

The relationship between GRI-4 and performance: An exploratory view

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The relationship between GRI-4 and performance: An exploratory view

Previous research has not provided a clear position on the relationship between U.S. firms and sustainability. The purpose of this research is to determine whether there is such relationship. Furthermore, the study looks to analyze whether such relationship is positive for the accounting performance of GRI-4 guidelines U.S. adopters. Using Compustat, as main data source, we build a matched sample of 98 U.S. firms, half of them GRI-4 reporters and half of them not. Using several statistical analyses, we conclude that there is not a relationship between the accounting performance and the adoption of GRI-4 Guidelines for U.S. firms.

Keywords: *sustainability reporting, performance, Global Reporting Initiative (GRI)*

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Sustainability reporting has been around for quite time. The first round of sustainability reporting started in the 1970s in the United States (U.S.) and Western Europe (Mori Junior, Best, & Cotter, 2014). At present time a formal measurement for sustainability reporting is still missing. Despite this absence, companies have voluntarily adopted sustainability principles. Theoretically, being environmental and socially responsible lead to shareholder wealth maximization (Wilson, 2003). Moreover, as governments provide little guidelines on the implementation of sustainability at the corporate level, current efforts of firms reporting sustainability is a self-regulation expression (Searcy, 2012).

In fact, in 1997 the Global Reporting Initiative (GRI) was established, and currently is the most-used sustainability report guideline, recognized, and used world-wide (Mori Junior, et al., 2014). GRI define sustainability reporting as “the practice of measuring, disclosing, and being accountable to internal and external stakeholders for organizational performance towards the goal of sustainable development. A sustainability report should provide a balanced and reasonable representation of the sustainability performance of the reporting organization, including both positive and negative contributions” (GRI, 2011, p.3).

Moreover, two years later, in 1999 the Dow Jones Sustainability World Index (DJSWI) was established to track the performance of corporate sustainability of the world’s largest companies. It is the first family of global indices to track financial performance of this type of enterprises (Malone, 2013). According to the creators of DJSWI corporate sustainability is “a business approach that creates long-term shareholder value by embracing opportunities and managing risks deriving from economic, environmental and social developments” (RobecoSAM, 2013).

On 2003, Orlizky, Schmidt and Rynes (as cited on Mori Junior et al., 2014) meta-analyzed empirical studies on performance and sustainability to shed light on the ongoing debate about their positive relationship. They concluded that in fact being green pays. Despite this conclusion, sustainability reporting is still a voluntary practice in the U.S. Moreover, U.S. firms tend to be on the lower side of frequency of sustainability reporting.

For example, the percentage of U.S. organizations in the Fortune Global 500 that provided a sustainability report in 2010 occupies the 13th position of twenty in Mori Junior et al., (2013) study. Moreover, only 18.6 percent of the companies that qualified for The 2015 Sustainability Yearbook of DJSWI came from the U.S..¹ This percentage is small when we compared with European firms that comprises 46 percent of the DJSWI 2015 Yearbook. Furthermore, the U.S. lost three member firms on the Yearbook from 2014 to 2015 (RobecoSAM, 2015).

Previous facts do not provide a clear position on U.S. firms and sustainability. On one side, the U.S. was pioneer on sustainability reporting as far as the 1970s and was the birthplace of the GRI initiative, which is the most utilized sustainability reporting guideline worldwide. On the other hand, despite the clear evidence on the positive relationship between sustainability and performance, U.S. firms tend to be lagging on reporting sustainability when compared with other regions. Therefore, the purpose of this research is to determine whether adopting GRI-4

¹ To be included in the DJSWI the companies are scored on an annual Corporate Sustainability Assessment (CSA). The assessment is made using the responses that companies provide to a survey. This survey includes questions that capture general and industry-specific criteria covering three dimensions: economic, environmental, and social (RobecoSAM, 2013). These dimensions are the three interlocking principles of the World Commission on Economic Development to conceptualize sustainability (Galbreath, 2011). The companies included in the World Index have the highest sustainability score on the CSA. The scores are ranked against other companies in their industry.

guidelines provide a higher accounting performance among U.S. companies. Specifically, the research questions are: Does adopting GRI-4 guidelines have any effect on accounting performance among U.S. firms, and if so it is positive? Does U.S. firms that have adopted GRI-4 guidelines has a higher accounting performance than non-adopters firms?

The sample includes 98 U.S. firms, half of them reporting under GRI-4 guidelines and the other half not. For each firm financial performance variables were obtained and several statistical analyses (Correlation, t-test and OLS regression) were employed. The results do not provide support for the relationship between the adoption of GRI-4 guidelines and the accounting performance measurements employed.

The papers discuss the relevant literature in the next session. Then, the hypotheses are declared and the methodology is explained. The paper finalizes with the discussion of the results, conclusion and future research ideas.

Literature Review

Global Reporting Initiative

The GRI was founded in Boston. It emerges from the Coalition for Environmentally Responsible Economies (CERES) and the Tellus Institute, both U.S. non-profit organizations. Nowadays, its headquarters are located in Amsterdam, The Netherlands, and it has worldwide branches.

GRI's mission is to make sustainability reporting a standard practice for all companies and organizations (GRI, 2015). It provides a reporting framework that companies adopt voluntarily. This framework includes metrics and methods for measuring and reporting sustainability-related impacts and performance.

The Framework's guidelines are result of GRI's Due Process. This due process includes public hearings and discussion with international experts from different business areas. According to GRI website "this multi-stakeholder, consensus-based approach gives GRI's principles and Standard Disclosures a unique credibility, completeness, and legitimacy".

On May 2013, the GRI launched its newest guidelines: G-4.² The G-4 Guidelines offer 58 General Standard Disclosures, 91 indicators for Specific Standard Disclosures and a generic set of Disclosures on Management Approach.³

According to the GRI, G-4 Guidelines provide several enhancements from previous versions (GRI, 2014):

- Up-to-date Disclosures on governance, ethics and integrity, supply chain, anti-corruption and GHG (greenhouse gas) emissions,
- Detailed guidance on how to select material topics, and explain the boundaries of where material impacts occur,
- Flexibility for preparers to choose the report focus,
- Flexibility to combine local and regional reporting requirements and frameworks, and
- Up-to-date harmonization and reference to all available and internationally-accepted reporting documents.

² The GRI would recognize reports based on previous guidelines (G-3 and G-3.1) up to December 31, 2015. After that date, reports should follow G-4.

³ This last set of generic disclosures are new to G-4. Disclosure on Management Approach was introduced in the G-3 Guidelines and it was designed to provide sustainability report users with information on the implementation of organizational strategy, and provide context for the reported indicators and performance trends. However, GRI's interest groups led to further development of these guidelines.

The G-4 guidelines help organizations to report on the implementation of other sustainability frameworks or initiatives, such as:

- Organization for Economic Cooperation and Development (OECD) Guidelines for Multinational Enterprises, 2011,
- United Nations' (UN) "Protect, Respect and Remedy" Framework, 2011, and
- UN's Global Compact Ten Principles, 2000.

The GRI promotes its framework among companies identifying a series of internal and external benefits (GRI website, 2015). Among the internal benefits performance is key to some of them:

- Emphasis on the link between financial and non-financial performance,
- Streamlining processes, reducing costs and improving efficiency,
- Benchmarking and assessing sustainability performance with respect to laws, norms, codes, performance standards, and voluntary initiatives, and
- Comparing performance internally, and between organizations and sectors.

Moreover, GRI reporting provides external benefits as reputation enhancement and brand loyalty, and enabling external stakeholders to understand the organization's value.

Corporate social performance and corporate financial performance

The search for a link between corporate social performance and corporate financial performance was begun nearly 40 years ago (Roman, Hayibor, & Agle, 1999). While the results have been mixed, research tends to provide a positive relationship between the concepts. Although the issue is on ongoing debate, research on the topic has shifted to identifying relevant

variables that may moderate the relationship (Dixon-Fowler, Slater, Johnson, Ellstand, & Romi, 2013; Endrikat, Guenther, & Hoppe, 2014).

According to previous research, being socially responsible lead to better performance for several reasons (Dixon-Fowler et al., 2013):

1. Proxy for operational efficiency due to the savings from no wasting resources in pollution or its related costs. These improved efficiency in turn leads to competitive advantage.
2. Reflection of strong organizational and management capabilities from a long-term perspective. Thus, continuous innovation and reduced organizational risk.
3. Increased reputational benefits, which in turn brings better employees and increased sales.
4. Stronger relationship with diverse stakeholders with different expectations and needs.

On the other hand, some researchers have argued that pursuing sustainability may be both unprofitable and inappropriate for organizations. This argument rests on the economic trade-off argument that incurring in these additional costs do not exceed its benefits. Furthermore, pursuing such strategy is transferring a societal cost to the firms (Dixon-Fowler et al., 2013).

Dixon-Fowler and her colleagues (2013) report some potential moderators to the corporate social performance and financial performance. Their results are based on a meta-analysis of research on the topic; and supports that some firm characteristics (small and U.S.

firms) and methodological issues (market based measures) have indeed moderating effects on the relationship of sustainability and performance.

Endrikat, et al. (2014) present further moderators to the positive relationship between social and financial performance. Their results are also based on a meta-analysis; and provide evidence for a bidirectional causation. Furthermore, the relationship is stronger for proactive approaches of sustainability, is influenced by firm's financial risk, and is influenced by controlling samples' endogeneity and type.

Hypotheses

Given that previous literature positively links sustainability and performance, and GRI-4 guidelines provide a reporting vehicle for communicating sustainability practices, we propose:

H1. GRI-4 guidelines is positively related to accounting performance of U.S. firms.

H2. GRI-4 guidelines adoption results in higher accounting performance among U.S. firms.

Methodology

Sample

The sample selection process initially identifies all the 95 U.S. firms⁴ that have reported under GRI-4 Guidelines as of February 2015. All these companies have filed a report that appears electronically on GRI's Sustainability Disclosure Database on the GRI webpage. U.S.-based firms were selected as unit of analysis because previous research has shown that these firms benefit more than international counterparts (Dixon-Fowler et al., 2013). We believe that since

⁴ GRI officials made the regional membership of firms on the GRI's Sustainability Disclosure Database.

sustainability reporting is voluntary in the U.S., we do not have to worry about the moderator effect of national regulations.⁵

From the initial number of identified firms, 65 remained after the following screening:

1. Companies reporting under GRI-4 guidelines for the year end of 2013.
2. Listed companies on a mayor U.S. exchange.
3. Companies with accounting data on Compustat.

A second screening was done to eliminate companies with missing values and negative total assets. This procedure eliminated 16 additional firms. The final sample of U.S. firms reporting under GRI-4 is 49.

To complete the final sample a matching procedure was performed with U.S. non-adopters of GRI-4 Guidelines. The matching procedure was executed using Compustat. To be a suitable, match a company has the following characteristics:

1. Same 2-digit and 4-digit SIC as its GRI-4 counterpart;
2. Assets' size within 50% of its GRI-4 counterpart;
3. Calendar year end month must be the same as its GRI-4 counterpart.

The final sample consists of 98 firms⁶.

Variables

Dependent variable

⁵ U.S. lack of sustainability enforcement and reporting can be seen in various instances. For example, the U.S. is one of the fewest industrialized nations that have not signed the Kyoto Protocol, a global initiative for promoting sustainability.

⁶ In order to finish this manuscript on time and to maintain a testable sample size, the matching procedures includes some firms that are non-us firms. These firms will be eliminated in the future to provide a robust statistical analysis.

The dependent variable for this research is accounting-based measures of performance. Dixon-Fowler et al. (2013) reports that accounting measures may be better indicators of efficiency and organizational capabilities. Specifically, we use ROE (for financial performance) and ROA (for operating performance), due to its long-term financial representation. All these measures will be for same year of the sustainability reporting. Again, research supports lagging performance variables does not influence results (Dixon-Fowler et al., 2013; Endrikat, et al., 2014).

To calculate the Return On Assets (ROA), the 2013 total net income (or loss) was divided by the average of assets total. This average was calculated using the 2012 and 2013 total assets for all companies. Furthermore, the Return On Equity (ROE) was calculated with the 2013 total net income (or loss), divided by the average of total stockholder's equity. This average was calculated using the 2012 and 2013 total stockholder's equity total for all companies.

Independent variables

The main variable for the analysis is a dummy variable for representing whether or not the firm has adopted GRI-4 guidelines. This variable is a dichotomous variable, where 1 is assigned if the company has reported under GRI-4 guidelines.

Previous research on the relationship between sustainability reporting and performance has shown differences between industries and firm size and risk. Therefore, the following control variables were constructed: dummy variables for type of industry, continuous variables for the size and risk. Industries dummies were created based on the Standard Industrial Classification (SIC) of 2012 of each company and includes: mining and construction, manufacturing,

transportation and utilities, retail, and financial and other services.⁷ The size was measured as the Log of the total assets of the firms for 2013. Finally, the firm risk is the standard deviation of monthly stock returns for the previous 60 months.⁸ Table 1 presents the descriptive statistics of the variables.

// TABLE 1 ABOUT HERE //

In general, the operating performance (ROA; $\mu = 0.071$) is much lower than the financial performance (ROE; $\mu = 0.199$). The firm risk mean is 11.771 for the whole sample, whereas for GRI-4 firms the mean risk is 11.50, and non-GRI-4 is 12.00. Therefore, the non-adopters firms present a slightly higher risk. In terms of industries' distribution, the manufacturing industry presented the higher frequency on the sample (40.9%)⁹, followed by the services industry (34.7%).

Methods

In order to answer the research questions inference statistical methods were employed. First, we ran correlation analysis to determine the possible relationship between GRI-4 guidelines and accounting performance of U.S. firms, and the direction of such association. The Pearson model (r) was employed:

$$r = \frac{1}{N} \sum \left[\frac{(x_i - \bar{x})}{SD_x} \cdot \frac{(y_i - \bar{y})}{SD_y} \right]$$

⁷ Although mining, construction, financial services, and other services have different SIC, we aggregate them in two distinct groups (mining and construction; and financial and other services) for a more parsimonious model.

⁸ CRSP was the data source. As explained in footnote 6, due to the inclusion of non-us firms, some companies were eliminated from the analysis as the risk measurement was missing. In that case, the sample size was 88 firms.

⁹ For the regression analysis the manufacturing industry was the reference dummy variable.

where, $i = 1, \dots, 98$; and x is the whether the firms has adopted GRI-4, and y is the accounting performance variable (ROA or ROE).

Second, we performed t-test and multiple regression analysis (OLS) to determine whether GRI-4 guidelines adoption results in higher accounting performance among U.S. firms. OLS ensure maximal prediction from the set of independent variables (Hair, et al., 2010).

Main regression function:

$$Performance_i = \alpha_i + \beta_1 GRI4_i + \beta_2 Size_i + \beta_3 Industry_i + \beta_4 Risk_i + \varepsilon_i$$

where, $i = 1, \dots, 98$.

Results and discussion

Based on the models and the statistical results, both hypotheses 1 (H1 and H2) are not supported. Thus, there is no association between accounting performance of U.S. firms and the adoption of GRI-4 guidelines. Moreover, the adoption of GRI-4 guidelines does not result in higher accounting performance. Tables 2 through 4 present the results for the statistical analyses.

// TABLE 2 ABOUT HERE //

Table 2 shows the results for the correlation analysis between GRI-4 dummy and both accounting performance measurements (ROA and ROE). Although there is a positive association between the sustainability guidelines and both ROA ($r = 0.178$) and ROE ($r = 0.996$), these associations lack statistical significance. Therefore, we cannot conclude that GRI-4 guidelines are positive related to accounting performance of U.S. firms.

// TABLE 3 ABOUT HERE //

Table 3 provides the *t*-test results for the means for the performance measurements of GRI-4 adopters and non-adopters. For ROA GRI-4 firms presents a higher ($\mu_{\text{GRI-4}} = 0.085$; $\mu_{\text{NON-GRI-4}} = 0.056$) and statistical significant measure, at the 10 percent level. Therefore, we can say that GRI-4 guidelines adoption might increase the operating performance. In the case of ROE, the means for both groups are the same ($\mu_{\text{GRI-4}} = 0.199$; $\mu_{\text{NON-GRI-4}} = 0.199$) and statistical insignificant. Leading us to conclude that the adoption of GRI-4 guidelines will not affect the financial performance of a firm.

// TABLE 4 ABOUT HERE //

Table 4 presents the results for the regression analysis. The table show results for four models. The first two columns have ROA as dependent variable, and the latest two columns ROE. The difference between Model 1 and Model 2 is the inclusion of the firm risk variable to the analysis. Given the lack of fit of the ROE models (negative adjusted R^2 ; Model 1 Adj. $R^2 = -0.052$; Model 2 Adj. $R^2 = -0.064$), we will not further comment on them.

Model 1 of ROA, supports a positive relationship between GRI-4 guidelines adoption and the accounting performance among U.S. firms, at the 10 percent level. Such relationship is lower for the financial and other services industry, in comparison with manufacturing (given that the coefficient of the regression is significant, at the 5 percent level). However, the relationship of the guidelines and ROA disappears when we control for the firm risk (Model 2).

Taking both models into account it seems that the adoption of GRI-4 Guidelines does not improve the performance of firms. Model 2 presents the best fitted model, where the significance of the GRI-4 dummy disappears.

Conclusions

The purpose of this research is to determine whether reporting under GRI-4 Guidelines improve accounting performance of U.S. firms. Previous literature leads us to hypothesize that the adoption of GRI-4 guidelines improves the accounting performance of U.S. firms. Using a matching technique, we analyzed a sample of 98 firms, half of them GRI-4 users and half of them not users. We use three statistical tools: correlation analysis, t-test, and OLS regression. The results do not provide statistical support for the hypotheses.

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Table 1. Descriptive Statistics

Pane A. Quantitative variables

	Min.	Max.	Mean	SD
ROA	-0.204	0.378	0.071	0.083
ROE	-0.478	2.638	0.199	0.363
Log Total Assets	2.690	5.970	4.274	0.658
Firm Risk	1.000	64.98	11.771	9.908

Pane B. Categorical variable

	Percentage (%)
Industry	
Mining & Construction	12.2
Manufacturing	40.9
Transportation & Utilities	10.2
Retail	2
Financial and other services	34.7

*N = 98, with the exception for firm risk where N = 88.***Table 2. Correlation matrix**

		1	2	3
1	GRI-4	1		
2	ROA	0.178	1	
3	ROE	0.996		1

*N = 98***Table 3. t – test results**

	Mean		
	GRI-4 adopter	Non-GRI-4	<i>t</i> statistics
ROA	0.085	0.056	-1.772*
ROE	0.199	0.199	0.005

** denotes significance at 10% level.*

Table 4. Regressions results

	ROA		ROE	
	Model 1	Model 2	Model 1	Model 2
Constant	0.134** (0.057)	0.114** (0.049)	0.412 (0.267)	0.384 (0.176)
GRI_Dummy	0.030* (0.016)	0.024 (0.015)	-0.001 (0.076)	-0.016 (0.849)
Log Total Assets	-0.011 (0.013)	-0.014 (0.011)	-0.043 (0.061)	-0.034 (0.600)
Mining	-0.035 (0.026)	-0.048** (0.023)	-0.111 (0.125)	-0.138 (0.131)
Transportation	-0.037 (0.028)	-0.042 (0.025)	-0.038 (0.132)	-0.055 (0.703)
Retail	-0.037 (0.058)	-0.072 (0.050)	-0.146 (0.274)	-0.183 (0.284)
Services	-0.061** (0.019)	-0.072*** (0.017)	-0.018 (0.089)	-0.065 (0.097)
Risk		0.004*** (0.001)		0.002 (0.004)
Adj. R ²	0.093	0.339	-0.052	-0.064
F statistic	2.634**	7.364***	0.209	0.257

N = 98, with the exception for firm risk where N = 88.