



INVESTMENT EFFICIENCY AND ESG REPORTING
TRANSPARENCY IN TAIWANESE COMPANIES:
AN INVESTIGATIVE CASE STUDY

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Abstract

In recent years, the issue of sustainable development has gradually become a topic of discussion among the general public, with whether companies are effectively pursuing sustainable development becoming one of the considerations for investors in making decisions. This study assesses the transparency of ESG reports of companies based on the number of disclosed items compliant with the GRI framework and employs investment efficiency as a measure of overall corporate management to investigate whether corporate management affects the transparency of ESG reports. Using listed and OTC companies in Taiwan as the sample, this study adopts the Heckman two-stage regression model as the research method to explore the relationship between investment efficiency and ESG reporting transparency. The empirical results reveal that companies with higher investment efficiency tend to have a higher degree of compliance with GRI items in their ESG reports.

Key words: ESG, Investment Efficiency, Heckman, Taiwan, GRI

Introduction

ESG (Environmental, Social, Governance) has become a global focal point of attention. Over the past two decades, there has been a significant increase in government mandates worldwide for companies to disclose ESG-related information (Ioannou & Serafeim, 2017). The level of disclosure of ESG information is of considerable interest to various stakeholders of companies, prompting demands from management to include more ESG-related information in financial reports (Babiak and Trendafilova, 2011; Lozano, 2015).

Past research has predominantly demonstrated that engaging in ESG activities contributes to enhancing financial performance (e.g., Hu et al., 2018; Li et al., 2018; Xie et al., 2019; Almeyda and Darmansya, 2019; Brogi and Lagasio, 2019; Velte, 2019; Peng and Isa, 2020). However, some studies have found that corporate involvement in sustainable development activities leads to decreased corporate performance, thereby harming shareholder interests (Garcia and Orsato, 2020).

Researchers have recognized the significance of ESG reporting, prompting extensive investigation into the determinants of such reporting (Ali et al., 2017). However, these studies predominantly focus on individual factors that may drive ESG reporting. Moreover, Khan et al. (2021) contend that integrated management strategies are closely linked to a company's ESG reporting. Nevertheless, research on how corporate

integration management (CIM) influences ESG reporting remains relatively scarce.

For researchers, providing a standard for Corporate Integration Management (CIM) has long been a challenge (Pagel, 2004), with one perspective of measuring CIM being output-oriented (Basnet, 2013). According to this argument, CIM among key components within a firm enhances its efficiency, including investment efficiency. Furthermore, Baumgartner (2014) indicates that ESG can be realized through integration across all aspects of a company, while Harymawan et al. (2021) argue that comprehensive output at the firm level serves as a measure of investment efficiency.

The relationship between investment efficiency and ESG reporting transparency can be explained as follows. Firstly, investment efficiency is characterized by robust internal systems (Lai et al., 2020), sound governance structures, and qualified management (Elberry & Hussainey, 2020). Therefore, it provides a rationale for companies with efficient investment practices to minimize information asymmetry. However, not all shareholders perceive ESG activities positively, with some companies considering them as additional burdens (Krüger, 2015). Consequently, some firms may allocate resources to activities they perceive as beneficial, which may not necessarily include enhancing the transparency of ESG reporting.

Based on the aforementioned background and motivations, as well as insights from previous literature, this study aims to investigate investment efficiency (INVEFF) as a proxy variable for Corporate Integration Management (CIM). Focusing on listed and OTC companies in Taiwan, empirical analysis will explore the relationship between investment efficiency and ESG reporting transparency.

Methodology

Research Sample

The research sample consists of 304 listed and OTC companies in Taiwan that issued sustainability reports in 2021. Initially, a total of 686 companies with sustainability reports were identified. From this pool, 36 companies in the financial industry (including securities and insurance) were excluded, along with 20 companies that did not comply with the 2016 GRI (Global Reporting Initiative) guidelines, and 326 companies with incomplete data. Financial data were sourced from the Taiwan Economic Journal (TEJ) database, while the level of disclosure in ESG reports was obtained from the information publicly disclosed by each company in their ESG reports.

Variable Definition

The Huang (2020) model was employed in this study to estimate investment efficiency. The final empirical model utilized in this study includes variables defined and measured as shown in Table 1.

Empirical model

The main empirical model of this study examines the relationship between investment efficiency and ESG reporting transparency. The empirical model is as follows:

$$\begin{aligned} ESG_{i,t} = & \beta_0 + \beta_1 INVEFF_{i,t} + \beta_2 ROA_{i,t} \\ & + \beta_3 LIA_{i,t} + \beta_4 FSIZE_{i,t} \\ & + \beta_5 LNAGE_{i,t} + \beta_6 INT_{i,t} \\ & + \beta_7 PPE_{i,t} + \beta_8 BSIZE_{i,t} \\ & + \beta_9 INDBOC_{i,t} \\ & + \beta_{10} BIG4_{i,t} \\ & + \beta_{11} IMR_{i,t} \\ & + \Sigma INDUSTRY + \varepsilon_{i,t} \end{aligned}$$

Analysis of Empirical Results

The main empirical model was estimated using Heckman two-stage regression analysis, and the results are presented in Table. After adding industry fixed effects to the empirical model, the Adjusted R-squared is 0.0877, and the overall equation's p-value is 0.0047. The coefficient of ESG reporting on investment efficiency (INVEFF) is -0.054 with a p-value of 0.061, reaching statistical significance at the 10% level. This suggests that when companies disclose more items according to the GRI guidelines, there is a significant positive correlation with their investment efficiency. The empirical results support the viewpoint of Elberry and Hussainey (2020), suggesting that higher levels of investment efficiency may be associated with reduced information asymmetry and increased disclosure in company reporting narratives. Higher investment efficiency leads to more information disclosure,

Table 1. Measurement of Variables in the Empirical Model

Variable name	Measurement method
<i>Dependent variable</i>	
ESG reporting transparency (ESG)	Calculate the ratio of compliance with the 2016 ESG GRI standards as a benchmark
<i>Independent variable</i>	
Investment efficiency (IN-VEFF)	According to the investment model by Huang (2020), calculate the residuals, and take the absolute value if negative.
<i>Control variables:</i>	
Profitability (ROA)	Net income divided by total assets
Financial leverage (LEV)	Total liabilities divided by total assets
Firm size (FSIZE)	Natural logarithm of total assets
Company age (LNAGE)	Natural logarithm of the difference between the year of the company's initial public offering (IPO) and the observation year
Intangible assets (INT)	Intangible assets divided by total assets
Property, plant, and equipment (PPE)	Property, plant, and equipment divided by total assets
Board size (BSIZE)	Total number of board members

which attracts investors, satisfies shareholders and creditors, and minimizes information asymmetry and the costs of equity financing.

Table 2 also reveals the relationships between various control variables and ESG reporting transparency. Property, plant, and equipment (PPE) and board size (BSIZE) exhibit statistically significant positive correlations with ESG reporting transparency at the 1% significance level, while firm size (FSIZE) demonstrates a statistically significant positive correlation at the 5% significance level. A higher ratio of

property, plant, and equipment to total assets indicates a greater emphasis on company sustainability, leading to a preference for greater disclosure in ESG reporting. A larger board size suggests a certain level of foresight regarding corporate sustainability, which positively influences ESG reporting transparency.

Conclusion

This study investigates the relationship between investment efficiency and ESG reporting transparency, using investment efficiency as a proxy for Corporate Integration Management (CIM).

Table 2. The empirical results of the main tested model (N=304)

ESG	Coefficient	Standard deviation	T value	P value
INVEFF	-0.0549	0.0291	-1.88	0.061*
ROA	0.1674	0.1286	1.30	0.194
LEV	0.0041	0.0668	0.06	0.951
FSIZE	0.0281	0.0126	2.24	0.026**
LNAGE	0.0271	0.0193	1.40	0.162
INT	0.0980	0.1461	0.67	0.503
PPE	0.0856	0.0256	3.34	0.001***
BSIZE	0.0112	0.0047	2.40	0.017***
INDBOC	-0.0211	0.0174	-1.21	0.227
BIG4	0.0224	0.0355	0.63	0.528
IMR	0.1262	0.0418	3.02	0.003***
Industry fixed effects (INDUSTRY)			Yes	
Adjusted R ²			0.0877	
Sample size			304	
F value (P value)			1.81 (0.0047***)	

Note 1: *, **, *** denote significance levels of 10%, 5%, and 1%, respectively.

Note 2: This model employs Heckman two-stage regression. The table presents results from the second-stage regression only.

The results indicate that higher investment efficiency is associated with greater disclosure of ESG factors by companies. This suggests that companies with higher levels of ESG reporting transparency are more likely to be welcomed by capital markets, facilitating financing and yielding substantial economic benefits for the companies. Consequently, enterprises with better-integrated management are inclined to allocate resources to enhance the transparency of their ESG reporting.

References

Almeyda, R., & Darmansya, A. (2019). The influence of environmental, so-

cial, and governance (ESG) disclosure on firm financial performance. *IPTEK Journal of Proceedings Series*, (5), 278-290.

Babiak, K., & Trendafilova, S. (2011). CSR and environmental responsibility: Motives and pressures to adopt green management practices. *Corporate social responsibility and environmental management*, 18(1), 11-24.

Baumgartner, R. J. (2014). Managing corporate sustainability and CSR: A conceptual framework combining values, strategies and instruments contributing to sustainable development. *Corporate Social Respon-*

- sibility and Environmental Management, 21(5), 258-271.
- Brogi, M., & Lagasio, V. (2019). Do bank boards matter? A literature review on the characteristics of banks' Board of Directors. *International Journal of Business Governance and Ethics*, 13(3), 244-274.
- Elberry, N., & Hussainey, K. (2020). Does corporate investment efficiency affect corporate disclosure practices?. *Journal of Applied Accounting Research*, 21(2), 309-327.
- Garcia, A. S., & Orsato, R. J. (2020). Testing the institutional difference hypothesis: A study about environmental, social, governance, and financial performance. *Business Strategy and the Environment*, 29(8), 3261-3272.
- Harymawan, I., Putra, F. K. G., Fianto, B. A., & Wan Ismail, W. A. (2021). Financially distressed firms: Environmental, social, and governance reporting in Indonesia. *Sustainability*, 13(18), 10156.
- Huang, K. (2020). Management forecast errors and corporate investment efficiency. *Journal of Contemporary Accounting & Economics*, 16(3), 100208.
- Ioannou, I., & Serafeim, G. (2017). The consequences of mandatory corporate sustainability reporting. Harvard Business School research working paper, (11-100).
- Khan, S. A. R., Zia - ul - haq, H. M., Umar, M., & Yu, Z. (2021). Digital technology and circular economy practices: An strategy to improve organizational performance. *Business Strategy & Development*, 4(4), 482-490.
- Krüger, P. (2015). Corporate goodness and shareholder wealth. *Journal of financial economics*, 115(2), 304-329.
- Lai, S. M., Liu, C. L., & Chen, S. S. (2020). Internal control quality and investment efficiency. *Accounting Horizons*, 34(2), 125-145.
- Li, Y., Gong, M., Zhang, X. Y., & Koh, L. (2018). The impact of environmental, social, and governance disclosure on firm value: The role of CEO power. *The British Accounting Review*, 50(1), 60-75.
- Lozano, R. (2015). A holistic perspective on corporate sustainability drivers. *Corporate social responsibility and environmental management*, 22(1), 32-44.
- Pagell, M. (2004). Understanding the factors that enable and inhibit the integration of operations, purchasing and logistics. *Journal of operations management*, 22(5), 459-487.
- Peng, L. S., & Isa, M. (2020). Environmental, social and governance (ESG) practices and performance in Shariah firms: agency or stakeholder theory?. *Asian Academy of*

Management Journal of Accounting
& Finance, 16(1).

Velte, P. (2020). Does CEO power moderate the link between ESG performance and financial performance? A focus on the German two-tier system. *Management Research Review*, 43(5), 497-520.

Xie, J., Nozawa, W., Yagi, M., Fujii, H., & Managi, S. (2019). Do environmental, social, and governance activities improve corporate financial performance?. *Business Strategy and the Environment*, 28(2), 286-300.