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Effect of Environmental, Social and Governance (ESG) Factors on Performance of Momentum and Value Portfolios:
Role of Audited Non-Financial Reporting

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Abstract

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Keywords: ESG · Environment · Social· Governance, Momentum, Value, Audit

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This study examines the nexus between environmental, social, and governance(ESG) performance and the performance of momentum and value portfolios. Further, the effect of audited non-financial information in this relationship has also been analyzed. This is achieved with the sample of listed companies from selected countries of the emerging market over the period of 2010 to 2019. The overall findings of the study suggest that investors of emerging countries do not consider sustainable investments as their stock-picking criteria as no significant relationship was found between environmental, social, and governance performance and the performance of momentum and value portfolios. Further, no significant effect of audited non-financial information in this relationship is found. The findings of the study offer significant insights for government, regulators, and policymakers to educate investors and companies about the importance of sustainable investments and emphasize the role of audit quality and the structure of audit committees in ESG disclosures.

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Introduction

Over the recent few years, socially responsible investing (SRI) has experienced tremendous growth among investors due to increasing awareness about corporate social responsibility (CSR) and regulatory pressures on companies to behave responsibly (Eurosif, 2021). SRI is an investment process that combines ethical values, social conditions, effective corporate governance, and environmental sustainability in traditional investment decision-

making (Matailin-Saez et al., 2019). Previous literature Friede et al. (2015) have demonstrated a positive relationship between ESG scores and firm performance. Therefore, both individual and institutional investors have increasingly incorporated ESG information in their investment policies (Chen & Yang, 2020) and integration of sustainability challenges in the investment process has become a pressing issue (Blitz & Groot, 2019).



Sustainable or socially responsible investing emphasizes the role of ESG factors in the asset management process. Therefore, this investment approach integrates the financial factors along with the non-financial factors to enhance long-term returns for the investors while also influencing the companies to act in the best interests of society (OECD, 2019). Previous literature that focuses on the influence of SRI on financial performance can be categorized into three different strands. First, studies document that SRI has a positive impact on financial performance (Widiyantara et al., 2024). Second, studies show that SRI did not have any impact on financial performance (Revelli & Viviani, 2015) while finally, some studies assert that SRI has a negative effect on financial performance (Riedl & Smeets, 2017).

Recently, major structural changes have been observed in investment styles with the rise of SMART beta strategies (Alessandrini and Jondeau, 2019). Historically, stocks are categorized into various static sectors, including energy and utilities, with investors trying to identify the stocks that can outperform the overall market to achieve higher returns. However, due to inefficient and fluctuating stock markets and high transaction costs, investors want to adopt investment strategies that provide higher returns than passive investment and lower beta than active investment. Hence, instead of selecting some specific sectors for investment, investors can adopt various investment styles depending on their traits and their perspectives regarding future market performance (Papathanasiou et. al, 2022). Investors find smart beta strategies as an alternate investment tool. These smart beta strategies are considered smarter than the original beta investment strategies, as investors get either higher returns or lower volatility (Yasmine & Kooli, 2022).

Smart beta strategies are systematic investment approaches that are based on factor investing by targeting some specific characteristics of securities (Papathanasiou et. al, 2022). These strategies are based on certain criteria which include "small versus large companies, weak versus strong, growth versus value, and low volatility versus high volatility stocks". Some other factors that are considered include liquidity, high dividends, profitability, and quality (stable sales, earnings growth, and low leverage) of the stocks. Thus, smart beta portfolios are formed by considering a single factor or mixing two or more of the mentioned criteria like value and low volatility, etc. to accomplish higher returns. The superior performance of smart beta strategies is evidenced in

finance literature (Chow, Hsu, Kuo, & Li, 2014; Silvasti, Grobys & Äijö, 2021).

Value and momentum investing styles are two of the most significant investing styles among smart beta strategies. This type of investing has gained popularity in the economic agenda as it gives higher returns as compared to other investment strategies during economic downturns (Leivo, 2012). Value investing is based on thorough fundamental analysis, and the value investor can be able to identify the stocks having a fair value less than their intrinsic value (Papathanasiou et. al, 2022). Whereas momentum investing is based on the ability of the recent winners to get excess returns in the near future by identifying winner stocks based on their return performance in the preceding period (Leivo, 2012).

There is an increasing number of studies analyzing the performance of smart beta portfolios like momentum, value investing, and sustainable investment strategies separately (Papathanasiou et. al, 2022). Nevertheless, there is a scarcity of studies that investigate how the performance of smart beta portfolios such as momentum and value investing impact sustainable investment strategies. This research study, therefore, bridges the existing literature gap by examining the relationship between corporate ESG performance and two prominent smart beta strategies: momentum and value investment portfolios. The reason behind the selection of value and momentum strategies is their significant importance in the "market efficiency, behavioral finance, and asset price dynamics". These are considered the center of attention in financial economics (Asness et. Al., 2013). Thus, the investigation into the interaction between ESG factors and smart beta strategies is crucial for investors aiming to align their portfolios with sustainable and responsible practices. Furthermore, there are growing concerns about the quality of CSR reporting. Although ESG information has become readily available, the reliability and credibility of such information are paramount for investment decision-making. Previous research suggests that auditing of non-financial reporting plays a vital role in making ESG scores more reliable and ensuring the quality of a company's ESG information (Del Giudice, & Rigamonti, 2020). However, there exists a need to assess whether audited ESG reporting has any impact on the relationship between ESG scores and momentum and value performance. Therefore, this study examines how the audited ESG reporting influences relationship of ESG and momentum and value portfolios.

This study empirically explores the relationship between ESG performance on the momentum and value portfolios by using listed companies of selected countries like Malaysia, Thailand, South Korea, and the Philippines emerging markets from 2010 to 2019. Furthermore, it also explores the role of audited non-financial information in this relationship. The study suggests that in the emerging market, investors still need to be educated about the importance of sustainable investment as no significant relation is found. In addition, the inclusion of audited ESG information has no effect on the relationship.

This research makes several contributions to existing literature. First, it is believed that this study breaks new ground by examining the relationship between ESG and the performance of smart beta portfolios i.e., value and momentum investing styles in emerging markets of ASEAN countries ASEAN is the association of southeast Asian nations and the sample for this study includes Malaysia, Philippines, South Korea, and Thailand. Therefore, this study provides practical guidance to portfolio managers to make informed decisions by considering ESG as the basic criteria to construct momentum and value portfolios with high and low ESG-rated firms. Second, we examine the performance of smart beta portfolios on the basis of the performance of "environmental" (E), "social" (S), and "governance" (G) factors individually. Third, we examine the role of audited ESG reporting on the relationship between ESG performance and smart beta momentum and value portfolio investments. Finally, our findings suggest that ESG-integrated momentum and value strategies have the potential to generate significant returns in the emerging ASEAN markets where ESG performance disclosure and discussion are still quite nascent. By focusing on these dynamics, the study provides valuable insights for investors, portfolio managers, and policymakers navigating the evolving landscape of sustainable and responsible investing. As the financial landscape continues to evolve, acknowledging the interconnectedness of financial and non-financial factors becomes imperative. This study contributes to the ongoing debate on responsible investing by examining the relationship among ESG considerations, audited CSR reporting, and the performance of momentum and value portfolios.

This paper is comprised of the following sections. Section 2 reviews the related literature, while Section 3 explores the relevant methodology and data. Section 4 presents detailed analysis and results, while conclusions and implications are summarized in section 5 of the paper.

Literature Review:

SRI and ESG

Socially responsible investing has been introduced since the beginning of the 1970s. Pax World Fund was the first modern SRI fund established in 1971 (Pax World, 2018). SRI is based on individual ethics, environmental factors, social concerns, and religious values. Modern forms of SRI have significantly transformed the behavior of specific sectors and industries (Louche and Lydenberg, 2006). During the early years of SRI, social and political campaigns like anti-war, anti-racist, and environmental protection have played vital roles in creating awareness of the social consequences of investments among the investors.

It's been more than five decades since the inclusion of ESG issues in investment selection, and management, universally accepted definition of socially responsible investment has yet to emerge. Even though all the definitions are close to each other, but presence of a single definition is still not there (Sciarelli et al., 2021). Thus, according to Michelson et al., (2004), SRI not only takes into account the financial fundamentals of the investments rather it also considers environmental, social, and governance factors associated with those investments. At the strategic level, these investments integrate several sustainability factors into the traditional investment strategies (Matallin-Saez et al., 2019). Whereas, at the operational level, these investments ultimately contribute towards a sustainable future (Eurosif, 2016). Hence, a well-designed and ethical financial system helps achieve the global goal of sustainable development (Bouma et al., 2017).

Socially responsible investing combines fundamental analysis with non-financial ESG factors to generate abnormal long-term returns that ultimately benefit society by influencing corporate behavior (Eurosif, 2016, p. 9). Based on the definition of SRI, there are several SRI screening strategies for several social and environmental concerns. These strategies include 1) negative screening, which refers to avoiding investment in sin stocks, (2) positive screening refers to selecting investment opportunities that are socially responsible (3) investor engagement focuses on the mutual dialogue with the companies to encourage them to build a long-lasting personal relationship (4) best-in-class selection refers to investing in only those companies that give priority to environmental and CSR concerns (Formankova et al., 2019). Recently, a new asset management strategy known as ESG integration has emerged (Revelli, 2017). Thus, there is an increasing trend among investors and asset management companies to

dedicate their resources to the integration of ESG factors into investment decisions (Busch et al., 2015). Kotsantonis et al., (2016) state that the inclusion of ESG factors into investment decisions contributes to the concept of sustainable finance and makes it more attractive to investors and companies.

Corporate ESG and Firm Performance

ESG investing can create both social and financial value which has garnered the interest of various stakeholders to incorporate corporate social responsibility into the firms' business model. Previous literature has documented a strong relationship between the company's commitment to ESG considerations and its financial performance. Aras and Crowther (2008) demonstrate that sustainable practices lead to better performance of non-financial factors like improved resource management. ESG activities cater to the need for improving firms' relations with various stakeholders including suppliers, customers, shareholders, charities, and community workers. ESG investing thus mainly focuses on the two aspects of sustainability, i.e. environmental and social performance. Investment managers analyze the company-wise, sector-wise, country-wise, and portfolio-wise investment performance, and their analysis is based on how crucial financial information impacts ESG considerations. This can help analysts adjust financial forecasts, valuation models, credit ratings, and portfolio weights. Shareholders need to assess both the financial and non-financial (ESG) aspects of the investment to identify potential risks and opportunities that may impact the firm performance and the value of their investment (Chouaibi, et al., 2021).

Findings of the previous studies have yet to reach any conclusion as to whether there is any impact of ESG factors on the firm's financial performance. Several studies support the link between ESG practices and financial performance (Barth et al., 1997; Wong et al., 2020; Murashima, 2020). Conversely, Capelle-Blancard and Monjon (2014) show that SRI with rigorous screening intensity reduces financial performance. Some studies find that the risk-adjusted returns of conventional funds do not vary significantly from those of ESG-compliant funds (Bauer et al. 2005; Revelli & Viviani, 2015; Zehir & Aybars, 2020). It is also evident that some investors find it hard to incorporate ESG factors into their stock valuation process, despite the significance of ESG for corporate financial performance (Chen & Yang, 2020). Studies have also demonstrated the long-run impact

of ESG factors. Companies that give priority to ESG management are more likely to get higher returns in the long run than their competitors. ESG analysis is the only factor that can differentiate between identical companies (Heimann & Lobre-Lebraty, 2018). This analysis helps the practitioners to choose the companies or countries based on strong ESG performance with all other factors remaining the same. The weights of the securities in the investment process are also based on the ESG analysis (Baalouch et al., 2019).

Legitimacy theory emphasizes that firms are concerned about their reputation in the social system and, thus also concerned about how their socially responsible actions affect the firm's financial performance (Bansal & Clelland, 2004). As per the theory, businesses are part of the social system (Retief et al., 2016). Lack of awareness regarding how to integrate sustainable activities into a firm's strategies is the key challenge behind the slow adoption of ESG integration into business activities. Hence, the shareholders find it difficult to analyze the ESG performance of the company both in absolute and relative terms (Battisti et al., 2019; Wong et al., 2020). Even though there are lots of challenges, professionals and researchers are still integrating sustainable factors into investment decisions. Cahan et al. (2015) show that firms that exhibit positive ESG performance enjoy a good reputation and hence, it has a good impact on the firm value. Karim et al. (2016) find in their event study that ethical companies generate more value for their shareholders. However, there are no homogeneous results regarding the implication of sustainable or ESG investments (Kaiser et al. 2019).

Over the period, investors' interest has been shifted to factor-based investment from asset-based investments. Thus, smart beta strategies have gained immense popularity, and portfolios are built by considering various market inefficiencies (Han et al. 2020). It has become more important to identify which factor or strategy based on market anomalies provides long-term premiums. Previous research shows that the outperformance of these strategies varies due to the differences in the valuation techniques. Plenty of studies have documented the evidence of value premium across the world (Dimson et al., 2003; Barbee et al., 2008). Similarly, momentum premium has also been evident in a number of studies (Balsara & Zheng, 2006; Billio et al., 2011).

Over the past few years, public demand has increased for firms to give more importance to environmental, social, and ethical concerns (Cormier

& Magnan, 2014). The popularity of ESG investing raises concerns about whether the incorporation of ESG factors can enhance or hinder the performance of smart beta investing. Thus, the increased public demand has forced firms to be more transparent about their environmental, social & governance (ESG) information as these issues are crucial for stakeholders (Ioannou & Serafeim, 2012).

Audited ESG Reporting

Accuracy, reliability, and transparency of ESG information are considered the most important aspects of sustainability metrics. Researchers suggest that auditing ESG reporting by third parties plays a vital role in making ESG scores more reliable and ensuring the quality of a company's ESG information (Giudic & Rigamonti, 2020). Prior literature on ESG has emphasized sustainability practices (Benlemlih & Bitar, 2018; De Bakker et al., 2005). Firms that belong to environmentally impactful industries like gas, oil, and coal are increasingly focused on disclosing their improved ESG information. This practice not only maintains their legitimacy but also mitigates the stigma attached to such industries of being polluters (Gamerschlag et al., 2011; Garcia et al., 2017). With the increasing importance of ESG information, most of the firms voluntarily disclose such information but the lack of a standardized reporting framework has resulted in inconsistencies across the firms (Goel, 2018; Marti'nez-Ferrero et al., 2016). Thus, the lack of standardization has led to concerns regarding the objectivity and accuracy of ESG reporting. Therefore, the need arises for stringent reporting standards to ensure reliable ESG reporting. It has also been evident that just disclosure of SRI is not enough; rather reliability, accuracy, and transparency of disclosed information are more important. To address the concerns regarding the quality and objectivity of ESG reporting, it is crucial to have an independent and active internal control system. Beyond the conventional role of ensuring the quality of financial information, now the audit committee is also responsible for monitoring the sustainable practices of the firms (Jamali et al., 2008). There is limited evidence available on how the audit quality of ESG scores impacts the link between the performance of smart beta strategies like momentum and value and sustainable investment strategies. The transformative influence of ESG considerations on momentum and value portfolios is evident from the literature reviewed. The integration of audited non-financial reporting emphasizes the credibility of ESG data, enhancing its need in investment decision-making. As financial markets increasingly recognize the materiality of ESG factors, this relation between

sustainable practices and portfolio performance will always play a vital part in shaping the future landscape of investment strategies.

Data and Methodology:

Data and Sample

The main data source used in this study is the Thomson Reuters DataStream and Thomson Reuters Asset4. All the data including ESG, stock returns, and accounting data used in the study have been obtained from the same database. This study uses data for stocks listed in the stock exchanges of selected emerging markets namely Malaysia, Thailand, South Korea, and Philippines. These countries represent diverse economic structures within the emerging market category. Malaysia and Thailand are famous for their vibrant tourism and manufacturing sectors, South Korea is known for its technological innovations, and the Philippines leads the region for its strong service industry. Additionally, the cultural and economic diversity across these nations provides an opportunity to examine the impact of ESG considerations on investment strategies. As part of the ASEAN economic community and key players in East Asia, these countries play a crucial role in shaping regional dynamics. Lastly, the accessibility of comprehensive financial and ESG data enhances the feasibility and depth of the empirical analysis. Hence, the selection of Malaysia, Thailand, South Korea, and the Philippines aligns with the research's objectives, aiming to uncover insights into the intricate relationship between ESG factors and investment portfolios in diverse emerging market contexts.

The sample period covers the years from 2010 to 2019. This period has been selected mainly due to ESG data availability constraints but there are several strategic considerations for the selection of this period. Firstly, this timeframe allows for a decade-long examination, providing a substantial window to capture long-term trends and patterns in the relationship between ESG factors and portfolio performance. Its time period is marked by heightened global awareness of sustainability issues and an increasing emphasis on responsible investing. The aftermath of the 2008 financial crisis witnessed a growing interest in incorporating ESG considerations into investment decisions, making the selected timeframe particularly relevant. Moreover, the sample years consist of a phase of technological advancements and increased data availability, contributing to a more comprehensive and accurate analysis of both financial and non-financial information. The decade also includes diverse economic scenarios, such as recovery from the

financial crisis, periods of economic growth, and potential challenges, offering an opportunity to understand how ESG factors interact with varying market conditions. Additionally, by concluding the study in 2019, the research captures a pre-pandemic economic landscape, allowing for an analysis unaffected by the exceptional circumstances and market fluctuations brought about by the COVID-19 pandemic in subsequent years. This strategic choice ensures a more stable and consistent dataset, enhancing the reliability of the study's findings.

ESG Measures

ESG data have been obtained from the database Thomson Reuters Asset4. This database covers more than 6,000 companies (Thomson Reuters, 2017). More than 250 key performance indicators (KPIs) based on more than 750 data points are considered for the calculations of ESG ratings in Thomson Reuters Asset4. Up-to-date quantitative data is used for the calculation of ratings and no company is excluded from the ratings based on its engagement in controversial sectors or industries (Blank, 2013). The combined ESG scores and the individual scores of each subcomponent i.e. environment, social, and governance factor range from 0 to 100 where the higher score refers to the higher level of firm sustainability. The information regarding audited or unaudited ESG data is obtained from the same database i.e. Thomson Reuters Asset4.

ESG Audit Reporting

In this research, the role of audited ESG scores has been considered. This data has also been extracted from the Thomson Reuters Asset4. The database gives information about the presence or absence of an external auditor in the form of 0 or 1. This considers an audit which is in the form of a review done by educational institutes or a research center and the annual reports of such companies have external auditor statements for its ESG data.

Momentum Measure

In this study, stock momentum is identified by employing 12, 2 measures based on the previous studies in finance (Asness et al., 2013; Daniel & Moskowitz, 2016). Momentum has been calculated by taking the cumulative raw returns of the past 12 months (Jegadeesh & Titman, 1993; Fama & French, 1996) and skipping the return of the most recent month. Skipping the returns of the most recent month is well established in the momentum literature, and this has been done to avoid short-term reversal or

contrarian effect in the monthly returns which may be due to factors like liquidity or market microstructure issues (Asness, 1994; Grinblatt & Moskowitz, 2004). In this study, the momentum strategy is constructed by going long in stocks that recently showed significant price increases and short those stocks that recently experienced significant price declines.

Monthly stock return data has been used for the analysis. A logarithmic approach has been used to calculate stock return in the following way.

$$R_{it} = \ln(P_{it}/P_{it-1})$$

Where R_{it} is the "monthly rate of return" of stock i at time " t ", " \ln " is the natural logarithm, P_{it} denotes to closing stock price of the stock " i " at the time " t " and P_{it-1} denotes the closing stock price of the stock " i " at the time " $t-1$ ".

This study is based on constructing overlapping portfolios by following the study of Jegadeesh and Titman, (1993). Monthly stock returns have been used to construct winner and loser portfolios. These portfolios are equally weighted and rebalanced each month. In this way, winner and loser portfolios are sorted at the end of each month based on cumulative average returns (CARs) of the past 12 months. The following formula is used to calculate cumulative average return by taking the sum of all the returns over the given period.

$$CAR_t = \sum_{t=t_2}^{t_1} AR$$

The stocks with the highest (lowest) CARs over the formation period $t-12$ to $t-2$ are classified as winners (loser) portfolios. The winner portfolio includes the stocks with the top 20% of cumulative average returns (CARs) over the prior 12-month period, while the loser portfolio consists of stocks with the bottom 20% of CARs over the prior 12-month period. Once equally weighted winner and loser portfolios are formed, the returns of each portfolio are calculated for a 2-month ($t+2$) holding period. Using the winner and loser quintile, winner minus loser portfolios (WML) are formed by taking long positions for the past winners and short positions for the past losers.

Value Measure

Fama and French (1993) have been followed in this study to construct HML or value portfolios. The firms are sorted into three groups based on Book value to Market value of equity (BE/ME) and two groups on the basis of ME. Six portfolios namely "S/L, S/M, S/H, B/L, B/M, B/H" have been construed with the intersection of two market equity (ME) and three book-to-market

equity (BE/ME) groups. The S/L portfolio consists of stocks that are in the small-ME group and also in the low BE/ME group and B/L consists of stocks that are in a big-ME group and also in the low BE/ME group. Likewise, all the remaining portfolios are constructed. These six portfolios are constructed on the basis of monthly value-weighted returns. The returns are measured from January of year t to December of year t . Value or HML portfolios have been constructed on the basis of the difference between the simple average of the returns on the two high BE/ME

portfolios (S/H, B/H) and the simple average of the returns on the two low BE/ME portfolios (S/L, B/L).

Results and Analysis

To investigate the returns of momentum and value strategies, four countries from the emerging market have been considered. These include Malaysia, Thailand, South Korea, and the Philippines. Stocks of only those companies have been selected for the study which focus on socially responsible investments and report their ESG scores.

Table 1

ESG Portfolio Sample (January 2010–December 2019)

Country		High ESG		Low ESG	
		Momentum (WML)	Value (HML)	Momentum (WML)	Value (HML)
Emerging Market	Mean Return	1.60	1.05	3.7*	0.63
	Risk-Adjusted Return	0.04	0.29	1.94	0.15
Malaysia	Mean Return	0.30	0.58*	0.20	1.12*
	Risk-Adjusted Return	0.51	0.62	0.04	0.12
Philippines	Mean Return	0.97	0.41	0.20	0.20
	Risk-Adjusted Return	0.05	0.05	0.07	0.03
South Korea	Mean Return	1.00	1.03	0.35**	0.24
	Risk-Adjusted Return	0.02	1.00	0.10	0.15
Thailand	Mean Return	1.00	0.46*	NA	NA
	Risk-Adjusted Return	0.00	0.05	NA	NA

*"Note: ***, **, and * indicate significance at the 1%, 5%, and 10% levels respectively."*

Table I shows the raw returns and risk-adjusted returns of the momentum (WML) portfolio and value (HML) portfolio which are segregated based on high and low ESG scores. Malaysia, South Korea, Thailand, and countries neutral or 'Emerging Market' show positive and insignificant momentum returns whereas only the Philippines show positive and significant momentum returns for the high ESG stocks. Whereas in the case of low ESG stocks the 'Emerging Market' and South Korean market exhibit positive and significant momentum returns. Thus, the results show that the stock momentum is not aligned well with the ESG factor. These results are in line with the study of Kaiser, L., and Welters, J. (2019). The insignificant results are most likely because of the investor's perception of ESG activities in emerging markets. They consider ESG activities as an unrelated cost

(Farooq, O. 2015). Similarly, positive and insignificant value returns have been observed in the Philippines, South Korea, and countries neutral or 'Emerging Market'. These insignificant value premiums are supported by Zehir and Aybars (2020).

On the contrary, Malaysian and Thai markets show significant value premiums in case of High ESG scores. Almost all the stocks in the Thai market fall under the High ESG rating. These results are in line with the results of the studies conducted by Saadiq et al. (2020), Aouadi and Marsat (2016), and Yip and Lee (2018) in the Malaysian market. These findings imply that the high level of transparency in environmental practices, and governance results in higher firm value in Malaysian and Thai markets. In the case of low ESG stocks, only the Malaysian market exhibits positive and significant value returns.

Table 2

Environment Factor (E) Portfolio Sample (January 2010–December 2019)

		High E		Low E	
Country		Momentum (WML)	Value (HML)	Momentum (WML)	Value (HML)
Emerging Market	Mean Return	0.24	0.95*	0.10	0.38
	Risk-Adjusted Return	0.03	0.01	0.02	0.05
Malaysia	Mean Return	0.21	0.20	0.23***	0.24
	Risk-Adjusted Return	0.05	0.34	0.04	0.02
Philippines	Mean Return	0.59	0.01	0.33	0.27
	Risk-Adjusted Return	0.13	0.75	0.12	0.02
South Korea	Mean Return	0.05	0.17	0.14	0.81
	Risk-Adjusted Return	0.01	0.05	0.07	0.15
Thailand	Mean Return	0.08	0.71*	0.70	0.91
	Risk-Adjusted Return	0.02	0.18	0.20	0.23

*"Note: ***, **, and * indicate significance at the 1%, 5%, and 10% levels respectively."*

Table II shows the raw returns and risk-adjusted returns of the momentum (WML) portfolio and value (HML) portfolio which are segregated based on high and low Environmental (E) scores. In the case of high environmental scores, insignificant momentum premiums have been observed in all the selected countries including country-neutral or emerging market samples. Only the Malaysian market yields a significant momentum premium in case of low environmental scores among the selected countries. Significant value premiums have been observed by country neutral or 'Emerging Market' and the Thai market in case of high environmental scores. Whereas all the selected countries show positive but

insignificant value returns in case of low environmental scores. The significance of momentum and value premiums in the Malaysian and Thai markets are in line with the results of the study conducted by Derwall et al., (2005) who find adding environmental factors in portfolio formation significantly improves the portfolio performance. It is evident that climate changes impose financial risks on the companies which ultimately creates economic challenges (Carney, 2015; Litterman, 2021; Nordhaus, 2019). Thus, the financial risk due to climate change is the driving force for investors and other stakeholders to focus on environmental issues (Ilhan et al., 2019; Krueger et al., 2020).

Table 3

Social Factor (S) Portfolio Sample (January 2010–December 2019)

		High S		Low S	
Country		Momentum (WML)	Value (HML)	Momentum (WML)	Value (HML)
Emerging Market	Mean Return	0.25*	1.60	1.32*	0.14
	Risk-Adjusted Return	0.04	0.15	0.02	0.10
Malaysia	Mean Return	0.19	0.16	0.05	0.053*
	Risk-Adjusted Return	0.05	0.04	0.53	0.085
Philippines	Mean Return	0.07	0.016	0.015	0.012
	Risk-Adjusted Return	0.04	0.02	0.02	0.017
South Korea	Mean Return	0.03	0.08	0.017	0.011

		High S		Low S	
Thailand	Risk-Adjusted Return	0.11	0.02	0.08	0.04
	Mean Return	0.08	0.08	0.012	0.015
	Risk-Adjusted Return	0.019	0.013	0.015	0.013

"Note: ***, **, and * indicate significance at the 1%, 5%, and 10% levels respectively."

Table III shows the raw returns and risk-adjusted returns of the momentum (WML) portfolio and value (HML) portfolio which are segregated based on high and low Social (S) scores. Only the '*Emerging Market*' sample shows significant momentum premiums in high as well as low social scores. As far as value

returns are concerned, these are positive and significant only for the Malaysian market for low social scores. The insignificance of the results is supported by the study of Auer (2014) who proposes that social scores do not affect the portfolio performance.

Table 4

Governance Factor (G) Portfolio Sample (January 2010–December 2019)

		High G		Low G	
Country		Momentum (WML)	Value (HML)	Momentum (WML)	Value (HML)
Emerging Market	Mean Return	0.029	0.013	0.18	0.0248
	Risk-Adjusted Return	0.014	0.010	0.01	0.004
Malaysia	Mean Return	0.030	0.08	0.8	0.028
	Risk-Adjusted Return	0.05	0.07	0.4	0.024
Philippines	Mean Return	0.07	0.03	0.02	0.025
	Risk-Adjusted Return	0.01	0.02	0.01	0.02
South Korea	Mean Return	0.039	0.05	0.00	0.034
	Risk-Adjusted Return	0.02	0.04	0.10	0.03
Thailand	Mean Return	0.04	0.014*	0.02	0.016
	Risk-Adjusted Return	0.01	0.02	0.003	0.017

"Note: ***, **, and * indicate significance at the 1%, 5%, and 10% levels respectively."

Table IV shows the raw returns and risk-adjusted returns of the momentum (WML) portfolio and value (HML) portfolio which are segregated based on high and low Governance (G) scores. The same results have been observed in the case of high and low governance scores as observed in the case of social factors. Only the '*Emerging Market*' sample shows significant momentum premiums in high as well as low governance scores. The insignificance of the results is supported by the study of Glushkov (2009). Whereas value returns are positive and significant only for countries neutral or '*Emerging Market*' and Malaysian market for the stocks having high governance scores. The overall findings of the study show that in emerging markets ESG factor does not

add any additional significant return (Zehir & Aybars, 2020). This is mainly because investors consider costs related to ESG as unrelated costs (Farooq, 2015). There are several other factors that may contribute to the insignificant performance of ESG factors in emerging markets like political instability and the ripple effect of the financial crisis of 2008 (World Bank, 2019; Freedom House, 2020). The pool of countries in emerging markets that focus on ESG practices is smaller as compared to the developed market, this is another reason that limits the options for investors who focus on sustainable investments (MSCI, 2019). Some companies in the emerging market might have engaged in greenwashing i.e. exaggerating ESG commitments to attract investors.

Thus, this may affect the performance of sustainable investments (UNEP FI, 2019). Hence, investors in these selected markets do not consider socially

responsible stocks as their stock-picking criteria (Landi & Sciarelli, 2018).

Table 5

Role of Audited ESG Portfolio Sample (January 2010–December 2019)

Country		Audited ESG		Unaudited ESG	
		Momentum (WML)	Value (HML)	Momentum (WML)	Value (HML)
Emerging Market	Mean Return	0.90	0.05	0.17	0.09
	Risk-Adjusted Return	0.60	0.04	0.08	0.014

*“Note: ***, ** and * indicate significance at the 1%, 5% and 10% levels respectively”*

Table V reports the raw returns and risk-adjusted returns of the momentum (WML) portfolio and value (HML) portfolio which are segregated based on audited and non-audited ESG scores. Results show no difference in the momentum and value premiums of audited and non-audited ESG scores. As in both cases momentum and value premiums are insignificant. This means that the audited ESG does not impact the relationship between ESG scores and portfolio performance. These results are in line with the findings of Fuadah (2022), who concludes that the presence of audit committees does not influence the relationship between ESG disclosure and firm performance. Hence, it can be concluded that just the presence of an external auditor is not sufficient, rather the audit quality and the characteristics of the audit committee (AC) also is of paramount importance. It is evident in the previous research that the presence of Big 4 firms achieves superior returns (Phan et al., 2020). Big 4 auditors are believed to be more trustworthy because they devote sufficient time and effort to improve audit quality (Bacha et al., 2020). Furthermore, previous researches show that AC characteristics like AC activism, AC composition, and AC independence also play a vital role in improved ESG disclosure (Appuhami & Tashakor, 2017; Buallay & Al-Ajmi, 2019; Garas & ElMassah, 2018)

Conclusion

This study has been conducted to examine the impact of ESG factors on the performance of momentum and value portfolios. The role of audited non-financial information has also been considered in the analysis.

The study contributes to the relatively new research area by incorporating sustainability factors to earn abnormal returns. The impact of combined as well as individual ESG factors on the abnormal momentum and value returns has been analyzed. It has been found that mainly there is no significant impact of ESG factors on the abnormal momentum and value returns in the selected emerging markets. No significant change has been observed whether taking combined ESG factors or analyzing environmental, social, and governance factors individually. This implies that the investors in the emerging market do not consider sustainable stocks as their stock picking criteria and the firms consider sustainable investing as an unrelated cost. At this point, we argue that this insignificant relationship between ESG factors and momentum and value returns may be due to the quality of the ESG reporting. Therefore, another factor has been added to this research to check the impact of audited non-financial reporting on the relationship between ESG scores and momentum and value returns. For this purpose, two panels have been created based on audited and unaudited non-financial ESG data. The results show that there is no impact of audited ESG information on the relationship between the performance of momentum and value portfolios and ESG scores. Overall, the findings of the study reveal that in emerging markets investors do not pay much attention to sustainable investments. They consider it as an unrelated cost. Therefore, the quality of non-financial information does not seem to influence the relationship between the performance of momentum and value portfolios and ESG scores.

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