The Relationship between ESG (Environmental, Social, and Governance) and Financial Performances: A Case Study of Private Firms in Fujian.

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ABSTRACT

Financial performance has been reported to be strongly associated with Environmental, Social, and Governance (ESG). Despite a recent surge of attention drawn on relevant topics, it remains elusive what is the underlying mechanism affecting corporate finance, given that a limited number of ESG indicators potentially hinders previous findings. Also, extant literature mainly focuses on large-scale western companies, and recent research on specific regional-level companies also produces contradictory results. Against this backdrop, this study utilized the Fujian subsample of non-state-owned corporations' sustainability self-evaluated surveys from 2020 to 2021 to examine the effect of ESG on financial performances. This study incorporates a unique approach to classifying the company's ESG engagement. Building on the methodology developed by the relevant research, I further employed random forests and different clustering algorithms to generate ESG typology. Second, I utilized the mediation model to examine the mechanism between ESG typology and companies' financial performance. The result generates six heterogeneous ESG engagement types: ESG *limited*, *stringent governance*, *human capital investor*, *philanthropic leader*, *stringent governance*, *product-oriented*, and *ESG champion*. Also, the mediation analysis strongly supports the mediation mechanism between the company typology and financial performance via environmental, social, and governance indicators. This study has important implications for future policy intervention among small-medium size enterprises that stimulate corporate social responsibility.

KEYWORDS

corporate social responsibility, ESG typology, financial performance, mediation analysis, China

INTRODUCTION

Sustainability commitments have raised contentious awareness among the public that exert the global community to implement continuous actions to fulfill the ultimate goal of long-term human demand. When translating this idea to the business level, firms are not only required to perform to the needs of current stakeholders (i.e., shareholders, employees, clients, pressure groups, community) but also take action to prevent from sacrificing the interest of future stakeholders (Dyllick and Hockerts 2002). Toward this goal, three key elements of corporate sustainability can be identified, namely environmental, social, and governance (ESG). ESG investing was first developed from a 2004 report of United Nation Global Compact, and more than 20 of the world's major financial institutions believe that proactively handling ESG concerns is critical to a company's overall management quality(Hill 2020). Subsequently, several international ESG corporate sustainability guidelines, including the UN Global Compact (UNGC), Global Reporting Initiative (G4-GRI), and ISO 26000, have been accepted for large corporations in western countries. However, ESG investing is skewed in favor of larger companies, because the measurement of ESG are dependent on resources for providing ESG data; small companies lack data and fail to realistically gauge the sustainability performance (Drempetic et al. 2020).

Government has an important role in encouraging corporate sustainability and incorporating business into a robust framework of public policy. Progressively, governments are being regarded as sustainability promoter, establishing policies and regulations to strengthen responsible activities for business on the global scale (Moon and Vogel 2008, Prado-Lorenzo et al. 2009). In addition, there exist multiple mechanisms for improving corporate social and environmental performance, including fiscal incentives, multistakeholder guidelines, industry frameworks, and individual corporate policies (Nelson 2004). And such mechanism spur innovation to subsidize sustainable practices and renounce to eco/social-unfriendly industries from obtaining a leadership position in the industries of the future (Bell 2002). Local government require sufficient information to distinguish the performance of ESG of companies and distribute the beneficial policy to reward the well-performing company, while also exerting pressure on the companies that need to improve. Thus, there is an urging need to identify the ESG typology of company to optimize the effectiveness of relevant regulation and policy.

China has experienced remarkable economic growth since the 1980s, but this growth comes with high social and environmental costs. In recent years, China has focused great attention for embedding its sustainable investment in the global market to embed. In 2008, the State-Owned Assets Supervision and Administration Commission (SASAC) of the State Council released the "Guiding Advice on Fulfilling Social Responsibility by Central Enterprises" document enforcing firms to promote and actively fulfill their social responsibilities. This guideline stressed the exemplary role that central corporations should execute immediate action in social responsibility, and included principles and implementation measures of ESG development in company strategy (SASAC 2008, Guan and Noronha 2013, Belyaeva and Kazakov 2015). Governmental support and encouragement at state-owned enterprises (SOEs) lead to greater corporate social responsibility engagement (Chandan and Das 2017), but non-SOEs are likely to be market-oriented and thus don't sufficiently incorporate sustainable development themes in their business operation strategies (Kao et al. 2018). Nonetheless, current studies have placed huge attention on large-scale western companies (Girerd-Potin et al. 2014, La Torre et al. 2020). Studies that focused on ESG metrics on a small scale and non-state own companies in China are much needed.

Therefore, studying what are the most successful strategies of ESG among small-scale enterprises that lead to better financial performance is important. In this study, I will investigate two research questions: First, what are the common types of companies that reveal different patterns of ESG engagement? Second, how does the produced ESG typology differentiate financial performance? I would take Fujian province as a case study to explore my research interest. Fujian is a coastal province that experiences rapid economic growth in the industry of international trade. With diverse types of manufacturing industries that are highly dependent on foreign export, Fujian Province has attracted a huge amount of overseas investment and galvanize the starting business to embed the green development standards as an operational strategy (Broadman and Sun 1997, Zhu 2000). Thus, I will use Fujian as a case study to understand how do different ESG strategies result in the discrepancy of financial performance.

ESG PRINCIPLES AND MEASUREMENTS

ESG principles refers to environmental, social, and governance principles, which can have a substantial influence on its financial performance. 1) "E": The environment metric covers

cutting-edge sustainability topics such as energy consumption, resource preservation, externalities, climate change, animal welfare, and waste (Hedstrom 2018). Conducting a thorough materiality evaluation should be the starting point for any company's implementing environmental strategy. A materiality evaluation should serve as the foundation for understanding a company's environmental objectives and goals. 2) "S": The social dimension of sustainability has grown in importance across many industry sectors, as the socially responsible investing (SRI) movement has had social issues at its core. For social responsibility, issues should include but not be limited to human rights, economic inequality, community engagement, child and forced labor, health and safety, employee diversity, and stakeholder relations (Hedstrom 2018). 3) "G": Corporations' governance essentially specifies "how we operate the place." It comprises the leadership structures, policies, processes, and factors that can influence how the CEO, board of directors, and senior management teams that operate businesses. It encompasses the quality of management, board independence, executive compensation, the culture and organization, transparency & disclosure, as well as the stakeholder's rights (Hedstrom 2018).

Despite the fact that ESG rating agencies have consolidated significantly over the past 30 years, the diversity of these data suppliers remains remarkable. Some are for-profit, while others are non-profit, and some have a specific subject matter emphasis, such as climate (e.g., the former Carbon Disclosure Project, CDP8) or human rights (e.g., Corporate Human Rights Benchmark), while others address the whole spectrum of ESG concerns. The history of these organizations may be traced back to the late 1970s (Friede et al. 2015) when the capital market began to consider sustainability issues and NGOs endeavored to educate investors about firms' involvements in sensitive subjects such as nuclear weapons development or Apartheid South Africa. In modern days, the demand for information regarding a company's sustainability performance is rapidly increasing, as is the supply. Based on the topic and geographic focus, data suppliers accumulate the ESG information needed for a rating on a regular basis and in a number of ways. They distribute surveys to companies, analyses of the company's disclosed documents (e.g., sustainability reports), interviews with company employees and other interested parties (e.g., trade unions, NGOs, etc), and, growingly, uses natural language processing as well as artificial intelligence technologies (Eccles and Stroehle 2018). The survey in this study applied a mixture of methods using both online questionnaires and in-person investigation.

The evaluation framework of corporate sustainability led to a variety of ESG strategies undertaken by different companies in accordance with the company's attributes and characteristics, which generates an opportunity to study the ESG typology. Some of the common typology reviews by other researchers summarize the following ESG company types in European countries (Saridakis et al. 2020): 1) ESG neutral firm, which pays minimum attention to all kinds of cooperative responsibility initiatives: 2) Equality expert firm, who pursues a high level of equality and inclusion but has a very narrow focus on other ESG dimensions: 3) Human capital investor firm, which is an internally oriented firm and primarily works on governance issues, including building relations with its employees: 4) Philanthropic leader firm, which is externally oriented and focuses primarily on environmental issues: 5) ESG champion firm, which has a primary concern to embed the responsibility of ESG to the company's product quality, product safety, and diversity issues. Although cluster results are conceptually understandable, there still needs to be further scrutinization before applying to companies in other nations.

The potential relationship between ESG and financial performance remains elusive. Previous research has demonstrated the "doing good while doing well" theory, which indicates a positive relationship between the ESG score of a company and their respective finance condition (Auer 2016). However, this hypothesis holds true only if "costs of socially responsible activities are overestimated" or the "respective benefits exceed the expectations of the managers and investors" (Kempf and Osthoff 2007). For most small-scale companies, variation in personal beliefs and values from company leaders (Weaver et al. 2014), firm characteristics that trigger profit-maximizing incentives (McWilliams and Siegel 2001), and institutional pressures are common problems faced by small corporates that lead to unsustainable operation strategies. Therefore, the positive correlation between ESG score and financial performance from previous studies might not be applicable under this particular circumstance. Moreover, previous findings are possibly obstructed by existence the of reversed causality (Krüger 2015). Another common theory suggested by the trade-off theory said that the ESG-based activities of small-scale companies exhaust financial resources, which causes companies to struggle in achieving a competitive advantage especially with a low level of expenditure (Aupperle et al. 1985). Nonetheless, this could be potentially misleading in the context of rising stock selection of investment based on the evaluation of certain ESG-based ratings.

DATA AND METHODS

Data

The primary source of data comes from the Fujian subsample of non-stated owned cooperates sustainable self-evaluated survey implemented by Beijing Sustainable development Academic Center from 2020 to 2021. A total of 910 representative samples has been collected that cover the 17 main industries types such as manufacturing, agriculture, mining, construction, etc. The questionnaire includes a total of 183 sustainable corporate development and financial-related sub-questions, and all of the questions are weighted into 65 numerical indexes based on a sophisticated weighting system. Moreover, 37 out of 65 indexes are ESG related and would be mainly used to generate company ESG typology. The remaining index of the financial sector would be combined into a single response variable that tests the correlation between the typology and financial performance. Compared with other large-scale ESG data sets, this questionnaire compensates for the small-size companies who lack sufficient corporate sustainable development disclosure and is adjusted in accordance with the environmental, societal, and governmental policies issued by the local government.

The data was collected by the Fujian Provincial Government and the Beijing Sustainable development Academic Center. At the beginning of 2020, the study conducted an in-depth investigation to collect the first-round survey of 160 government-recommended white-list companies, who fulfill the following criteria: no security incident nor being listed as a dishonest enterprise, tax payment of more than 200,000 yuan, and tax revenue increased by 10% for three consecutive years. In 2021, the government conducted a second round of surveys with the same questionnaire in an online platform promoted by the Fujian Provincial Government. More than 700 local companies participated in this survey in return to receive a series of allowances from the local government, including various special funds, supports declared by various departments and organizations, and a certain amount of financing guarantees and exemptions from guarantees will be obtained. In total, 910 companies in Fujian have been recorded in this dataset.

Measures

Financial performance. As a dependent variable, economic performance is being indexed by a complex series of financial indicators within six dimensions: solvency, profitability, operation, growth, legal person/actual controller. Each dimension is weighted by a series of financial indicators that are adjusted accordingly by industry type and company size. Due to data confidentiality, the full list of financial indicators is not presented here.

ESG typology. ESG typology is derived from the 37 ESG related indicators listed in Table 1. These variables are selected or constructed to cover as many ESG aspects as possible so that the resulting ESG typology can comprehensively represent all three dimensions of environment, social, and dimension. Building on the method introduced by G&F (Giannella and Fischer 2016), I obtained six types of social networks with a prediction error of less than 20%, namely, Stringent Governance, Product Oriented, ESG Limited, ESG Champion, Philanthropic Leader, and Human Capital Investment. The descriptive statistics of 37 ESG related index statistics are shown in Table 1.

Environment score. The environment score is calculated by 11 indexes related to green development, resource utilization, pollution prevention, and ecological protection. Each index is scaled and weighted accordingly by industry type and company size. The descriptive statistics of the environment score are shown in Table 1.

Social score. The social score is measured by 13 indexes with respect to public welfare responsibility, employee responsibility, industry responsibility, and consumer responsibility. Each index is scaled and weighted accordingly by industry type and company size. The descriptive statistics of the social score are shown in Table 1.

Governance score. The governance score is gauged by 13 indexes in the field of governance goal-setting, governance system, compliance, and legal responsibility. Each index is scaled and weighted accordingly by industry type and company size. The descriptive statistics of governance scores are shown in Table 1.

Analytical strategy

Generate the ESG typology. First, all of the variables that are related to the subdivision of the ESG index will be used as original variables. Because all 37 ESG indicators are complicated to form up a conceptually understandable classification of company type, I decided to group all of

the original indexes into five dimensions based on 910 observations. Using the R package clustOfVar, which allows both categorical and continuous variables as input, I applied the hclust() function that hierarchically clusters multiple variables into dimensions. I picked the optimal number of dimensions based on the first local maxima of mean adjusted Rand Criterion. Next, I adjusted the variables in each dimension based on the conceptual understanding with human knowledge and utilize the principal component analysis to aggregate all 37 variables into several dimensions. Then, the random forest model was applied as an unsupervised machine learning technique by using the composite variables that generate a similarity matrix which later will be applied for clustering. Then, the spectral clustering method was incorporated into my analysis framework. Finally, supervised machine learning was employed to generate the prediction accuracy of each cluster and thus help to finalize the ESG typology.

Mediation Analysis between ESG typology and financial performance. Mediation analysis quantifies the extent to which the mediator variable participates in the transmittance of change from the independent variable to its causal effect on the dependent variable. Specifically, this model was first analyzing the coefficient of correlation between the ESG typology (independent variable) and financial performance (dependent variable) to record the total effects. Second, I tested the effect of ESG typology on three potential mediators, namely environment, social and governance score, respectively as shown in Figure 3. Third, I simultaneously tested the mediator's and the independent variable's effect on the dependent variable. Finally, I estimated various quantities for causal mediation analysis, meaning that I compared the direct to the indirect effect that helped to explain the mechanism existing between the ESG typology and financial performance.

RESULTS

ESG typology

First, I derived five standardized composite variables that characterize the ESG strategy applied by Fujian companies. These dimensions were further employed in the clustering algorithm that identifies the ESG company type. The five dimensions are:

1. *Product* measures the score for product quality, green production, and property rights protection. Such dimension would gauge how the company allocates their resource in improving and promoting its product.

2. *Socioenvironmental responsibility* measures the score for public welfare concept, social responsibility goal setting, environmental protection investment, and land protection and restoration. This dimension focuses on a company's responsibility, especially in terms of social and environmental aspects.

3. *Pollution control* measures the score for water pollution prevention and control, hazardous waste and waste treatment and disposal score, and exhaust gas pollution prevention and control. This is an important environmental feature that records a company's ability in contaminant management.

4. *Internal governance* measures the score of the financial system, compensation system, corruption prevention score, and internal control system. This dimension represents whether a corporate implements strategy in company governance.

5. *Human capital* is measured by the score of employee career development score, which represents the amount of human capital the company decides to invest.

In general, my clustering algorithm successfully identified the ESG type for all companies in the Fujian sample with high prediction accuracy in each individual cluster (i.e., accuracy in guessing cluster membership), suggesting that clusters were sufficiently distinctive. It generates 5 composite variables out of the 37 initial criterion variables, each of which reflected an important dimension that records the company's ESG strategy. Based on these composite variables, I found six robust company types whose characteristics are visualized in Figure 1 and described below.

1. *ESG limited* (30%) exhibits a low level of scores in every dimension of ESG strategy, including product, socioenvironmental responsibility, pollution control, internal governance, and human capital. This type of company has shown limited ESG performance, which has been set as the reference group in our analytical framework in the mediation model.

2. *ESG champion* (25%). This type of company demonstrates a high-level score in every dimension of ESG strategy, including product, socioenvironmental responsibility, pollution control, internal governance, and human capital. Companies embedded in this

type have devoted a comparatively large amount of investment in every aspect of sustainable corporate responsibility.

3. *Human Capital Investment* (18%) has relatively high levels of human capital investment as well as internal governance. Firms with this ESG type are also less likely to invest in environmental-related issues.

4. *Philanthropic Leaders* (12%) are characterized by a high level of pollution control and socioenvironmental responsibility but also constrained by internal governance, which indicates their external orientation and focuses primarily on environmental issues.

5. *Product Oriented* (9%) is significantly limited regarding socioenvironmental responsibility and human capital investment. Moreover, such a type of company primarily emphasizes developing product and internal governance.

6. *Stringent governance* (6%) is characterized by the highest levels of internal governance but also the lowest value in product, socioenvironmental responsibility, and pollution control. This type of company has a distinctive strategy to focus on stringent management and governance.

Company size across generated ESG typology

Even though all of the company who attended in the survey are small-scale companies and operated in a local base, there might be a differentiation in terms of number of employees across ESG company typology. As shown in the Figure 2, the boxplot represents the log scale of the number of employees with base of ten for better visualization. The result of one-way ANOVA test suggests a statistically significant difference ($p < 0.001$) across six ESG types in number of employees. *ESG Champion* has showed the largest degree in terms of company size (Median $\approx$ 100) with several outliers that have significant number of employees, whereas the *ESG Limited* (Median $\approx$ 30) and *String governance* (Median $\approx$ 22) have relatively smaller number of employees.

Mediation between ESG typology and financial performance

The result demonstrates that the correlation effect between company typology and economic performance was mainly partially mediated via the Environmental, Social, and Governance score

respective, and some of which are fully mediated. The total effect between the ESG typology and economic performance are significant when setting the *ESG limited* as reference group, as Table 2, 4, and 6 illustrates. Moreover, the indirect effect from company typology and economic performance through three mediators, namely Environmental, Social, Governance has taken significant proportion from the total effect. I tested the significance of this indirect effect using bootstrapping procedures. Unstandardized indirect effects were computed for each of 1000 bootstrapped samples, and the 95% confidence interval was computed by determining the indirect effects at the 2.5th and 97.5th percentiles. The recorded indirect effect and direct effect are listed in Table 3, 5 and 7. For instance, the bootstrapped unstandardized indirect effect of ESG champion with environment score as mediator was 0.057, which was statistically significant ($p<.001$). It is worth mentioning that most of the proportion of mediation was well above 20 percent and statistically significant, which strongly supports the mediation mechanism between company typology and economic performance.

DISCUSSION

Compared to the previous researchers who examine ESG engagement with a uniform conceptualization or by identifying distinctive ESG activities, my study contributes to the current literature by providing an empirical typology asserting that firms could simultaneously engage in unique constellations of diverse ESG initiatives. Also, unlike prior researchers who mainly rely on human knowledge to manually select certain dimensions and classify companies, I employ a rigorous procedure with hierarchical variable clustering and principle component to aggregate variables into dimension that are capable in classifying individuals (i.e., product, socioenvironmental responsibility, pollution control, internal governance, human capital), the present study empirically identifies and validates a set of sufficiently heterogeneous ESG engagement types – namely ESG limited, stringent governance, human capital investor, philanthropic leader, stringent governance, product oriented, and ESG champion, and such classification result align well with previous research (Saridakis et al. 2020). Moreover, my findings also further scrutinize the positive relationship between ESG typology and financial performance, and imply a mediation mechanism through Environmental, Social and Governance indicators.

ESG engagement and company size

It is worth mentioning that *ESG champion* has produced relatively great amount financial benefits compared with *ESG limited*, which could be potentially related to the company size as suggested by the results. With regards to the role of firm characteristics, relevant literature suggests that larger firms are willing to engage in ESG because they have high incentives to avoid regulations, reduce potential political costs and protect their corporate image (Adams et al. 1998, Clarke and Gibson-Sweet 1999). Aligned with this, smaller firms represent ESG limited, while philanthropic leaders and ESG champions are usually represented by larger firms. However, I suggest that for certain ESG engagement types, such as human capital investors, firm size may vary on the basis of the additional characteristics that simultaneously occur in the given causal recipe. Past literature has emphasized that when resources are abundant, large firms may afford to pursue greater social engagement (Carroll 1991, Adams et al. 1998). My study suggests that this may not be the case on several occasions. Literature suggests that high past performance allows firms to divert their focus from short-term financial objectives to long-term social objectives (Brammer and Millington 2008). This holds particularly for ESG champions, for which high past performance is a necessary condition, but this is not the case for firms of all other social constellations. Especially for small company like *Stringent Governance*, they particularly lack of human resources to establish a comprehensive ESG strategy and abandon any unnecessary investment upon social and environmental responsibility, but instead focus on internal governance to secure its financial performance in competing with other companies.

Why certain strategy success?

From my result section, companies with in my samples do well either on product or internal governance better produces a positive result in terms of financial performance. Internal governance proves to be strongly correlated with financial performance from previous studies. Companies with internal controls are observed to be significantly larger, more highly regulated, more competitive, more profitable, more liquid, more conservative in their accounting policies, more competent in their management and accounting, and subject to better management controls (Wallace and

Kreutzfeldt 1991). The dimensions of internal control systems were deeply connected to the dimension of financial performance. Especially for small and medium scale enterprises, those who have operated in total disregard of internal control systems result in the mass failure (Nyakundi et al. 2014). Thus, internal control systems as supported by the study findings significantly influence the financial performance of small and medium scale Enterprises. The beneficial relationship between internal control systems and return on investment has also been found in my study. Even though the *stringent governance* type of constellation has the smallest number of employees, it manages to perform outstandingly even in comparison with large *ESG champion*. Furthermore, the product-oriented companies from my samples have proven a strong positive linking quality and financial performance. Studies from the management and the operations literature have demonstrated that improving quality leads to better performance outcomes for the firm (Lakhal and Pasin 2008). Also, investing in green product innovation can help prevent companies from facing environmental protests and legal penalties while also allowing them to develop new market opportunities and achieve new green product success (Chiou et al. 2011). Green product innovation is critical for developing green competency, strengthening a firm's green image, and improving its financial performance (Adams et al. 2012). Thus, corporate leaders could achieve superior financial performance by focusing their sustainability strategies to develop sustainability products and quality by successfully either avoiding or decreasing key sustainability costs and risks to the firm.

What does the mediation model imply?

Mediation analysis contribute to better understanding the relationship between an ESG typology and a corporate financial performance difference when these variables do not have an obvious direct connection. Previous research has reviewed the studies through the lens of these mediating factors and found that stakeholder relations, risk, operational efficiency, and innovation were the most common in the literature. For example, Vishwanathan et al. (2020) reviewed 344 studies and identified four mediating factors – enhancing firm reputation, increasing stakeholder reciprocation, mitigating firm risk, and strengthening innovation capacity – which drove financial performance. However, most of the mediator closely correlated with corporate governance and fail to take environment and social indicator into consideration. Moreover, they only use a single sub-

category of ESG as mediator, and ignore a comprehensive constellation of ESG indicators that are highly inter-connected. Thus, my mediators include constructive scores from all three aspects of ESG that capture the mechanism in explaining the positive correlation between six corporate types and their corresponding financial performance (Whelan et al. 2021).

Limitation

There are two main limitations of this study. First, correlation between different mediator makes things hard to be explained. When multiple mediators are of interest one approach would be to consider the mediators one at a time. As described below, however, this will in general require that the mediators do not affect one another. Such assumption might be hard to fulfill in ESG related mediator. Second, my study could be hard to conclude with causal claims. Because this study is cross-sectional that assesses exposure and the outcome at one specific point in time in a sample population. Such cross-sectional data might not be sufficient to address the problem of causal inference, because a temporal sequence cannot be established. However, I employ mediation model to optimize the explicability and it is a strong tool to study the mechanism of correlation. Finally, my case study utilizes a unique sample from the small and medium size company in Fujian province. Such result might not be consistent due to any uncontrolled confounding variables when applied to other regions or larger size companies (VanderWeele and Vansteelandt 2014).

Broader implications

My research provides a unique approach in classifying the company ESG engagement, which could be useful for future researcher to be referred. Also, my study offers a special perspective from small and medium scale companies in a coastal province, which supports local sustainable corporate policy makers to issue incentive and subsidy policies according to different ESG types of enterprises. To improve upon my current research, more advanced analytic approaches could be applied to estimate the effect mediated through multiple mediators and the effects through other pathways. Moreover, more rounds of data collections would be crucial to study causal effects between ESG and financial outcome. Such conclusion brings crucial insight

for future policy makers to understand whether certain stimulating policy could be effective in supporting local business sustainable development.

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REFERENCE

Adams, C. A., W.-Y. Hill, and C. B. Roberts. 1998. Corporate social reporting practices in Western Europe: legitimating corporate behaviour? The British accounting review **30**:1-21.

Adams, M., B. Thornton, and M. Sepehri. 2012. The impact of the pursuit of sustainability on the financial performance of the firm. Journal of Sustainability and Green Business **1**:1-14.

Auer, B. R. 2016. Do socially responsible investment policies add or destroy European stock portfolio value? Journal of Business Ethics **135**:381-397.

Aupperle, K. E., A. B. Carroll, and J. D. Hatfield. 1985. An empirical examination of the relationship between corporate social responsibility and profitability. Academy of management Journal **28**:446-463.

Bell, D. V. 2002. The role of government in advancing corporate sustainability.

Belyaeva, Z., and A. Kazakov. 2015. Integrated approach to social responsibility: A model of stakeholders interaction in Russia and China. Systems Research and Behavioral Science **32**:240-246.

Brammer, S., and A. Millington. 2008. Does it pay to be different? An analysis of the relationship between corporate social and financial performance. Strategic management journal **29**:1325-1343.

Broadman, H. G., and X. Sun. 1997. The distribution of foreign direct investment in China. World Bank Publications.

Carroll, A. B. 1991. The pyramid of corporate social responsibility: Toward the moral management of organizational stakeholders. Business horizons **34**:39-48.

Chandan, H. C., and R. Das. 2017. Evolution of responsible and sustainable corporate identity for Chinese firms. Pages 71-96 The China Business Model. Elsevier.

Chiou, T.-Y., H. K. Chan, F. Lettice, and S. H. Chung. 2011. The influence of greening the suppliers and green innovation on environmental performance and competitive advantage in Taiwan. Transportation Research Part E: Logistics and Transportation Review **47**:822-836.

Clarke, J., and M. Gibson-Sweet. 1999. The use of corporate social disclosures in the management of reputation and legitimacy: a cross sectoral analysis of UK Top 100 Companies. Business Ethics: A European Review **8**:5-13.

Drempetic, S., C. Klein, and B. Zwergel. 2020. The influence of firm size on the ESG score: Corporate sustainability ratings under review. Journal of Business Ethics **167**:333-360.

Dyllick, T., and K. Hockerts. 2002. Beyond the business case for corporate sustainability. Business strategy and the environment **11**:130-141.

Eccles, R. G., and J. C. Stroehle. 2018. Exploring social origins in the construction of ESG measures. Available at SSRN 3212685.

Friede, G., T. Busch, and A. Bassen. 2015. ESG and financial performance: aggregated evidence from more than 2000 empirical studies. Journal of Sustainable Finance & Investment **5**:210-233.

Giannella, E., and C. S. Fischer. 2016. An inductive typology of egocentric networks. Social Networks **47**:15-23.

Girerd-Potin, I., S. Jimenez-Garcès, and P. Louvet. 2014. Which dimensions of social responsibility concern financial investors? Journal of Business Ethics **121**:559-576.

Guan, J., and C. Noronha. 2013. Corporate social responsibility reporting research in the Chinese academia: a critical review. Social Responsibility Journal.

Hedstrom, G. S. 2018. Sustainability: What it is and how to Measure it. Walter de Gruyter GmbH & Co KG.

Hill, J. 2020. Environmental, Social, and Governance (ESG) Investing: A Balanced Review of Theoretical Backgrounds and Practical Implications.

Kao, E. H., C.-C. Yeh, L.-H. Wang, and H.-G. Fung. 2018. The relationship between CSR and performance: Evidence in China. Pacific-Basin Finance Journal **51**:155-170.

Kempf, A., and P. Osthoff. 2007. The effect of socially responsible investing on portfolio performance. European Financial Management **13**:908-922.

Krüger, P. 2015. Corporate goodness and shareholder wealth. Journal of financial economics **115**:304-329.

La Torre, M., F. Mango, A. Cafaro, and S. Leo. 2020. Does the esg index affect stock return? evidence from the eurostoxx50. Sustainability **12**:6387.

Lakhal, L., and F. Pasin. 2008. The direct and indirect impact of product quality on financial performance: A causal model. Total quality management & business excellence **19**:1087-1099.

McWilliams, A., and D. Siegel. 2001. Corporate social responsibility: A theory of the firm perspective. Academy of management review **26**:117-127.

Moon, J., and D. Vogel. 2008. Corporate social responsibility, government, and civil society. The Oxford handbook of corporate social responsibility.

Nelson, J. 2004. The Public Role of Private Enterprise: Risks, Opportunities, and New Models of Engagement'(working paper of the Corporate Social Responsibility Initiative. Harvard University: Kennedy School of Government). Harvard: Kennedy School of Government.

Nyakundi, D., M. Nyamita, and T. Tinega. 2014. Effect of internal control systems on financial performance of small and medium scale business enterprises in Kisumu City, Kenya. International journal of social sciences and Entrepreneurship **1**:719-734.

Prado-Lorenzo, J. M., I. Gallego-Alvarez, and I. M. Garcia-Sanchez. 2009. Stakeholder engagement and corporate social responsibility reporting: the ownership structure effect. Corporate Social Responsibility and Environmental Management **16**:94-107.

Saridakis, C., S. Angelidou, and A. G. Woodside. 2020. What type of CSR engagement suits my firm best? Evidence from an abductively-derived typology. Journal of Business Research **108**:174-187.

SASAC. 2008. Guiding Advice on Fulfilling Social Responsibility by Central Enterprises. State-owned Assets Supervision and Administration Commission Beijing.

VanderWeele, T., and S. Vansteelandt. 2014. Mediation analysis with multiple mediators. Epidemiologic methods **2**:95-115.

Vishwanathan, P., H. van Oosterhout, P. P. Heugens, P. Duran, and M. Van Essen. 2020. Strategic CSR: A concept building meta-analysis. Journal of Management studies **57**:314-350.

Wallace, W. A., and R. W. Kreutzfeldt. 1991. Distinctive characteristics of entities with an internal audit department and the association of the quality of such departments with errors. Contemporary Accounting Research **7**:485-512.

Weaver, G. R., S. J. Reynolds, and M. E. Brown. 2014. Moral intuition: Connecting current knowledge to future organizational research and practice. Journal of Management **40**:100-129.

Whelan, T., U. Atz, and C. Casey Clark. 2021. ESG and Financial Performance: Uncovering the Relationship by Aggregating Evidence from 1,000 Plus Studies Published between 2015 – 2020. Centre for Sustainable Business, NYU-Stern.

Zhu, Y. 2000. In situ urbanization in rural China: Case studies from Fujian Province. Development and change **31**:413-434.
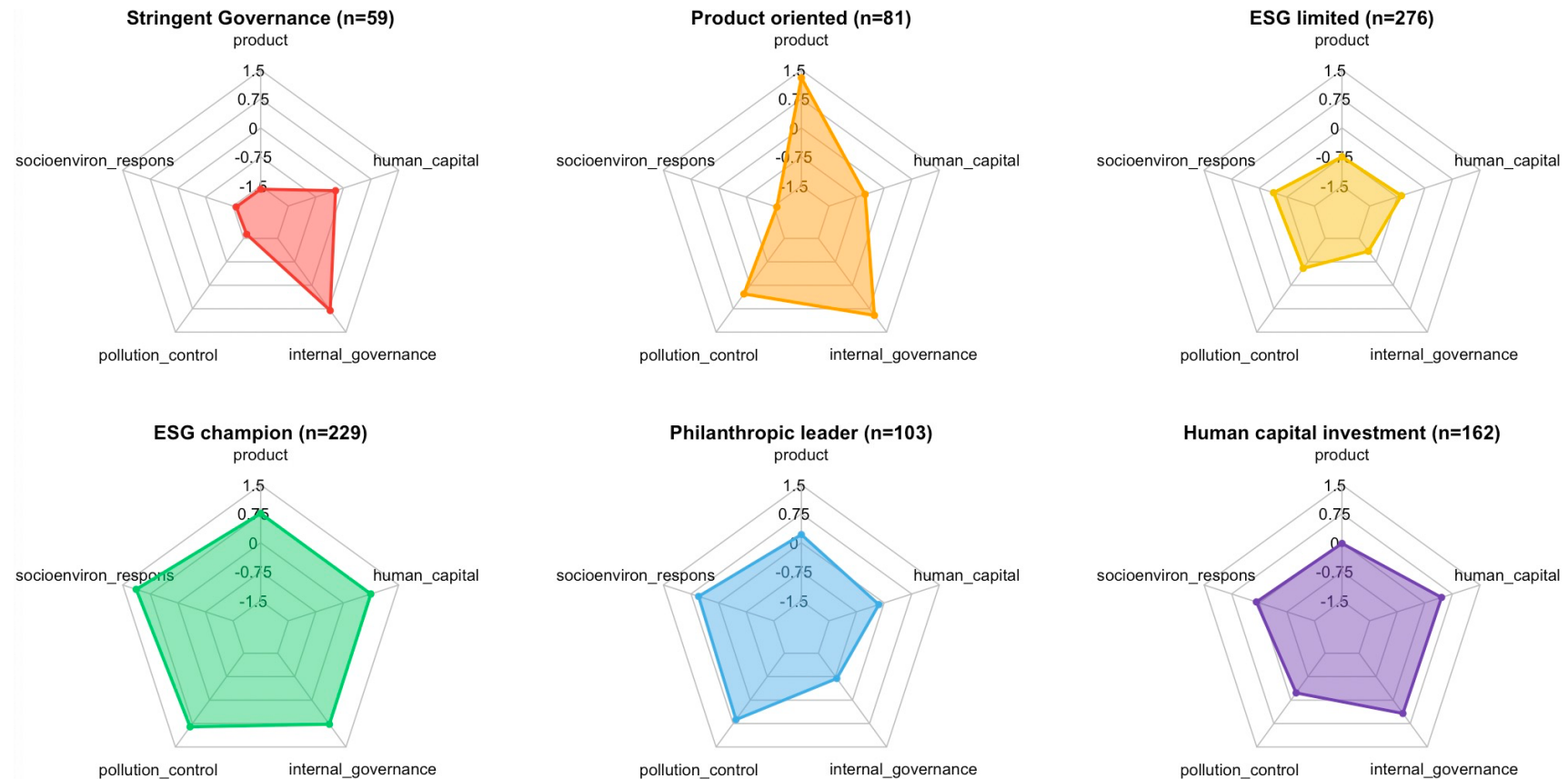
APPENDIX A. ESG typology

Figure 1. Radar plot of the six ESG typology
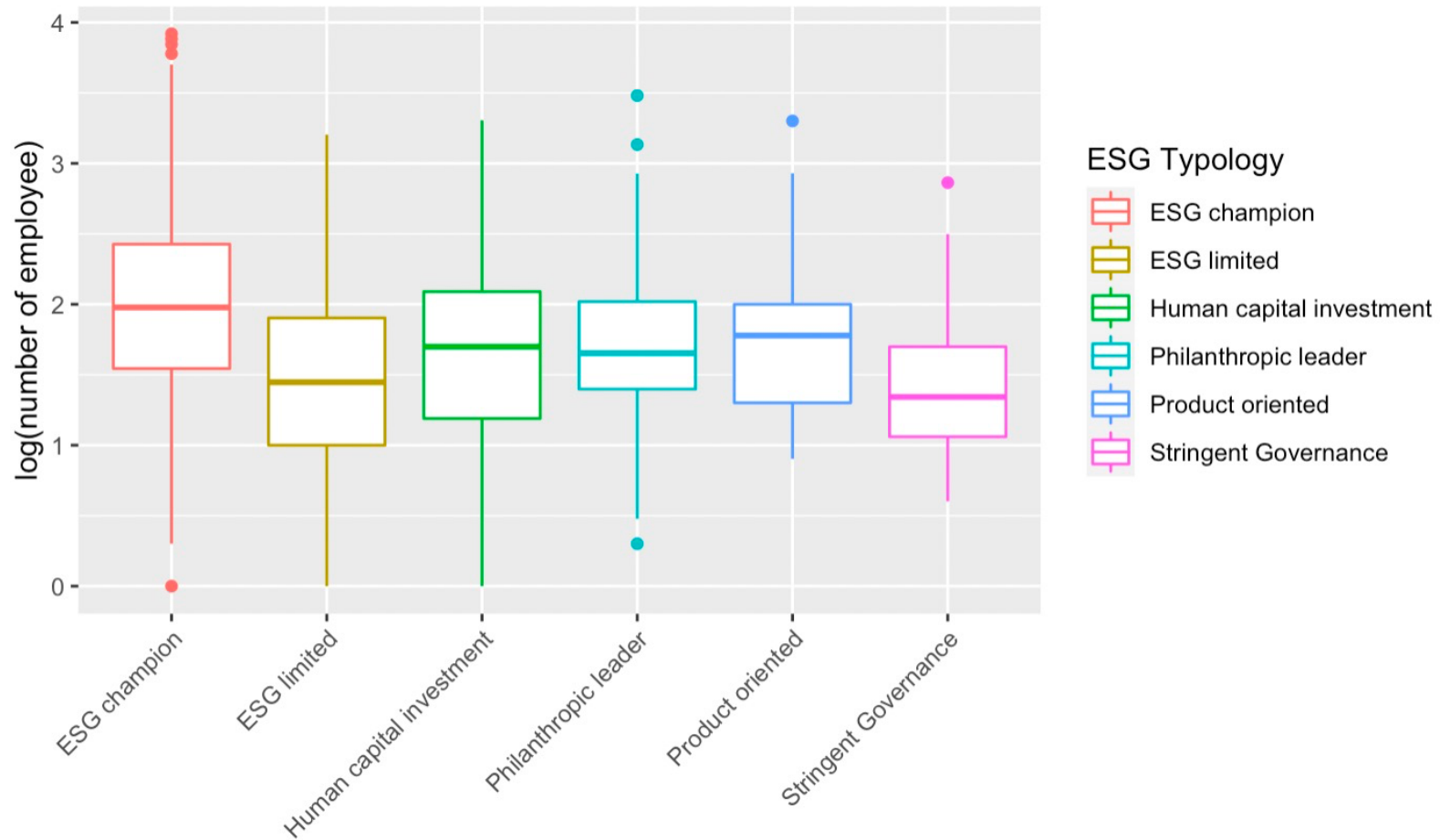
APPENDIX B. ESG typology and company size

Figure 2. Number of employees across six ESG company types

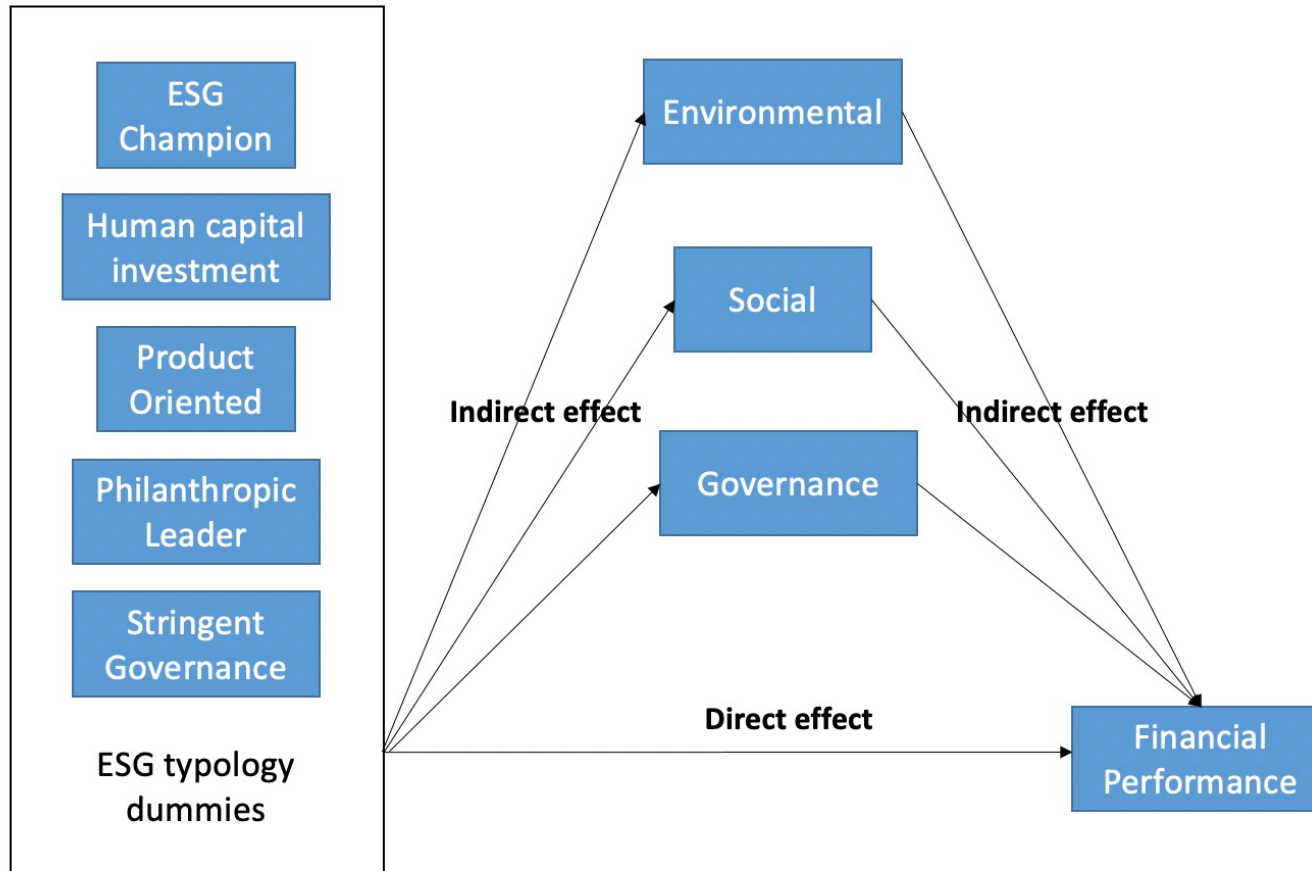**APPENDIX C. Mediation model**

Figure 3. ESG mediating the Relationship between company typology and financial performance

Table 1. Descriptive statistics

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
Environment score	910	0.526	0.252	0	0.3	0.7	1
Social score	910	0.642	0.179	0.110	0.520	0.778	1.000
Governance score	910	0.700	0.225	0.100	0.543	0.892	1.000
Economic performance	910	0.579	0.129	0.183	0.493	0.665	0.941
Environment Related Index (n = 11)							
Green Development Strategy	910	0.183	0.341	0	0	0.1	1
Environmental Management	910	0.389	0.372	0	0.1	0.8	1
Green Production	910	0.438	0.321	0	0.1	0.7	1
Environmental Protection Investment	910	0.457	0.394	0	0.1	0.8	1
Green Business	910	0.054	0.190	0	0	0	1
Energy Utilization	910	0.075	0.252	0	0	0	1
Water Resource Utilization	910	0.025	0.157	0	0	0	1
Water Pollution Prevention and Control	910	0.552	0.363	0	0.2	1	1
Exhaust Gas Pollution Prevention and Control	910	0.565	0.356	0	0.4	1	1
Hazardous Waste Treatment and Disposal	910	0.579	0.366	0	0.2	1	1
Land Protection and Restoration	910	0.435	0.351	0	0.1	0.7	1
Social Related Index (n = 12)							
Public Welfare Concept	910	0.558	0.386	0	0.1	0.9	1
Public Welfare Investment	910	0.434	0.307	0	0.2	0.6	1
Charity And Reduce Poverty	910	0.060	0.223	0	0	0	1
Protection of Labor Rights and Interests	910	0.602	0.219	0.100	0.492	0.787	1.000
Employee Diversity	910	0.459	0.242	0	0.4	0.6	1
Work Safety Guarantee	910	0.803	0.197	0.000	0.667	1.000	1.000
Employee Career Development	910	0.664	0.330	0	0.4	1	1
Technological Innovation	910	0.586	0.363	0	0.1	1	1
Industry Collaboration	910	0.668	0.372	0	0.5	1	1
Property Rights Protection	910	0.434	0.440	0	0.1	1	1
Product Quality	910	0.734	0.354	0	0.6	1	1
Customer Service System	910	0.677	0.298	0	0.4	1	1
Governance Related Index (n = 13)							
Social Responsibility Target	910	0.549	0.403	0	0.1	1	1
Strategic Development Goal	910	0.735	0.298	0	0.6	1	1
Sustainable Development Goal	910	0.666	0.337	0	0.6	1	1
Social Responsibility Management System	910	0.237	0.384	0	0	0.4	1
Corporate Organizational Structure	910	0.414	0.388	0	0	0.8	1
Shareholder Governance System	910	0.553	0.343	0	0.2	0.9	1
Director Governance System	910	0.029	0.157	0	0	0	1
Internal Control System	910	0.612	0.282	0	0.4	0.9	1
Compensation System	910	0.675	0.349	0	0.3	1	1
Financial System	910	0.662	0.325	0.100	0.460	1.000	1.000
Corruption Prevention	910	0.713	0.319	0	0.5	1	1
Integrity Tax Payment	910	0.912	0.202	0	1	1	1
Information Disclosure	910	0.544	0.407	0	0.1	1	1

Table 2. Mediation model with environmental score as mediator

	Economic	Environment	Economic
	Dependent variable:		
	(1)	(2)	(3)
ESG Typology			
ESG champion	0.108***	0.434***	0.051***
	(0.011)	(0.016)	(0.014)
Human capital investment	0.052***	0.114***	0.037***
	(0.012)	(0.017)	(0.012)
Philanthropic leader	0.062***	0.290***	0.024
	(0.014)	(0.020)	(0.015)
Product oriented	0.129***	0.293***	0.091***
	(0.015)	(0.022)	(0.016)
Stringent Governance	0.145***	0.470***	0.083***
	(0.017)	(0.025)	(0.020)
Environment			0.132***
			(0.022)
Constant	0.515***	0.307***	0.475***
	(0.007)	(0.010)	(0.010)
Observations	910	910	910
R^2	0.155	0.524	0.187
Adjusted R^2	0.150	0.522	0.181
Residual Std. Error	0.119 (df = 904)	0.174 (df = 904)	0.116 (df = 903)
F Statistic	33.177*** (df = 5; 904)	199.287*** (df = 5; 904)	34.557*** (df = 6; 903)

Note: (1) *p<0.05, **p<0.01, ***p<0.001; (2) Reference Group: ESG Limit

Tables 3. Direct and indirect effect of mediation model with environment score as mediator

	Direct effect	Indirect effect	Total effect	Prop. Mediated
ESG champion	0.051**	0.057***	0.108***	0.528***
Human capital investment	0.037***	0.015***	0.052***	0.293***
Philanthropic leader	0.024	0.038***	0.062	0.611***
Product oriented	0.091***	0.038***	0.129***	0.296***
Stringent Governance	0.083***	0.062***	0.145***	0.433***

Note: (1) *p<0.05, **p<0.01, ***p<0.001; (2) Reference Group: ESG Limited;
(3) if the indirect effect is significant, then an insignificant direct effect indicates full mediations, while a significant one suggests partial mediation.

Table 4. Mediation model with social indicator as mediator

	Dependent variable:		
	Economic	Social	Economic
	(1)	(2)	(3)
ESG Typology			
ESG champion	0.108***	0.343***	0.045***
	(0.011)	(0.011)	(0.015)
Human capital investment	0.052***	0.204***	0.014
	(0.012)	(0.012)	(0.013)
Philanthropic leader	0.062***	0.152***	0.034**
	(0.014)	(0.014)	(0.014)
Product oriented	0.129***	0.260***	0.081***
	(0.015)	(0.015)	(0.017)
Stringent Governance	0.145***	0.282***	0.093***
	(0.017)	(0.017)	(0.019)
Social			0.184***
			(0.033)
Constant	0.515***	0.460***	0.430***
	(0.007)	(0.007)	(0.017)
Observations	910	910	910
R^2	0.155	0.559	0.184
Adjusted R^2	0.150	0.557	0.179
Residual Std. Error	0.119 (df = 904)	0.119 (df = 904)	0.117 (df = 903)
F Statistic	33.177*** (df = 5; 904)	229.139*** (df = 5; 904)	33.932*** (df = 6; 903)

Note: (1) *p<0.05, **p<0.01, ***p<0.001; (2) Reference Group: ESG Limited

Tables 5. Direct and indirect effect of mediation model with social score as mediator

	Direct effect	Indirect effect	Total effect	Prop. Mediated
ESG champion	0.045**	0.063***	0.108***	0.583***
Human capital investment	0.014	0.038***	0.052***	0.728***
Philanthropic leader	0.034**	0.028***	0.062***	0.454***
Product oriented	0.081***	0.047***	0.128***	0.369***
Stringent Governance	0.093***	0.051***	0.145***	0.353***

Note: (1) *p<0.05, **p<0.01, ***p<0.001; (2) Reference Group: ESG Limited;
(3) if the indirect effect is significant, then an insignificant direct effect indicates full mediations, while a significant one suggests partial mediation.

Table 6. Mediation model with governance indicator as mediator

	Dependent variable:		
	Economic	Governance	Economic
	(1)	(2)	(3)
ESG Typology			
ESG champion	0.108***	0.417***	0.051***
	(0.011)	(0.011)	(0.017)
Human capital investment	0.052***	0.314***	0.009
	(0.012)	(0.012)	(0.016)
Philanthropic leader	0.062***	0.121***	0.046***
	(0.014)	(0.014)	(0.014)
Product oriented	0.129***	0.487***	0.062***
	(0.015)	(0.015)	(0.022)
Stringent Governance	0.145***	0.466***	0.081***
	(0.017)	(0.017)	(0.023)
Governance			0.137***
			(0.033)
Constant	0.515***	0.452***	0.453***
	(0.007)	(0.007)	(0.017)
Observations	910	910	910
R^2	0.155	0.725	0.171
Adjusted R^2	0.150	0.724	0.165
Residual Std. Error	0.119 (df = 904)	0.118 (df = 904)	0.118 (df = 903)
F Statistic	33.177*** (df = 5; 904)	477.357*** (df = 5; 904)	31.012*** (df = 6; 903)

Note: (1) *p<0.05, **p<0.01, ***p<0.001; (2) Reference Group: ESG Limited

Tables 7. Direct and indirect effect of mediation model with governance score as mediator

	Direct effect	Indirect effect	Total effect	Prop. Mediated
ESG champion	0.051**	0.057***	0.108***	0.528***
Human capital investment	0.009	0.043***	0.052***	0.843***
Philanthropic leader	0.046***	0.016***	0.062***	0.262***
Product oriented	0.062**	0.067***	0.129***	0.521***
Stringent Governance	0.081***	0.064***	0.145***	0.435***

Note: (1) *p<0.05, **p<0.01, ***p<0.001; (2) Reference Group: ESG Limited;
(3) if the indirect effect is significant, then an insignificant direct effect indicates full mediations, while a significant one suggests partial mediation.