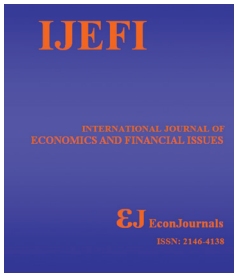

International Journal of Economics and Financial Issues

ISSN: 2146-4138

available at http: www.econjournals.com

International Journal of Economics and Financial Issues, 2025, 15(4), 207-216.

Unlocking ESG Value: The Role of Firm-level Cash Flow in Asia Pacific

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Received: 18 January 2025 **Accepted:** 19 May 2025 **DOI:** https://doi.org/10.32479/ijefi.19431

ABSTRACT

Environmental, social, and governance (ESG) factors are increasingly recognized as critical to corporate sustainability and value creation. Such ESG concerns have also sparked extensive research interest among academia and investors. This study explores the relationship between ESG performance and firm value, emphasizing the moderating role of cash flow in the Asia Pacific region. Using ESG pillar scores for the years 2017-2023 from 14 countries, the panel data regression reveals a nuanced impact of ESG initiatives on the performance of about 2000 firms. Firms with strong cash flow consistently experience a positive value-enhancing effect from ESG efforts, while those with weaker cash flows often encounter a value-diminishing impact. The environmental pillar drives value enhancement predominantly in emerging markets, whereas the social and governance pillars demonstrate consistent positive effects across sub-regions under favorable financial conditions. These findings highlight the conditional nature of ESG's influence, suggesting that financial health is a critical determinant of the effectiveness of ESG initiatives. This study underscores the need for integrating ESG considerations with firm-specific financial conditions to achieve sustainable value creation. It aims to contribute to the ongoing discourse on ESG by providing practical guidance tailored to the dynamics of the Asia Pacific market.

Keywords: Environmental, Social, Governance, ESG Pillars, Cash Flows, Asia Pacific
JEL Classifications: G30, M48, Q56

1. INTRODUCTION

Environmental, social, and governance (ESG) have become the mainstream idea among investor communities in recent years. The Principles for Responsible Investment of the United Nations promotes and encourages investors to incorporate ESG in the analysis and decision-making process. In principle, ESG factors undeniably promote the long-term sustainability of our planet. However, there is no consensus that ESG improves firm value in a monotonic manner. Some suggest a positive relationship (e.g., Cantino et al., 2017; Edmans, 2011; Ferrell et al., 2016; Kempf and Osthoff, 2007; Priem and Gabellone, 2024https://www.emerald.com/insight/search?q=Andrea%20Gabellone), while some suggest the opposite (e.g., Bolton and Kacperczyk, 2021; Hong and Kacperczyk, 2009; Pástor et al., 2022). The proponents often argue that ESG reduces the company's financing cost, whereas opponents often claim that ESG is a constraint to productivity and management flexibility and thus retrains the economic growth of a firm.

There is still limited empirical evidence to investigate whether the ESG value is conditional on a firm's operating cash flow conditions. Businesses require funds to finance expansion, and thus cash flow performance is the main consideration for long-term economic growth. Cash flow constraint is a hurdle for economic development as it limits firms' ability to compete in the market and limits access to external financing for both share issuance and borrowings. Some believe that good ESG initiatives are able to ease financial constraints due to the positive signal sent to the market. Firms under financial pressure may see an increased

potential in greenwashing behaviour to attract capital (Zhang, 2022). In practice, it is unclear how cash flows, representing financial constraint, play a role in affecting the impact of ESG on firm value creation. This channel is especially relevant when it helps to explain the reversal or moderating relationships between ESG and typical financial metrics. It remains unanswered if ESG value is illusionarily positive for the already strong firms or if it can fundamentally drive management to improve economic value. Whether or not ESG benefits firm value can be impacted by the firm's specific cash flow conditions.

This study aims to study the cash flow channels to explain their relationships, particularly in the Asia-Pacific region, which is a significant economic block yet relatively new in the journey of ESG investing. Against the inconsistent findings, scholars attempt to investigate from the perspective of cash flow. There are generally three ways that ESG activities can raise the firm value within the standard cash-flow model: by boosting cash flows, reducing risk, and lowering the cost of capital (Cantino et al., 2017; Giese et al., 2019). Most of the current empirical literature focuses on the latter two channels. In practice, it is unclear how cash flow conditions play a role in affecting the impact of ESG on firm value creation, and there hasn't been much research done in this field. While much research attention in ESG has been seen on a global scale, this study focuses on the Asia Pacific region and attempts to investigate the impact of ESG pillars on the value and performance of firms. It also aims to seek potential explanations for the mixed findings in the current literature from the perspective of cash flow for each ESG pillar. Exploring the information on cash flows may help in better assessing the extensively debated ESG impact on firm value. The findings can potentially be guidance for management decision-making and future academic research using intuitive measures of ESG and cash flow performance across the global markets.

2. LITERATURE REVIEW AND HYPOTHESIS

The academic study of ESG has grown significantly, in line with the rise in interest among investors and business managers (Narula et al., 2025; Friede et al., 2015). While these studies might attempt to answer the respective specific research questions, many are found to broadly lead to the search if ESG efforts benefit shareholders ultimately. Most empirical evidence supports the claim that ESG adds value through a lower risk and/or cost of capital channel(s). Cantino et al. (2017) evaluate the effects of ESG activities on the cost of capital in a meta-analysis and summarize that ESG initiatives considerably reduce the cost of debt, the cost of equity, and the total cost of capital. It is consistent with the finding by El Ghoul et al. (2011) for a sample of close to 13,000 firms in the US. They suggest that corporate responsibility ratings are related to lower capital costs. Investors appear to believe that companies with better ESG ratings are less vulnerable to tail risk. According to Kim et al. (2014), there is a link between corporate social responsibility (CSR) performance and the likelihood that significant idiosyncratic stock price declines will occur in the future. The companies that do well in CSR encounter negative occurrences less frequently than companies that perform poorly in this area, and when they do, they suffer less value loss (Minor, 2011). Mohammad and Wasiuzzaman (2021) find a positive relationship between ESG scores and firm value in Malaysia, proposing an improvement in more efficient uses of resources and effective management of business. However, the study is done for the period when the respective environmental and social data disclosed are still scarce in the region.

More room for debate is found in how the value can be explained by stock prices and cash flows. There hasn't been much research done in the literature on the connection between a company's ESG efforts and cash flows. More research is needed to explain the mechanisms through which ESG factors affect firm performance (Narula et al., 2025). Free cash flow and CSR initiatives are found to be significantly positively correlated by Gul and Ng (2017) and Chams et al. (2021). According to Samet and Jarboui (2016), there is a somewhat negative association between free cash flow and CSR activities for a sample of 398 businesses. Hence, the evidence is conflicting. The ESG performance may improve firm value through a higher market demand for its products and services or through a higher willingness of shareholders to invest in its stock. In the latter, there can be no difference in terms of the cash flow strength between a good ESG and a bad ESG firm. Besides, the free cash flow agency issue also suggests that firms with greater financial performance are able to deliver better ESG efforts. Regardless of the causality, there can be a positive association between ESG performance and shareholder wealth (Benabou and Tirole, 2010).

It is also commonly argued that ESG initiatives result in constraints to firms, whether financially or not. The negative impact of corporate governance on firm performance is occasionally found. Buallay (2019) shows that corporate governance does reduce banking business value by increasing costs to the company or borne by shareholders, which lowers firm value. The result is also supported by Core et al. (2006), who use shareholder rights as the proxy of corporate governance. Fatemi et al. (2018) discover that ESG disclosure is an important mediator between ESG strength and business value. In an investigation of the ESG-efficient frontier, Pedersen et al. (2020) discover that not all ESG information can improve the Sharpe ratio. It suggests that there are advantages and disadvantages to ESG investing. The mixed findings are also found by Saygili et al. (2022) in Borsa Istanbul, on different pillars of ESG. One could argue that engaging in ESG activities drives up costs for businesses by taking them off course from their primary goal of increasing shareholder value. This would suggest a weak or nonexistent correlation between ESG and stock return (Fiskerstrand et al., 2020). Cornell (2021) supports that the value is rather low-risk driven, and thus the lower cost of capital, instead of a higher return expectation from the business itself. The market may see ESG disclosure as a corporation's attempt to cover up and explain overinvestment in ESG initiatives, or as "cheap talk" or "greenwashing," resulting in a drop in corporate value (Landi and Sciarelli, 2018). Highly indebted businesses can experience greater financial constraints, which might encourage them to engage in more greenwashing (Zhang, 2022). Based on the current literature, the channel of how ESG affects shareholder

value is still widely debated. Aiming to improve the understanding of such a relationship in the cash flow context, the main hypothesis of this study is that cash flows affect the impact of ESG and its pillars on firm value in the Asia Pacific region. The hypothesis aims to indicate if ESG contributes positively to firm value when the operating cash flow is positive, i.e., if cash inflow strengthens (moderates) the role of ESG on firm value and if ESG commitment is a cash flow constraint to value creation.

3. METHODOLOGY AND DATA

Acknowledging the limited availability of related literature on Asia Pacific markets, this study applies a deductive research approach where hypotheses are developed and statistical tools for testing these hypotheses are adopted to make statistical inferences about the causal relationship. The public information of firm-level financial data is obtained through the LSEG Workspace, which covers comprehensive secondary data for financial research purposes. Annual reports and company announcements can be the sources for more detailed information. In addition, the country-level macroeconomic data is collected from the International Monetary Fund (IMF) database.

Notably, this study adopts the LSEG ESG scores, covering more than 630 ESG metrics of over 12,000 companies across the major world markets. The ESG scores will be used as the proxy of overall ESG performance (as well as of the respective pillar's performance). The ESG data could go back as early as 2002. In the Asia Pacific region, detailed data are expected to be available only in the recent 5-10 years. Meanwhile, the cash flow is proxied by the operating cash flow, a reflection of the firm's ability to earn sufficient cash from its operating activities to service its debt commitment, pay dividends and make investments without relying on external sources of financing. In addition, the firm's value of this study consists of three proxies, namely the return on assets (ROA), return on equity (ROE), and Tobin's Q. The impact of cash flow could help to explain if cash flow is a precondition for the ESG efforts to add value, and ESG may directly or indirectly restrain the firm's economic value. Such an intervention can be potentially explained by examining the moderating role of cash flow in the relationship between ESG and firm value. Apart from the ESG and cash flow, this study also incorporates several control variables, including the pre-determined firm-level factors and macro-level factors.

In order to investigate how cash flows may play a role in restraining or promoting the potential benefit of ESG efforts, the relationship without the cash flow intervention is first examined. The baseline panel data regression model is referred to below before considering the cash flow factors:

$$FV_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 SIZEi_t + \beta_3 INF_{it} + \beta_4 GDP_{it} + \beta_5 MRP_{it} + \beta_6 LEV_{it} + \varepsilon_{it} \quad (1)$$

$$FV_{it} = \beta_0 + \beta_1 ENV_{it} + \beta_2 SIZEi_t + \beta_3 INF_{it} + \beta_4 GDP_{it} + \beta_5 MRP_{it} + \beta_6 LEV_{it} + \varepsilon_{it} \quad (2)$$

$$FV_{it} = \beta_0 + \beta_1 SOC_{it} + \beta_2 SIZE_{it} + \beta_3 INF_{it} + \beta_4 GDP_{it} + \beta_5 MRP_{it} + \beta_6 LEV_{it} + \varepsilon_{it} \quad (3)$$

$$FV_{it} = \beta_0 + \beta_1 GOV_{it} + \beta_2 SIZE_{it} + \beta_3 INF_{it} + \beta_4 GDP_{it} + \beta_5 MRP_{it} + \beta_6 LEV_{it} + \varepsilon_{it} \quad (4)$$

whereby FV_{it} is the firm value proxied by ROA, ROE and TobinQ; ESG_{it} is the combined environmental, social and governance pillars performance; ENV_{it} is the environmental pillar performance; SOC_{it} is the social pillar performance; GOV_{it} is the governance pillar performance; $SIZE_{it}$ is the company's size; INF_{it} is the inflation rate of the company's home country; GDP_{it} is the gross domestic product growth rate of the company's home country; MRP_{it} is market risk premium; LEV_{it} is the financial leverage; ε_{it} is the error term, and subscripts i and t stand for firm and year. To investigate the moderating effect of cash flow on the ESG-value nexus, this study incorporates the interaction terms between ESG and cash flow, and the main terms should be included in the model with interaction terms to prevent the omitted variable bias (Balli and Sorensen, 2013; Brambor et al., 2006).

$$FV_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 CF_t + \beta_3 (ESG_{it}.CF_{it}) + \beta_4 SIZE_{it} + \beta_5 INF_{it} + \beta_6 GDP_{it} + \beta_7 MRP_{it} + \beta_8 LEV_{it} + \varepsilon_{it} \quad (5)$$

$$FV_{it} = \beta_0 + \beta_1 ENV_{it} + \beta_2 CF_t + \beta_3 (ENV_{it}.CF_{it}) + \beta_4 SIZE_{it} + \beta_5 INF_{it} + \beta_6 GDP_{it} + \beta_7 MRP_{it} + \beta_8 LEV_{it} + \varepsilon_{it} \quad (6)$$

$$FV_{it} = \beta_0 + \beta_1 SOC_{it} + \beta_2 CF_t + \beta_3 (SOC_{it}.CF_{it}) + \beta_4 SIZE_{it} + \beta_5 INF_{it} + \beta_6 GDP_{it} + \beta_7 MRP_{it} + \beta_8 LEV_{it} + \varepsilon_{it} \quad (7)$$

$$FV_{it} = \beta_0 + \beta_1 GOV_{it} + \beta_2 CF_t + \beta_3 (GOV_{it}.CF_{it}) + \beta_4 SIZE_{it} + \beta_5 INF_{it} + \beta_6 GDP_{it} + \beta_7 MRP_{it} + \beta_8 LEV_{it} + \varepsilon_{it} \quad (6)$$

whereby FV_{it}, ESG_{it}, ENV_{it}, SOC_{it}, GOV_{it}, $SIZE_{it}$, INF_{it}, GDP_{it}, MRP_{it}, LEV_{it}, ε_{it}, and subscripts i and t are defined above; CF_{it} is the operating cash flow. To examine the relationship between the proposed variables, a consistent definition should be determined. Table 1 lists the operationalization of all variables used in the present study.

The focal point of this study is the Asia Pacific region. In-depth, the study adapts the regional classification approach by the IMF's World Economic Outlook, which classifies Asia and Pacific economies into three broad categories, namely Advanced Asia, Emerging Asia, and Other Emerging and Developing Asia. The main interest of this study is to investigate the potential differences between Advanced Asia and Emerging Asia, given the significant differences in ESG development between the advanced economies and the emerging economies. In addition, this study also intends to observe the Association of Southeast Asian Nations (ASEAN) region, given it is a significant and active economic union within the region. The list of countries corresponding to each category covered in this study is exhibited in Table 2.

Several filtering criteria are applied to the data of companies identified in the respective markets (see Table 3); companies with data availability of at least five consecutive years; companies in the financial sector are excluded as the unique implications of leverage for financial sector companies; exchange-traded funds (ETFs) and real estate investment trusts (REITs) are excluded, companies with missing data are excluded, and companies with negative equity are excluded.

Table 1: Operationalization of variables

Variables	Operationalization
Dependent Variables	
Return on Assets	$\left[\frac{\text{Net Income}}{\text{Total Assets}}\right]_{it}$
Return on Equity	$\left[\frac{\text{Net Income}}{\text{Total Equity}}\right]_{it}$
Tobin's Q	$\left[\frac{\text{Market Capitalisation} + \text{Total Liabilities}}{\text{Total Assets}}\right]_{it}$
Independent Variables	
ESG	LSEG ESG Combined Score
Environmental Pillar	LSEG Environmental Pillar Score
Social Pillar	LSEG Social Pillar Score
Governance Pillar	LSEG Governance Pillar Score
Moderating Variable	
Operating Cash Flow	$\left[\frac{\text{Net Cash From Operating Activities} + \text{Total Assets}}{\text{Total Assets}}\right]_{it}$
Control Variables	
Size	$\ln [\text{Total Assets}]_{it}$
Inflation	IMF Inflation Rate
Gross Domestic Product	IMF GDP Growth Rate
Market Risk Premium	$\left[\frac{\text{Benchmark Stock Index}_t - \text{Benchmark Stock Index}_{t-1}}{\text{Benchmark Stock Index}_{t-1}}\right] - \text{Risk Free Rate}_t$
Leverage	$\left[\frac{\text{Total Debt}}{\text{Total Shareholders' Equity}}\right]_{it}$

Table 2: List of countries for the study

Advanced Asia	Emerging Asia	ASEAN
Australia	India	Indonesia
Hong Kong SAR	Indonesia	Malaysia
Japan	Malaysia	Singapore
South Korea	China (Mainland)	Thailand
New Zealand	Philippines	Vietnam
Singapore	Thailand	Philippines
Taiwan Province of China	Vietnam	

According to IMF's approach, Macau SAR belongs to Advanced Asia; however, it is not applicable to this study as it does not have a stock exchange

The residuals of the firm-level financial data are often correlated across companies or across time, and the Ordinary Least Square standard errors can be biased (Petersen, 2009). Hence, all research models are estimated using panel regressions with robust standard errors to prevent the biased standard error that arises from the firm and time-specific effects. The data required will first be extracted and then transformed accordingly for regressions by using STATA. In addition, the diagnostic tests are conducted to detect heteroskedasticity, serial correlation, and multicollinearity, and all variables are winsorized to minimize the impact of outliers.

4. RESULTS AND DISCUSSIONS

According to the results of the diagnostic test, the issue of heteroskedasticity and serial correlation occurs, which indicates that the use of robust cluster standard error estimation is adequate. Meanwhile, there is no occurrence of the multicollinearity issue, as the variance inflated factor (VIF) of the individual independent variables is below the threshold of 5. Table 4 displays the descriptive statistics for all of the research variables. The descriptive statistics reflect that different economies have different ESG performances. Meanwhile, Tables 5-8 presents the results of the regression analyses. Overall, ESG (either combined or the respective pillars) has a direct and positive impact on a firm's value if cash flow is not considered. However, if cash flow is considered, the role of ESG (both combined and the respective individual pillars) is generally taken over by the cash flow. The results show that cash flow always indicates a direct positive relationship with firm value. Meanwhile, the negative direct impact of EGS costs can often be well absorbed by the positive cash flow performance. The results support the hypothesis of the studies, in which the cash flow is a precondition for companies to gain value in ESG initiatives. The results offer a possible explanation of the existing contradicting results concerning the impact of ESG (and respective pillar) on the firm's performance, in which cash flow is a determinant of whether ESG brings value to the firm. In-depth, the respective pillars have different implications in different sub-regions. In some circumstances, Tobin's Q is not significantly affected by ESG regardless of the presence of cash flow, which is in line with Velte (2017). The future studies may consider the other factors, for example, timing, which may affect how ESG performances impact Tobin's Q. The results provide a more insightful assessment of ESG, given it could be biased for

Table 3: Sample size

Countries	No. of Companies	Name of Stock Exchange	Benchmark Stock Index	Benchmark Risk Free Rate
Australia	155	Australian Securities Exchange	S&P/ASX 200	Cash Rate
China (Mainland) [1]	630	Shanghai Stock Exchange Shenzhen Stock Exchange	CSI 300	Loan Prime Rate
Hong Kong SAR	293	The Stock Exchange of Hong Kong Limited	Hang Seng Index	Discount Window Base Rate
India	134	National Stock Exchange of India	Nifty 50 Index	Policy Repo Rate
Indonesia	43	Indonesia Stock Exchange	IDX Composite	7 Days Reserve Repo Rate
Japan	306	Tokyo Stock Exchange	Nikkei 225	Basic Discount Rate
Malaysia	30	Bursa Malaysia	FBM KLCI	Overnight Policy Rate
New Zealand	7	New Zealand's Exchange	NZX 50	
Philippines	23	Philippine Stock Exchange	PSEi	Reserve Repurchase Rate
Singapore	41	Singapore Exchange	Straits Times Index	SORA
South Korea	135	Korea Exchange	KOSPI Index	Base Rate
Taiwan Province of China	94	Taiwan Stock Exchange	TAIEX Index	Discount Rate
Thailand	94	Stock Exchange of Thailand	SET Index	1-Day Repo Rate
Vietnam	9	Hochiminh Stock Exchange	VN30	Re-Financing Rate

[1]China (Mainland) has 2 main stock exchanges

Table 4: Descriptive statistics

Variable	Statistics	Advanced Asia	Emerging Asia	ASEAN
ROA	Mean	0.0390	0.0630	0.0610
	Standard deviation	0.0660	0.0590	0.0630
	Minimum	−0.1680	−0.0540	−0.0600
	Maximum	0.1960	0.2210	0.2530
ROE	Mean	0.0730	0.1120	0.1250
	Standard deviation	0.1290	0.1010	0.1460
	Minimum	−0.3470	−0.1540	−0.1760
	Maximum	0.3610	0.3790	0.6960
TobinQ	Mean	1.7810	2.7560	1.8320
	Standard deviation	1.7180	2.7750	1.4480
	Minimum	0.5830	0.7400	0.5650
	Maximum	8.8450	13.4050	7.4690
ESG	Mean	0.5330	0.4370	0.5200
	Standard deviation	0.1810	0.1820	0.1800
	Minimum	0.1500	0.1400	0.1700
	Maximum	0.8400	0.8200	0.8600
ENV	Mean	0.5280	0.3920	0.5670
	Standard deviation	0.2530	0.2390	0.2150
	Minimum	0.0000	0.0000	0.0200
	Maximum	0.9900	0.9800	0.9800
SOC	Mean	0.5200	0.3950	0.4680
	Standard deviation	0.2260	0.2400	0.2390
	Minimum	0.0000	0.0100	0.0000
	Maximum	0.9600	0.9800	0.9700
GOV	Mean	0.5150	0.5080	0.5010
	Standard deviation	0.2180	0.2160	0.2240
	Minimum	0.0100	0.0000	0.0200
	Maximum	0.9800	0.9800	0.9500
OCF	Mean	1.0700	1.0840	1.0850
	Standard deviation	0.0720	0.0700	0.0820
	Minimum	0.8990	0.9560	0.9460
	Maximum	1.2580	1.2700	1.3130
GDP	Mean	0.0080	0.0410	0.0160
	Standard deviation	0.0360	0.0370	0.0460
	Minimum	−0.0650	−0.0610	−0.0950
	Maximum	0.0650	0.0900	0.0890
INF	Mean	0.0180	0.0260	0.0220
	Standard deviation	0.0180	0.0180	0.0220
	Minimum	−0.0020	−0.0090	−0.0110
	Maximum	0.0660	0.0670	0.0610
LEV	Mean	0.6270	0.6490	0.8170
	Standard deviation	0.6880	0.6450	0.7140
	Minimum	0.0010	0.0010	0.0050
	Maximum	3.0430	2.7030	3.0060

(Contd...)

Table 4: *(Continued)*

Variable	Statistics	Advanced Asia	Emerging Asia	ASEAN
SIZE	Mean	25.6200	24.8890	25.6110
	Standard deviation	3.1210	1.9690	3.1980
	Minimum	18.9170	21.9930	20.6700
	Maximum	31.1550	31.0880	32.7250
MRP	Mean	0.0250	0.0410	−0.0090
	Standard deviation	0.1970	0.2340	0.0810
	Minimum	−0.2810	−0.3040	−0.1330
	Maximum	0.5390	0.6690	0.1390

Table 5: Relationship between combined ESG score and firm value moderated by cash flow

Market	Advanced APAC			Emerging APAC			ASEAN		
Variable	ROA	ROE	TobinQ	ROA	ROE	TobinQ	ROA	ROE	TobinQ
Without considering cash flow									
ESG	0.0307***	0.0744***	0.979***	0.0187**	0.0367**	1.690***	0.0003	0.0434	0.9460
	(0.0090)	(0.0172)	(0.2680)	(0.0086)	(0.0160)	(0.4570)	(0.0196)	(0.0522)	(0.5750)
SIZE	0.00177**	0.00260*	−0.193***	−0.0012	0.0009	−0.480***	0.0001	−0.0013	−0.0565*
	(0.0007)	(0.0014)	(0.0192)	(0.0010)	(0.0017)	(0.0558)	(0.0013)	(0.0032)	(0.0310)
INF	−0.1260	−0.2420	−6.914***	0.278***	0.470***	29.96***	−0.0185	−0.3690	−1.6680
	(0.0817)	(0.1600)	(1.5540)	(0.0748)	(0.1420)	(4.5070)	(0.1000)	(0.2610)	(2.1910)
GDP	0.165***	0.318***	−1.602***	0.0208	0.0719*	−1.1220	0.115**	0.487***	−0.6730
	(0.0257)	(0.0527)	(0.6180)	(0.0211)	(0.0436)	(0.7260)	(0.0543)	(0.1480)	(1.3580)
MRP	−0.0117**	−0.0242**	0.182*	0.0042	0.0140**	0.504***	0.0166	−0.0361	0.4380
	(0.0048)	(0.0104)	(0.0998)	(0.0031)	(0.0062)	(0.1120)	(0.0251)	(0.0668)	(0.6730)
LEV	−0.0255***	−0.0281***	−0.363***	−0.0417***	−0.0434***	−0.742***	−0.0292***	−0.0073	−0.0977
	(0.0021)	(0.0058)	(0.0481)	(0.0024)	(0.0052)	(0.1280)	(0.0047)	(0.0141)	(0.1360)
Constant	−0.0057	−0.0137	6.564***	0.102***	0.0868**	13.70***	0.0816**	0.142*	2.916***
	(0.0193)	(0.0359)	(0.4770)	(0.0223)	(0.0399)	(1.2670)	(0.0352)	(0.0823)	(0.8300)
Observations	4,421	4,421	4,421	3,699	3,699	3,699	877	877	877
Considering cash flow									
ESG	−0.182**	−0.500***	3.4000	−0.0696	−0.295**	7.1410	−0.0525	−0.3560	6.5560
	(0.0851)	(0.1580)	(4.3580)	(0.0724)	(0.1370)	(4.7840)	(0.1650)	(0.6810)	(7.3780)
OCF	0.496***	0.810***	4.934**	0.460***	0.700***	15.34***	0.505***	1.061***	11.76***
	(0.0502)	(0.0902)	(2.0880)	(0.0334)	(0.0616)	(2.2750)	(0.0841)	(0.3460)	(3.6450)
Interaction	0.176**	0.495***	−2.4120	0.0672	0.283**	−5.4320	0.0298	0.3280	−5.5950
	(0.0786)	(0.1450)	(4.0470)	(0.0662)	(0.1240)	(4.4360)	(0.1530)	(0.6230)	(6.8480)
SIZE	0.00284***	0.00455***	−0.186***	−0.0008	0.0014	−0.469***	0.0000	−0.0016	−0.0578**
	(0.0004)	(0.0009)	(0.0195)	(0.0006)	(0.0013)	(0.0513)	(0.0008)	(0.0021)	(0.0258)
INF	−0.0514	−0.1120	−6.332***	0.237***	0.396***	29.03***	0.170**	0.0779	1.5080
	(0.0636)	(0.1280)	(1.5350)	(0.0513)	(0.1070)	(4.1300)	(0.0739)	(0.1900)	(1.7540)
GDP	0.125***	0.244***	−1.822***	0.0429**	0.110***	−0.5560	0.0456	0.314***	−1.6810
	(0.0213)	(0.0456)	(0.5880)	(0.0176)	(0.0368)	(0.7160)	(0.0387)	(0.1070)	(1.1210)
MRP	−0.0206***	−0.0406***	0.1330	−0.00461*	−0.0006	0.263**	0.0535***	0.0493	1.106*
	(0.0037)	(0.0084)	(0.0995)	(0.0028)	(0.0057)	(0.1120)	(0.0181)	(0.0487)	(0.5800)
LEV	−0.0137***	−0.0066	−0.293***	−0.0253***	−0.0158***	−0.305***	−0.0175***	0.0201**	0.1090
	(0.0016)	(0.0046)	(0.0506)	(0.0016)	(0.0043)	(0.1180)	(0.0028)	(0.0100)	(0.1250)
Constant	−0.560***	−0.921***	1.1430	−0.410***	−0.692***	−3.2960	−0.465***	−1.008***	−9.785**
	(0.0573)	(0.1020)	(2.2500)	(0.0394)	(0.0717)	(2.7040)	(0.0928)	(0.3780)	(4.0340)
Observations	4,421	4,421	4,421	3,699	3,699	3,699	877	877	877

(1) The asterisks ***, ** and ** indicate rejection of the null-hypothesis at 1%, 5% and 10% significance level respectively;

(2) The coefficient estimate is listed in the first row of each variable; the standard error is listed in the second row of each variable in parentheses, and the T-statistic is computed by dividing the coefficient by the standard error

investors or stakeholders to assess a firm's value by merely looking at ESG while isolating the cash flow performance.

The main difference between advanced Asia and emerging Asia is the environmental pillar; the environmental pillar only exhibits a significant impact on companies in emerging Asia. A possible explanation for this outcome could be the stricter regulations and enforcements on environmental issues by advanced economies; hence the environmental pillar has become an obligation rather than a financial performance metric. This is to some extent contrary to the study by Siddiqui et al. (2024), who find no significant difference between emerging and developed countries regarding the impact of ESG. Meanwhile, the ESG combined score, social pillar score and governance pillar score are value-adding to the financial performance conditional on a higher operating cash flow, which supports the hypothesis of this study.

Not unlike Advanced Asia and Emerging Asia, existing studies of the ESG-performance nexus are inconclusive. For instance, Junius et al. (2020) advocate that ESG is yet to be a significant

Table 6: Relationship between environmental pillar and firm value moderated by cash flow

Market	Advanced APAC			Emerging APAC			ASEAN		
Variable	ROA	ROE	TobinQ	ROA	ROE	TobinQ	ROA	ROE	TobinQ
Without considering cash flow									
ENV	0.0161**	0.0388***	−0.0366	0.0101	0.0248**	0.964***	−0.0172	−0.0104	0.4220
	(0.0066)	(0.0127)	(0.2010)	(0.0065)	(0.0120)	(0.3340)	(0.0151)	(0.0396)	(0.4400)
SIZE	0.00185***	0.00280**	−0.168***	−0.0010	0.0010	−0.470***	−0.0001	−0.0015	−0.0549*
	(0.0007)	(0.0014)	(0.0195)	(0.0010)	(0.0018)	(0.0560)	(0.0013)	(0.0032)	(0.0317)
INF	−0.1160	−0.2170	−6.572***	0.292***	0.490***	31.12***	−0.0056	−0.3440	−1.6080
	(0.0811)	(0.1600)	(1.5450)	(0.0748)	(0.1420)	(4.5910)	(0.1020)	(0.2650)	(2.2480)
GDP	0.169***	0.327***	−1.321**	0.0165	0.0637	−1.506**	0.116**	0.491***	-0.6080
	(0.0258)	(0.0530)	(0.6170)	(0.0213)	(0.0442)	(0.7500)	(0.0550)	(0.1510)	(1.3780)
MRP	−0.0122**	−0.0254**	0.0938	0.0042	0.0150**	0.515***	0.0165	−0.0374	0.4140
	(0.0048)	(0.0103)	(0.0986)	(0.0032)	(0.0064)	(0.1190)	(0.0253)	(0.0680)	(0.6820)
LEV	−0.0254***	−0.0281***	−0.365***	−0.0417***	−0.0436***	−0.747***	−0.0289***	−0.0063	−0.0872
	(0.0021)	(0.0059)	(0.0479)	(0.0024)	(0.0052)	(0.1290)	(0.0048)	(0.0143)	(0.1370)
Constant	0.0000	0.0000	6.472***	0.102***	0.0906**	13.79***	0.0924***	0.172**	3.160***
	(0.0191)	(0.0355)	(0.4950)	(0.0227)	(0.0407)	(1.2970)	(0.0350)	(0.0834)	(0.8470)
Observations	4,421	4,421	4,421	3,699	3,699	3,699	877	877	877
Considering cash flow									
ENV	0.0064	−0.0619	−4.4940	−0.185***	−0.389***	−6.0260	−0.443***	−1.620***	−9.881**
	(0.0608)	(0.1200)	(2.7460)	(0.0515)	(0.0968)	(5.3910)	(0.0810)	(0.2320)	(4.5220)
OCF	0.590***	1.035***	1.8550	0.417***	0.669***	10.24***	0.319***	0.477***	4.183**
	(0.0404)	(0.0765)	(1.6130)	(0.0267)	(0.0489)	(2.1290)	(0.0574)	(0.1400)	(1.8620)
Interaction	−0.0016	0.0748	4.0990	0.170***	0.365***	6.1880	0.390***	1.479***	9.455**
	(0.0565)	(0.1100)	(2.5980)	(0.0476)	(0.0879)	(5.0380)	(0.0761)	(0.2200)	(4.2750)
SIZE	0.0028***	0.0045***	−0.162***	−0.0008	0.0012	−0.467***	−0.0003	−0.0023	−0.0602**
	(0.0005)	(0.0009)	(0.0196)	(0.0006)	(0.0012)	(0.0499)	(0.0007)	(0.0018)	(0.0240)
INF	−0.0436	−0.0858	−6.124***	0.236***	0.393***	29.58***	0.176**	0.0865	1.5470
	(0.0638)	(0.1290)	(1.5090)	(0.0506)	(0.1060)	(4.1970)	(0.0708)	(0.1740)	(1.7300)
GDP	0.127***	0.248***	−1.740***	0.0387**	0.0995***	−0.9560	0.0245	0.243***	−2.352**
	(0.0213)	(0.0458)	(0.5770)	(0.0177)	(0.0370)	(0.7620)	(0.0355)	(0.0883)	(1.0150)
MRP	−0.0201***	−0.0399***	0.0356	−0.0046	0.0004	0.289**	0.0518***	0.0432	1.011*
	(0.0038)	(0.0083)	(0.0972)	(0.0028)	(0.0058)	(0.1200)	(0.0178)	(0.0470)	(0.5590)
LEV	−0.0139***	−0.0068	−0.280***	−0.0251***	−0.0154***	−0.306***	−0.0176***	0.0206**	0.1100
	(0.0016)	(0.0047)	(0.0493)	(0.0016)	(0.0043)	(0.1180)	(0.0027)	(0.0098)	(0.1240)
Constant	−0.658***	−1.157***	4.294**	−0.360***	−0.651***	2.4570	−0.258***	−0.350**	−1.4280
	(0.0474)	(0.0882)	(1.8420)	(0.0330)	(0.0627)	(2.4050)	(0.0625)	(0.1580)	(1.9840)
Observations	4,421	4,421	4,421	3,699	3,699	3,699	877	877	877

(1) The asterisks ***, ** and ** indicate rejection of the null-hypothesis at 1%, 5% and 10% significance level respectively;

(2) The coefficient estimate is listed in the first row of each variable; the standard error is listed in the second row of each variable in parentheses, and the T-statistic is computed by dividing the coefficient by the standard error

Table 7: Relationship between social pillar and firm value moderated by cash flow

Market	Advanced APAC			Emerging APAC			ASEAN		
Variable	ROA	ROE	TobinQ	ROA	ROE	TobinQ	ROA	ROE	TobinQ
Without considering cash flow									
SOC	0.0282***	0.0623***	1.016***	0.0206***	0.0401***	1.785***	−0.0065	0.0226	0.4620
	(0.0072)	(0.0139)	(0.2120)	(0.0071)	(0.0134)	(0.3650)	(0.0156)	(0.0402)	(0.4400)
SIZE	0.00184***	0.00292**	−0.193***	−0.0014	0.0003	−0.502***	0.0000	−0.0013	−0.0558*
	(0.0007)	(0.0014)	(0.0188)	(0.0010)	(0.0018)	(0.0576)	(0.0013)	(0.0032)	(0.0314)
INF	−0.141*	−0.272*	−7.473***	0.249***	0.413***	27.51***	−0.0138	−0.3680	−1.6160
	(0.0822)	(0.1610)	(1.5850)	(0.0754)	(0.1440)	(4.4750)	(0.1020)	(0.2660)	(2.2560)
GDP	0.157***	0.303***	−1.913***	0.0328	0.0953**	−0.0931	0.115**	0.491***	−0.5720
	(0.0257)	(0.0527)	(0.6290)	(0.0206)	(0.0423)	(0.7150)	(0.0555)	(0.1520)	(1.3820)
MRP	−0.0121**	−0.0255**	0.181*	0.0050	0.0156**	0.570***	0.0163	−0.0362	0.4330
	(0.0048)	(0.0103)	(0.0995)	(0.0031)	(0.0063)	(0.1100)	(0.0250)	(0.0669)	(0.6770)
LEV	−0.0253***	−0.0278***	−0.357***	−0.0416***	−0.0433***	−0.736***	−0.0291***	−0.0068	−0.0860
	(0.0021)	(0.0058)	(0.0479)	(0.0024)	(0.0052)	(0.1280)	(0.0048)	(0.0142)	(0.1380)
Constant	−0.0057	−0.0141	6.574***	0.109***	0.100**	14.29***	0.0861**	0.151*	3.117***
	(0.0192)	(0.0359)	(0.4750)	(0.0229)	(0.0411)	(1.3180)	(0.0350)	(0.0811)	(0.8300)
Observations	4421	4421	4421	3699	3699	3699	877	877	877
Considering cash flow									
SOC	−0.163***	−0.390***	2.5130	−0.145***	−0.371***	−2.5230	−0.395***	−1.721***	−7.6490
	(0.0586)	(0.1140)	(3.3570)	(0.0499)	(0.0897)	(4.9530)	(0.0953)	(0.2880)	(5.4590)

(Contd...)

Table 7: *(Continued)*

Market	Advanced APAC			Emerging APAC			ASEAN		
Variable	ROA	ROE	TobinQ	ROA	ROE	TobinQ	ROA	ROE	TobinQ
OCF	0.501***	0.856***	4.388**	0.422***	0.655***	10.95***	0.297***	0.2150	4.3040
	(0.0403)	(0.0730)	(1.7520)	(0.0269)	(0.0472)	(2.1330)	(0.0698)	(0.1710)	(2.8550)
Interaction	0.156***	0.382***	−1.5370	0.139***	0.358***	3.6400	0.349***	1.590***	7.3260
	(0.0540)	(0.1040)	(3.1060)	(0.0462)	(0.0816)	(4.6040)	(0.0904)	(0.2730)	(5.1830)
SIZE	0.00288***	0.00479***	−0.187***	−0.00108*	0.0008	−0.493***	−0.0002	−0.0019	−0.0594**
	(0.0004)	(0.0009)	(0.0193)	(0.0006)	(0.0013)	(0.0526)	(0.0007)	(0.0018)	(0.0250)
INF	−0.0497	−0.1080	−6.885***	0.221***	0.362***	26.78***	0.194***	0.1670	2.0480
	(0.0643)	(0.1300)	(1.5710)	(0.0512)	(0.1070)	(4.0990)	(0.0714)	(0.1750)	(1.7100)
GDP	0.120***	0.231***	−2.043***	0.0456***	0.115***	0.2390	0.0198	0.212**	−2.312**
	(0.0213)	(0.0456)	(0.5940)	(0.0174)	(0.0361)	(0.7250)	(0.0350)	(0.0872)	(1.0160)
MRP	−0.0204***	−0.0406***	0.1300	−0.0036	0.0014	0.345***	0.0550***	0.0589	1.108**
	(0.0037)	(0.0084)	(0.0990)	(0.0028)	(0.0058)	(0.1110)	(0.0174)	(0.0463)	(0.5510)
LEV	−0.0138***	−0.0069	−0.290***	−0.0253***	−0.0157***	−0.312***	−0.0181***	0.0182*	0.1030
	(0.0016)	(0.0047)	(0.0497)	(0.0016)	(0.0042)	(0.1180)	(0.0027)	(0.0097)	(0.1260)
Constant	−0.565***	−0.971***	1.7380	−0.363***	−0.629***	2.0770	−0.237***	−0.0858	−1.5820
	(0.0470)	(0.0830)	(1.8990)	(0.0339)	(0.0617)	(2.4400)	(0.0750)	(0.1890)	(3.0120)
Observations	4,421	4,421	4,421	3,699	3,699	3,699	877	877	877

(1) The asterisks ***, ** and ** indicate rejection of the null-hypothesis at 1%, 5% and 10% significance level respectively; (2) The coefficient estimate is listed in the first row of each variable; the standard error is listed in the second row of each variable in parentheses, and the T-statistic is computed by dividing the coefficient by the standard error

Table 8: Relationship between governance pillar and firm value moderated by cash flow

Market	Advanced APAC			Emerging APAC			ASEAN		
Variable	ROA	ROE	TobinQ	ROA	ROE	TobinQ	ROA	ROE	TobinQ
Without considering cash flow									
GOV	0.0238***	0.0539***	0.354*	0.0021	−0.0012	0.2560	0.0109	0.0391	0.761*
	(0.0068)	(0.0130)	(0.2010)	(0.0060)	(0.0113)	(0.3330)	(0.0142)	(0.0351)	(0.3870)
SIZE	0.00229***	0.00391***	−0.173***	−0.0007	0.0018	−0.440***	0.0000	−0.0015	−0.0595*
	(0.0007)	(0.0014)	(0.0173)	(0.0009)	(0.0017)	(0.0519)	(0.0013)	(0.0032)	(0.0313)
INF	−0.138*	−0.266*	−6.900***	0.305***	0.523***	32.33***	−0.0184	−0.3520	−1.2990
	(0.0825)	(0.1610)	(1.5620)	(0.0754)	(0.1430)	(4.6320)	(0.0967)	(0.2500)	(2.1450)
GDP	0.179***	0.352***	−1.241**	0.0156	0.0630	−1.607**	0.113**	0.480***	−0.7890
	(0.0259)	(0.0532)	(0.6220)	(0.0213)	(0.0440)	(0.7750)	(0.0544)	(0.1480)	(1.3740)
MRP	−0.0132***	−0.0279***	0.1160	0.0023	0.0100*	0.335***	0.0178	−0.0332	0.4910
	(0.0049)	(0.0104)	(0.1030)	(0.0030)	(0.0060)	(0.1140)	(0.0251)	(0.0667)	(0.6740)
LEV	−0.0257***	−0.0287***	−0.367***	−0.0416***	−0.0431***	−0.734***	−0.0296***	−0.0078	−0.1050
	(0.0021)	(0.0059)	(0.0478)	(0.0024)	(0.0052)	(0.1310)	(0.0047)	(0.0141)	(0.1350)
Constant	−0.0148	−0.0346	6.389***	0.0973***	0.0800**	13.27***	0.0773**	0.149*	3.104***
	(0.0198)	(0.0366)	(0.4800)	(0.0222)	(0.0396)	(1.2410)	(0.0346)	(0.0845)	(0.8100)
Observations	4,421	4,421	4,421	3,699	3,699	3,699	877	877	877
Considering cash flow									
GOV	−0.256***	−0.560***	4.1320	−0.204***	−0.488***	−2.0800	−0.1430	−0.997***	−3.3260
	(0.0600)	(0.1180)	(3.7840)	(0.0439)	(0.0799)	(4.9660)	(0.1160)	(0.3200)	(5.2940)
OCF	0.448***	0.758***	5.907***	0.386***	0.581***	11.98***	0.443***	0.699***	6.889***
	(0.0407)	(0.0752)	(1.9910)	(0.0296)	(0.0528)	(2.5650)	(0.0670)	(0.1650)	(2.5800)
Interaction	0.244***	0.542***	−3.6610	0.182***	0.435***	1.9620	0.1290	0.925***	3.5500
	(0.0554)	(0.1080)	(3.5360)	(0.0405)	(0.0727)	(4.6090)	(0.1070)	(0.2970)	(4.9720)
SIZE	0.00286***	0.00489***	−0.167***	−0.0007	0.0018	−0.440***	0.0000	−0.0020	−0.0599**
	(0.0004)	(0.0009)	(0.0176)	(0.0006)	(0.0012)	(0.0469)	(0.0010)	(0.0020)	(0.0250)
INF	−0.0538	−0.1160	−6.219***	0.236***	0.401***	30.62***	0.161**	0.0730	1.7870
	(0.0634)	(0.1270)	(1.5500)	(0.0508)	(0.1060)	(4.2230)	(0.0730)	(0.1800)	(1.7150)
GDP	0.127***	0.256***	−1.533***	0.0433**	0.110***	−0.8650	0.0420	0.293***	−2.052*
	(0.0214)	(0.0459)	(0.5910)	(0.0177)	(0.0370)	(0.7590)	(0.0380)	(0.0970)	(1.0950)
MRP	−0.0202***	−0.0406***	0.0631	−0.00486*	−0.0018	0.1380	0.0533***	0.0490	1.099*
	(0.0038)	(0.0084)	(0.1030)	(0.0027)	(0.0056)	(0.1150)	(0.0180)	(0.0490)	(0.5680)
LEV	−0.0139***	−0.0072	−0.292***	−0.0254***	−0.0161***	−0.297**	−0.0181***	0.0181*	0.0900
	(0.0016)	(0.0046)	(0.0494)	(0.0016)	(0.0042)	(0.1210)	(0.0030)	(0.0100)	(0.1240)
Constant	−0.507***	−0.869***	−0.0587	−0.327***	−0.558***	0.1160	−0.408***	−0.620***	−4.447*
	(0.0482)	(0.0877)	(2.1830)	(0.0347)	(0.0638)	(2.7100)	(0.0730)	(0.1730)	(2.5540)
Observations	4,421	4,421	4,421	3,699	3,699	3,699	877	877	877

(1) The asterisks ***, ** and ** indicate rejection of the null-hypothesis at 1%, 5% and 10% significance level respectively;

(2) The coefficient estimate is listed in the first row of each variable; the standard error is listed in the second row of each variable in parentheses, and the T-statistic is computed by dividing the coefficient by the standard error

performance measurement for companies in the ASEAN region. Some researchers, like Beltrano et al. (2022) and Perdana et al. (2023), say that ESG performance makes a company much more valuable. Other researchers, like Martynova and Lukina (2023) and Prabawati and Rahmawati (2022), say that ESG makes companies in ASEAN less valuable. Against these mixed outcomes, operating cash flow significantly explains the mixed results of the ESG-performance nexus. For companies in the ASEAN region, the combined ESG score has no influence over the firm's performance regardless of the cash flow condition. This again confirms the significance of assessing environmental, social and governance pillars separately, given each respective pillar carries different implications. However, the respective individual pillars are all value-adding to the firm's performance conditional on a healthier operating cash flow, which indicates that all pillars in the ASEAN region are critical. This partially contradicts the study by Fahima and Juwita (2023), who find that the environmental pillar has no significant direct impact on firm performance, and the social pillar and governance pillar are value-diminishing to performance. A possible explanation for this scenario could be the presence of operating cash flow (and in fact, its significance is proven). Without consideration of other preconditions, the environmental pillar needs a longer period to reflect its impact on performance (Fahima and Juwita, 2023). The presence of cash flow amplifies and accelerates the potential impact of the respective pillar on performance, as companies with weaker operating cash flow that are still investing heavily in the environmental pillar (or other pillars) are more likely to face financial issues.

5. CONCLUSION

Cash flow is proven to be a precondition for ESG initiatives (and the respective pillars) to be value-added. If a company encounters cash flow issues, ESG initiatives are value-diminishing to the firm's performance as cash flow reflects the firm's financial health. The analysis demonstrates that ESG performance positively influences firm value, particularly in firms with strong cash flows. Among the ESG pillars, the environmental dimension shows the most pronounced impact in emerging markets, highlighting the growing emphasis on sustainability initiatives in these regions. Firms prioritizing environmental efforts benefit from improved reputation, operational efficiency, and compliance with evolving regulations, translating into higher firm valuation. The social and governance pillars exhibit consistent positive impacts across sub-regions. Strong governance practices reduce information asymmetry, enhance investor confidence, and improve decision-making quality, while social initiatives foster stakeholder trust, contributing to long-term value creation. However, the magnitude of these effects varies across markets, suggesting the importance of contextual factors in shaping ESG outcomes. Cash flow emerges as a critical moderator in the ESG–firm value relationship. Firms with robust cash flows are better equipped to invest in ESG initiatives and capitalize on the associated benefits, such as improved market competitiveness and operational efficiency. Conversely, firms with weak cash flows experience diminished returns or even value erosion from ESG investments, likely due to resource constraints or insufficient capacity to execute ESG strategies effectively.

The findings underscore the need for firms to align their ESG strategies with their financial conditions. Firms in financially stronger positions should view ESG investments as opportunities to enhance value, while those with constrained resources should adopt a more selective and strategic approach to ensure efficient resource allocation. The variation in ESG impacts across sub-regions further highlights the influence of regional characteristics, including regulatory frameworks, market maturity, and cultural norms. Policymakers and investors should consider these contextual factors when developing and evaluating ESG frameworks in the Asia Pacific region, as ESG is not inherently value-adding (or value-diminishing). Managers might need to think twice before they make decisions about ESG initiatives, particularly if the firm's cash flow is tightening. In conclusion, this study provides robust evidence of ESG's potential to enhance firm value under favorable financial conditions while emphasizing the importance of tailoring ESG strategies to firm-specific and regional contexts for optimal outcomes.

Future research may consider the following recommendations to complement this study. Firstly, future studies may consider applying the other estimation approach to capture the dynamic nature of the financial market. It is also sensible to consider focusing on a specific sector, given different sectors consist of different structural attributes, which may have a significant impact on ESG initiatives. For instance, the environmental pillar might be more related to and concerned with the manufacturing and energy sectors than the services sector. In addition, future studies may consider comparing different ESG rating agencies, given the rating methodologies are different among different agencies.

6. ACKNOWLEDGEMENT

We would like to express our gratitude for the research funding by School of Business and Economics Research Grant (GPSPE/2023/6303847) of Universiti Putra Malaysia in this study.

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