Effect of ESG Factors on the Financial Performance of Philippine Firms

Anthony Raneses
Harvard University

This paper addresses how environmental, social, and corporate governance (ESG) factors can contribute to the market performance of companies listed in developing countries. In this case study, the impact of ESG screens on the financial performance of companies in the Philippine Stock Exchange from 2010-2018 was estimated using quarterly-reported panel financial and ESG data for 26 firms spanning eight years. Using a range of several financial ratios as regress and to capture the relationship between profitability or equity valuation and ESG while controlling for size and leverage as added regressors in six empirical experiments, only one showed a non-negative correlation, three were insignificant, and the last two showed significant negative correlations between ESG screens and financial performance.

Keywords: environmental, social, and corporate governance ESG screens, financial performance, developing countries, Philippines

INTRODUCTION

This experiment investigated the possible relationship between the environmental, social, and governance ESG dimensions of firms listed on the Philippine Stock Exchange and those firms' economic performance. The results have implications for (a) continued investment in firms that address ESG issues and (b) if asset managers should continue to meet the demand for Philippine-related ESG investments.

The hypothesis tested was: *Environmental, social, and corporate governance factors can contribute to corporate financial performance for publicly listed companies in the Philippines.*

METHOD

Companies publicly listed with the Philippine Securities and Exchange Commission (PSEC, 2019) were used to explore the relationship between ESG performance and financial indicators through a panel, time-series regression model. The experiment used data from the Thomson Reuters ESG scores database and the Sustainalytics database (Wharton Research Data Services [WRDS], n.d.), At least 40 Philippine companies in the Sustainalytics database were tracked each month by PSEC from 2014 through 2018—about 355 observations. On each ESG factor, a firm was rated for preparedness, disclosure, and performance, and the weighted average ESG scores range from 0 to 100 (WRDS, n.d.). The Philippine company dataset was imported from Sustainalytics into SPSS Statistics software.

RESEARCH VARIABLES

Dependent Variables

Return on assets (ROA) and return on capital employed (ROCE; Dalal & Thaker, 2019, p. 48) were dependent variables, since they are the broadest measures of a firm's operating performance for profitability. The data came from Thomson Reuters' Worldscope database in WRDS (n.d.).

Control Variables

The control variables were (a) leverage, (b) the size of the company, and (c) the debt-to-equity ratio (D/E). Measured by the ratio of total assets to net worth, leverage is defined as the use of borrowed funds by a firm. The rationale for using this variable stemmed from PSEC's requirement to promote sustainability reporting since 2016, which could empirically prove that managers disclose more ESG information when leverage increases as a result of scrutiny from financial institutions and regulators (Dalal & Thaker, 2019, p. 49; Ghosh, 2013, p. 3). The size was a control variable because "large firms may turn out to be more efficient as they are likely to exploit economies of scale, employ more skilled managers and the formalization of procedures that may lead to better performance" (Dalal & Thaker, 2019, p. 49). The logarithm of total assets was a control variable representing the size of the company (Zhao et al., 2018, p. 10). The debt-to-equity ratio (D/E) reflects the company's capital structure and default risk dimension and was a good control variable to use in this model because it is negatively correlated with financial performance (Zhao et al., 2018, p. 10).

Regression Model

First, test results of co-integration and running a correlation matrix of the variables showed if the variables were co-integrated and had an initial problem of multicollinearity. Second, the Variance Inflation Factor (VIF) was used to measure the impact of collinearity among the predictor variables (Dalal & Thaker, 2019, p. 49). Minimum VIF values of 1-10 might indicate problems of multicollinearity (Dalal & Thaker, 2019, p. 50). Third, a unit root test was performed to test the stationarity of the data (Zhao et al., 2018, p. 9). Testing for stationarity using the Dickey–Fuller and Levin–Lin–Chu methods in Eviews and SPSS was important to test whether the variances and means of the series were constants independent of time (e.g., the processes were stationary) and might be biased or misleading. Since the results showed that the null hypothesis of the presentation unit root could be rejected, the dataset was considered stationary. Fourth, since a panel dataset was used containing both cross-sectional and time series data, a Hausman test was performed to determine whether a fixed-effect model or a random-effect model would be used. Lastly, the White test assessed heteroskedasticity in the model. If heteroskedasticity invalidated the regression model prediction, the weighted least-squares method would be a needed workaround (Zhao et al., 2018).

The regression model used in this experiment was a stylized or hybrid version based on the work of Atan et al. (2016, 2017); Dalal and Thaker (2019); D'Costa et al. (2016); Ferrell et al. (2016); Landi and Sciarelli (2019); Tarmuji et al. (2016); and Zhao et al. (2018). While it is common practice to use financial data in regression models, nonfinancial data (e.g., indices) can be used as both independent (or predicted) variables or regressors.

$$ROA_{it} = \beta_0 + \beta_1 ESG_{it} + \beta 2\ logSIZE_{it} + \beta 3\ LEV_{it} + \varepsilon \ldots \quad (1)$$

$$ROCEit = \beta 0 + \beta 1\ ESGit + \beta 2\ logSIZEit + \beta 3\ LEVit + \varepsilon \ldots \quad (2)$$

$$ROEit = \beta 0 + \beta 1\ ESGit + \beta 2\ logSIZEit + \beta 3\ LEVit + \varepsilon \ldots \quad (3)$$

$$EBITDTAMit = \beta 0 + \beta 1\ ESGit + \beta 2\ logSIZEit + \beta 3\ LEVit + \varepsilon \ldots \quad (4)$$

$$EPSit = \beta 0 + \beta 1\ ESGit + \beta 2\ logSIZEit + \beta 3\ LEVit + DPSit + \varepsilon \ldots \quad (5)$$

$$DPSit = \beta 0 + \beta 1\ ESGit + \beta 2\ logSIZEit + \beta 3\ LEVit + EPSit + \varepsilon \ldots \quad (6)$$

Equations 1-6 are two versions of the same model to test the hypothesis as follows. The financial ratio variables, ROA; ROCE; return on equity (ROE); earnings before interest, taxes, depreciation, and amortization margin (EBITDAM); earnings per share (EPS); dividend per share (DPS); ESG score (ESG); natural logarithm of the average of total assets (SIZE); and long-term debt as a percent of common equity (LEV), are all represented by the *i*th firm in time *t*. SIZE is a functional form that is widely adopted in the finance literature to track the growth of a firm size over time. Thus, ESG_{it} represents the independent variable ESG score for firm *i* in period *t*; $SIZE_{it}$ is the control variable logarithm of total assets as a proxy for the size of the company for the company *i* in period *t*; LEV_{it} characterizes the control variable leverage for firm *i* in period *t*; and ε is the error term or the residual of the model.

To assess the impact of ESG factors on financial performance, ordinary least squares (OLS) were separately applied on ROA_{it} and $ROCE_{it}$ on ESG while potentially netting out the extraneous effects of both control variables $SIZE_{it}$ and LEV_{it} in the regression model.

RESULTS

Philippine ESG Data

Using data from WRDS (n.d.), quartile comparisons (25%, 50%, and 75%) of ESG scores were estimated across Philippine industry sectors for 2010–2018. Imperfections in the dataset and the manner of data collection (e.g., panel versus time series) impacted regression results. Data quality issues emerged in observing how ESG scores were reported at constant rates before PSEC promulgated ESG screening in 2019. Values were also missing in the Philippine ESG dataset; however, the analysis could be restricted to those important variables with no missing values, as IBM SPSS can uncover patterns in missing data and replace the missing values with plausible estimates. Secondly, since the experiment used quarterly/annual time-series data in a longitudinal or panel format, low R-squareds were expected due to the heterogeneity of cross-sections. In this case, the results were driven by the potential exclusion of explanatory variables that tend to boost the value of the R-square. Thus, the individual and overall significance of the model were focused on, based on the *t*-values of the explanatory variables.

Regression Results

Table 1 shows the results from the regression model. Controlling for firm leverage and size, a 1% increase in ESG score performance was expected to correlate with an increase in one of the variables representing financial ratios. The econometric model showed no significant impact on ROA and ROE, and a negative significant impact on ROCE, EPS, and DPS. However, ESG performance had a significant positive impact on EBITDAM. On average, a 1% increase in ESG scores across the 26 publicly listed Philippine companies from 2010–2018 was correlated with a 0.042046% increase in company EBITDA, as a percentage of revenue.

TABLE 1
APPLY ORDINARY LEAST SQUARES ON FINANCIAL RATIOS BASED ON ESG AND TWO CONTROL VARIABLES

Independent & Control variables	Dependent Variable: ROA_{it}			Dependent Variable: $ROCE_{it}$			Dependent Variable: ROE_{it}		
	β_0	t	*p* -value Sig.	β_0	t	*p* -value Sig.	β_0	t	*p* -value Sig.
Experiment 1: Financial Impact of ESG Factors (profitability)									
Intercept	80.8793	16.7740	0.0000	135.5403	1.5556	0.0602	17.1742	7.1542	0.0000
ESG_{it}	0.0020	0.0892	0.4645	-1.6058	-0.9372	0.1746	0.0616	1.2963	0.0977
$SIZE_{it}$	-2.7783	-16.3729	0.0000	0.0000	-1.2669	0.1029	0.0000	-8.1818	0.0000
$LEVERAGE_{it}$	-0.0113	-3.9848	0.0000	-0.2098	-0.9668	0.1671	-0.0306	-5.1105	0.0000
*ANOVA (F statistic *p*-value <0.01)	R^2 = 0.3910 F^* = 106.19			R^2 = 0.0700 F^* = 1.0900			R^2 = 0.1670 F^* = 33.8000		
Experiment 1: Financial Impact of ESG Factors (equity valuation)									
	Dependent Variable: $EBITDAM_{it}$			Dependent Variable: EPS_{it}			Dependent Variable: DPS_{it}		
Intercept	-1.0562	-10.4564	0.0000	505.2493	0.9320	0.1759	78.0398	3.5737	0.0002
ESG_{it}	**0.0408**	**19.7097**	**0.0000**	**-5.2886**	**-2.1138**	**0.0175**	**-1.0381**	**-2.4095**	**0.0082**
$SIZE_{it}$	0.0000	8.1246	0.0000	-31.4140	-0.7166	0.2370	0.0000	-2.8108	0.0026
$LEVERAGE_{it}$	0.0010	3.5158	0.0005	2.0431	6.3276	0.0000	0.0453	0.7522	0.2262
*ANOVA (F statistic *p*-value <0.01)	R^2 = 0.1810 F^* = 36.4600			R^2 = 0.0700 F^* = 13.6400			R^2 = .0314 F^* = 3.9100		

CONCLUSION AND RECOMMENDATIONS

Given the mixed and inconclusive nature of the results, the hypothesis is rejected. The financial impact of ESG factors on profitability was shown to be negligible due to the weak correlation between ESG and measures of profitability and financial efficiency. Interestingly, equity valuation models, represented in the variables EPS and DPS, were found to be negatively correlated with ESG performance, which implies that profitability may decline as a result of a company better managing its material ESG risks.

While the experiment failed to specifically prove that ESG is related to profitability, controlling for size, leverage, and other factors correlated with returns, investors with information about ESG-rated instrument issuers can go beyond meeting their obligations by paying attention to (a) the capability maturity of ESG itself and (b) the "profit-driven social impact" (Porter et al., 2019, p. 2).

First, stakeholders should recognize that significant action plans are required to move economic agents in countries such as the Philippines to an increased level of capability for them to move up the ESG policy life cycle. Further, in the long term, the material economic impact of this cycle on companies will ultimately affect business value creation (Lyon, 2011, p. 200).

The second recommendation from this experiment is that stakeholders should consider the approach of boosting value creation by not only marking off the ESG box based on materiality but also aligning the company's strategy to the "causal link between a company's social impact and its bottom line" (Porter et al., 2019, p. 3). New and compelling evidence from Porter et al. (2019) illustrates that value creation has more to do with a company's social impact and competitive strategy.

REFERENCES

Atan, R., Alam, M.M., Said, J., Alam, S., & Zamri, M. (2017, June 9). The impacts of environmental, social, and governance factors on firm performance: Panel study of Malaysian companies. *Management of Environmental Quality: An International Journal*, *29*(2), 182–194. https://doi.org/10.1108/MEQ-03-2017-0033

Atan, R., Razali, F.A., Said, J., & Zainun, S. (2016). Environmental, social, and governance (ESG) disclosure and its effect on firm's performance: A comparative study. *International Journal of Economics and Management, 10*(S2), 355–375. Retrieved from http://www.econ.upm.edu.my/ijem

D'Costa, M., Talukdar, K.H., & Habib, A. (2016). In light of the new code does corporate governance impact performance of Bangladeshi firms? *North South Business Review*, *6*(2), 1–22. Retrieved from http://www.northsouth.edu/assets/files/NSBR_Vol_6%2CNo_2(Final).pdf

Dalal, K.K., & Thaker, N. (2019). ESG and corporate financial performance: A panel study of Indian companies. *IUP Journal of Corporate Governance*, *18*(1), 44–59. Retrieved from https://www.questia.com/library/journal/1P4-2258100521/esg-and-corporate-financial-performance-a-panel-study

Ferrell, A., Liang, H., & Renneboog, L. (2016, August 31). Socially responsible firms. *Journal of Financial Economics, 122*(2016), 585–606. http://dx.doi.org/10.1016/j.jfineco.2015.12.003

Ghosh, A. (2013). *Corporate sustainability and corporate financial performance: The Indian context*. Indian Institute of Management Calcutta, Working Paper Series, Vol. 72. Retrieved from https://www.iimcal.ac.in/sites/all/files/pdfs/wps_721.pdf

Landi, G., & Sciarelli, M. (2019). Towards a more ethical market: The impact. *Social Responsibility Journal*, *15*(1), 11–17. http://dx.doi.org/10.1108/SRJ-11-2017-0254

Lyon, T. (2011). *Good cop, bad cop: Environmental NGOs and their strategies toward business*. RFF Press.

Philippine Securities and Exchange Commission. (2019). *Philippine Securities & Exchange Commission institutes sustainability reporting for listed companies.* Retrieved from http://www.sec.gov.ph/wp-content/uploads/2019/02/2019PressRelease_SEC-institutes-sustainability-reporting-for-listed-companies-02262019.pdf

Porter, M., Kramer, M., & Serafeim, G. (2019). Where ESG fails. *Institutional Investor*. Retrieved from https://www.institutionalinvestor.com/article/b1hm5ghqtxj9s7/Where-ESG-Fails

Tarmuji, I., Maelah, R., & Tarmuji, N.H. (2016). The impact of environmental, social and governance. *International Journal of Trade, Economics and Finance*, *7*(3), 67–74. http://dx.doi.org/10.18178/ijtef.2016.7.3.501

Wharton Research Data Services. (n.d.). Retrieved from https://wrds-web.wharton.upenn.edu/wrds/

Zhao, C., Guo, Y., Yuan, J., Wu, M., Li, D., Zhou, Y., & Kang, J. (2018). ESG and corporate financial performance: Empirical evidence from China's listed power generation companies. *Sustainability, 10*(2607), 1–18. https://doi.org/10.3390/su10082607