

Influence of the Environmental, Social and Corporate Governance Ratings on the Economic Performance of Companies: An overview

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ABSTRACT:Over the past years there has been a significant growth in corporate reporting of environmental, social and corporate governance (ESG) factors. This study assesses whether ESG ratings are related to firm performance. Through a multivariate analysis we have confirmed differences between the ESG scores used to evaluate environmental, social and corporate governance factors of rated companies. We checked that although there is a significant correlation between them, companies do not rank equally and therefore their economic results might vary among the indicators. We found that selected US companies in the bottom 25% (Worst In Class, termed WIC) of their industries according to ESG scores perform significantly better than those in the top 25%, (Best In Class, termed BIC). We also found that BIC companies have significant higher revenue per employee and cash flow per share compared the industry medians. Attending to these results, it seems that extreme strategies on ESG issues produce better economic results than those strategies that are in line with the industry.

Key words: Environment, Social, Corporate governance, ESG ratings, Economic performance

INTRODUCTION

Nowadays, new and innovative financial products are incorporating ESG aspects in investment decision-making process (Kemp *et al.*, 2005). A full range of responsible investment strategies have been raising over the past few years (Besley and Maitreesh, 2007) and issues such as climate change, employee rights and remuneration are becoming as important as traditional metrics for companies and investors and even more important in the investment decision-making process (Hong and Kacperczyk, 2009; Pirani and Secondi, 2011). Therefore, by tracking, managing, benchmarking ESG policies and practices, investors try to stay up-to-date with industry changes in order to reduce risk and increase revenue.

The mechanisms with which industries and firms can improve their competitiveness through a proactive environmental or social strategy remain controversial. Meanwhile, the rising environmental concerns and the implementation of laws and regulations by governments to control pollution has become a first option (Hemmelskamp, 1997; Garau *et al.*, 2011; Vargas-Vargas *et al.*, 2010; Moghimi and Alambeigi, 2012). A wide

variation in corporate environmental performance has been reported (King and Lenox, 2001; Clarkson *et al.*, 2004). Some authors suggest that not all firms benefit equally from a proactive environmental strategy (Hart, 1995; Russo and Fouts, 1997; Aragón-Correa and Sharma, 2003) and that a proactive environmental strategy is most likely to take place in companies with greater financial resources and superior management capabilities (Christmann, 2000; Sharma and Vredenburg, 1998). This framework suggests that proactive corporate policies and financial success are interrelated.

Further, governments are struggling in determining which type of policy will increase the economic results and competitiveness of their companies (Duran *et al.* 2009). In this context, ESG information can not be ignored by companies and governments if they want to guarantee a correct strategy to face future scenarios (Melnyk *et al.* 2003).

The corporate disclosure of environmental practices is higher for European countries, in general, than it is in countries in North America. US companies

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have one of the lowest ratings on environmental measures, implying lower disclosure and/or lower concern about environmental standards. This argument points out that a strong regulatory framework, as European standards, helps listed companies have higher ratings (Rivas and Magadán, 2010; Junquera and Del Brío, 2012). Overall, European companies are ahead of their American and Asian counterparts by leading ESG action to face up to growing environmental challenges as reported from different industries (Espí Rodríguez, 2011; López-Gamero, 2011). Moreover, US companies show little concern about social aspects compared with BRICS or European companies. However, they show one of the highest ratings in corporate governance. Overall, US companies seem to be far away from European companies in ESG aspects. It is also remarkable that China and Russia, which are growing economies, have very low ratings. Therefore, this project considers such regional differences in ESG practices.

A low rating, which normally implies lower disclosure, can be attributed to the lack of legal requirements to disclose environmental data or to report company operations. ESG ratings tend to focus on the larger companies that have the resources to issue ESG data. Further, companies with the most to hide are least likely to voluntarily report, while, small companies, in general, tend to have lower scores than larger companies.

In this context, studies have been focused on the relation between ESG ratings and economic performance from a market point of view (Manescu, 2010), showing both positive and negative relations. This study thus assesses whether ESG ratings are related to firm performance from an internal point of view. In other words, we want to determine whether ESG ratings which might reflect “best practices” in those business fields, affect firm performance, thus avoiding shareholder view to focus on the operational view. We expect companies with higher ESG ratings to be focused on reducing environmental impacts through the reduction of energy, water consumption and waste. We also expect such firms to have motivated employees and loyal clients because of their treatment of employees and their role in the community, and to have a more structured and transparent organisation because of their ESG commitment. Therefore, their operations should also benefit. In other words, ESG scores are a measure of the quality of a firm’s business practices and they highlight those companies that look beyond short-term returns to emphasise long-term value (Kranjac et al, 2012).

To answer the research question we establish the following hypothesis built on the bases that we expect higher ESG rated companies to perform better than those with lower ratings because they focus on creating long-term value. Thus:

Hypothesis 1: Higher environmental-rated companies perform better than those with the lower ratings.

Hypothesis 2: Higher social-rated companies perform better than those with the lower ratings.

Hypothesis 3: Higher corporate governance-rated companies perform better than those with the lower ratings.

MATERIALS & METHODS

Companies face different degrees of ESG-based risk exposures depending on the industry and region in which they operate (CFA, 2008). Further, large companies are reported to disclose more ESG information (Kolk and Pinkse, 2010) to enable investors’ decision-making. Therefore, access to the appropriate disclosures and metrics that allow meaningful comparisons between companies in the same industries or with similar risk profiles are essential (Semenova and Hassel, 2008). We used ASSET4, a Thomson Reuters database, which provides objective, relevant and systematic ESG information based on 250+ key performance indicators. ASSET4, covers 3894 listed companies including those listed on SandP 500, Russell 1000, MSCI Europe, FTSE 250, ASX 300 and MSCI World Index as well as 250 MSCI emerging markets companies. As explained before, ratings are region-sensitive (Kolk, and Pinkse, 2010). For example, European companies have higher scores than US companies, and thus a worldwide analysis would not fit with the purposes of our study. Hence, we decided to focus on US companies that had available data for ESG ratings from 2006 to 2010 to deal with the regional risk exposure differences and to minimize the presence of companies for which a score of zero is likely to indicate a lack of rating as opposed to neutral ESG performance.

The financial ratios for these companies were extracted from the *Mergent online database*, which provides Internet-based access to detailed financial information for US companies. We omitted companies that had no available ratings for the indicated period (2006-2010) and those that had no financial data in the Mergent online database. Although ratings are available from 2002 to 2011, we also omitted the periods 2002-2005 and 2011, as the number of companies with available ratings was low. We ended up with 958 US companies that met these criteria.

Because economic performance metrics tend to focus on one aspect of firm performance, we evaluated economic performance through several indicators (Collison *et al.*, 2008):

- ROA (Return On Assets = Net Income/Total Assets) is an indicator of how profitable a company is relative to its total assets that has been used widely in previous studies.
- EBITDA Margin (Earnings before interest, tax, depreciation and amortisation divided by total revenue) is a measurement of a company's operating profitability.
- Revenue Per Employee (Revenue/Total Net Employees) is useful when compared with other companies in the same industry.
- Net Current Assets (Sales revenue/Average current assets). Ratio that indicates how efficiently a firm uses its current assets to generate revenue.
- Cash Flow Per Share is a measure of financial strength. Unlike earnings per share, this indicator is difficult to manipulate and is a useful measure for the strength of a firm and the sustainability of its business model.

Systematic differences across industries may bias the results if the sample includes firms from different industries. In order to address these limitations we measure firm performance using industry-adjusted measures. We calculate these metrics as the change in the measured variable for the year minus the industry median for the same year, as mean value can be highly affected by outliers. Then, the annual industry-adjusted metric represents a comprehensive measure of the firm's current-period economic performance relative to other firms in the same industry. More formally, let PS_{it} be the performance level in year t for a sample firm that belongs to the industry, and PI_{it} the median performance level in year t for industry i . Then, IAP, the industry-adjusted performance metric of the sample firm I , is

$$IAP = PS_{it} - PI_{it}$$

By contrast, most empirical studies of ESG are industry-specific. In other words, certain industries are more likely to have high ESG ratings and returns, while others have low ESG ratings and returns. Because not controlling for this industry effect results may bias the results, we used a BIC method to address industry variation in ESG rates.

We noted that individual ESG ratings vary across the sample. For example, some companies have a high environmental score and a low governance score, while others have the opposite ratings. As expected, there is

a significant correlation between the three scores (from 0.532 to 0.777; statistically significant $p < 0.01$); however, this correlation is not strong enough to consider an overall rating alone to test our hypothesis, as the results of those companies considered in the BIC or WIC groups might vary significantly depending on the score used to classify them. Therefore, we decided to test each one of the scores separately, as proposed in hypotheses 1a, 1b, and 1c.

Data were arranged by company. Therefore, we had the data for the ESG ratings for each of the concepts and for each of the five years as well as economic data for each of the five years. We calculated industry-adjusted metrics for ROA, EBITDA, Revenue Per Employee, Net Current Assets and Cash Flow per Share, which point out different operating and financial performance aspects in order to provide a good overview of overall economic performance. Outliers can influence the mean values of the adjusted metrics. To control for these outliers, all industry-adjusted performance metrics are reported after capping the data at the 2.5% level in each tail. Even with capping, outliers can still influence the mean values of industry-adjusted performance metrics. Therefore, we emphasized non-parametric statistics such as the median and percentage of sample firms with positive performances. In addition to reporting parametric tests on changes in the mean, we thus report two non-parametric tests.

For each year, we ordered companies in each industry according to each ESG score.

Hence, we examine the relationship between these three components as well as the economic performance indicators separately. We pooled the data of the companies in the top and bottom 25% for each industry (BIC/WIC, percentile ranked) to end up with two groups for each of the ratings and for each of the years. This method controls for industry variations in our sample.

As we want to assess the long-term effects, we considered together for each score all the data for the selected companies in the groups for the five-year period. Then, ideally, if no data were missed, each company in the sample would have five data points for each of the industry-adjusted performance indicators. Next, we ran an ANOVA test to compare the two groups (BIC and WIC) in order to look for significant differences in the economic performance metrics between each group.

The ANOVA analysis seeks to break down the variability in a dataset into independent components that can be assigned to different causes. It is a statistical technique designed to analyze the

significance of the mean differences of different populations. As such, it is considered to be an extension of the means difference test and is used to study the relationships between nominal, ordinal and interval variables (Hair *et al.*, 1998). The ANOVA technique indicates whether to reject the null hypothesis that reflects the equal means value for each α level of significance. In this way, we confirm whether the mean of the adjusted performance metrics is significantly different for the BIC compared with WIC companies for each of the three scores.

In order to test hypothesis 2, we compared whether the industry-adjusted metrics in the BIC companies are significantly greater than zero. In other words, we assessed whether the results in BIC companies differ significantly from the median value for their related industry. As explained before, we ran non-parametric tests such as the Wilcoxon signed-rank test and binomial sign test to focus the interpretation of the results. We used the Wilcoxon signed-rank test to test whether the median of the changes is significantly different from zero, and the binomial sign test to test whether the percentage of sample firms experiencing positive industry-adjusted performance is significantly different from 50%. Consistent with our hypothesis we tested significance using the one-tailed test.

RESULTS & DISCUSSIONS

Table 1 presents the result of the ANOVA analysis. We found significant differences between BIC and WIC industry-adjusted economic indicators for the groups formed according to the ESG indicators. Although there are some differences in the results, the tendency in the three analyses is clear. Overall, WIC have greater values than BIC in ROA, EBITDAmargin, REmployee and

Net Current Assets, while CFpershare is higher in BIC than it is in WIC. Unexpectedly, higher ESG rates are not related to higher economic performance, rejecting hypothesis 1. Nevertheless, the results point out that the industry-adjusted performance indicators in BIC are mainly positive, which indicates that, although the results are not above those of WIC, they might be higher than the industry median. Tables 2 and 3 show the results for the parametric test, t-test for the mean and two non-parametric tests that deal with the outliers' effects on the mean.

As shown in Table 2, the industry-adjusted performance indicators are significantly positive for CFpershare and REmployee. REmployee shows almost significant differences for the three BIC groups composed according to ESG scores. For example, the BIC corporate governance score has a \$13283 higher revenue per employee value (significant $p<0.01$) compared with the industry median, while a significant ($p<0.01$) 54,33% of the firms have a higher REmployee than the industry median. Higher differences are also found in CFpershare, where between 56% and 60% (significant $p<0.01$) of BIC firms in each of the scores have higher values for this indicator. By contrast, NetCurrentAssets has a significantly ($p<0.01$) lower value in BIC firms compared with the industry median, while between 40% and 44% of BIC firms have lower NetCurrentAssets compared with the industry median. Finally, only ROA values in BIC firms for social scores seem to be significantly higher than the industry medians.

Table 3 shows the results for WIC companies. All mean values are positive for all economic indicators, but median values are not always positive, indicating

Table 1. ANOVA results for environmental, social and corporate governance ratings ratings

		Environmental		Social		Corporate Governance	
		Mean	F	Mean	F	Mean	F
ROA	WIC	0,70	3,28*	0,41	4,87	2,07	19,28***
	BIC	0,34		0,71		0,73	
EBITDAmargin	WIC	6,89	20,22***	10,22	87,63***	6,89	20,22***
	BIC	-0,20		0,05		-0,20	
REmployee	WIC	161,44	1,06	159,40	623,18*	429,64	10,62***
	BIC	135,68		118,18		164,51	
NetCurrentAssetsTA	WIC	2,18	48,96***	2,33	10,49***	3,87	86,26***
	BIC	-0,99		-0,99		-1,27	
CFpershare	WIC	0,35	26,24***	0,25	3,21***	0,48	7,7***
	BIC	1,06		1,06		0,87	

*** Significant at the level 0,01, ** Sig. at the level 0,05, * Sig. at the level 0,1

that mean values are highly affected by certain companies in a positive way. In other words, some companies are doing far better than the industry median, pushing up the mean value for this group. A deeper look at the results shows that EBITDAmargin

and NetCurrentAssets are significantly ($p < 0.01$) better in WIC companies compared with the industry medians, while the other indicators seem to have no significant differences.

Table 2. Parametric and non-parametric test results ESG ratings of BIC companies

Environmental	ROA	EBITDAmargin	REVemployee	NetCurrentAssetsTA	CFpershare
N	1086	955	1082	931	1076
Mean	0,336	-0,204	135684	-0,992	1,06
t-value	(2,6)a	(-0,522)	(9,724)a	(-3,294)a	(11,382)a
Median	-0,035	-0,185	11376,5	-0,68	0,353
Z-Wilcoxon test	(-0,059)	(-1,644)	(-7,453)a	(-4,765)a	(-9,227)a
%Positive	47,91%	47,14%	55,45%	41,69%	60,66%
Z-Sign test	(-1,324)	(-2,838)a	(-0,832)	(-1,71)c	(-3,494)a
Social	ROA	EBITDAmargin	REVemployee	NetCurrentAssetsTA	CFpershare
N	1076	958	1074	939	1077
Mean	0,711	0,049	118182	-0,988	1,059
t-value	(5,334)a	-0,117	(8,521)a	(-3,274)a	(11,596)a
Median	0,048	0	2354,75	-0,925	0,335
Z-Wilcoxon test	(-3,25)a	(-0,341)	(-5,214)a	(-4,888)a	(-9,496)a
%Positive	52,67%	49,19%	52,26%	40,68%	60,67%
Z-Sign test	(-1,699)c	(-0,459)	(-1,426)	(-5,596)a	(-6,882)a
Governance	ROA	EBITDAmargin	REVemployee	NetCurrentAssetsTA	CFpershare
N	1075	965	1080	945	1082
Mean	0,49	0,241	123161	-0,275	0,866
t-value	(3,725)a	-0,571	(8,714)a	(-0,922)	(9,53)a
Median	0	-0,01	13283	-0,495	0,17
Z-Wilcoxon test	(-1,128)	(-1,039)	(-5,972)a	(-2,45)a	(-7,265)a
%Positive	49,24%	48,67%	54,33%	44,21%	56,32%
Z-Sign test	(-0,464)	(-0,782)	(-2,776)a	(-3,469)a	(-4,068)a

Notes: Results of industry-adjusted performance. T-statistics for the mean, Wilcoxon signed-rank test Z-statistic for the median, and binomial sign test Z-statistic for the percent of positives are reported in parentheses.
a Significantly different from zero (50% in the case of percent positive) at the 1% level for one-tailed test.
b Significantly different from zero (50% in the case of percent positive) at the 2.5% level for one-tailed test.
c Significantly different from zero (50% in the case of percent positive) at the 5% level for one-tailed test.

Table 3. Parametric and non-parametric test results for the ESG ratings of WIC companies

Environmental	ROA	EBITDAmargin	REVemployee	NetCurrentAssetsTA	CFpershare
N	1055	998	1068	944	1092
Mean	0,696	6,892	161445	2,179	0,353
t-value	(4,591)a	(4,601)a	(7,754)a	(6,444)a	(3,475)a
Median	0	0,5	0	0,2275	-0,1525
Z-Wilcoxon test	(-1,539)	(-4,948)a	(-3,79)a	(-4,66)a	(-0,843)
%Positive	49,13%	53,68%	48,89%	52,32%	44,57%
Z-Sign test	(-0,528)	(-2,923)a	(-2,316)b	(-2,27)b	(-0,683)
Social	ROA	EBITDAmargin	REVemployee	NetCurrentAssetsTA	CFpershare
N	1058	1001	1044	943	1092
Mean	0,406	10,224	159396	2,334	0,245
t-value	(2,715)a	(3,691)a	(8,264)a	(6,832)a	(2,523)a
Median	-0,1375	0,74	0	0,335	-0,155
Z-Wilcoxon test	(-0,274)	(-5,773)a	(-4,989)a	(-5,131)a	(-1,26)
%Positive	46,58%	55,04%	51,34%	53,87%	44,52%
Z-Sign test	(-2,174)b	(-3,126)a	(-0,818)	(-2,312)b	(-3,551)a
Governance	ROA	EBITDAmargin	REVemployee	NetCurrentAssetsTA	CFpershare
N	1065	1000	1041	934	1086
Mean	0,622	8,369	162916	0,948	0,483
t-value	(4,01)a	(3,184)a	(8,462)a	(2,742)a	(4,643)a
Median	-0,035	0,4	1475	-0,0825	-0,0375
Z-Wilcoxon test	(-1,245)	(-4,63)a	(-5,14)a	(-1,089)	(-0,81)
%Positive	48,71%	53,50%	51,87%	48,41%	47,83%
Z-Sign test	(-0,804)	(-2,149)b	(-1,161)	(-0,927)	(-1,383)

Notes: See Table 2.

CONCLUSION

ESG measures are playing increasingly significant roles in investment evaluation processes. It is becoming more important to understand and evaluate the degree to which ESG efforts can be maintained, creating value, while reducing risk.

We have confirmed the expected differences between the three indicators used to evaluate ESG. We checked that although there is a significant correlation between them, companies do not rank equally and therefore their economic results might vary among the indicators. Hence, taking into account the results of one indicator may be better than another if we want to minimize risk on a particular economic indicator.

Based on our research, we found that US companies in the bottom 25% of their industries according to the ESG scores (termed WIC) perform significantly better than those in the top 25% (BIC).

We also found that BIC companies according to the ESG scores have significant higher revenue per employee and cash flow per share compared to the industry medians. This finding suggests that they have higher productivity and are financially stronger, as they are able to generate more added value. By contrast, WIC companies have better REVemployee and EBITDAmargin values, which denote high productivity, while CFpershare is below the median.

These results, imply that extreme strategies on ESG issues produce better economic results than those strategies that are in line with the industry.

Further research should assess whether this pattern follows in other developed countries. It would be interesting to see what happens in areas with strong regulation constraints such as Europe and in growing economies such as BRICKS. Further, a detailed analysis of each industry might show different results for an industry-specific environment, which eventually might be empowering or weakening the economic results of leading ESG companies.

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