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An Investigation of the Economic Performance of Sustainability Reporting Companies Versus Non-reporting Companies: A South African Perspective

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ABSTRACT This study explores the potential differences in the economic performances of companies that report on their sustainability information and those companies that do not report thereon. Even though there have been similar studies conducted in 1st world countries, this is the first study of its kind in a developing economy, and considers the economic performances of South African publicly listed companies. Annual performance data, from 2002 to 2009, for the two groups of companies was taken from the McGregor BFA database. The significance of the average differences between key financial indicators of the test-group and the control-group was determined by the t-test, while the difference of positive or negative Economic Value Added and Market Value Added values between these two groups was also evaluated. Even though some evidence indicates that companies that disclose sustainability reports may experience better economical performance, the statistical analysis could not confirm a definite positive relationship between sustainability reporting and economic performance.

INTRODUCTION

This article investigates a potential relationship between companies' economic performances and the disclosure its sustainability reports. The World Commission on Environment and Development's report, *Our Common Future,* sets the stage for the debate around growth and sustainable development (WCED 1987) and identifies *economic*, *social* and *environmental* development as integral components of sustainable development (WCED 1987; Langhelle 1999). According to Doane and MacGillivray (2001), a sustainable company should be striving for more than only profitability, and should also take social and environmental aspects into account in its operational strategies and policies. Notwithstanding, Frost et al. (2005) found that the annual report of a company was the least valuable source of information on corporate sustainability, especially in terms of the number of indicators observed and the diversity of information provided. The Global Reporting Initiative (GRI), on the other hand, developed a widely-used sustainability reporting framework that sets out principles and indicators for organisations to use in measuring and reporting their economic, environmental and social performance (Frost et al. 2005; Jones 2005; GRI 2007). In this study, the interests of shareholders, who are mainly concerned with a company's economic performances, are set against the interests of stakeholders, who may also be concerned about sustainability aspects. The importance of the topic is found in its investigation of the potential relationship between economic performance and social responsibility, where the latter is measured by disclosure of its environmental and social performances.

Social responsibility occurs when an organisation appears to advance a social agenda beyond that which is required by rules and regulations (Siegel and Vitaliano 2007; Carey 2009). Even though the voluntary disclosure of sustainability reports to stakeholders is regarded as an integral aspect of social responsibility, there have been mixed results in many studies into the link between social responsibility and economic performance. For example, Hamilton et al. (1993) found no statistically significant differences between the risk-adjusted investment return of 32 socially responsible and conventional

mutual funds between 1981 and 1990, while Guerard (1997) also found no significant differences between the average return of 950 'ethically' screened stocks and 1300 'regular' stocks. More recently, Barnett and Salmon (2003) found that the relationship between social responsibility and corporate performance remained in dispute, and Jones et al. (2008) found that the majority of international studies indicate that socially responsible investment funds may in effect slightly under-perform in the market. In contrast, when using a composite model integrating both *value* and *growth*, Guerard (1997) found evidence of better performance by ethically screened stocks, while Waddock and Graves (1997) found a positive relationship between social responsibility and, not only *historical* financial performance, but also *future* financial performance. Furthermore, after conducting an analysis of studies on social responsibility and performance management, Orlitzky et al. (2003) found that social responsibility is likely to pay off in terms of performance management, while Boutin-Dufresne and Savaria (2004) state that there is growing evidence that market participants should at least care about social responsibility, and Viviers (2009) is of the opinion that the long-term risk-adjusted performance of socially responsible investment funds is on par with traditional funds and stock market indices.

In a study on the aspect of sustainability reporting, Jones (2005) found compelling evidence of a systematic and positive relationship between *sustainability disclosure* and *economic performance* in Australia. Furthermore, Roy and Ghosh (2011) considered the results of about 20 related studies, seven of which investigated the link between voluntary environmental disclosure and economic performance. Even though they found mixed results in respect of the relationship between sustainable environmental practices, the disclosure thereof and economic performance, they do point out that the majority of these studies found a positive association between sustainability disclosure and economic performance. Roy and Ghosh (2011) also pointed out that most of the studies were done in North America and various European countries, and that only a few studies are available from African and Asian countries. Finally, Aras et al. (2010), who investigated the relationship between corporate social responsibility (CSR) and firm financial performance by analyzing the Istanbul Stock Exchange 100 Index, imply that different results are possible when comparing the results of *developed* countries to that of *developing* countries.

To summarize, previous studies show mixed results of i) the association between social responsibility and economic performance, as well as ii) the association between voluntary sustainability disclosure and economic performance. Furthermore, much of the earlier mentioned research was conducted against the backdrop of the developed economies of North America, Europe and Australia. The gap that this article attempts to fill is to contribute to the literature by considering the potential relationship between social responsibilities, where voluntarily sustainability reporting is used as a yardstick, and the economic performances of companies in South Africa, as a developing economy on the African continent. Therefore, the research question is defined as follows:

P_1: Is there a statistically significant difference in the relative economic performance of companies that voluntarily submit sustainability reports and those who select not to submit such reports?

Therefore, this study should be considered an exploratory research project, which is, according to Blumberg et al. (2008), undertaken when not much is known about the situation at hand or when limited information is available about a particular problem or scenario.

Even though the central argument in this article is that companies with relatively higher economic performances should have the necessary resources to support voluntarily sustainable reports, the primary purpose of the study is not to estimate the association between social responsibility and economic performance directly, but rather to examine the difference in economic performance of companies listed on the JSE Ltd securities exchange in Johannesburg, South Africa, that voluntarily provide sustainability reports against companies that prefer not to disclose such information. Considering the research objective against the background of the earlier research findings, the following null-hypothesis can be defined:

H_0: The differences between corporate economic performances of companies that disclose their sustainability information is not expected to better than companies that do not disclose such information.

In order to test for this, a year-on-year comparison between the economic performances of the two groups of companies was done to reveal differences in this regard. The remainder of the paper is structured as follows: Firstly, to set the context of the article, some background is provided with regard to the stakeholder approach to sustainable development, as well as the economic performance indicators of the study. This in turn is followed by an explanation of the research method utilised, the results of the empirical investigation and finally, some conclusions, limitations and future research possibilities are provided.

BACKGROUND

The Stakeholder Approach to Sustainable Development

The conventional capitalist viewpoint is that the property rights of the capital providers justify their dominance in management decisions (Jones et al. 2007), which translates into a corporate objective whereby the financial gains and returns to the shareholders become the pre-eminent objective (Jensen 2001; Arnold 2005). However, sustainable development can be defined as development that meets society's current needs, without compromising the ability of future generations to meet their own needs (Adams et al. 2004). Doane and MacGillivray (2001) state that companies that effectively manage their social and environmental obligations are more likely to be economically sustainable. As the effective owners of a company, the shareholders can rightly expect their company to provide sustainable growth, but other stakeholders can also impact such growth, and an over-emphasis on the economic performance could result in the neglect of the broader stakeholder interests, which in turn may result in a negative impact on economic performance. These perspectives create a picture of social responsibility as a movement, which, according to Kelly and White (2009), will involve actions only to be undertaken if the demands of the priority stakeholders, namely the investors and the consumers, are met concurrently. Sustainable development is therefore not a question of either shareholders *or* (other) stakeholders, but of shareholders *and* stakeholders within the context of the corporate strategies.

Kelly and White (2009) state that the dominant ethos of corporate design remains on the benefit of the owners/capitalists, irrespective of how remote or passive they may be. According to Viviers (2009), companies should change their emphasis from focussing purely on the highest possible returns, to considering their environmental, social and corporate governance policies and practices. Stakeholders include any group or individual who can affect, or is affected by, the achievement of a company's objectives (Freeman 1984). Furthermore, Kelly and White (2009) also state that for sustainable development strategies to be effective in this modern corporate environment, corporate design should be about the *purpose* of the company, including the systems that support the company's existence, not just for a single aspect thereof. King (2002) acknowledges that the challenge for good corporate citizenship is to seek a balance between the expectations of the shareholders and other stakeholders. It is, therefore, prudent to move towards a model where all stakeholders' interests are taken into account, while still recognising the shareholders' ownership rights.

Stakeholder theory can also be considered from a social responsibility approach when Jones (2005) defines social responsibility as the notion that companies have an obligation to stakeholder groups other than the shareholders. Two seemingly opposing viewpoints to stakeholder management, include, firstly the *strategic stakeholder management* model, which describes a relationship that accepts that definite outcomes will be achieved if certain behaviours are adopted (Jones and Wicks 1999). A key assumption hereof is that the primary objective of corporate decisions is to achieve market place success and maximise shareholder value (Berman et al. 1999; Jensen 2001). Stakeholder management, therefore, becomes a means to an end, which may have nothing to do with the welfare of stakeholders other than the shareholders. Alternatively, the *intrinsic stakeholder commitment* approach is based on considerations where management establishes certain ethical guidelines in the decision-making processes (Berman et al. 1999). Stakeholders' interest is, therefore, viewed as having intrinsic value (Jones and Wicks 1999) and a company shapes its strategies around certain commitments to its stakeholders. Considering the above viewpoints on stakeholder strategies within the context of the current global economic climate, it may be short-sighted to merely practice social responsibility on a superficial

level. It should rather become strategic management's responsibility to direct company resources in such a way as to benefit all legitimate stakeholders in a more foundational and integrated manner.

Economic Performance Indicators

The question now arises as to how companies' economic performances are to be gauged. Considering past research into social responsibility, sustainable development and economic performance, conducted by Hamilton et al. (1993), Guerard (1997) and Cowton (2004), it would seem as if the preferred performance measurement instrument is the particular entity's return on investment (ROI). However, due to the exploratory nature of this study in attempting to identify potential trends and future research focus areas, it was decided to consider the economic performances from a slightly broader perspective. Firstly, from an *investment return* perspective, the return on assets (ROA) ratio, which measures profitability in relation to the employed assets (Correia et al. 2007; Horngren et al. 2008), and the return on equity (ROE) ratio, which measures the rate of return on ownership interest (Horngren et al. 2008) were considered. Secondly, from a broader *residual income* perspective, the economic value added (EVA), as an internal performance measure aiming to determine the company's economic profit (Stewart 1999) and market value added (MVA), which is the present value of future EVA values (Kramer and Peters 2001), as an indicator of the difference between the company's market value and its invested capital, were considered. According to Drucker (1995), the philosophy behind EVA is that even if a firm is profitable, it may not necessarily be adding any value. In order to actually add value, the profit must be in excess of the firm's cost of capital. If the profit is less than the cost of capital, it implies that the company returned less value to the general economic environment than the value of the resources it received from the economic environment, or in other words, it did not create wealth, it destroyed wealth (Drucker 1995; Correia et al. 2007). Equity investors require a return on their investment that must compensate them for their risk exposure. Note that the cost of equity includes this risk premium. Therefore, a firm with a zero (or higher) EVA performed sufficiently to pay for the risk exposure of the shareholders, whereas an EVA of less than zero implies an insufficient return for the risk undertaken.

RESEARCH METHOD

As mentioned, much of the earlier referenced research was conducted against the backdrop of developed economies, such as the USA, Europe and Australia. Within the South African context, this exploratory study's population field was limited to JSE Ltd companies, of which there was relevant data available on the McGregor's Bureau of Financial Analysis (BFA) database as hosted at the North-West University, Potchefstroom Campus in South Africa. Annual data were taken from 2002 to 2009. There were two aspects to consider in the determination and analysis of this sample, of which the first aspect was the identification of the test group of companies. As a guide to whether companies have adopted a sustainability reporting approach, companies that submitted sustainability reports to the GRI for at least four years since 2002 were identified. This resulted in ten listed companies being selected for the test-group, and includes Barloworld, the Bidvest Group, Arcelormittal SA, the MTN Group, Pick 'n Pay Stores, PPC Cement, SABMiller, Sasol, Telkom and Wooltru. Secondly, for control purposes, a representative and comparative sample of a further listed ten companies in the same JSE sectors, which did not submit sustainability reports to the GRI, were selected. This control-group of companies includes Imperial Holdings, the JD Group, Nampak, Naspers, Netcare, Remgro, Compagnie Financière Richemont, Sappi, Steinhoff and Tiger Brands. Note that it could be possible that companies in the control group could have prepared sustainability reports, but no evidence could be found that they submitted such reports to the GRI. Once the test group and control group of companies have been identified, the relevant economic performance data was collected from the BFA database. Further detailed verification as to the actual content of these submissions was not done.

In respect of the statistical analysis, the annual mean (average) ROA values and ROE values of the test group and control group were calculated. The t-test, which is suitable for smaller samples (Steyn et al. 1999), was performed to determine whether the difference between the test-group and control-group's means is signifi-

cant. Since Microsoft Excel was used, the F-test was first performed to determine whether a t-test, assuming equal variances, or a t-test, assuming unequal variances, should be run (Arthur 2009). The existence of some outliers could have given biased results. The method used to omit these outliers is recommended by Wegner (2007), where data values that lie more than 1.5 ($Quartile_3$ – $Quartile_1$) away from either the lower quartile or the upper quartile were omitted. For ROA and ROE, the null-hypothesis is that the mean difference = 0. The alternative hypothesis is that the mean difference < > 0. Since this is a two-sided approach, the two-tail values were used in the statistical analysis. EVA and MVA are expressed in monetary terms (South African Rand) and an analysis of the data reveals that the size of a company has an influence on these values, and that these values are extremely volatile from year-to-year. The result is that means and/or descriptive statistics will make no sense. EVA and MVA were analysed by classifying the annual company values as either positive or negative. A positive EVA value implies that shareholders gained more than what their expectations were and a negative value that they gained less than what their expectations were. A positive MVA value implies that the market value of shareholders' interest is more than the book value and a negative value implies the opposite. No statistical analysis can be applied to this categorical data (positive and negative), because there is no measure of spread and skewness (Wegner 2007).

RESULTS AND DISCUSSION

Except for the mean (arithmetic average) and the median (50th percentile), all the other descriptive statistics in Tables 1 and 2 explain the reliability of the mean or median. The standard error indicates how the data differs from the total population if it is assumed that all the data of the population will form a normal distribution curve. The sample variance shows how the data is spread around the mean and the standard deviation is a standardised method to show how the data is spread around the mean. Skewness and kurtosis indicate the shape of the distribution curve, for example, if the skewness is positive, the curve has a long tail to the right and the mean is larger than the median. A normal kurtosis indicates a flat curve and a positive kurtosis indicates a high peak. The confidence level is calculated at 95 percent, which indicates that the relevant variable will fall between the boundaries of the mean ± the confidence level score 95 out of a 100 times. Table 1 reveals the descriptive statistics, F-test and t-test for ROA for the period 2002 to 2009. Variable 1 (V1) is the companies in the test group (who submitted GRI reports) and Variable 2 (V2) is the companies in the control group. During all the years, except 2009, the means and the medians of the test group (V1) are larger than those of the control group (V2). The F-test was only helpful to select the appropriate t-test. The t-test was helpful to determine whether the means of the test

Table 1: ROA: Descriptive statistics, F-test and t-test information for GRI-reporting (V1) and non-GRI-reporting (V2) companies from 2002 to 2009

Statitics	*09*		*08*		*07*		*06*		*05*		*04*		*03*		*02*	
	V1	*V2*	*V1*	*V2*	*V1*	*V1*	*V2*	*V2*	*V1*	*V2*	*V1*	*V2*	*V1*	*V2*	*V1*	*V2*
Mean	0.13	0.24	0.21	0.07	0.21	0.17	0.17	0.14	0.18	0.14	0.15	0.11	0.12	0.11	0.14	0.11
S. error	0.04	0.11	0.05	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.01	0.02	0.03
Median	0.11	0.16	0.22	0.11	0.20	0.18	0.15	0.12	0.16	0.13	0.13	0.10	0.10	0.09	0.14	0.12
Std dev	0.13	0.36	0.16	0.12	0.14	0.11	0.08	0.09	0.11	0.08	0.08	0.05	0.08	0.04	0.06	0.08
S. var	0.02	0.13	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.00	0.00	0.01
Kurt	0.10	6.14	0.68	4.39	0.02	0.50	-0.40	-0.30	0.54	0.69	-1.10	-1.60	-0.90	-0.00	0.26	3.65
Skew	0.80	2.34	0.75	-2.00	0.44	0.29	0.11	0.49	0.72	-0.4	0.03	0.03	0.06	1.03	-0.60	-1.70
Min	-0.00	-0.00	0.03	-0.20	0.03	0.02	0.03	0.02	0.02	-0.0	0.02	0.03	0.01	0.06	0.01	-0.10
Max	0.38	1.19	0.53	0.18	0.47	0.38	0.29	0.30	0.40	0.26	0.27	0.18	0.24	0.19	0.21	0.19
Observ	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
F-Test																
F-value	0.69		3.27		2.49		0.88		1.89		2.30		2.94		2.04	
t-Test																
Observ	10.00	9.00	9.00	9.00	10.00	9.00	10.00	10.00	9.00	9.00	10.00	10.00	10.00	10.00	10.00	9.00
Df	17.00		16.00		17.00		18.00		16.00		18.00		18.00		17.00	
t Stat	-0.01		1.62		1.17		0.66		0.02		1.49		0.46		0.25	
P(T<=t)	0.99		0.13		0.26		0.52		0.99		0.15		0.65		0.80	

Source: Own calculations. * = Significant at 5% (two-tailed) and ** = Significant at 10% (two-tailed)

Table 2: ROE: Descriptive statistics, F-test and t-test information for GRI-reporting (V1) and non-GRI-reporting (V2) companies from 2002 to 2009

Statitics	*09*		*08*		*07*		*06*		*05*		*04*		*03*		*02*	
	V1	*V2*	*V1*	*V2*	*V1*	*V2*	*V1*	*V2*	*V1*	*V2*	*V1*	*V2*	*V1*	*V2*	*V1*	*V2*
Mean	0.23	0.24	0.29	0.07	0.28	0.17	-0.3	0.34	13.15	0.32	0.24	0.48	0.00	0.17	0.43	0.30
S. error	0.13	0.11	0.09	0.04	0.06	0.03	0.49	0.10	12.49	0.09	0.74	0.30	0.84	0.03	0.11	0.07
Median	0.09	0.16	0.22	0.11	0.26	0.18	0.27	0.26	0.52	0.27	0.28	0.20	0.21	0.15	0.33	0.23
Std dev	0.41	0.36	0.27	0.12	0.20	0.11	1.54	0.32	39.50	0.27	2.33	0.94	2.66	0.11	0.35	0.21
S. var	0.17	0.13	0.07	0.02	0.04	0.01	2.37	0.10	1560	0.08	5.45	0.89	7.06	0.01	0.12	0.04
Kurt	3.98	6.14	1.55	4.39	0.13	0.50	5.97	0.85	10.00	0.71	4.63	9.47	5.05	0.88	1.97	2.83
Skew	2.03	2.34	1.32	-2.00	0.65	0.29	-2.40	1.01	3.16	0.66	-0.70	3.05	-1.10	0.93	1.62	1.80
Min	-0.10	-0.10	0.01	-0.20	0.01	0.02	-4.30	-0.10	0.23	-0.10	-5.10	0.03	-6.40	0.03	0.13	0.11
Max	1.24	1.19	0.88	0.18	0.62	0.38	0.90	1.00	126	0.85	4.76	3.13	4.78	0.39	1.20	0.78
Observ	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
F-Test																
F-value	0.46		8.41		0.14		8.10		7.05		1.48		3.45		3.30	
t-Test																
Observ	8.00	9.00	9.00	9.00	6.00	9.00	10.00	9.00	9.00	9.00	8.00	9.00	8.00	9.00	8.00	8.00
Df	15.00		10.00		11.00		8.00		8.00		15.00		15.00		14.00	
t Stat	-1.20		1.73		3.32		0.07		-2.67		2.03		1.03		1.59	
P(T<=t)	0.24		0.11		0.01*		0.95		0.03*		0.06**		0.32		0.13	

Source: Own calculations. * = Significant at 5% (two-tailed) and ** = Significant at 10% (two-tailed)

group and control group differ significantly. Note that the number of observations in the t-test is in some cases less than the number of observations in the descriptive statistics. This is the result where outliers were omitted. Under the t-test is shown the t-stat and degrees of free-dom (df), but the most important is the p-value, which is an indication of the extent to which the null-hypothesis is rejected or not rejected. The null-hypothesis was never rejected during these years, using significance levels of five and ten percent, where $\rho < \alpha = 0.05$ and 0.10, respec-tively (two-tailed).

Table 2 reveals the descriptive statistics, F-test and t-test for ROE for the period 2002 to 2009. During all the years, the mean-value of the test group was four times higher than the control group, and the mean of the control group was four times higher than the test group. It is also important to note that there are some relatively large outliers in the data. Therefore, the medians may be better representative to the data and in seven cases it was higher for the test group and only in 2009 did the control group have a higher median. Nevertheless, the outliers were omitted and the t-test was done to determine whether there are significant differences between the means of the test and control group. The null-hypothesis was rejected in 2007, in favour of the test group, and in 2005 and 2004, in favour of the control group.

Table 3 indicates that the EVA of the test

Table 3: Number of times that EVA and MVA were positive and negative for the test and control groups (2002 to 2009)

Year	*EVA*				*MVA*			
	Test group (V1)		*Control group (V2)*		*Test group (V1)*		*Control group (V2)*	
	Pos	*Neg*	*Pos*	*Neg*	*Pos*	*Neg*	*Pos*	*Neg*
2009	6.00	3.00	5.00	5.00	10.00	0.00	10.00	0.00
2008	7.00	2.00	4.00	6.00	10.00	0.00	10.00	0.00
2007	8.00	1.00	4.00	6.00	10.00	0.00	10.00	0.00
2006	8.00	2.00	6.00	4.00	10.00	0.00	8.00	2.00
2005	10.00	0.00	8.00	2.00	10.00	0.00	9.00	1.00
2004	8.00	2.00	6.00	4.00	10.00	0.00	9.00	1.00
2003	10.00	0.00	5.00	5.00	7.00	3.00	8.00	2.00
2002	8.00	2.00	4.00	6.00	8.00	1.00	6.00	4.00
Total	65.00	12.00	42.00	38.00	75.00	4.00	70.00	10.00

Source: Own calculations

group was positive 65 out of 77 times (84%), versus the 42 out of 80 times (53%) of the control group. Regarding MVA, there is only a small difference between the test and control group, where the test group had a positive value 75 out of 79 times (95%), while the control group had a positive value 70 out of 80 times (88%). (Note that only 77 and 69 EVA and MVA, respectively, data points were available from the database).

CONCLUSION

This study investigated the difference in economic performance of South African companies, listed on the JSE Ltd., that voluntarily disclose sustainability reports versus companies that prefer not to disclose such information. The significance of the average differences of ROE and ROA was determined by the t-test, while the differences of positive and negative EVA and MVA values were shown by means of a pivot table.

The study found that even though the ROA means and medians of the test group companies were higher than the control seven out of the eight years, the null-hypothesis could not be rejected. This is evident in the fact that the economic performances of companies that voluntarily submitted sustainability reports to the GRI are better, but not statistically significantly so, than those who do not support GRI reporting initiatives. The ROE values included extreme outliers, therefore the median is a better indicator and in seven of the eight years, the test group were again the better group. After the outliers were omitted, the mean differences were significant in three years; one where the GRI reporters were better and two where the non-GRI reporters were better. Therefore, there is no evidence that the test group are significantly more profitable as measured in terms of the ROE. Regarding EVA as a performance measure, GRI reporting companies outperformed the non-reporters, while in respect of the MVA, the difference between the two groups was also in favour of the GRI reporters, although the differences are very small.

To summarise, all the economic performance indicators show that in the test group are slightly better than the control group; there was no evidence of statistically significant differences. The contribution of the study is, therefore, that it seems that voluntarily submissions of GRI reports by South African companies, operating in an emerging economy, are an irrelevant yardstick of economic performance. The value of the study is that this is the first such study where the economic performance of a group of South African companies who submitted GRI reports on sustainability was compared to a group that did not submit such reports. Further research could be done that focuses only on more recent years, where more companies submitted GRI sustainability reports. The companies that submitted reports in a specific year can then be compared to those companies that did not submit reports. More economic performance measures may be used and the role of GRI-gradings should also be considered.

There are a few limitations of the study that restricted the scope and may potentially affect the outcomes. Firstly, the study did not investigate the CSR profiles of the companies and only considered the fact whether they disclosed sustainability reports or not, without consideration of the degree such disclosure meet the GRI guidelines. Secondly, due to the limited number of companies that adopted the GRI guidelines in the early years of the study, only a limited number of companies could have been considered. Thirdly, due to the reasons mentioned earlier, EVA and MVA differences between the test group and the control group could statistically not be tested for significance.

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