Beyond Firms Doing Good: The Impact of Environmental, Social, and Governance Factors (ESG) on the Financial Performance of Philippine Companies

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Abstract

In this study, based on publicly listed company financial and environmental, social, and governance (ESG) data, the impact of ESG factors on the financial performance of the Philippines was empirically investigated. The micro-level impact of ESG practices on the financial performance of companies listed in the Philippine Stock Exchange from 2010-2018 was estimated using quarterly-reported panel financial and ESG data for 26 firms spanning 8 years. Financial performance was measured using a range of financial ratios to capture profitability and equity valuation. Conversely, the macro-level responsiveness of a country's environmental performance to global *aidflows* and to economic activity per capita or income was appraised. Out of six micro-level 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. From a macro-level lens, while no positive relationship was found between country-level *aidflows* and environmental performance, a more robust functional form was seen in using the significant predictive power of income as the regressor. The results also indicated strong empirical evidence of the environmental impact of inequality and global competitiveness, as well as an impact separately derived from inequality and income. Competitiveness—the common denominator across three experiments—is the driver of business value creation that could place firms or countries on a more attainable path to sustainable growth. This paper contributes to the ongoing debate on the determinants of financial performance based on ESG-related factors. Findings emphasize the need for both capital markets actors and foreign aid donors to better shape the sustainable economic outcome of firms and countries without further sacrificing environmental protection by focusing resources on competitive strategies.

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Table of Contents

Chapter I.

Introduction

Definition of the Problem

Whether firms ought to be socially responsible has been debated extensively since Milton Friedman's (1970) well-known claim that "the only social responsibility of corporations is to make money" (p. 122). Responsible investing is widely understood as the integration of environmental, social, and governance (ESG) factors into investment processes and decision-making (Kell, 2018, p. 2). The World Bank Group has attempted to demystify ESG (Inderst & Stewart, 2018). Could ESG be a value-added endeavor to ensure accountability not only to shareholders, but also to society (Financial Times, 2013)?

If corporations ignore the social and environmental context in which they operate, can they, as a former chair of the U.S. President's Council of Economic Advisers asks, "run all kinds of bottom-line risks as reputation damage and loss of brand value; falling sales; lower worker productivity; regulatory backlash; and higher costs tied to climate change" (Elandrews3, 2014, para. 3)? These underlying questions lead to two sets of hypotheses, as the empirical literature testing these two views is mixed and has left the issues raised in the debate largely unresolved. The first question stems from the December 7, 2019, edition of *The Economist* that asks: "Does paying attention to ESG concerns compromise shareholder returns?" ("Poor Scores," 2019, p. 3). The second question is a flip of the previous issue: do financial flows in the form of *aidflows* or economic activity per capita tend to influence a country's sovereign ESG posture?

The sustainable reporting literature pertaining to the impact of sustainability disclosures on firm profitability is vast (Friede et al., 2015). Three researchers at Harvard Extension School separately looked at how levels of ESG information disclosure drive a firm's performance, assess the valuation of financed emissions by banks, and evaluate the impact of climate risk disclosures on firms' higher returns from sustainable investing (Crouch, 2019; Lozo, 2019; Ng, 2016). Meanwhile, researchers such as George Serafeim at the Business School (HBS) find a positive

association between sustainability disclosures, profitability, and other data-related reasons such as the potential for spurious correlation between ESG and corporate financial performance (CFP) variables. Other researchers test the extent to which both agency and signaling theories come into play when businesses contend with how sustainability fits into its own corporate strategy and commitment that many investors are looking for (Orazalin & Mahmood, 2018, p. 121). This paper stems from an earlier HBS paper on materiality—the premise that investments in sustainability issues are shareholder-value enhancing (Amel-Zadeh & Serafeim, 2020, p. 102; Khan et al., 2015, p. 3). In a more recent paper, HBS Professor Michael Porter and others have encouraged going beyond "broad-brushing ESG scores to focus on specific social issues that carry meaningful economic effects in specific industries" (Porter et al., 2019, p. 7). Unlike ESG disclosures, which have limits to materiality, Porter believes "these correlations between ESG factors and profit-loss results do not capture how competitive strategy drives improvements in either factor in ways that competitors cannot match" (Porter et al., 2019, p. 9). Thus, the empirical results of this study were validated by Porter et al.'s (2019) powerful analysis of how companies "that successfully implement strategies to create shared value" (p. 2) create both social impact and better returns for shareholders.

Value Creation Models

While no clear conclusions have been drawn regarding this relationship between CFP and ESG factors, one common denominator in this space is that researchers do find a non-negative relationship between these two variables: according to Friede et al. (2015), 90% of 2,200 individual studies find a non-negative ESG-CFP relation, for instance. One might ask:

- Will another ESG-CFP study add value to the literature?
- What if mainstreaming ESG does not relate to how Philippine companies are enticed to explore new models of value creation that enable them to stand out from the rest?
- What is the role of sustainable investment as a medium for change in terms of a Philippine company's long-term strategic position (Dwyer & Pobre, 2019, p. 2)?

Researchers Crouch, Lozo, and Ng all essentially conclude that "the prime reason for considering ESG factors is that they believe [these have] a material financial impact on investment performance" (Heijningen, 2019, p. 4). If no clear conclusions were found in the

current study regarding this ESG-CFP relationship, but results showed a non-negative relationship between these two variables, the next step might be finding an alternate lens that would add value to the sustainable investments literature (Friede et al., 2015).

Adding value to the firm based on the return to shareholder investments is at the heart of the ESG disclosure debate. After all, the stakes are quite high for investors, intermediaries (e.g., banks and fund managers), and other stakeholders, as global sustainable investment levels now top $30 trillion (Henisz et al., 2019, p. 1). Standard models of ESG-based value creation are all over the map, but there are at least three sources of value drivers that are common in terms of their relevant application. The first is based on the World Bank's value creation toolkit for emerging markets, which is premised on "stakeholder risks (e.g., the impact of environmental and social risks on a company's strategy, governance, and performance) and how those risks are managed as a function of a company's corporate governance" (International Finance Corporation, 2018, p. 10). The second is based on MIT Sloan researchers' observation of how investors are more assertive these days about the value creation effect of ESG when "sustainability factors are identified as a potential source of long-term corporate performance" (Youmans & Tomlinson, 2018, p. 3). The third value creation model comes from the consulting firm McKinsey, which links ESG propositions to five forms of value creation, namely, "top-line growth, cost reductions, regulatory and legal interventions, productivity uplift, and investment and asset optimization" (Henisz et al., 2019, p. 3). A fourth approach is that of Porter et al., who assert the lack of conclusive evidence, despite more than 2,000 empirical studies (Friede et al., 2015, p. 210), of the impact of ESG disclosures on equity returns. According to them, the ESG-financial performance impact analysis that goes into value creation does not go that far because common ESG studies do not address "sustainable competitive advantage," which is the same as the "economic value of social impact" (Porter et al., 2019, p. 17).

Investors need to understand how the materiality of ESG factors is based on business model differences (Porter et al., 2019, p. 8). Porter et al. (2019) cited a simple example of how two different business models impact the outcome of one company's emissions based on that particular company's business model, but this creates a bias by not reporting emissions in the supply chain of other companies. In this example, they created a scenario where

> Walmart reports an ESG scorecard that asked for the "volume of fossil fuels used" captured all of the company's logistics fuel usage, but none of Amazon's

> outsourced delivery system (even though Amazon does report the carbon footprint of its third-party deliveries). (Porter et al., 2019, p. 8)

Yet the question of which delivery model is relatively less carbon intensive ultimately depends on the business model itself. In this case, the authors cited one Bain study showing how carbon-intensive activities aggregated into ESG scores would have to depend on "the number of items a shopper buys at once, which favors in-store shopping as consumers tend to purchase more items, often while on their way to some other destination, reducing the incremental carbon footprint per item" (Porter et al., 2019, p. 8). Thus, the greatest take-away from the paper by Porter et al. is the extent to which "creating social impact through an innovative and profitable business model reshapes the nature of competition and makes social impact a part of capitalism itself" (p. 8). This type of value creation called "creating shared value" requires going far beyond the materiality-based checklist of ESG disclosure factors. Since the empirical analysis in the methodology section of this paper is based on the first three models of value creation, the analysis of Porter et al. was used to gauge implications of the results for what companies ought to measure and track in terms of their "value-shared strategies" (Porter et al., 2019, p. 17).

Financial Performance of ESG Do-Gooders and Beyond

The first underlying question that frames this research is whether or not there is a relationship between the ESG dimensions of firms listed on the Philippine Stock Exchange and those firms' economic performance. The empirical results of this analysis could have implications for (a) whether Philippine and foreign investors should continue to funnel their money into investments that address climate change risk, mitigate safety risks of a company's supply chain, and boost gender diversity in workplaces by responding to the gap for women in positions, and (b) if asset managers should continue to meet the demand for Philippine-related ESG investments. But as Morningstar reports, "investors last year put $20.6 billion into global funds focused ESG, almost quadruple the record the year prior" (Newburger, 2020, p. 3). "With over 90 percent of the largest companies now filing sustainability reports or 85 percent of the S&P 500" (McPherson, 2019, p. 2), will ESG investors turn to Philippine companies when the World Wildlife Fund (2018) reported that "only 22 percent of the publicly listed companies

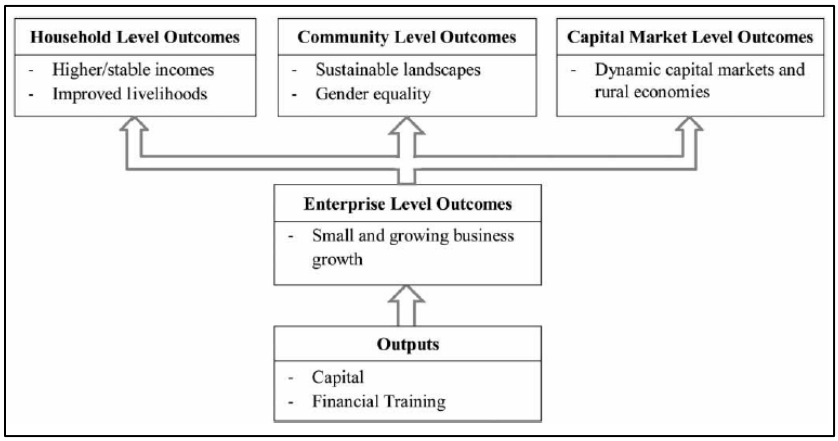
(PLCs) in the country has a sustainability report" (para. 3)? The first hypothesis tested in this study relates to the relationship between ESG factors and the value of Philippine companies.

Hypothesis 1. Environmental, social, and corporate governance factors can contribute to corporate financial performance for publicly listed companies in the Philippines.

The second question that frames this paper goes beyond validating the initial ESG-CFP question of inframarginal firms earning economic rents. Can a theory of change framework (e.g., Figure 1) out of the development policy financing literature be used to explore the underlying reasons driving sovereign ESG performance, given that *aidflows*, or what the World Bank describes as development funds from countries providing aid resources (donors) to countries receiving these funds (beneficiaries), could deliver tangible and meaningful economic benefits to developing countries, which in turn can be converted into social outcomes (Jackson, 2013; World Bank, 2010)?

Figure 1

Theory of Change Example



Source: Jackson, 2013, p. 105.

Figure 1 depicts a model of how investment and capacity-building efforts could translate into desirable outcomes like improved gender equality and sustainable landscapes. Sovereign ESG comes from a recently published online platform that provides users with sovereign, country-level sustainability performance information. According to the World Bank (2019), "the Sovereign ESG Data Portal is comprised of 17 themes under a framework that 67 indicators in total, covering all 17 UN Sustainable Development Goals" (p. 2). There are other papers in this

space that relatively track the theory of change approach. Other researchers show that good ESG performance also reduces government bond yield spread in 23 Organization for Economic Co-Operation and Development (OECD) countries (Crifo et al., 2017, p. 13). While beyond the scope of this research, the IMF studies how levels of corruption have negative implications for government revenues and, therefore, sound governance (Principles for Responsible Investment, 2019).

The relationship between sovereign ESG and *aidflows* became the topic of this study due to evidence in a 2017 World Bank paper of the association between World Bank policy lending and measures of the quality of borrower countries' social policies and institutions that such lending supports (Bogetić & Smets, 2017, p. 1). According to Atan et al. (2017), institutional theory utilizes a "country's political, socio-cultural, and business environmental background to influence in predicting the motivation for companies to adapt responsible practices" (p. 359). Taking into account strong regulations (including self-regulation), which could influence the way companies report social and ethical activities, macro-level drivers of responsible practices were examined, for example, with sovereign ESG ratings that track country-level sustainability performance.

It turns out the development donor community (e.g., World Bank, USAID) follows, through what is known as the theory of change, "the cause and effect links between inputs (e.g., aidflows—including but not restricted to the proceeds of the respective grants, loans or guarantees), immediate effects, outputs, outcomes and impacts on development" (IEG-World Bank Group, 2018, p. 20). "The World Bank's policy lending has a significantly positive effect on the quality of social policies and institutions" (Bogetić & Smets, 2017, p. 1). Instead of investigating the materiality of ESG factors and their impact on the financial performance of firms, this research could extend Bogetić and Smets' (2017) World Bank model of potentially using "green" and social-policy-related investment policies to obtain a double-divided "goal of ending extreme poverty and stimulating shared prosperity" in developing countries (p. 2). Therefore, the study examined whether there is a significant positive relationship between the actual state of ESG practices and ESG outcomes based on the investment levels of *aidflows* to the Philippines. The same rationale was used to determine if economic activity was greatly correlated with sovereign environmental performance, which is a framework that approximates that of the Environmental Kuznets Curve (EKC; Moomaw & Unruh, 1997, p. 451). This research

attempted to ascertain whether this particular hypothesis approached the EKC when comparing the changes in environmental indices and per capita GDP (as opposed to the standard classic model of EKC that tracks models of per capita CO2 emissions and per capita GDP). In other words, either pulse inputs of foreign aid from donor countries are highly linked to decreased pollution levels, or economic growth could in fact improve environmental performance.

Hypothesis 2. Countries such as the Philippines can achieve the broad objective of improving sovereign environmental, social, and corporate governance factors from development assistance.

Hypothesis 3. Countries such as the Philippines can achieve the broad objective of improving sovereign environmental, social, and corporate governance factors from economic activity.

Chapter II.

Research Methods

In this research, companies publicly listed with the Philippine Securities and Exchange Commission (PSEC, 2019) were used to explore the relationship between ESG performance and financial indicators across all sectors through a panel, time-series regression model. Two methods were employed.

Data and Methodology I

Two databases were used in this study. The first was the Thomson Reuters ESG scores database (see Figure 2), which includes more than 6,000 public companies scored based on publicly reported information. The second was the Sustainalytics database, which focuses on ESG issues across 42 global sectors for 4,500 companies worldwide (Wharton Research Data Services [WRDS], n.d.). The Philippine company dataset was imported from Sustainalytics into SPSS Statistics software.

Figure 2

Thomson Reuters ESG Scores Methodology

Pillar	Category	Indicators in Scoring	Weights
Environmental	Resource Use	20	11%
	Emissions	22	12%
	Innovation	19	11%
Social	Workforce	29	16%
	Human Rights	8	4.50%
	Community	14	8%
	Product Responsibility	12	7%
Governance	Management	34	19%
	Shareholders	12	7%
	CSR Strategy	8	4.50%
TOTAL		178	100%

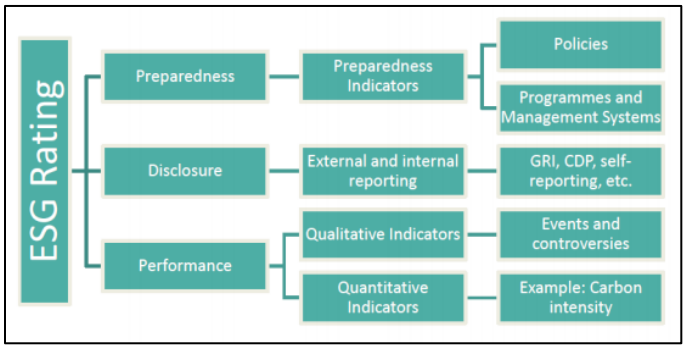
Source: WRDS, n.d.

Sample I: Data and Selection Criteria

At least 40 Philippine companies in the Sustainalytics database were tracked each month by PSEC from 2014 through 2018—about 355 observations (see Figure 4). As shown in Figure 3, on each ESG factor, a firm is rated for (a) preparedness, (b) disclosure, and (c) performance, and the weighted average ESG score ranges from 0 to 100 (WRDS, n.d.).

Figure 3

Sustainalytics Robust Analytical Framework



Source: WRDS, n.d.

Figure 4

ESG Sustainalytics Data of Philippine Companies

Types of Companies	Number of Companies	Time Series	Datapoints/Vector of observations
Banks	5	2014-2018	40
Construction & Engineering	1	2014-2018	5
Consumer Services	3	2014-2018	20
Diversified Financials	6	2014-2018	50
Food Products	3	2014-2018	20
Industrial Conglomerates	7	2014-2018	60
Oil & Gas Producers	1	2014-2018	5
Real Estate	6	2014-2018	60
Refiners & Pipelines	1	2014-2018	5
Telecommunication Services	2	2014-2018	25
Transportation Infrastructure	1	2014-2018	10
Utilities	4	2014-2018	35
Total	40	5	335

Source: WRDS, n.d.

Selection Criteria I

As shown in Figure 4, companies in the Sustainalytics database are grouped by sector. Philippine companies with composite scores from 0 to 100 are all included, in part, to illustrate if there was a structural change in their performance to improve their scores from 2016 to 2018. Also included in the database are all companies engaged in the business of tobacco, alcohol, controversial weapons, and gambling operations. Sustainalytics (n.d.) calls these issues "controversies research" and "identifies companies involved in incidents that may negatively impact stakeholders, the environment or the company's operations" (para. 1). Since changes in controversies impact their overall score, all Philippine companies in the Sustainalytics database ought to be listed in the model as explanatory variables and correspond to one of the *n observations* in the data.

Research Variables Definition/Measurement I

Dependent variables. Return on asset (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.).

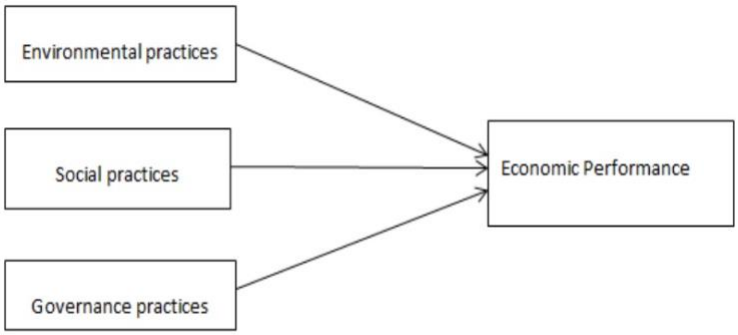
Control variables. The control variables for this study were (a) leverage, (b) size of the company, and (c) debt-to-equity ratio (D/E). Measured by the ratio of total assets to net worth, leverage is defined as the use of borrowed funds by a firm. The rationale for using this variable stems from PSEC's 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). Size was a control variable in this study 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 (Log TA) was a control variable representing the size of the company (Zhao et al., 2018, p. 10). 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).

Data empirical tests: Regression Model Alpha. 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, before the panel regression model was created, 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). Figure 5 shows the conceptual framework.

Figure 5

Regression Model Conceptual Framework



Conceptual framework.

Source: Tarmuji et al., 2016.

This regression model is 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.

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

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

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

$$EBITDTAM_{it} = \beta_0 + \beta_1 ESG_{it} + \beta 2\ logSIZE_{it} + \beta 3\ LEV_{it} + \varepsilon \ldots \quad (4)$$

$$EPS_{it} = \beta_0 + \beta_1 ESG_{it} + \beta 2\ logSIZE_{it} + \beta 3\ LEV_{it} + DPS_{it} + \varepsilon \ldots \quad (5)$$

$$DPS_{it} = \beta_0 + \beta_1 ESG_{it} + \beta 2\ logSIZE_{it} + \beta 3\ LEV_{it} + EPS_{it} + \varepsilon \ldots \quad (6)$$

Equations 1-6 are two versions of the same model, *Regression Model Alpha,* to test *Hypothesis 1* as follows: where the financial ratio variables ROA (return on assets); ROCE (return on capital employed); return on equity (ROE); earnings before interest, taxes, depreciation, and amortization margin (EBITDAM); earnings per share (EPS); dividend per share (DPS); environmental social and governance scores (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 the logarithm of total assets, a functional form that is widely adopted in the finance literature to track growth of 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 size of the company for 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. Table 1 lists the variables.

Table 1

Variables of Regression Model Alpha

Variables	Explanation
Dependent	
Return on Asset (ROA)	Net income/shareholder investment
Return on capital employed (ROCE)	Ratio of earnings before interest and tax (EBIT) to total capital employed
Return on equity (ROE)	Net income/shareholder investment

EPS	Portion of a company's profit that is allocated to every individual share of the stock
EBITDAM	Earnings before interest, income taxes, depreciation, amortization, and management fees
DPS	Sum of declared dividends issued by a company for every ordinary share outstanding
Independent	
ESG	Environmental, social and governance performance score collected from WRDS
Control	
SIZE	Logarithm of total assets (TA) as a proxy for size of the company (Log TA)
LEV	Leverage, which is Debt-to-Equity Ratio (D/E), company's capital structure and default risk dimension

In order to assess the impact of ESG factors of PLCs on financial performance, ordinary least squares (OLS) was 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 both regression models (see Table 2).

Table 2

Apply Ordinary Least Squares on Financial Ratios Based on ESG and Two Control Variables

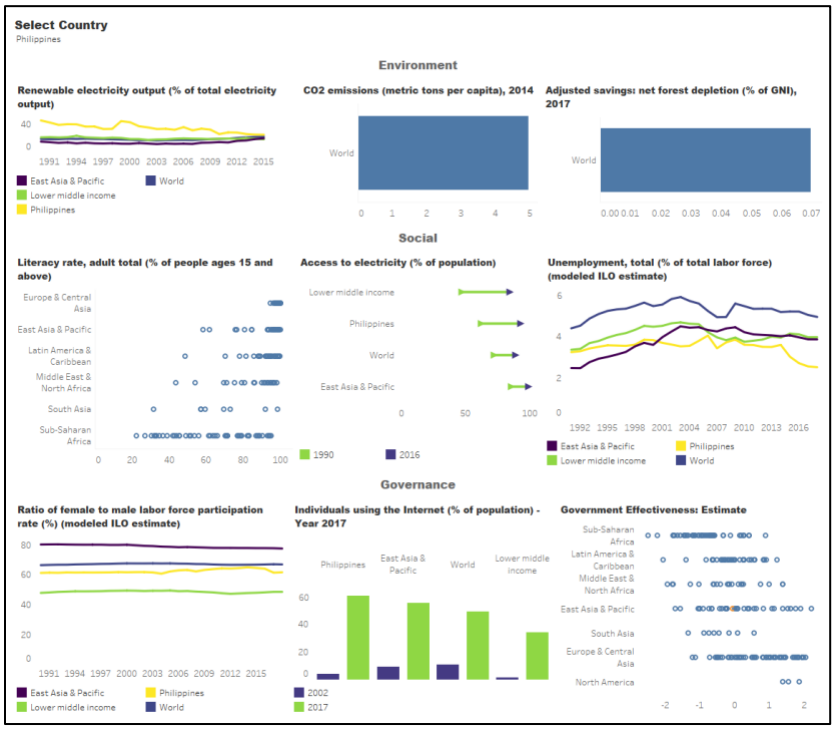
Independent & Control variables	Dependent Variable: ROA_{it}			Dependent Variable: $ROCE_{it}$			Dependent Variable: ROE_{it}		
	β_0	t	*p*-value Sig.	β_0	t	*p*-value Sig.	β_0	t	*p*-value Sig.
Experiment 1: Financial Impact of ESG Factors (profitability)									
Intercept	80.8793	16.7740	0.0000	135.5403	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)	$R^2 = 0.1810$ $F^* = 36.4600$			$R^2 = 0.0700$ $F^* = 13.6400$			$R^2 = .0314$ $F^* = 3.9100$		

Sample II: Data and Selection Criteria

The Sovereign ESG Data Portal was created because of the growing body of research indicating the need for investors to manage and assess ESG risks and opportunities across all asset classes, including bonds (World Bank, 2019). The portal includes a country-level dashboard for ESG profiles (e.g., Figure 6, sovereign ESG profile of the Philippines). Data from the Yale Environmental Performance Index (Wendling et al., 2020) and the Asian Development Bank (2018) were used to cross-reference or supplement missing Philippine data.

Figure 6

World Bank ESG Country Dashboard Data: Philippines



Source: World Bank, 2020.

Research Variables Definition/Measurement II

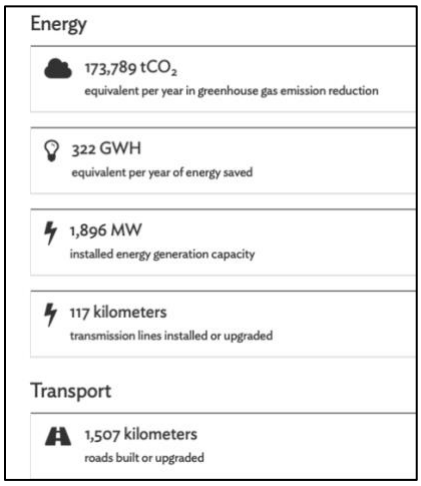
The previous section addressed the extent to which ESG factors could influence the performance of fixed income investments in the Philippines. In this section, the relationship between ESG and CFP is flipped to explore the association between environmental performance and *aidflow* levels in the Philippines and other developing countries. Could change theory, the

roadmap of how a particular intervention will bring about development results (Brown, 2016), actually mean "development aid and development institutions will have the potential to become important catalytic actors in achieving developmental and global environmental outcomes" (Arndt & Tarp, 2017, p. 285)?

This responsiveness of ESG outcome to *aidflows* was recently examined by Opršal and Harmácek (2019), who looked at "how the environmental component of foreign aid can be expected to have positive environmental outcomes" (p. 2). Figure 7 is one example of how multilateral institutions such as the Asian Development Bank illustrate results achieved in terms of outputs and outcomes (e.g., reduction in CO2 emissions).

Figure 7

Results of ADB-Supported Aidflows in the Philippines, 2010-2018



Note. From Asian Development Bank, 2019.

This section focuses on the "E" portion of sovereign ESG, primarily due to the impact of having less *n*-observations minus *k*-regressors to make a valid sample. Data from Yale University and the World Bank are listed in a cross-country time series, as panel data from 180 countries. As shown below, OLS methods were used to establish the association between environmental performance (dependent variable) and *aidflow* level (independent variable) in several developing countries through 2018.

Dependent variables. The dependent variables included the Environmental Health (EH) and Ecosystem Vitality (EV) measures within the Environmental Performance Index (EPI)

developed in an ongoing collaboration of Yale and Columbia University researchers (Wendling et al., 2020).

Independent variable. The independent variable was represented by net official development assistance and official aid received (current US$): (a) the top ten country recipients of Official Development Assistance provided in 2018 by the OECD: India, Afghanistan, Indonesia, Syrian Arab Republic, Bangladesh, Ethiopia, Iraq, Jordan, Vietnam, and Nigeria (OECD, 2019); and (b) the Philippines.

Data empirical tests: Regression Models Beta and Gamma. The following tests of the data were adopted from Neagu et al. (2017) to determine whether EPI, EH, and EV were positively associated with *aidflows* (in ODA current dollars; p. 18).

The regression models presented in Equations 7-10 are three versions of the same model, *Regression Model Beta,* to test *Hypothesis 2,* but solely focusing on one proxy "E" in ESG. Table 3 lists the variables: EPI_{it} denotes the dependent variable Environmental Performance Index for country i in period t; EH_{it} is the dependent variable Environmental Health for country i in period t; EV_{it} represents the dependent variable Ecosystem Vitality for country i in period t; EDI_{it} represents the dependent variable Environmental Democracy Index (EDI) as a particular case of $t = 2015$ due to the availability of data reported by the World Resources Institute; and $logAID_{it}$ is the independent variable, assuming the function of this variable is quadratic, not linear, as it never reaches a maximum or minimum value, and that the impact of independent variables EPI_{it}, EH_{it}, EV_{it}, and, EDI_{it} on $logAID_{it}$, increases as the value of $logAID_{it}$ increases. With the exception of EDI_{it}, all dependent variables are reported biennially by Yale University, from 2006 through 2018.

Table 3

Variables of Regression Model Beta

Variables	Explanation
Dependent	
EPI	Environmental Performance Index
EH	Environmental Health
EV	Ecosystem Vitality
EDI	Environmental Democracy Index
Independent	
AID	Logarithm of Net Official Development Assistance and Official Aid received (current US$)

$$EPI_{it} = \beta_0 + \beta_1 \, logAID_{it} + \varepsilon \ldots \quad (7)$$

$$EH_{it} = \beta_0 + \beta_1 \, logAID_{it} + \varepsilon \ldots \quad (8)$$

$$EV_{it} = \beta_0 + \beta_1 \, logAID_{it} + \varepsilon \ldots \quad (9)$$

$$EDI_{it} = \beta_0 + \beta_1 \, logAID_{it} + \varepsilon \ldots \quad (10)$$

The regression parameters of Equations 7-10 were estimated by using the OLS regression within the SPSS and Eviews software packages.

The regression models presented in Equations 11, 12, 13, and 14 are four versions of the previous model in *Regression Model Beta,* replacing the variable for *aidflows* with the natural logarithm of gross national product per capita, $logGDP\text{-}PC_{it,}$ to test *Hypothesis 3*. The coverage of these regressions was also expanded beyond Philippine data to explore the global environmental performance of economic activity per capita (income).

$$EPI_{it} = \beta_0 + \beta_1 \, logGDP\text{-}PC_{it} + \varepsilon \ldots \quad (11)$$

$$EH_{it} = \beta_0 + \beta_1 \, logGDP\text{-}PC_{it} + \varepsilon \ldots \quad (12)$$

$$EV_{it} = \beta_0 + \beta_1 \, logGDP\text{-}PC_{it} + \varepsilon \ldots \quad (13)$$

$$EDI_{it} = \beta_0 + \beta_1 \, logGDP\text{-}PC_{it} + \varepsilon \ldots \quad (14)$$

Chapter III.

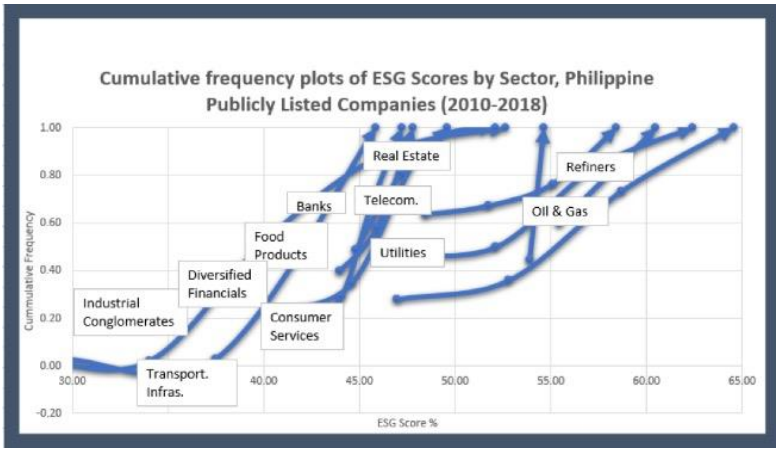
Results

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 the period 2010–2018. Figure 8 shows the cumulative frequency plot of utilities, refiners and pipelines, telecommunications, and transportation, which had the highest median scores (50% quartile) from periods 2016–2018, 2014–2015, 2012–2013, and 2010–2011, respectively. Industrial conglomerates, banks, food products, and utilities had the lowest median scores from periods 2014–2018 and 2011, 2014, 2012–2013, and 2010, respectively. ESG scores improved across the 8-year period for all sectors except refiners and pipelines, oil and gas producers, and industrial conglomerates, which declined by 5.28%, 1.28%, and 0.84%, respectively (Figure 9).

Figure 8

Cumulative Frequency Plots of Philippine ESG Scores



Source: WRDS, n.d.

Figure 9

Philippine ESG Scores Median Quartile by Sector

ESG Scores Median Quartile by Philippine Industry Sector (2010-2018)											
Year	Utilities	Transportation Infrastructure	Telecommunication Services	Refiners & Pipelines	Real Estate	Oil & Gas Producers	Industrial Conglomerates	Food Products	Diversified Financials	Consumer Services	Banks
2010	46.17	48.00									
2011	49.83	48.00	55.50		49.00		44.00			45.00	44.00
2012	55.00	48.00	55.50		49.00		45.83	43.00		45.00	44.00
2013	55.83	50.00	55.00		49.00		46.00	43.00		45.00	44.00
2014	58.17	49.88	57.92	63.00	49.00		44.00	45.00	47.00	44.67	44.00
2015	60.00	48.07	52.00	60.00	51.00	55.00	42.17	45.00	49.30	47.00	47.00
2016	62.37	47.47	45.65	52.92	53.57	54.47	41.12	46.34	45.25	45.52	47.48
2017	64.44	49.53	53.24	53.30	46.00	53.60	41.15	47.47	46.72	44.16	46.53
2018	64.44		54.70		49.55		41.36	48.75	49.19	46.77	47.50

Source: WRDS, n.d.

Imperfections in the dataset and the manner of data collection (e.g., panel versus time-series) impact regression results. Data quality issues emerged in observing how ESG scores were reported at constant rates prior to PSEC's promulgation of ESG screening in 2019. Near vertical lines in the cumulative frequency patterns for the oil and gas sector were a direct result of firms fixing ESG scores between 54 and 55 three to four years in a row (Figure 8). 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 study used quarterly/annual time-series data in a longitudinal or panel format, low R-squareds were expected due to heterogeneity of cross sections. In this case the results were not driven by data quality issues, but by the potential exclusion of explanatory variables that tend to boost the value of R-square. Thus, the individual and overall significance of the model were focused on, based on the *t*-values of the explanatory variables.

Experiment 1: Regression Model Alpha Results

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 (Figure A1). The econometric model showed that ESG performance had no significant impact on return on assets (Figures A2 and A3) and return on equity (Figures A4 and A5).

Interestingly, ESG screening had a negative significant impact on (a) return on capital employed (Figures A6 and A7); (b) earnings per share (Figures A10 and A11); and (c) dividends per share (Figures A12 and A13). The only model showing ESG performance as correlated with success in the market appears in Figures A8 and A9.

ESG factors had a significant impact on EBITDA margin, or operating profit as a percentage of revenue. 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 earnings before interest, taxes, depreciation, and amortization, as a percentage of revenue. Based on the overall mixed and inconclusive nature of the regression coefficients' results shown in Experiment 1, should consumers of ESG ratings, issuers, intermediaries, and fund managers consider these results at face value, or should they wait a few more years until ESG standardization matures in emerging markets in the Philippines? Future studies should look at crafting regression models by lagging regressors by at least 1 or 2 years to capture the delayed yet relevant correlated changes in financial performance, which potentially rises and tapers off in the absence of further pulses of foreign aid disbursements in the outyears. However, researchers should also be ready to be challenged by the outcomes of these empirical studies. For example, Balatbat et al. (2012) showed how the correlation between financial performance and ESG scores was weakly positive in Australia from 2008 to 2010, including both 1-year and 2-year lag analyses. They suspected that either ESG scores might not reflect the true ESG practices of companies or there could be a "blurring effect" between practices that could positively impact a firm's profit and others that negate the importance of value creation capabilities (Balatbat et al., 2012, p. 23).

Experiment 2: Regression Model Beta Results

In this experiment, OLS was applied on the E (environment) portion of a country's sovereign ESG based on Yale's EPI (Wendling et al., 2020). Three separate regressions of E, two of which are tracked by the Yale database, EH and EV, were applied on the variable representing the natural logarithm of official development assistance per capita, or *aidflow*. The third regressor or independent variable, EDI, was a 2015 time series of panel data from 70 countries across 75 legal indicators, based on the "United Nations survey of the state of national

laws protecting transparency, participation, and justice in environmental decision-making" (World Resources Institute, 2016).

Experiment 2 attempted to address whether outputs in the form of financial flows lead to specific outcomes, as exemplified in the theory of change. A 1% increase in *aidflow* was expected to correlate with an increase in EH or EV for a beginning sample of 146 countries (Figures A14 and A15). Figure A14 shows the results of four separate econometric regression models of applying ordinary least squares on a constant, and EPI, EH, EV, and EDI—all based on *aidflows*. The regression models showed no significant relationship between *aidflows* and overall EPI, EH, EV, or EDI (2015 data only available) on a global scale. The statistical insignificance of *t*-values, let alone the low R-squares of these four regression models, suggests that the impact of *aidflow* might not necessarily apply to the entire global sample of 146 countries, but to specific groupings of "countries being left behind" (Coppard & Christensen, 2018, p. 13).

Using the 30 member countries affected across the poverty, human development, and fragility measures, OLS was rerun on a constant, and EPI, EH, EV, and EDI—all based on *aidflows*—and obtained significant yet interesting results for EPI and EH: a significant negative relationship between *aidflows* and environmental performance in these countries (Figures A15, A16, and A17). Specifically, a 1% increase in *aidflow* was greatly correlated with a 3.13% decrease in EPI and, separately, a 5.58% decrease in EH for 70 countries categorized by the World Bank as "most heavily aid-dependent countries as a proportion of central government expenditures," which is inclusive of Overseas Development Institute's (n.d.) list of "countries left behind."

One key implication for public policy is that donors looking to use *aidflows* to leverage private-sector finance or reduce risk by increasing creditworthiness should exercise caution. There is no evidence that this will reduce poverty and environmental degradation. On the contrary, it exacerbates poorer countries' performance when they cannot make improvements due to lack of capacity, suffer from failed institutions, or are prone to the "house-not-in-order" leadership syndrome in government. But are these results for negative correlations between *aidflows* and environmental performance robust? Can these results be dismissed, or should one accept the premise that increases in per capita net official development assistance come at a hefty price in environmental improvement?

Experiment 3: Regression Model Gamma Results

In this experiment, OLS was again applied on the E portion of a country's sovereign ESG based on Yale's EPI. Three separate regressions of E were applied, two of which are tracked by the EPI database, EH and EV, on income (current US$). A separate fourth regression was run on the World Resources Institute variable EDI based on income to assess if access to environmental justice was positively impacted by income across the sampled 70 countries, covering 7 biennial years from 2006 to 2018 and yielding 490 observations.

As shown in Table 4, income was significantly correlated with the periodic change in the variables EPI, EH, EV, and EDI. The results illustrate that a 1% increase in income increases EPI, EH, EV, and EDI scores by 6.5, 0.5, 0.12, and 0.20 respectively. Of the four regression models, EPI, EH, and EDI captured close to 40%, 60%, and 30% of the variations in each of the respective models due to changes in income. Ecosystem vitality's negative responsiveness to the changes in the explanatory variables will be further explained below based on literature review. While environmental performance is less responsive to *aidflows* as shown in the previous experiment, it turns out it is extremely sensitive to the year-to-year change in economic activity. The findings suggest that income levels in developing countries have a significant positive effect on environmental advancement, which opens up a conversation of going beyond minimizing carbon emissions (inverse of the EKC). The policy implications of the variable income passing significance at the 0.05 level are discussed in the final portion of the paper.

Table 4

Apply Ordinary Least Squares on Environmental Variables Based on Aidflows and Income

Independent & Control variables	Dependent Variable: EPI_{it}			Dependent Variable: EH_{it}			Dependent Variable: EV_{it}			Dependent Variable: $EDI_{i(t=2015)}$		
	β_0	t	*p*-value Sig.	β_0	t	*p*-value Sig.	β_0	t	*p*-value Sig.	β_0	t	*p*-value Sig.
Experiment 2: Environmental Impact of *Aidflows*												
Intercept	62.2463	15.0166	0.0000	65.8556	11.1290	0.0000	54.3099	7.9145	0.0000	1.2609	11.1282	0.6451
Log *AID-PC* $_{it}$	**-3.1264**	**-3.1216**	**0.0024**	**-5.5804**	**-3.9031**	**0.0002**	1.0986	-0.1783	0.8590	-0.0009	-0.4659	0.3225
*ANOVA (F statistic *p*-value <0.01)	R^2 = 0.0987 F^* = 9.7445			R^2 = 0.14615 F^* = 15.23444			R^2 = 0.0020 F^* = 0.131228			R^2 = 0.007973 F^* = 22.0000		
Experiment 3: Environmental Impact of Income												
Intercept	3.5264	1.5778	0.1149	26.8530	29.6297	0.0000	46.6875	31.2665	0.0000	-0.2767	-0.7779	0.4393
Log *GDP-PC* $_{it}$	**6.4665**	**25.0873**	**0.0000**	**0.4896**	**37.4915**	**0.0000**	**0.1181**	**5.4911**	**0.0000**	**0.1992**	**4.8198**	**0.0000**
*ANOVA (F statistic *p*-value <0.01)	R^2 = 0.3774 F^* = 15.2343			R^2 = 0.5725 F^* = 15.23445			R^2 = .0282 F^* = 30.1524			R^2 = 0.2546 F^* = 23.2275		
Focus Area 1: Most Heavily Aid-Dependent Countries as a Proportion of Central Government Expenditures												
Intercept	18.7692	3.0658	0.0024	-79.1189	-10.4472	0.0024	83.8574	9.5326	0.0000	-0.1880	-0.1520	0.8819
Log *GDP-PC* $_{it}$	**4.4911**	**5.3552**	**0.0000**	**17.7590**	**17.1187**	**0.0000**	**-4.3027**	**-3.5706**	**0.0004**	0.1956	1.1352	0.2804
*ANOVA (F statistic *p*-value <0.01)	R^2 = 0.1000 F^* = 28.6784			R^2 = 0.5318 F^* = 293.05			R^2 = 0.0471 F^* = 12.7490			R^2 = 0.10486 F^* = 1.28860		

Focus Area 1: Most Heavily Aid-Dependent Countries

The previous experiment illustrated the extent to which GDP per capita could have an impact on developing countries, emerging markets, and the global economy. These results tend to overshadow the variation or frequencies of events with the same likelihood of occurrence for the specific group of countries that may empirically behave differently when they are separated from the global community. As such, this focus area dealt with whether the World Bank's most heavily aid-dependent countries would have comparable results. This section shows how relatively poorer countries based on aid dependence and GDP per capita would have comparable coefficients and result in the same coefficient signs.

With the exception of the variable EDI, it was estimated that a 1% increase in income (*Log GDP-PC*$_{it}$) was greatly correlated with a rise in percentage scores for EPI, EH, and EV based on the significant coefficients of 4.5, 18, and -4.3, respectively. EH was the best model of all four based on its R-squared of 0.5318 and significant positive correlation between income and environmental health (Table 4 and Figure A17). Conversely, EV was estimated to decrease by more than four percentage points due to a 1% increase in income, even as the explanatory power of the EV model was miniscule due to a low R-squared of 0.0471. This finding gives rise to the

question of whether or not, as other researchers find, "environmental pressure increases more rapidly than income in the initial stage of development and then decreases in relation to growth in GDP at higher income levels" (Esty & Porter, 2005, p. 407).

The other logical option to consider why income is negatively associated with EV is the simplicity of the model of having only one explanatory variable forced to explain all the variations in sovereign environmental performance. If this negative correlation between income and EV is partially the result of not having the right functional form (e.g., other missing explanatory variables), then reconstructing two new regression models as shown in Focus Area 2 and Focus Area 3 might better explain both the working theory and functional explanatory powers behind the periodic variations in the environmental indices. Ultimately, the results in Focus Area 1 demonstrate how the environmental impact of income is strong and will have implications for development aid and development institutions as catalytic actors in achieving developmental and global environmental objectives.

Focus Area 2: Inequality & Competitiveness

In one of two newly improved regression models, Table 5 shows the relationship between the environmental impacts of inequality (World Bank, n.d.-a) and global competitiveness (World Bank, n.d.-b) with a particular focus on poorer countries. Using World Bank's 2016 Gini coefficient for income inequality ($Gini\ Coeff_{it}$) and global competitiveness index (GCI_{it}), OLS was applied on environmental performance based on a constant and the two new regressors plus a poverty dummy variable ($Poverty\ DUM_{it}$) to account for countries with GDP per capita ranging from $316 USD (Malawi) to $3,886 (Sri Lanka).

Table 5

Apply Ordinary Least Squares on Environmental Performance Based on Inequality, Global Competitiveness, and Income

Independent & Control variables (t=2016)	Dependent Variable: $EPI_{i(t=2016)}$			Future models that better explain the relationship between the economy and the environment
	β_0	t	*p* -value Sig.	
Focus Area 2: Inequality & Competitiveness				
Intercept	55.3624	5.2889	0.0000	Environmental impact of inequality & global competitiveness
Gini Coeff $_{it}$	**-0.3726**	**-2.7707**	**0.0072**	
GCI $_{it}$	**0.0565**	**3.0283**	**0.0035**	
Poverty DUM $_{it}$	**12.2708**	**4.6743**	**0.0000**	
*ANOVA (F statistic *p*-value <0.01)	R^2 = **0.567489** F* = **29.30315**			
Focus Area 3: Inequality & Income				
Intercept	44.5573	2.5245	2.5245	Environmental impact of inequality & income
log *Gini Coeff* $_{it}$	**-9.0019**	**-2.1987**	**-2.1987**	
log *GDP-PC* $_{it}$	**6.9684**	**10.4038**	**10.4038**	
*ANOVA (F statistic *p*-value <0.01)	R^2 = **0.67286** F* = **71.98799**			

The results showed a much-improved explanatory power of the regressors, depicting how 1% changes in the independent variables *Gini Coeff*$_{it}$, *GCI*$_{it}$, and *Poverty DUM*$_{it}$ were all highly correlated with regression coefficient change in the expected percentage score of *EPI*$_{it}$ of -0.3726, 0.0565, and 12.2708, respectively, while all the predictors were held constant. With all *t*-values and *p*-values for the regression coefficients significant, this new model captured an R-squared of about 60% of the variations of EPI. Since a higher (lower) World Bank-reported Gini coefficient equates to greater (lower) income inequality in a particular country, the model shows how a 1% increase in the index for inequality was negatively correlated with nearly half a percentage point-score in environmental performance. Moreover, a 1% increase in global competitiveness of a country was positively correlated with an improvement of approximately one-tenth of a percentage point in EPI scores. Lastly, the poverty dummy variable's regression coefficient represented how EPI scores could go up by more than 12 percentage points with an associated unit change in poorer countries' annual income. The results using inequality and competitiveness as regressors give rise to the role of aid itself. Could *aidflows* be meant to facilitate recipient countries' efforts to transform their economic and social structures toward more desirable sustainable outcomes?

Focus Area 3: Inequality & Income

In Focus Area 2, the World Bank's GCI data were used as a proxy for GDP per capita or income as regressor in the model to test whether a nation's environmental performance was correlated with its competitiveness, as previously shown by Esty and Porter (2005, p. 421). This part of the study also examined the extent to which poorer countries that receive high amounts of *aidflows* are not experiencing strong environmental improvements over time and whether their challenges are more deeply entrenched in public policies that negate improvements in "social factors . . . leading to a wider gap between the upper and working class" (Amadeo & Boyle, 2020, p. 2). In researching further, the Kuznets curve seemed relevant, which stems from the hypothesis that "as an economy develops, market forces first increase and then decrease economic inequality" (Kuznets, 1955, p. 2).

Wages and inequality after the industrial revolution were determined by weather conditions that impacted the agrarian economy (Milanovic, 2016, p. 66). In the age of globalization, those determinants are blurred by international trade, technological change, and other exogenous factors such as global environmental change (Ortiz-Ospina, 2018). As such, the environmental impact of inequality and income were estimated by applying ordinary least squares on the variable $EPI_{i(t=2016)}$ based on a constant and logarithmic transformation of $Gini\ Coeff_{it}$ and $GDP\text{-}PC_{it}$. The results showed how a 1% change in inequality and income strongly drives environmental performance by -9.0 and 7.0 percentage points, respectively. With an R-squared of almost 72%, this focus area brought to light how donor countries and agencies should focus and align their respective *aidflows* to poorer countries. The main takeaway is that *aidflows* might need to be optimized to boost income levels and decrease inequality to gain environmental improvements in sovereign poorer countries. The bottom line on the results is that income and wealth inequality can be both beneficial and harmful, respectively, for environmental sustainability.

Chapter IV.

Discussion

This study examined whether (a) ESG factors can contribute to corporate financial performance for publicly listed companies in the Philippines and (b) most countries, including emerging markets such as the Philippines, can achieve the broad objective of improving their sovereign ESG factors from official development assistance (*aidflows*). These propositions led to three empirical experiments and, in addition, regressions in three focus areas to either address the gaps in the three experiments or provide further discussion on future research opportunities.

Experiment 1: Social Purpose for Value Creation?

The regression results in this section yielded only one encouraging impact to the value creation mantra that ESG screening could have a positive impact on firms' ability to financially make it in the market. In fact, out of the six regressions of financial ratios on ESG factors, only EBITDAM, which measures a company's operating profit as a percentage of its revenue, showed potential for ESG screening with positive significant market results. On the other hand, two other financial ratios, earnings per share and dividends per share, both showed negative results, and the other three regressions showed no significant correlation between the financial variables and ESG factors. While the maturity of the model of the entire ESG process in the Philippines thus far can be questioned, due to its promulgation by Philippine authorities in 2019, the experiment indicates there might be some evidence that ESG factors could lead to sound market performance by a certain company relative to the rest in a particular industry.

What this experiment cannot determine is whether ESG screens will go far enough, insofar as having what Harvard Business School professors Porter et al. (2019) called a profit-driven social impact "shared value" (p. 2). They submitted that "despite countless studies, there has never been conclusive evidence that socially responsible screens or company positions on lists such as the Dow Jones Sustainability Index deliver *alpha*," meaning the "excess return on an

investment relative to the return on a benchmark index" (Porter et al., 2019, p. 3). Accordingly, they claimed that "other firms that are delivering profit-driven social impact do not achieve the top ESG rankings in their industries" (Porter et al., 2019, p. 4). They cited how "ESG factors are not material to the performance of a particular business, nor do they highlight areas where the business has the greatest impact on society," Indeed, "broad and upbeat ESG reporting may make investors and consumers feel good by encouraging corporate window dressing, but it distracts from incentivizing and enabling companies to deliver greater social impact" (Porter et al., 2019, p. 5). Such ESG reporting is reminiscent of family household preferences such as children's ice cream flavors of the month. ESG should not be treated as a mere fad.

It is a valid concern that issuers, intermediaries, and investors might all be *Groupthink-ed* into the same "siloed ESG approach, where analysis of societal impact is divorced from analysis of competitive strategy and growth" (Porter et al., 2019, p. 16)—this phenomenon could lead to focusing on checking ESG boxes that are not material to the firm's core business. To summarize, companies or fund managers who consider ascribing to ESG screens in the hope of realizing financial impact should always remember Eugene F. Fama, 2013 Nobel laureate and "father of modern finance," who developed the market efficiency theory, which states that "if markets function efficiently then it will be difficult or impossible for an investor to outperform the market" (*Eugene F. Fama*, n.d.). Lastly, the accelerating rate of adoption of ESG practices has provoked a continuing debate about the nature of sustainability and its long-term implications for superior financial performance. Unfortunately, the mixed, if not mediocre, regression results imply that capital markets have treated ESG as a strategic necessity that can ensure corporate survival, but not necessarily one that produces outperformance.

Experiment 2: International Financial Flows for Environmental Improvement?

The second empirical experiment attempted to determine the economic impact of environmental progress of sovereign countries, particularly poorer countries ranked by extremely low GDP per capita or income and high net official development assistance per capita, with both categories listed in World Bank databases. Without complete World Bank datasets in the social and governance space, the focus was finding a significant correlation between economics and the environment—the relationship popularized by theory of social change between output called

aidflows, provided by the World Bank AidFlows database, and outcome, which is the E in ESG as depicted by Yale University EPI data. The regression results showed that *aidflows* either did not have an impact on the year-to-year change in EPI for all countries sampled (Figure A14) or negatively affected the change in EPI (and EPH) for poorer countries (Figure A15 and Table 4). As was also shown in Experiment 2, *aidflows* are not the best drivers of environmental performance because they are indirectly proportional to income. Due to the significant negative coefficient of the regressor for foreign aid, the question remains if *aidflows* alone play an ambiguous role in environmental performance or indirectly affect environmental indicators through other variables such as per capita GDP. Do countries with more in-depth financial markets, for instance, gain significantly more from *aidflows* as a precondition to becoming more environmentally upright? If so, this rationale calls for resources devoted to activities in capacity building, institutional strengthening, and civil society engagement.

Experiment 3: Income and Environmental Progress

The third empirical experiment attempted to find a statistical relationship between income and environmental progress, which is a functional form that has been much more widely accepted in the development economics literature since the 1990s as the EKC. In the late 1990s and about a decade later, two prominent papers paved the way in determining whether sovereign country environmental performance tracks EKC (Moomaw & Unruh, 1997) as well as whether the determinants of environmental policy success can be traced from economic policy management at the national level (Esty & Porter, 2005). One particularly interesting finding was that sovereign environmental performance and health outcomes generally track the EKC, as sophisticatedly shown by Tufts Professor Moomaw and his previous graduate student, now George Mason University Professor of Economics, Professor Unruh. In this study, the regressions of EPI on income followed the EKC pattern and that found by Esty and Porter (2005) on a global scale. While their regression results show that CO2 emissions correlate not with income levels but with more historical, high-visibility events such as oil price shocks, this study produced robust econometric results as did Moomaw and Unruh regarding their observations that environmental degradation (improvement) does not necessarily increase (decrease) as income grows (Figures A16, A17, and A18). Lastly, the results imply an inverted EKC that characterizes

the relationship between environmental performance levels and income: environmental improvement levels will increase with income, but some threshold of income will eventually be reached, beyond which improvement levels will decrease. Based on this relationship, donor countries would be able to determine how resources that boost income are an influential gauge for environmental sustainability.

A particular outcome of interest was the regression of the variable EV on the logarithm of GDP per capita, which yielded a significant negative coefficient of 4.30 despite overall weak model R-squared (Figure A18). In this case, a 1% increase in income from poorer countries was greatly correlated with more than a 4-percentage point decline in water quantity, water quality, basin condition, and biodiversity, as the EV index is defined by Yale University.

After a careful literature search, four prominent journal articles spanning two decades were found that validated these regression results. First, there is a body of evidence showing the case of the Netherlands that

> although wealthy countries may be able to invest money in order to improve their environment in contrast to poorer countries, they also tend to create environmental problems owing to their high level of consumption, which can lead to an increase in their pollution levels, thereby also generating more waste and using up more natural resources. (Jahn, 1998, p. 118)

Another explanation for deterioration of environmental performance with rises in income stems from how rich countries "outsource" their CO2 emissions to poorer ones (Global Carbon Project, 2019).

Next, it was posited that "when economic wealth increases, ecosystem vitality also decreases, which suggests that many countries may not initially perform especially well on energy, climate, water stress, biodiversity" (Gallego-Álvarez et al., 2014, p. 7827). There is also consensus to suggest that "greater equality may actually lead to a loss of environmental quality, at least over the short term" (Gallego-Álvarez et al., 2014, p. 7807). Other researchers, too, have suspected that if an ecosystem is heavily supported by international agreements, without strong financial support, the international agreements supporting biodiversity in that country could be negatively impacted (Morse, 2018, p. 113). Thus far, this section makes a strong case for developing countries to "grow up first, and clean later" (Cracolici et al., 2010, p. 346), as illustrated by the significant, positive predictability power of income over environmental performance. However, the results also show that the demands of ecological sustainability are

managed more successfully within systems that can integrate both income and access to justice/social choices, as represented by the variable for environmental democracy index, EDI_{it}.

Focus Areas 1-3

Several regressions were run under three scenarios that would greatly improve upon the environmental performance-income model, which resulted in Focus Areas 1, 2, and 3. As shown in Figures A19 and A20, *aidflows* do not necessarily contribute to better environmental performance in poorer countries because of meager access to environmental justice, in addition to the lackluster focus of *aidflows* on poorer countries' humanitarian assistance efforts.

Thus, with indicators such as environmental performance and income inequality, coupled with vulnerability to climate change, increasing in poorer countries over the past few decades (Figures A21 and A22), in order to build a new model of environmental performance beyond income, the study examined whether income inequality and global competitiveness impacted sovereign E in ESG (Figures A23 and A24).

As it turns out, one of the major reasons why environmental conditions have not improved in poorer countries is the significant gaps in inequality and competitiveness. While this type of empirical work looking at competitiveness was started by Esty and Porter more than a decade ago, there are many possible avenues to improve the model to provide sharper results. Ultimately, organizations such as the World Bank and the U.S. Agency for International Development will need to realign their resources to development aid projects so that income and inequality can be improved directly, which would indirectly improve sovereign environmental performance (Table 5). Figures A25 and A26 show how EPI is affected by competitiveness. These two charts illustrate how Esty and Porter suggested an impacted trend of giving up market power for sustained environmental leadership in the United States. Focus Areas 1-3 show that while income is a significant contributor to environmental performance, the push-and-pull effect of income inequality and competitiveness will have implications for how donor countries assess foreign aid giving.

Chapter V.

Conclusion and Recommendation

This research estimated the economic impact of environmental screening and, conversely, the environmental impact of economic flows. This type of analysis is akin to what is known in mathematical optimization theory as the primal-dual definition of a problem. Optimization problems may be viewed from either of two perspectives: the primal problem—micro, or the dual problem—macro (Paris, 2016). In Experiment 1, the primal, micro-related problem was how empirical data suggest ties between strong performance on ESG factors and improved corporate financial performance and investment returns. ESG factors include

1. environmental concerns (e.g., pollution, energy, and resources) that are material to the company's business,
2. social criteria that address labor relations and other issues that impact the company's diversity and inclusion, and
3. governance, which denotes the internal system of business processes the company must adopt to self-govern (Henisz et al., 2019, p. 1).

Fund managers and investors are hugely recommending the use of better ESG screens, as they tend to correlate with risk reduction and higher credit ratings. Taking that a further step, ESG propositions are suggested to create value for the firm, as evidenced in the finance literature. However, the impact of screening on economic or financial flows (equity returns) shows no non-negative correlation in at least 2,000 studies (Friede et al., 2015). (As examples of economic or financial flows, equity returns are defined by the International Monetary Fund as "the creation, transformation, exchange, transfer, or extinction of economic value"; De Clerck & Wickens, 2015, Section 3.4). Conversely, the dual-related macro problem is represented by the sovereign E in ESG impact of financial flows.

Experiment 2 examined the environmental impact of per capita economic aid, *aidflows*, and global commons as defined in the sovereign jurisdiction of emerging markets and poorer countries. In optimization, the solution to the dual problem (e.g., environmental impact of per

capita GDP or income) provides a lower bound to the solution of the primal, ESG-related problem (Paris, 2016). Due to weaker correlation results in Experiment 2, the analysis was extended to a third experiment to see if there was a broader, significant environmental impact on per capita GDP or income.

These three experiments were individually presented to accept or reject *Hypotheses 1-3* that (a) ESG factors can contribute to corporate financial performance in the Philippines and (b) countries can achieve the broad objective of improving ESG factors from either (c) development assistance or (c) economic growth. Lastly, three focus areas were added to determine if the regression results in Experiments 1-3 would significantly change for specific samples of poorer countries and if the functional form of the regression models could be further improved.

Experiment 1: Conclusion and Recommendation

Based on the findings from Experiment 1, *Hypothesis 1* is rejected, in part due to the mixed and inconclusive nature of the regression coefficients' results. The financial impact of ESG factors on profitability was shown to be negligible due to weak correlation between ESG and measures of profitability and financial efficiency (ROA, ROCE, ROE, and EBITMA). Interestingly, equity valuation models, represented in the variables EPS and DPS, were found to be negatively correlated with ESG screens, which implies that the relationship between ESG and financial performance is perhaps because profitability declines as a result of a company better managing its material ESG risks. Following McKinsey's value-creation mantra on the positive relationship between ESG and financial performance and investment returns, fund managers, intermediaries, and shareholders might be hesitant to invest in emerging markets such as the Philippines if they observed the results in Table 4. The hypothesis tests should not be taken at face value, although the availability of Philippine Stock Exchange corporate data from 2010 to 2018 (a year before local authorities mandated ESG screening) coupled with data quality tests (cointegration, unitary, heteroskedasticity, and endogeneity) tends to legitimize the datasets. While Experiment 1 failed to specifically prove that ESG appears to be related with 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, investors and other stakeholders (e.g., NGOs) should be cognizant that emerging markets are likely to be in their infancy insofar as the capability maturity structure in which ESG factors are screened. In the U.S., ESG is well established in financial markets, but as Harvard Business School Professor Robert Eccles and Svetlana Klimenko observed in their 2019 paper, (a) "ESG data still feels a bit like the Wild West," (b) "no governments are thus far mandating the use of the standards," and (c) "when companies choose to adopt them (ESG), the reported numbers are rarely subject to a rigorous audit by a third party" (p. 114). Accordingly, ESG harmonization is a work in progress in the U.S., even as the European Union has already imposed regulations and directives requiring all companies of a certain size to report nonfinancial information once a year (Eccles & Klimenko, 2019, p. 114). Therefore, it is highly recommended that investors and stakeholders continue to work with organizations such as the Climate Disclosure Standards Board, Global Reporting Initiative, and Sustainability Accounting Standards Board to come up with standards for how to measure and report on ESG issues. ESG requires reporting of nonfinancial information with the same level of accounting rigor as financial reports like the Form 10-K and quarterly Form 10-Q. Either regulation or market forces may determine the cost-benefit analysis of creating audits that report combined financial and nonfinancial information. Ultimately, market failures, if not the health, social, and environmental impacts of global change, could force financial markets to consider a new way of assessing how business entities conduct themselves in society's best interests.

Following the stock market crash of 1929 and the ensuing Great Depression, the U.S. government sought ways to regulate publicly traded companies and other major market participants, and the U.S. Securities and Exchange Commission in 1939 empowered what is now known as the American Institute of Certified Public Accountants to set standards for accounting practices (Atkins, 2004). Just as it took about a decade for U.S. business to harmonize accounting standards, it is likely that capital markets will eventually come up with agreed-upon nonfinancial ESG factors. After all, the U.S. is now "entering a new stage of understanding of the linkage between investment performance and social impact" (Porter et al., 2019, p. 1). To attain a reasonable level of ESG standards, consumers of ESG factors, particularly in emerging markets, would have to understand how change cannot happen overnight. ESG maturity will take

the development of significant action plans to move economic agents in the baselined capability maturity model (CMM) of ESG in countries such as the Philippines to an increased level of capability for them to move up the ESG policy life cycle (Figure A27). According to research that was adapted from Lyon's CMM, both the ESG public policy life cycle (government-driven) and private policy life cycle (driven by NGO, non-state actors) might not matter too much in the short term, but in the long term, through iterations of engagement between companies, shareholders, stakeholders, and the government, the material economic impact on the company will ultimately affect business value creation (Lyon, 2011, p. 200).

The second recommendation of this study is for consumers of financial products to heed the warnings of Harvard Business School Professors Michael Porter, George Serafeim, and Mark Kramer in their October 2019 article in *Institutional Investor* regarding the pitfalls of ESG. They recommend going beyond the ESG–financial performance comparative static analysis and ascribing to their unique investment performance and social impact mantra (Porter et al., 2019, p. 2). The pitch is simple: unlike nominal profits derived from ESG screens, the profit-driven impact is shared-value, according to the authors, tied to competitive advantage (Porter et al., 2019, p. 3). Competitive advantage, wrote Porter (1985), means a company provides (a) the same products and services as its competitors, but at a lesser cost, or (b) a differentiation advantage when a business provides better products and services than its competitors. Why is the ESG-financial performance current business model flawed? According to these HBS luminaries, corporate leaders view sustainability efforts primarily as a way to enhance their reputations, thus missing the boat on the impact of social innovations on competition and economic value creation (Porter et al., 2019, p. 4). Second, when it comes to the "SASB-related materiality analysis of focusing on specific social issues that carry economic impact to the core business of the firm," Porter et al. (2019) claim that the materiality rationale (a process championed by their own HBS colleague Robert Eccles) still "falls short of truly connecting social impact with competitive strategy and opportunities for superior profitability" (p. 4). Accordingly, the authors recommend going beyond the usual checklist of material factors that ESG screening promotes. Instead, they suggest that economic actors hone in on the company's strategy to "create social impact through an innovative and profitable business model that reshapes the nature of competition and makes social impact a part of capitalism itself" (Porter et al., 2019, p. 10).

The work of Porter et al. (2019) and the cited case studies make a convincing argument that ESG screening could overlook the remarkable benefits of competitive advantage. Accordingly, ESG thinking does not lead to increasing the competitive advantage of firms. The authors believe that since ESG factors do not boost "social innovation on key issues within every industry, it profoundly affects the firm's strategic positioning in both differentiation and cost savings" (Porter et al., 2019, p. 10). How might firms proceed to follow this recommendation of pursuing shared value to align the strategic position of the firm better? They have several compelling case studies to make their case, but the efforts leading to a shared-value strategy alone cannot materialize without Porter's "Five Forces": (a) competition in the industry, (b) potential of new entrants into the industry, (c) power of suppliers, (d) power of customers, and (e) threat of substitute products. This framework is recommended in their paper for analyzing a company's competitive environment, but is important as the example they present for others to follow.

Another exciting aspect of this proposal, according to Porter et al. (2019), is that the firms that make up their profit-driven social impact model "do not necessarily achieve the top ESG rankings in their industries" (p. 10). *Fortune* magazine publishes an annual "Change the World" list (comprised of 52 companies based on a yearly survey done by the NGO Shared Value Initiative Global) based on the positive social impact these businesses have made as part of their core business strategy (*Fortune* Editors, 2019). According to Porter et al., what is fascinating about the public companies on the *Fortune* list is that "from 2015 through 2017, they outperformed the MSCI World Stock Index by an average of 3.9 percent in the year following publication" (p. 3). "MSCI World is a market-cap-weighted stock market index of 1,603 stocks from companies throughout the world" ("MSCI World," 2020, para. 1). Thus, shareholders and stakeholders should diversify their value-creation toolkit beyond ESG screens and consider the innovative 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).

One might ask, "What about the more than 2,000 empirical studies that show the non-negative impact of ESG propositions on equity returns? Should we ignore those results?" The finance industry should make significant strides to standardize ESG factors, even though that might take some time, especially in emerging markets. However, risk-averse consumers of value

creation—issuers of ESG factors, intermediaries, investors, and stakeholders—ought to be careful about putting ESG screens into one basket. 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. Moreover, it will take a different kind of C-suite leadership to steer the company in the right direction.

Experiment 2: Conclusion and Recommendation

Based on the results of Experiment 2, the environmental impact of *aidflows*, *Hypothesis 2* was initially rejected because of the negative coefficients for the variable of *aidflows, Log AID-PCit*. This suggested further spurious causality and non-causality testing that was not accomplished in this analysis, and prompted a further review of the literature. As shown in the previous section, using the full sample, OLS of environmental performance on *aidflows* (Table 4) yielded significant negative correlations between EPI and *aidflows* and EH and *aidflows,* but found no meaningful relationships between EV and *aidflows* or EDI and *aidflows*. The further literature review uncovered a 2006 study that used standard Granger Causality tests to show how "aid has a detrimental impact on pollution" (Arvin et al., 2006, p. 71). Granger Causality uses empirical datasets to find patterns of correlation and illustrate that a past event can cause a present or future event (*Granger Causality*, 2020). It also showed how aid decreases and pollution emission increases (Arvin et al., 2006, p. 71). Thus, the policy conclusions drawn from Arvin et al.'s (2006) analysis that "Western industrialized countries concerned with global environmental decline should tilt their economic assistance in favor of poorer developing countries" (p. 72) might not always hold. By the same token, the negative correlations between environmental performance and aidflows in poorer developing countries may have to do with the ineffectiveness of foreign aid in countries that "do not have their house in order," lacking the capacity and civil society institutions that they very much depend on to turn things around. This conclusion gives impetus to the recommendation that rich donor countries should focus on the effectiveness of *aidflows*. The stakes for the impact during COVID-19 cannot be overestimated. Relative to income (GDP per capita in current dollars), *aidflows* are not a functionally better predictor of environmental performance. Out-of-sample econometric runs indicated that *aidflows* are highly correlated with income in developing countries—the linkage between income and

environmental performance is relatively more powerful than foreign aid due to the convergence of that relationship to what appears to be the inverse of the EKC.

Experiment 3: Conclusion and Recommendation

Based on the results of Experiment 3 (Table 4), the environmental impact of income, *Hypothesis 3* was accepted due to the significant positive correlation between the dependent and independent variables, EPI and income. Compared to using *aidflows* as the key regressor in the regression model, using income (that is, the log of per capita GDP) better predicted environmental performance. Through triangulation, it was shown that using income as the regressor specifically validated the empirical findings of various researchers on (a) income and EV (Gallego-Álvarez et al., 2014; Jahn, 1998; Morse, 2018), (b) EKC patterns (Moomaw & Unruh, 1997), (c) income and competitiveness (Esty & Porter, 2005), and (d) environmental performance and gender diversity issues (Ott, 2011). Based on literature review, additional variables were used to better explain environmental performance and the EKC. At times, variables such as investment shares, infrastructure, electricity tariffs, political rights, civil liberties, and trade have been added to EKC empirical models (Bhattacharya, 2019, p. 145). However, most of these studies, like the current study, have concluded that income is the most significant variable affecting environmental quality (Bhattacharya, 2019, p. 146). This disclosure has recommendation implications for bilateral and multilateral donor foreign aid policy. Thus, the general recommendation from Experiment 3 is for donor countries to focus their overall foreign aid transfers on boosting per capita GDP—that is, boosting income (and income is highly correlated with sovereign environmental performance). The most direct way to abate pollution levels or improve EPI is to track the inverse of EKC cautiously.

Emergent Trends: Focus Area 1

The regression results from the full sample in Experiment 3 and, more specifically, Focus Area 1 ("Most Heavily Aid-Dependent Countries as a Proportion of Central Government Expenditures"), demonstrate that the environmental impact of income is significant. The results of Experiment 3 and Focus Area 1 show how these models are better at simultaneously

predicting the increase in the index for environmental improvement (EPI, EH, EV, and EDI) up to a certain level of annual income ($5,000–$10,000), as developing countries "grow first and clean up later" (Cracolici et al., 2010, p. 346). Thus, the recommendation to "grow first and clean up later" has profound implications for donor foreign aid prioritization. This could mean that DFID, USAID, Asian Development Bank, and the World Bank should focus on the type of development assistance that primarily boosts economic growth. Once growth takes flight, environmental performance could then improve.

Two other focus areas were explored in an attempt to fine-tune the environmental impact of the income regression models. As it turns out, a developing country's sovereign income inequality and competitiveness play a massive role in environmental performance.

Emergent Trends: Focus Area 2

The regression models from Experiments 1-3 were expanded by creating Focus Areas 2 and 3—Inequality & Competitiveness and Inequality & Income (Table 4). The expansion stemmed from curiosity that the F_2 values for the regressions in Experiments 1-3 were relatively lower for this type of cross-country time series, panel data. Thus, Focus Areas 2 and 3 initially emerged from having omitted variables (incorrect functional form) in Experiments 1-3. Digging deeper revealed that the explanatory variables for income inequality ($Gini\ Coeff_{it}$) and global competitiveness (GCI_{it}) had significant power to predict environmental outcomes. The World Bank (n.d.-a) reports country data for Gini coefficient, which ranges from 0, indicating perfect equality (where everyone receives an equal share), to 1, perfect inequality (where only one recipient or group of recipients receives all the income).

In Focus Area 2, regression results showed that a 1% increase in the variable for inequality was significantly correlated with almost a half-percentage point in EPI. Conversely, a 1% increase in the country's global competitiveness standing was strongly linked to a 0.05 percentage point increase in EPI. Competitiveness, in this case, is highly correlated with per capita GDP and was used as a proxy for income in the regression model under Focus Area 2 (Figure A26). $Poverty\ DUM_{it}$ was used as an additional explanatory variable to track the likelihood of how poorer countries contribute to EPI. The results as a whole indicated that the environmental impact of inequality and global competitiveness is strong, and the regression

results matched a 2005 global environmental framework by Esty and Porter that is either driven by economic activity or competitiveness (Figure A27).

This expanded and improved model of the environmental impact of income suggested two policy recommendations. First, this model supports multilateral, country-specific foreign aid projects (World Bank, 2020) whose outcomes discourage inequality, such as

1. promoting redistribution from those with high incomes to those with low incomes;
2. assurances to the poor that a ladder of opportunity is widely available; and
3. policy initiatives that revamp the tax system to promote intergenerational transfers and a progressive wage bill that works.

Second, the model supports Esty and Porter's (2005) framework that strong environmental performance does not necessarily come at the expense of competitiveness and economic development. Porter's competitiveness policy advice for the U.S. is an excellent model to start tinkering with. Donor countries should optimize foreign aid to produce policy outcomes that lead to investments in individuals, infrastructure, innovation, and institutions needed to raise long-term productivity (Porter & Rivkin, 2012). These investments could ultimately lead to environmental progress.

Emergent Trends: Focus Area 3

A slight variant of Focus Area 2, Focus Area 3 highlighted the results from a regression model that estimated the combined environmental impact of inequality and income. In Table 5, the regressors $log\ Gini\ Coeff_{it}$ and $log\ GDP\text{-}PC_{it}$ are different from the competitiveness indicators of the Focus Area 2 model. This difference stems from the fact that income and competitiveness are both highly correlated, as they are proxies of each other (Figure A22). Hence, they cannot be jointly used as regressors in the same regression equation for EPI, or these variables will lose statistical significance. Based on a strong R-squared that is close to 70%, the conclusion drawn from this expanded version of the environmental impact of income is that donor countries cannot overlook inequality and income when aligning foreign aid resources with a developing country's path to environmental excellence. Thus, the preferable route for donor countries is to ensure *aidflows* lead to instruments such as public-private partnerships or development impact bonds that could boost income and decrease inequality at the macro level.

Competitiveness—Anchor of Value Creation and Sustainable Growth

In the final analysis, this research was ultimately about whether (a) the environment drives the economy or (b) the economy drives the environment. Three experiments were run to address these primal and dual questions. Experiment 1 attempted to answer (a) via a regression model. Then, two comparable regression models of financial ratios using different types of regressors, *aidflows* and income, were created to resolve Experiments 2-3 and to answer (b).

One lesson learned from Experiment 1 is that ESG screens might need to go through a capability-maturity learning curve to be a useful tool, not only for environmental-related problems, but also for social and governance-related areas of concern. But, more importantly, the experiment suggested that ESG does not cut it because it does not lead firms to become more competitive. As such, competitiveness, coupled with activities that have a significant social impact on the firm's core business, is the preferred path to attain a more sustainable outcome while succeeding in the market.

Interestingly, the lessons learned from Experiments 2 and 3 pertain to estimating the environmental impacts of *aidflows* and, more separately, income—they have less to do with *aidflows* per se, but more to do with competitiveness (as a proxy for income) and inequality. Competitiveness on a micro and macro level is the common denominator across the three experiments, and is the driver of business value creation that could place a firm—or an emerging sovereign market such as the Philippines—on a more attainable path to sustainable growth. By swapping the variable income for competitiveness and by plotting competitiveness and income in the X-Y plane, I came up with a scatter plot of an inverted Kuznets curve based on a second-degree polynomial equation (Figure A26). In coordination with developing country priorities, foreign aid donors could use the inverted EKC to conduct a sensitivity analysis of how to tweak foreign aid outputs (projects) to boost competitiveness and overcome inequality (outcomes). These indicators can create a powerful diagnostic tool to understand a country's competitiveness path toward sustainable growth and, ultimately, prosperity.

Appendix A.

Additional Figures

Figure A1

Regression Model Alpha: Coefficient Sign Expectations

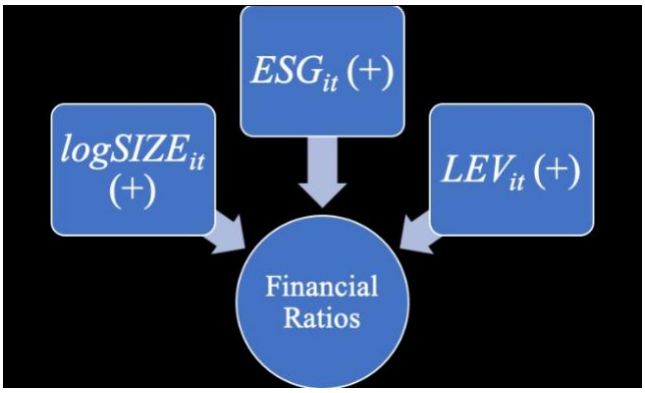


Figure A2

Empirical Results, Regression Model Alpha: Return on Assets

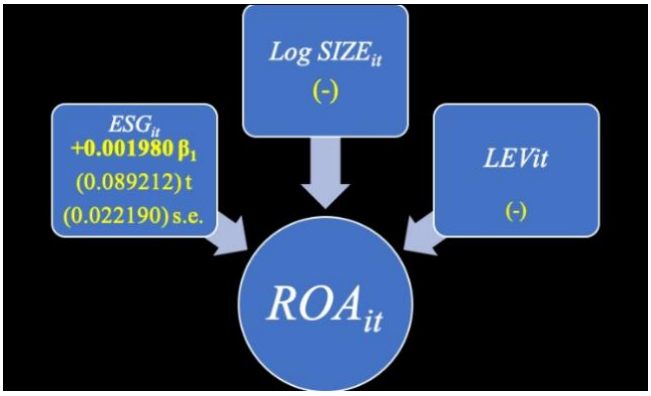


Figure A3

ESG Performance Has No Significant Impact on Return on Assets

Figure A4

Empirical Results, Regression Model Alpha: Return on Equity

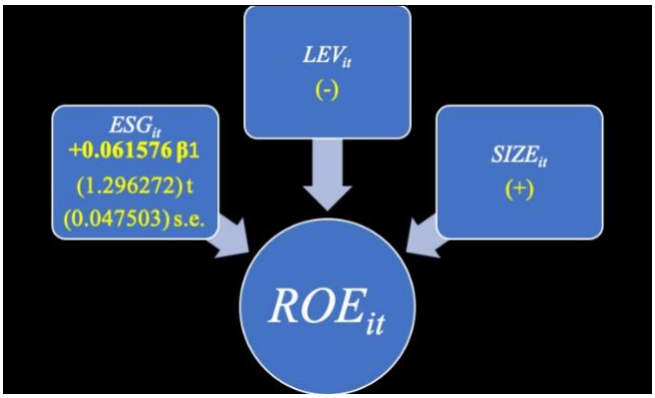


Figure A5

ESG Performance Has No Significant Impact on Return on Equity

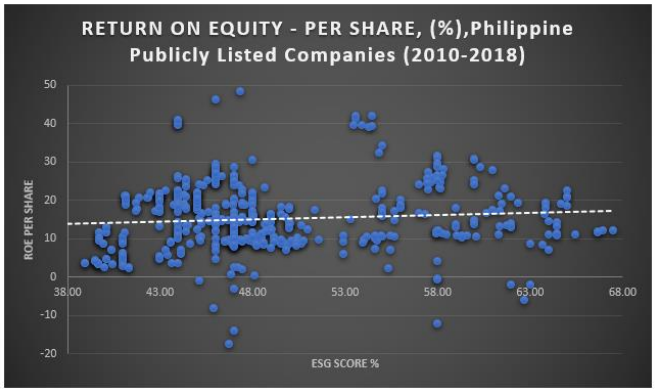


Figure A6

Empirical Results, Regression Model Alpha: Return on Capital Employed

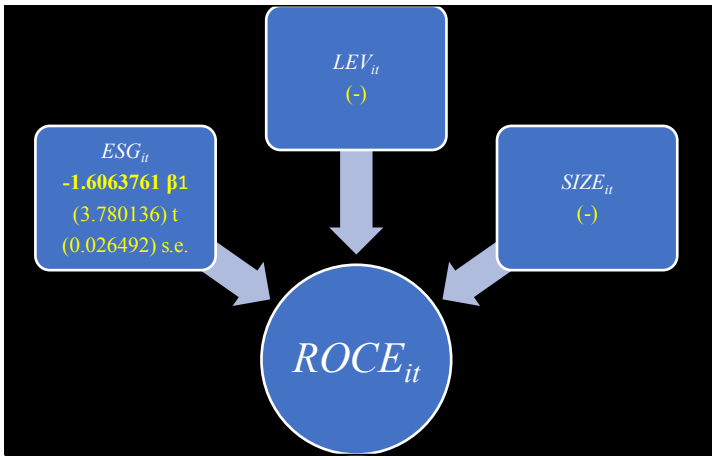


Figure A7

ESG Performance Has a Negative Significant Impact on Return on Capital Employed

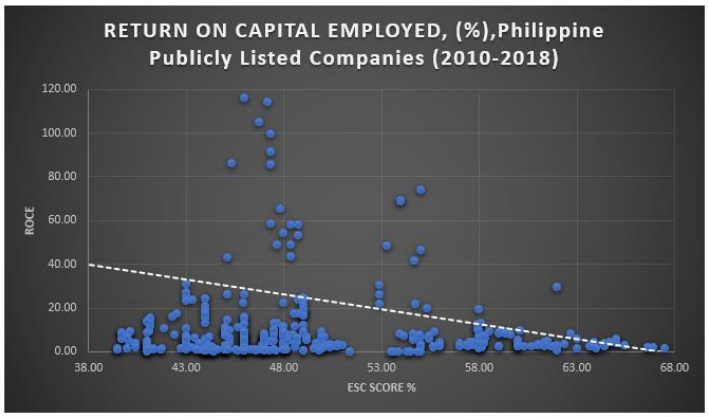


Figure A8

Empirical Results, Regression Model Alpha: EBITDA Margin

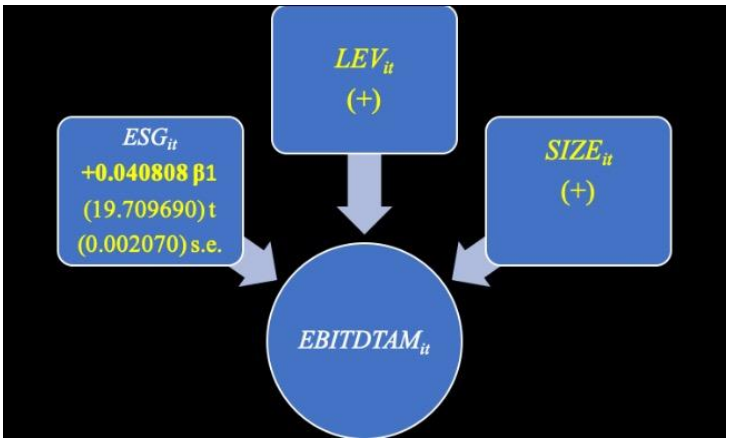


Figure A9

ESG Performance Has a Significant Impact on Operating Profit as a Percentage of Revenue

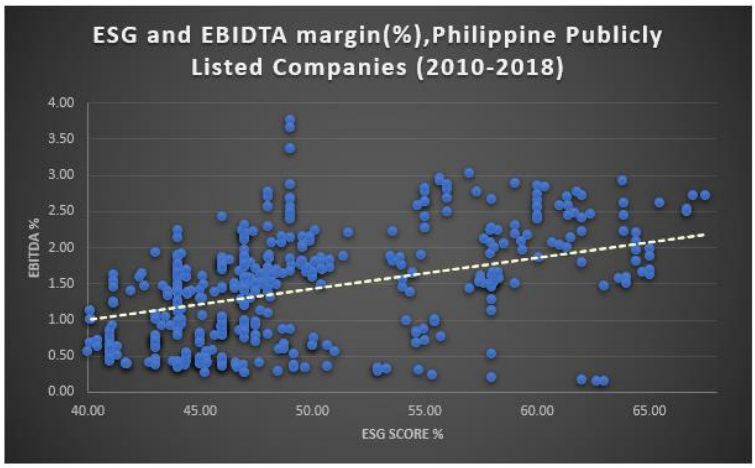


Figure A10

Empirical Results, Regression Model Alpha: Earnings Per Share

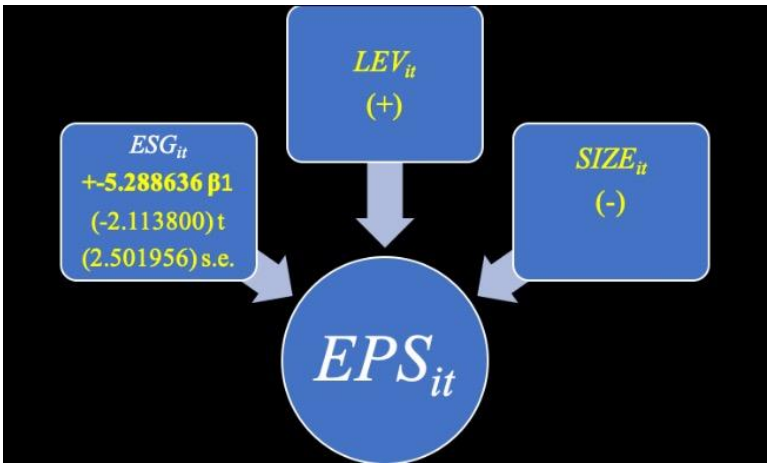


Figure A11

ESG Performance Has a Significant Negative Impact on Earnings Per Share

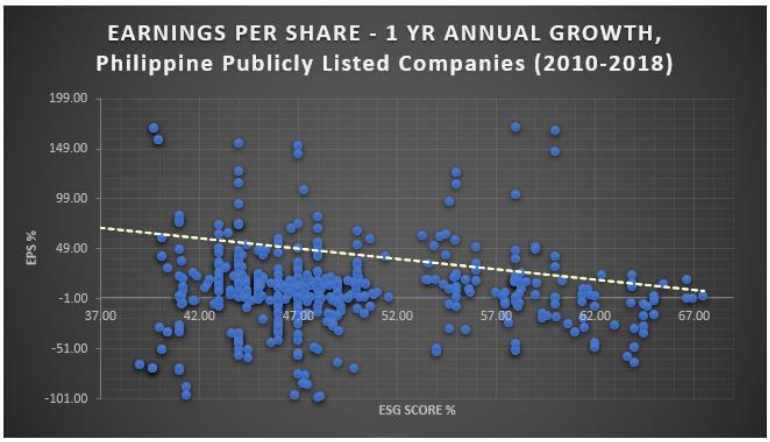


Figure A12

Empirical Results, Regression Model Alpha: Dividends Per Share

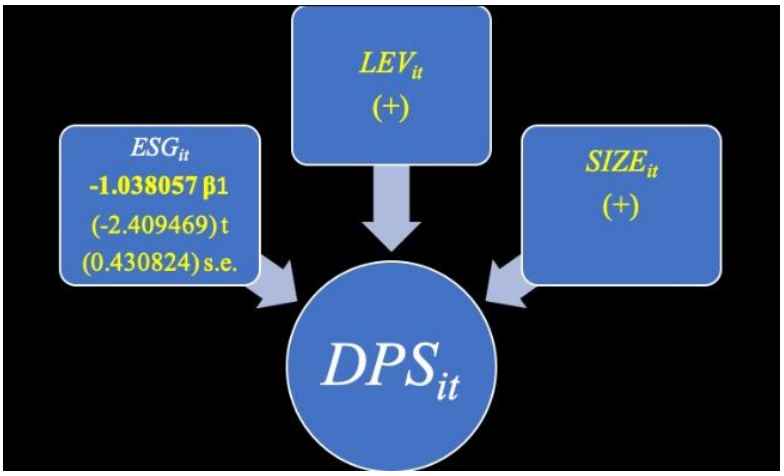


Figure A13

ESG Performance Has a Significant Negative Impact on Dividends per Share

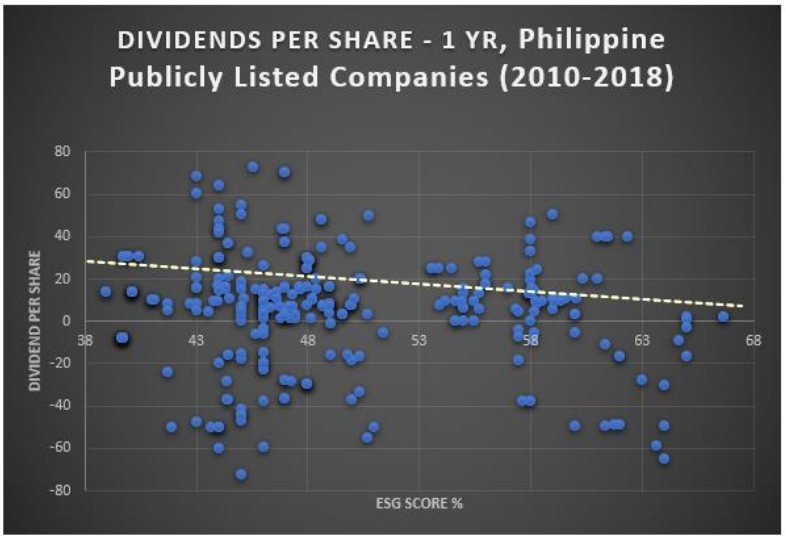


Figure A14

Regression Model Beta Empirical Results for EPI, EH, EV, and EDI

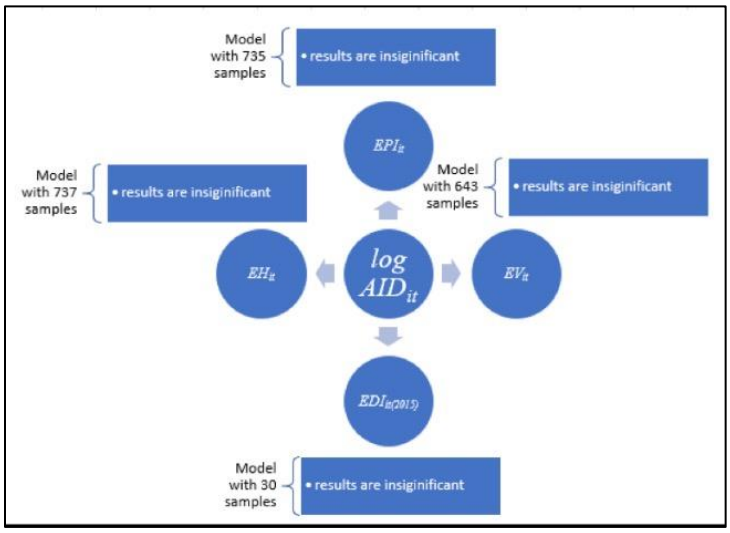


Figure A15

Significant Relationship Between Aidflows and Country Sovereign Environmental Performance

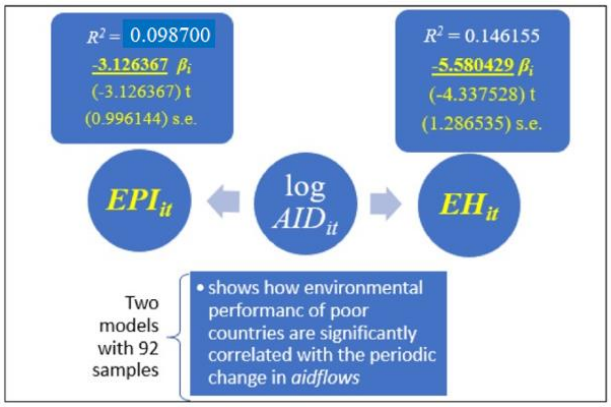


Figure A16

Environmental Performance Is Weakly Correlated with Income in Poorer Countries

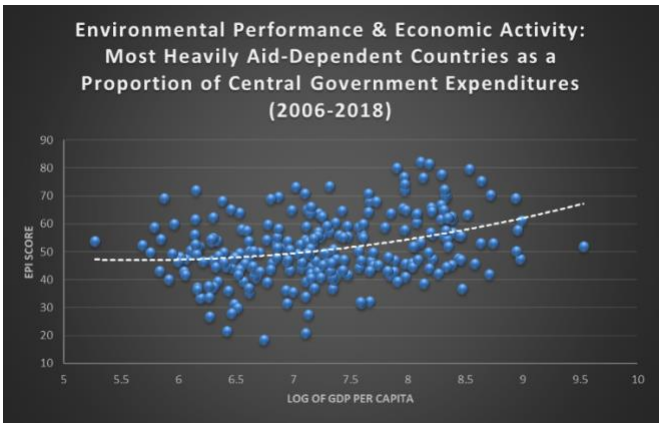


Figure A17

Environmental Health Is Strongly Correlated with Income in Poorer Countries

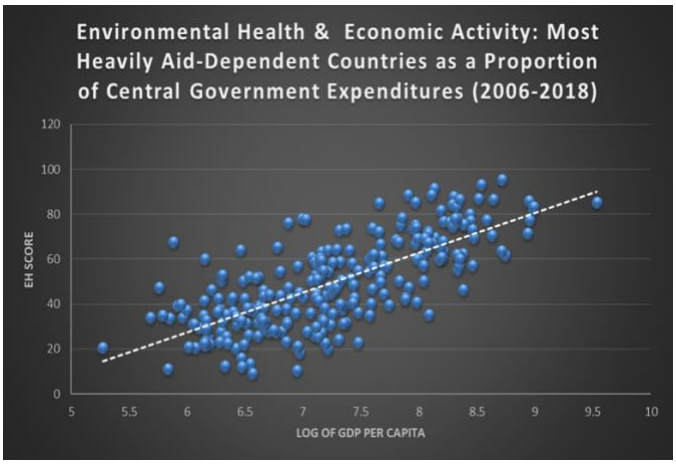


Figure A18

Ecosystem Vitality Is Negatively Correlated with Income in Poorer Countries

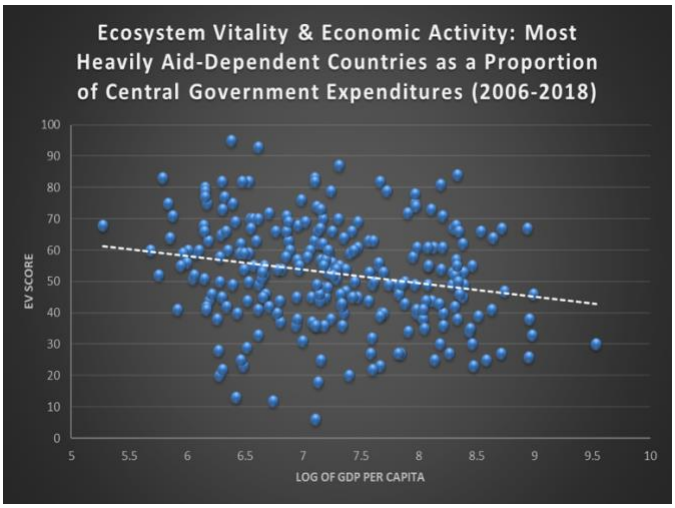


Figure A19

Environmental Democracy Is Negatively Correlated with Aidflows in Poorer Countries

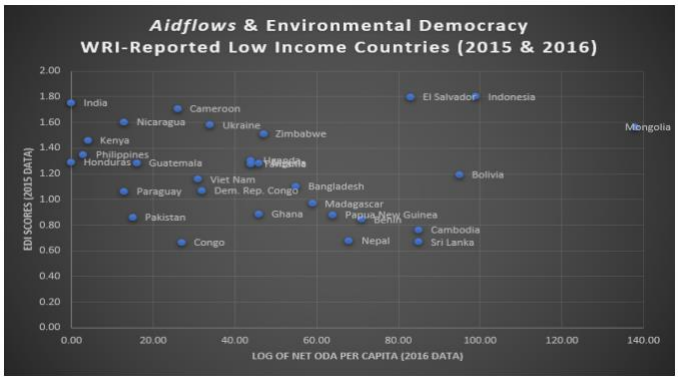


Figure A20

Humanitarian Assistance in Poorer Countries: Not Enough to Boost Financial Performance

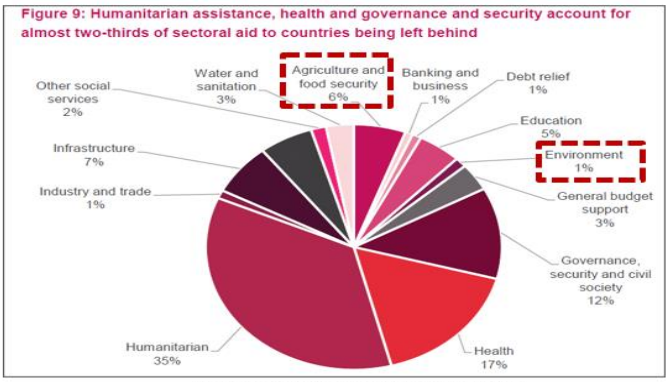


Figure A21

Environmental Performance and Income Inequality in Poorer Countries

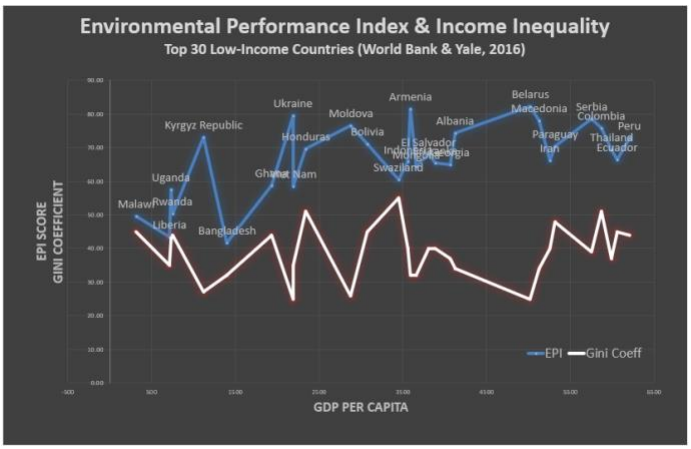


Figure A22

Vulnerability to Climate Change and Inequality in Poorer Countries

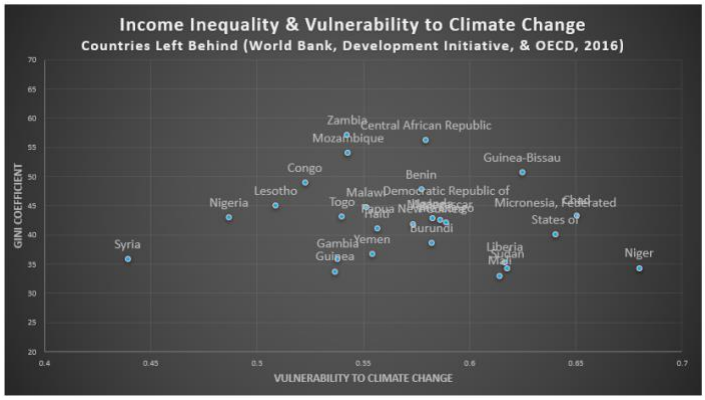


Figure A23

Income and Inequality as Better Predictors of Environmental Performance in Poorer Countries

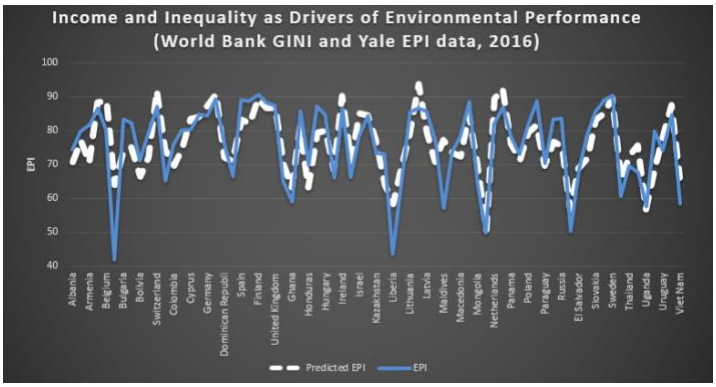


Figure A24

Global Competitiveness and Inequality as Better Predictors of Environmental Performance

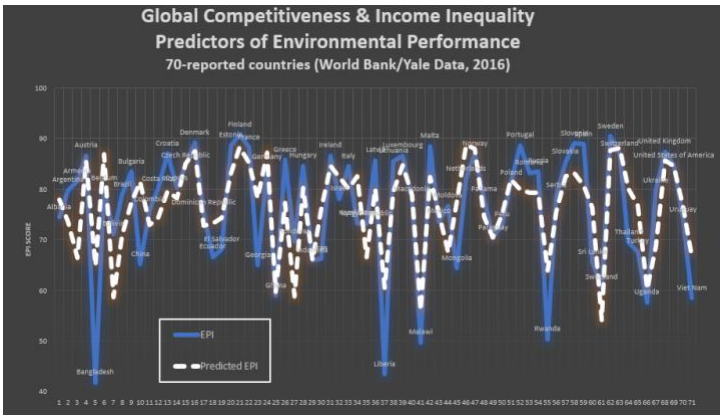


Figure A25

Environmental Kuznets Curve Effect of Global Competitiveness

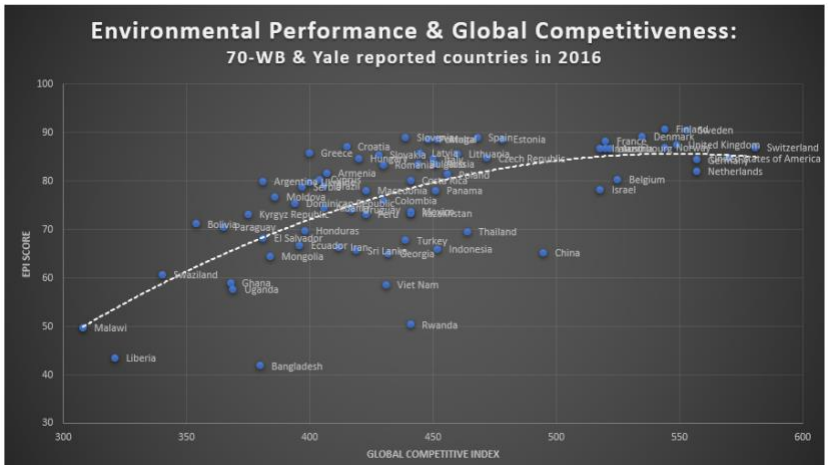
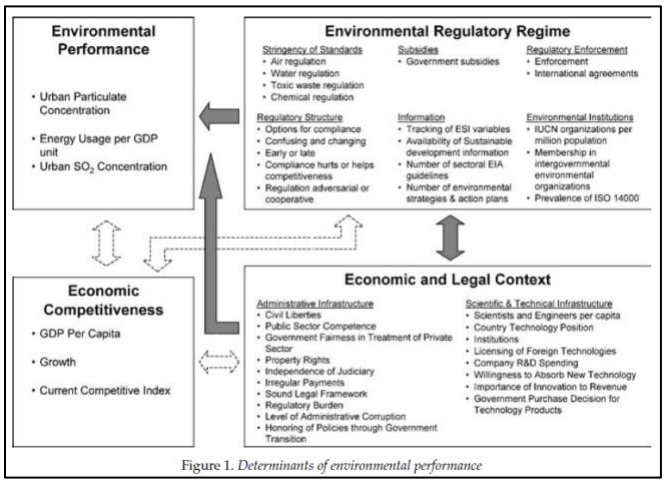


Figure A26

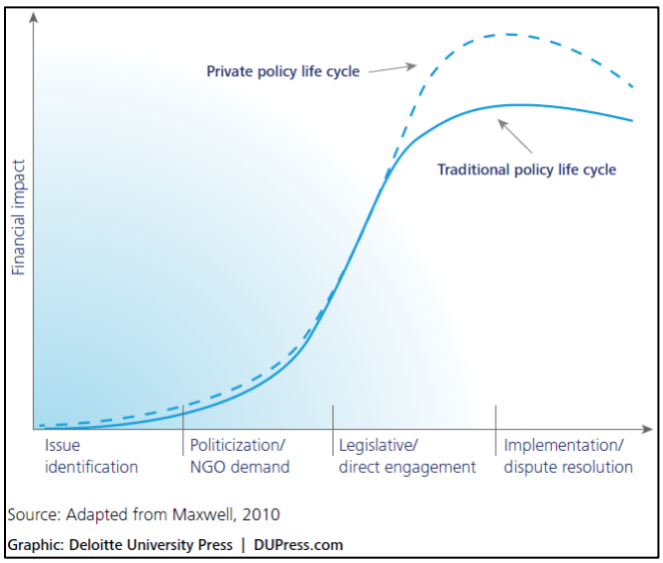
From Profit to Purpose: Driving the Environmental Kuznets Curve Effect



Source: Esty & Porter, 2005.

Figure A27

ESG's Private and Public Policy Life Cycle & Financial Impact on a Firm



Source: Lyon, 2011.

Appendix B. Glossary

Aidflows
Official development assistance (ODA) or *aidflow* is defined by the OECD (n.d.) as government aid designed to promote the economic development and welfare of developing countries. *Aidflows* are provided bilaterally, from donors such as USAID to a recipient country (e.g., the Philippines), or channeled through a multilateral development agency such as the United Nations, World Bank, Asian Development Bank, African Development Bank, or Inter-American Development Bank.

Capability Maturity Model
Originally meant for software, the CMM is a development model created in the 1980s to study the term "maturity" of an Enterprise Resource Planning system as it relates to the degree of formality and optimization of processes, from ad hoc practices, to formally defined steps, to managed result metrics, to active optimization of the processes. The model is used in this paper to track maturity of ESG factors as promulgated by PSEC.

CDSB, GRI, and SASB
The Climate Disclosure Standards Board (CDSB), Global Reporting Initiative (GRI), and Sustainability Accounting Standards Board (SASB) help companies measure and report sustainability information. The CDSB framework provides the supporting mechanism to connect nonfinancial disclosure through GRI guidelines and financial information. The GRI focuses on company disclosures based on the impact of businesses on critical sustainability issues such as climate change. SASB standards focus on the financially material information of companies.

Competitiveness
The World Economic Forum (2019) introduced the Global Competitiveness Index (GCI), which measures the drivers of long-term economic competitiveness as illustrated by factors that determine productivity: institutions, infrastructure, ICT adoption, macroeconomic stability, health, skills, product market, labor market, financial system, market size, business dynamism, and innovation capability. GCI data are tracked by the World Bank and championed by Harvard Business Professor Michael Porter. Measured in percentage points (e.g., the United States scored 83.67 points out of 100), GCI scores provide global leaders a better understanding of the key factors determining economic growth, and explain why some countries are much more successful than others in raising income levels and opportunities for their respective populations.

Control Variables
Control variables are variables, mainly independent variables that are not part of the research study, but their influence cannot be overlooked. They are used in regression models to ensure that observed relationships between other variables are not spurious. In the example of a demand for a product X as the dependent variable, which is greatly correlated with the independent variable price of X, the price of substitutes for product X cannot be ignored and could be used as

a control variable in the demand for X regression equation. Thus, in the statement "Controlling for price of substitute 1 and price substitute 2, I expected a 1% increase in the demand for product X to correlate with an increase in one of the variables representing disposable income," both variables are the control variables in the model, which are held constant but whose influence cannot be overlooked.

Delivering Alpha

Based on the capital asset pricing model market theory, which includes a risk-adjusted component in its calculation of the expected return of an asset, *alpha* or α is used in investing to refer to "a strategy's ability to beat the market, or its 'edge'" (Chen & Westfall, 2020, para. 1).

Data Quality Tests

In this study, the various datasets in the model were tested for cointegration, unitary, heteroskedasticity, and endogeneity.

First, cointegration tests analyze non-stationary time series, which stem from processes that have variances and means that vary over time. A residual-based unit root test in either Eviews or SPSS following the Dickey–Fuller and Levin–Lin–Chu methods was performed to determine if results from the hypothesis tested that the variances and means of the series are constants that are independent of time (e.g., the processes are stationary) and could be biased or misleading.

Second, a unit root (also called a unit root process or a difference stationary process) is a stochastic trend in a time series or a "random walk with drift" that is common in econometric models. If a time series has a unit root, it would show as a systematic pattern that is unpredictable resulting in spurious regressions (e.g., high R-squareds even if the data are uncorrelated).

Third, an extremely common test in Eviews and SPSS for heteroskedasticity is the White test, which begins by allowing the heteroskedasticity process to be a function of one or more of your independent variables. Both econometric packages can correct for heteroskedasticity by computing the weighted least squares estimator using a hypothesized specification for the variance.

Lastly, a common problem for pooled, time-series panel data is endogeneity—when there is an omitted variable that is correlated with some regressors, it leads to biased (expected value of parameter is not equal to the true value of the parameter) and inconsistent (expected value of parameter does not converge in probability to the true value as the sample size approaches infinity) ordinary least square estimates.

Ecosystem Vitality

The ecosystem vitality portion of EPI relates to a sovereign state's policies on biodiversity and habitat, fisheries, ecosystem services, and climate change.

Environmental Democracy Index

According to the World Resources Institute (2016), the EDI measures the extent of national legal protections of procedural rights to the environment using an internationally recognized set of guidelines developed through the United Nations.

Environmental Health
The environmental health portion of EPI relates to the status of countries' policies pertaining to clean drinking water and sanitation, ambient air pollution, hazardous waste, and responding to public health crises.

Environmental Kuznets Curve
The EKC is hypothesized as the relationship between various indicators of environmental degradation and annual GDP per capita or income. The EKC is named for Nobel laureate Simon Kuznets, who hypothesized that income inequality first rises and then falls as economic development proceeds. The inverse of the EKC, therefore, tracks the part of the EKC where pollution levels decrease and EPI increases while economies are growing sustainably as a precondition to cleaning up the environment.

Environmental Performance Index
The EPI is a method of quantifying and numerically marking the environmental performance of country policies. This index was developed and is currently jointly supported by Yale and Columbia Universities, as well as the World Economic Forum and the European Union. EPI is a function of two other indices: Environmental Health, which is now weighted at 40%, and Ecosystem Vitality, at 60%.

ESG
A term that is often used synonymously with sustainable investing, socially responsible investing, mission-related investing, or screening. Environmental, social, and governance (ESG) scores are self-assessed by the issuer or the firm, and are evaluated by intermediaries (banks, regulators) and investment professionals (fund managers, shareholders, and stakeholders) into companies' ESG performance in capital markets. These highly granular data form the basis for industry-specific scores, which in turn roll up into E, S, and G scores, and ultimately, total ESG scores. More commonly, the higher the ESG score (e.g., 100%), the stronger the ESG proposition to create value for shareholders.

Financial Performance Ratios
There are at least 13 ratios that have to do with a firm's financial performance (Harvard Business School Online Staff, 2020). These financial key performance indicators are metrics organizations use to track, measure, and analyze the financial health of a firm. They fall into a variety of categories, including profitability, liquidity, solvency, efficiency, and valuation.

Gross profit margin is a profitability ratio that measures what percentage of revenue is left after subtracting the cost of goods sold.

Net profit margin is a profitability ratio that measures what percentage of revenue and other income is left after subtracting all costs for the business, including costs of goods sold, operating expenses, interest, and taxes. Thus, the proxy for a company's current operating profitability is

EBITDAM, which stands for earnings before interest, income taxes, depreciation, amortization, and management fees. Taking earnings and dividends as a fraction of outstanding shares of company stock, the resulting monetary value of earnings per outstanding share is displayed as EPS. Moreover, the annual dividend payments as a fraction of market capitalization is portrayed as DPS for dividends per share.

Working capital is a measure of the business's available operating liquidity, which can be used to fund day-to-day operations. The return on capital employed (ROCE) is the ratio used in assessing a company's profitability and capital efficiency.

Current ratio is a liquidity ratio that helps you understand whether the business can pay its short-term obligations—that is, obligations due within one year—with its current assets and liabilities.

Quick ratio, also known as an acid test ratio, is another type of liquidity ratio that measures a business's ability to handle short-term obligations.

Financial leverage, also known as the equity multiplier, refers to the use of debt to buy assets.

The debt-to-equity ratio is a solvency ratio that measures how much a company finances itself using equity versus debt. This ratio, which is displayed as LEV, is usually employed as a control variable in financial regression models.

Inventory turnover is an efficiency ratio that measures how many times per accounting period the company sold its entire inventory.

Total asset turnover is an efficiency ratio that measures how efficiently a company uses its assets to generate revenue. The logarithm of total assets, displayed as SIZE, is used as a proxy variable for company dimension or largeness in financial regression models.

Return on equity (ROE) is a profitability ratio measured by dividing net profit over shareholders' equity.

Return on assets (ROA) is another profitability ratio, similar to ROE, measured by dividing net profit by the company's average assets.

Operating cash flow is a measure of how much cash the business has as a result of its operations.

Seasonality is a measure of how the period of the year is affecting the company's financial numbers and outcomes.

Gini Coefficient of Inequality

According to the OECD (n.d.), the Gini coefficient of inequality is based on the comparison of cumulative proportions of the population against cumulative proportions of income they receive, and ranges between 0 in the case of perfect equality and 1 in the case of perfect inequality. The World Bank tracks it as the metric how far a country's wealth or income distribution deviates

from a totally equal distribution. Thus, the higher the Gini coefficient, the higher the income inequality for that country in a particular year.

Materiality
The extent to which E, S, and G will have a relevant impact on the core business of the firm. Specific information pertaining to ESG is considered "material" if its omission or misstatement could influence the economic decisions of the firm's C-suite.

Poverty Dummy Variable
A dummy variable is a numeric variable of 0 or 1 that represents categorical data, such as gender, race, or political affiliation. In this study, the dummy variable POVERTY was added as a regressor to denote poorer countries with GDP per capita ranging from $316 USD (Malawi) to $3,886 (Sri Lanka).

Primal and Dual
In mathematical optimization theory, the solution to the dual problem (e.g., maximizing profit) provides a lower bound to the solution of the primal problem (e.g., minimizing costs).

Shared Value Creation
Unlike the traditional value creation model of the firm, shared value is a framework for creating economic value while simultaneously addressing societal needs and challenges (Harvard Business School Executive Education, 2020).

Significance
In this paper, there are three ways to empirically show an experiment is significant.

First, if a p-value is less than 0.05 (typically ≤ 0.05) for a particular parameter estimate of the independent variable or regressor, that particular regressor is statistically significant. It indicates strong evidence against the null hypothesis, as there is less than a 5% probability the null is correct (and the results are random).

Second, the t-statistic is the ratio of the departure of the estimated value of a parameter from its hypothesized value to its standard error. The lower the standard error, the higher the t-value, and the greater the significance of the parameter estimate of the regressor.

Lastly, the F-test of overall significance indicates whether the regression model provides a better fit to the data than a model that contains no independent variables. Thus, in equation $F =$ Variance the model explains / Error (Unexplained) variance, the F-statistic assesses whether the variances in the numerator and denominator are equal. If the p-value of the F-statistic is less than the significance level, one can conclude that the regression model fits the data better than the intercept-only model. Thus, the F-test of overall significance shows whether all of the predictor variables are jointly significant.

Theory of Change
In the foreign assistance space, the theory of change is the detailed description of the mechanisms through which a change is expected to occur in a particular situation. International

development outcomes in the form of gender neutrality, diversity attainment, and surpassing economic livelihood opportunities are some of the outcomes reached through mechanisms such as capital investments and human capacity building outputs.

Value Creation

Value creation is derived from the classical prime directive of the firm theory, which is to maximize shareholder value, the economic or financial outcome of generating profit after cost.

UN Sustainable Development Goals

The 17 Sustainable Development Goals of the United Nations stem from a 2015 shared blueprint for the planet to improve health and education, reduce inequality, and spur economic growth by the year 2030 (United Nations Department of Economic and Social Affairs, n.d).

References

Amadeo, K., & Boyle, M. (2020, June 15). Income inequality in America: Understanding wealth inequality, its causes, and solutions. *The Balance*. https://www.thebalance.com/income-inequality-in-america-3306190

Amel-Zadeh, A., & Serafeim, G. (2020, February 6). Why and how investors use ESG information: Evidence from a global survey. *Financial Analysts Journal*, *74*(3), 87–103. https://doi.org/10.2139/ssrn.2925310

Arndt, C., & Tarp, F. (2017). Aid, environment and climate change. *Review of Development Economics*, *21*(2), 285–303. http://dx.doi.org/10.1111/rode.12291

Arvin, B. M., Dabir-Alai, P., & Lew, B. (2006). Does foreign aid affect the environment in developing economies? *Journal of Economic Development*, *31*(1), 63–87.

Asian Development Bank. (2018). *2018 development effectiveness review*. https://www.adb.org/documents/development-effectiveness-review-2018-report

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. http://www.econ.upm.edu.my/ijem

Atkins, P. S. (2004, October 7). *Speech by SEC commissioner: Remarks before the Securities Traders Association.* U.S. Securities and Exchange Commission. http://www.sec.gov/news/speech/spch100704psa.htm

Balatbat, M. C., Siew, R. Y. J., & Carmichael, D. G. (2012, May). *ESG score and its influence on firm performance: Australian evidence*. Paper presented at the 35th Annual Congress of the European Accounting Association, Llujbana, Slovenia. http://www.eaa2012.org/eaacf/ProgramAndCollectedAbstracts.pdf

Bhattacharya, M. (2019). The Environmental Kuznets Curve: A critical review of earlier literature. In B. Özcan & I. Öztürk (Eds.), *Environmental Kuznets Curve (EKC): A manual* (pp. 1–162). Elsevier.

Bogetić, Ž., & Smets, L. (2017). *Association of World Bank policy lending with social development policies and institutions* [World Bank Policy Research Working Paper 8263]. http://documents.worldbank.org/curated/en/137731511894057714/Association-of-World-Bank-policy-lending-with-social-development-policies-and-institutions

Brown, A. (2016, March 9). What is this thing called 'Theory of Change'? *Learning Lab*. https://usaidlearninglab.org/lab-notes/what-thing-called-theory-change

Chen, J., & Westfall, P. (2020). *Alpha*. Investopedia. https://www.investopedia.com/terms/a/alpha.asp

Coppard, D., & Christensen, Z. (2018). Countries being left behind. *Development Initiatives*. https://devinit.org/resources/countries-left-behind/

Cracolici, M., Cuffaro, M., & Nijkamp, P. (2010). The measurement of economic, social and environmental performance of countries: A novel approach. *Social Indicators Research*, *95*, 339–356. https://doi.org/10.1007/s11205-009-9464-3

Crifo, P., Diaye, M.-A., & Oueghlissi, R. (2017, November 1). The effect of countries' ESG ratings on their sovereign borrowing costs. *The Quarterly Review of Economics and Finance*, *66*, 13–20. https://doi.org/10.1016/j.qref.2017.04.011

Crouch, K. J. (2019). *Financing a low-carbon economy: Towards a standardized method for 'two-degree' portfolio alignment for banks* [Master's thesis, Harvard Extension School]. https://dash.harvard.edu/bitstream/handle/1/42006721/CROUCH-DOCUMENT-2019.pdf?sequence=1&isAllowed=y

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. https://www.questia.com/library/journal/1P4-2258100521/esg-and-corporate-financial-performance-a-panel-study

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. http://www.northsouth.edu/assets/files/NSBR_Vol_6%2CNo_2(Final).pdf

De Clerck, S., & Wickens, T. (2015). Economic flows, stock positions, and accounting rules. *Government Finance Statistics Manual 2014*. https://www.elibrary.imf.org/view/IMF069/21362-9781498343763/21362-9781498343763/ch03.xml?language=en&redirect=true

Dwyer, P., & Pobre, C. (2019, June 25). *Three easy ways Philippine firms can get serious about sustainability.* Eco-Business. https://www.eco-business.com/opinion/three-easy-ways-philippine-firms-can-get-serious-about-sustainability/

Eccles, R., & Klimenko, S. (2019, May–June). The investor revolution: Shareholders are getting serious about sustainability. *Harvard Business Review*, 107–116.

Elandrews3. (2014, November 17). Is corporate social responsibility a vanity project? *Archive of the Institute for Business and Social Impact*. http://ibsiblog.haas.berkeley.edu/is-corporate-social-responsibility-a-vanity-project/

Esty, D., & Porter, M. (2005). National environmental performance: An empirical analysis of policy results and determinants. *Environment and Development Economics, 10*, 391–434. https://doi.org/10.1017/S1355770X05002275

Eugene F. Fama. (n.d.). University of Chicago Booth School of Business. https://www.chicagobooth.edu/faculty/directory/f/eugene-f-fama

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

Financial Times. (2013). *Definition of ESG*. http://lexicon.ft.com/Term?term=ESG

Fortune Editors. (2019, August 19). Change the world 2019: Where business creates virtuous circles. *Fortune.* https://fortune.com/2019/08/19/change-the-world-circular-economy/

Friede, G., Busch, T., & Bassen, A. (2015, December 15). ESG and financial performance: Aggregated. *Journal of Sustainable Finance & Investment*, *5*(4), 210–233. https://doi.org/10.1080/20430795.2015.1118917

Friedman, M. (1970, September 13). Social responsibility of business. *The New York Times*.

Gallego-Álvarez, I., Vicente-Galindo, M. P., Galindo-Villardón, M. P., & Rodríguez-Rosa, M. (2014). Environmental performance in countries worldwide: Determinant factors and multivariate analysis. *Sustainability, 6*, 7807–7832. https://doi.org/10.3390/su6117807

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

Global Carbon Project. (2019, December 4). *Carbon budget 2019*. https://www.globalcarbonproject.org/carbonbudget/

Granger Causality. (2020, August 4). Eviews Software. http://www.eviews.com/help/helpintro.html#page/content/groups-Granger_Causality.html

Harvard Business School Executive Education. (2020). *Creating shared value: Competitive advantage through social impact*. https://www.exed.hbs.edu/creating-shared-value/

Harvard Business School Online Staff. (2020, May 5). 13 financial performance measures managers should monitor. *Business Insights*. https://online.hbs.edu/blog/post/financial-performance-measures

Heijningen, K. van. (2019). *The impact of ESG factor materiality on stock performance of firms* [Manuscript in preparation]. https://www.rsm.nl/fileadmin/Images_NEW/Erasmus_Platform_for_Sustainable_Value_Creation/The_impact_of_ESG_factor_materiality_on_stock_performance_of_firms_Heijningen.pdf

Henisz, W., Koller, T., & Nuttall, R. (2019). Five ways that ESG creates value. *McKinsey Quarterly*. https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/five-ways-that-esg-creates-value#

IEG-World Bank Group. (2018). *Maximizing the impact of development policy financing in IDA countries: A stocktaking of success factors and risks*. http://ieg.worldbankgroup.org/sites/default/files/Data/reports/meso-devpolfinancing.pdf

Inderst, G., & Stewart, F. (2018). *Incorporating environmental, social and governance (ESG) factors into fixed income investment*. World Bank Group. http://documents1.worldbank.org/curated/en/913961524150628959/pdf/125442-REPL-PUBLIC-Incorporating-ESG-Factors-into-Fixed-Income-Investment-Final-April26-LowRes.pdf

International Finance Corporation. (2018). *IFC unveils new toolkit to improve companies' disclosure and transparency.* https://www.ifc.org/wps/wcm/connect/news_ext_content/ifc_external_corporate_site/news+and+events/news/ifc+unveils+new+toolkit+to+improve+companies+disclosure+and+transparency

Jackson, E. T. (2013, April 11). Interrogating the theory of change: Evaluating impact investing where it matters most. *Journal of Sustainable Finance & Investment*, *3*(2), 95–110. https://doi.org/10.1080/20430795.2013.776257

Jahn, D. (1998). Environmental performance and policy regimes: Explaining variations in 18 OECD-countries. *Policy Sciences, 31*, 107–131.

Kell, G. (2018, July 11). The remarkable rise of ESG. *Forbes.com*. https://www.forbes.com/sites/georgkell/2018/07/11/the-remarkable-rise-of-esg/#6a90029a1695

Khan, M., Serafeim, G., & Yoon, A. (2015). *Corporate sustainability: First evidence on materiality* (Harvard Business School Working Paper No. 15-073). https://dash.harvard.edu/bitstream/handle/1/14369106/15-073.pdf?sequence=1

Kuznets, S. (1955). Economic growth and income inequality. *American Economic Review, 45*, 1–28.

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

Lozo, S. (2019). *Nothing but the truth? Climate risk disclosure by US companies.* https://capstone.extension.harvard.edu/files/capstone/files/lozo_sandra_independent_research_capstone_8-20-19.pdf

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

McPherson, S. (2019, January 14). Corporate responsibility: What to expect in 2019. *Forbes.com*. https://www.forbes.com/sites/susanmcpherson/2019/01/14/corporate-responsibility-what-to-expect-in-2019/#63a31d3d690f

Milanovic, B. (2016). *Global inequality: A new approach for the age of globalization*. Belknap Press.

Moomaw, W. R., & Unruh, G. C. (1997). Are environmental Kuznets curves misleading us? The case of CO2 emissions. *Environment and Development Economics*, *2*(4), 451–463. https://doi.org/10.1017/S1355770X97000247

Morse, S. (2018). Relating environmental performance of nation states to income and income inequality. *Sustainable Development, 26*, 99–115. https://doi.org/10.1002/sd.1693

MSCI World. (2020, July 31). In *Wikipedia*. https://en.wikipedia.org/w/index.php?title=MSCI_World&oldid=970518457

Neagu, O., Ardelean, D. I., & Lazăr, V. (2017, March 1). How is environmental performance associated with economic growth? A world cross-country analysis. *Studia Universitatis "Vasile Goldis" Arad. Economics Series*, *27*(3), 15–32. http://dx.doi.org/10.1515/sues-2017-0010

Newburger, E. (2020, January 25). *Amid climate crisis, investors are starting to put their money towards a sustainable future.* CNBC. https://www.cnbc.com/2020/01/24/climate-crisis-investors-putting-money-towards-sustainable-future.html

Ng, E. Y. (2016). *The values of sustainable investing by integrating environmental, social, and governance (ESG) factors in investment decisions* [Unpublished ALM in Sustainability capstone project]. Harvard Extension School, Cambridge, MA.

Opršal, Z., & Harmácek, J. (2019, January 14). Is foreign aid responsive to environmental needs and performance of developing countries? Case study of the Czech Republic. *Sustainability*, *11*(401), 1–16. http://dx.doi.org/10.3390/su11020401

Orazalin, N., & Mahmood, M. (2018, June 14). Economic, environmental, and social performance indicators of sustainability reporting: Evidence from the Russian oil and gas industry. *Energy Policy*, *121*, 70–79. https://doi.org/10.1016/j.enpol.2018.06.015

Organization for Economic Co-Operation and Development. (2019). *Aid at a glance charts.* http://www.oecd.org/development/financing-sustainable-development/development-finance-data/aid-at-a-glance.htm

Ortiz-Ospina, E. (2018, October 22). *What's the impact of globalization on wages, jobs and the cost of living?* Our World in Data. https://ourworldindata.org/trade-wages-cost-living

Ott, M. (2011). Gender diversity and environmental performance: A quantitative assessment. *Journal of Political Inquiry*, *4*. http://jpinyu.com/wp-content/uploads/2015/01/gender-diversity-and-environmental-performance1.pdf

Overseas Development Institute. (n.d.). https://www.odi.org/

Paris, Q. (2016). *An economic interpretation of linear programming*. Palgrave Macmillan. (Original work published 1991)

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

Poor scores: Climate change has made ESG a force in investing. (2019, December 7). *The Economist*. https://www.economist.com/finance-and-economics/2019/12/07/climate-change-has-made-esg-a-force-in-investing

Porter, M. (1985). *The competitive advantage: Creating and sustaining superior performance*. Free Press.

Porter, M. E., Kramer, M., & Serafeim, G. (2019, October 16). Where ESG fails. *Institutional Investor*. https://www.institutionalinvestor.com/article/b1hm5ghqtxj9s7/Where-ESG-Fails

Porter, M., & Rivkin, J. (2012, March). The looming challenge to U.S. competitiveness. *Harvard Business Review*. https://hbr.org/2012/03/the-looming-challenge-to-us-competitiveness

Principles for Responsible Investment. (2019). *A practical guide to ESG integration in sovereign debt* [Annual report]. https://www.unpri.org/download?ac=9696

Sustainalytics. (n.d.). *Controversies research*. https://www.sustainalytics.com/controversies-research/#1482352884479-c3043796-060d

Tarmuji, I., Maelah, R., & Tarmuji, N. H. (2016, June 16). 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

United Nations Department of Economic and Social Affairs. (n.d.). *The 17 goals*. https://sdgs.un.org/goals

Wendling, Z. A., Emerson, J. W., de Sherbinin, A., Esty, D. C., et al. (2020). *2020 Environmental Performance Index*. http://www.epi.yale.edu

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

World Bank. (n.d.-a). *GINI index*. https://data.worldbank.org/indicator/SI.POV.GINI

World Bank. (n.d.-b). *Global competitiveness index*. https://tcdata360.worldbank.org

World Bank. (2010). *Aidflows: New transparency of aid flows from donors to beneficiaries*. https://blogs.worldbank.org/opendata/aidflows-new-transparency-aid-flows-donors-beneficiaries

World Bank. (2019). *World Bank launches sovereign ESG data portal*. https://www.worldbank.org/en/news/press-release/2019/10/29/world-bank-launches-sovereign-esg-data-portal

World Bank. (2020, April 10). *Inequality and shared prosperity*. https://www.worldbank.org/en/topic/isp/overview

World Economic Forum. (2019). *Global competitiveness report 2019: How to end a lost decade of productivity growth*. https://www.weforum.org/reports/how-to-end-a-decade-of-lost-productivity-growth

World Resources Institute. (2016, August 1). *Environmental democracy index*. https://www.wri.org/our-work/project/environmental-democracy-index

World Wildlife Fund. (2018). *Philippine banks urged to shift to sustainable and responsible business practice*. https://wwf.org.ph/resource-center/story-archives-2017/aba-cofitt-workshop/

Youmans, T., & Tomlinson, B. (2018). Six reasons why companies should start sharing their long-term thinking with investors. *MIT Sloan Management Review*. https://sloanreview.mit.edu/article/six-reasons-why-companies-should-start-sharing-their-long-term-thinking-with-investors/

Zhao, C., Guo, Y., Yuan, J., Wu, M., Li, D., Zhou, Y., & Kang, J. (2018, July 25). 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