere in the assurance statement the coverage of the assurance exercise is stated)
11. Objective of the assurance engagement (AA1000, FEE, GRI)	Objective to be achieved through the engagement (indicating the level of assurance intended)
12. Competencies of assuror (AA1000, FEE)	Description of the professional skills that enable the engagement team to conduct the assurance exercise
13. Criteria used to assess evidence and reach conclusion (AA1000, FEE, GRI)	A statement that makes reference to particular criteria against which the sustainability report has been prepared (e.g. GRI and often internally developed standards)
14. Assurance standard used (AA1000, FEE, GRI)	Standards used which govern the work of the assurance provider (e.g. AA1000AS)
15.summary of work performed (AA1000, GRI)	Statement explaining the actions taken to arrive at a conclusion
Category "recommendations and opinion" (*opi*):	
16. Materiality (from a stakeholder perspective) (AA1000)	Degree of information provision on materiality level (when the conclusion states that the report is in conformance with the AA1000AS principles (materiality, completeness and responsiveness) this qualifies for a reference, and thus a 1 was assigned)
17. Completeness (AA1000)	Statement expressing that all material aspects are covered by the report (when the conclusion states that the report is in conformance with the AA1000AS principles of materiality, completeness and responsiveness this qualifies for a reference and thus, a 1 will be assigned)
18. Responsiveness to stakeholder (AA1000)	Statement referring to the organization's procedures (or lack of them) for identifying stakeholder interests and concerns
19. General conclusion/opinion (AA1000, FEE,GRI)	Statement expressing the result of the assurance exercise (if there is no general conclusion, but the conclusion solely refers to the 3 principles of AA1000AS of materiality, completeness and responsiveness, a 0 was assigned)