EFFECT OF ENVIRONMENTAL, SOCIAL, GOVERNANCE (ESG) AND STRATEGIC DEVIATION ON FIRM RISK: EVIDENCE FROM MANUFACTURING SECTOR IN EMERGING MARKET ASIA

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Abstract
The notion of sustainable development has gained widespread acceptance in the realm of social development. As a result, firms and their stakeholders are increasingly focusing on external elements such as environment, society, and governance (ESG). This study investigates the impact of ESG on firm risk measured by cash flow volatility. This study further examines whether strategic deviation moderates the relationship between ESG and firm risk. This research considers a sample of 139 manufacturing firms available in Refinitiv between 2018 and 2022 and applies the fixed-effect model. This study is a valuable contribution to the field of research on environmental, social, and governance (ESG) factors and their impact on strategic management. Specifically, it examines how ESG considerations and strategic deviation affect the level of risk faced by manufacturing firms. The result shows that ESG significantly reduces cash flow volatility but strategic deviation is insignificant in both affecting cash flow volatility and moderating the relationship of ESG and cash flow volatility. This study will serve as a valuable resource for managers in manufacturing organizations, providing them with insights into the importance of considering environmental, social, and governance (ESG) issues. The findings of this study highlight the impact of ESG and strategic considerations on cash flow volatility.

Keywords: ESG, Strategic Deviation, Firm Risk, Cash flow volatility

Introduction
Environmental, Social, and Governance (ESG) based investments have experienced rapid development in the world. More countries are implementing ESG as an obligation in the operational performance of public companies. With the conditions of emerging market countries in Asia, the implementation of ESG investment has begun by...
incorporating ESG criteria into financial statements. Although, until now, not all companies have implemented ESG investment. This issue encourages that business growth must not only generate profits but also leave benefits for people and the planet.

IMF reports that the Asian economic growth in the emerging and developing Asian categories will reach an average of 4.6 percent in 2022 and is predicted to rise to 5 percent in 2023. This is more than double the economic growth of the United States at 2.3 percent and 1 percent and Europe at 2.6 percent and 1.2 percent. Countries in the emerging Asia category have positive demographic trends (except China) with young populations that make them well-positioned to reap the so-called "demographic dividend". These countries enjoy a growing middle class, with increasing demand for goods and services, continued urbanization, and high technology adoption rates.

The manufacturing sector has led economic development in Asian countries through the generally adopted and long-standing development strategies of trade promotion and foreign direct investment (FDI). The IMF itself defines that countries included in the Emerging Asia category are China, India, Indonesia, Malaysia, Philippines, Thailand, and Vietnam. The contribution of the manufacturing sector as a percentage of each country's GDP can be seen in the following figure:

Figure 1
Percentage of Country Income from Manufacturing to GDP

Asia's growth relies heavily on high-emitting activities. Asia's contribution to greenhouse gases alone has increased from 22% in 1990 to 44% in 2019, making Asia's role critical to achieving the world's climate goals. Today, the continent holds the key to leading the world towards a more sustainable future. For this to happen, Environmental, Social, and Governance policies must be prioritized across jurisdictions.

ESG itself can bridge the gap between capitalism and shared economic, and social value and sustainable and inclusive finance. ESG in Asian markets itself still has problems, especially related to unclear and uneven criteria for sustainable investment, low quality of non-financial data, lack of disclosure, and risk of misallocation of resources. This issue is critical because its development has not yet reached the level of developing countries (ADB, 2020). The much-discussed ESG issue does not yet have a clear benchmark of the extent to which ESG plays an important role in corporate stability.
and risk. One that can be a benchmark for corporate risk is the condition of cash flow. This can be measured through cash flow volatility.

Cerqueti et al. (2021) states that investors of ESG assets have lower potential problems with their stakeholders due to more transparent governance. Furthermore, investors of ESG assets tend to invest in long-term periods so they tend not to sell their holdings even in times of crisis. In addition, ESG assets are not common for investors to be interested in so they are less vulnerable to shocks. Godfrey (2005) states that the Social and environmental responsibility of the company improves the goodwill of the company, and the goodwill can act as insurance for the company in critical situations.

Shareholders in the market tend to discriminate against companies that are prone to pollution and ignore social issues, and the volatility of such companies increases exponentially to environmental damage. Companies in the industrial sector can invest in CSR to reduce the risk of crash prices and obtain other benefits such as reduced cost of capital (Wu and Hu, 2019). The success of a company is not only judged by financial performance but also by carbon neutrality to circular economy, from human rights to supply chain resilience.

From a strategy perspective, in an increasingly competitive industry firms often face competitive demands to resemble their industry peers or act differently to achieve competitive advantage. A firm's strategy can be observed through the allocation of resources in key activities, including marketing, innovation, and manufacturing (Geletkanycz and Hambrick, 1997). Studies show that implementing resource allocation patterns and pursuing strategies that deviate significantly from industry peers (strategic deviation) enable firms to improve operational performance (Zhang and Rajagopalan, 2010) and surpass competitors by identifying and capitalizing on unexploited segments (Carpenter, 2000; Deephouse, 1999). Strategic deviation may better reflect a firm's strategic position in a competitive market (Dong et al., 2021). However, how strategic deviation affects firm risk as measured by cash flow volatility remains largely unexplored.

Therefore, investors need to pay attention to ESG implementation for improvements in cash flow volatility risk. However, the role of corporate strategy in the industry is also important as it potentially affects the risk of the company. This research can be a reference point for companies to consider ESG implementation and will encourage more companies to be more socially and environmentally responsible to be more stable and reduce risk in the market. Also, this research can be a reference point for companies to consider corporate strategies concerning their impact on such risks. Based on the background of the phenomenon of ESG trends, increasingly competitive conditions, and the strategic manufacturing sector in emerging Asian countries, research examining the impact of ESG performance and strategic deviation on corporate risk is still limited. So the reason for choosing the dependent variable as a risk measurement, namely cash flow volatility, is a contribution to previous research. Therefore, researchers conducted a study entitled “Effect of Environmental, Social, Governance (ESG) and Strategic Deviation on Firm Risk: Evidence from Manufacturing Sector in Emerging Market Asia.”
Hypotheses Development
ESG and Cash Flow Volatility

The majority of studies suggest that ESG has a risk-reducing impact on companies. Benlemlih et al. (2018) revealed that the negative effect of ESG disclosure on total risk is due to corporate transparency that increases reputation and trust from stakeholders. Chollet and Sandwidi (2018) also found a significant role of social and governance performance has an opposite relationship with financial risk. Empirically, social and governance are the main risk reducers. CSR, when implemented in the long term, can mitigate risk and provide benefits to company performance.

Looking through the perspective of systemic risk, Cerqueti et al. (2021) state that ESG-based investments can reduce systemic risk and make funds that refer to ESG face lower sensitivity to systemic shocks. Boubaker et al. (2020) state that companies with high ESG ratings have lower financial distress risk and crash risk. In line with this view, Lai et al. (2010) and Michelon (2011) state that CSR brings a better reputation to the company and reduces the impact of negative news and the resulting risks.

Reber et al. (2021) show that ESG disclosure reduces idiosyncratic volatility and reduces tail risk and the higher the ESG score, the lower the volatility and risk. The same thing was also revealed by Engelhardt et al. (2021) who found that companies in Europe with good ESG scores are followed by greater abnormal returns and lower stock volatility. Korinth and Lueg (2022) found that the level of sustainability is the main factor that determines the impact of ESG on risk. Ilhan et al. (2019) conducted a comparison between conventional and ESG portfolios. The result is that companies with lower ESG profiles produce more carbon emissions and face higher corporate risk.

H1: Environmental, social, and governance (ESG) has an effect in reducing corporate risk.

Strategic Deviation and Cash Flow Volatility

Hasan and Chen (2023) examining a sample of US public companies found that companies that strategically deviate from industry peers result in higher idiosyncratic return volatility. This is because strategic deviation increases the complexity and uncertainty of the company's operations, resulting in more diverse variations in performance (Tang et al., 2011). This increases uncertainty in company performance and future cash flow (Dong et al., 2021).

Provaty et al. (2022) found that firm deviation from industry peers has a positive impact on reliance on cash reserves and borrowing. Zhang and Rajagopalan (2010) found that firms with different strategies experience an adaptive effect that builds capabilities and competencies. On the other hand, there is also a disruptive effect which drains resources excessively. The results of his research show that companies experience improved performance when strategic deviation is at a low to moderate level. However, there is a decline in financial performance when strategic deviation increases from moderate to significant.
Strategic deviation can exacerbate corporate financial constraints. Companies that choose to take a different strategy compared to the industry strategy make it difficult to learn from established industrial experience, making it difficult for many parties to truly evaluate the company's condition. Thus, companies with strategic deviation face higher operational risk, higher volatility in business performance, and higher risk of bankruptcy.

H2: Strategic Deviation affects increasing company risk.

The moderating effect of Strategic Deviation in the relationship of ESG and Cash flow volatility

Through ESG, all aspects of business tend to be conducted more responsibly and transparently so that shock responses will be less likely due to information disclosure. The less conflict, the more efficient the company's operations can be, leading to better goal achievement. If profitability increases, companies have more incentive to invest in risk management and good corporate governance or through CSR.

Based on research conducted by Wen et al., (2023) strategic deviation increases agency costs, and information asymmetry, and increases financial constraints, thereby reducing company incentives for green innovation. Ukko et. al (2019) found that sustainability strategy is significant in moderating between management capabilities and financial performance. This is also in line with Hasan and Chen (2023) who found evidence that strategic deviation increases information asymmetry and uncertainty in future performance. Therefore, the effect of ESG transparency and disclosure on risk has the potential to weaken its strength.

Ukko et. al (2019) found that sustainability strategy is significant in moderating between management capability and financial performance.

H3: Strategic Deviation negatively influences the relationship between ESG and corporate risk.

Research Methods

This research is an empirical study with quantitative methods where an analysis will be carried out of the effect of ESG and Strategic deviation on firm risk, which in this case is measured by cash flow volatility. The research will be conducted on public or listed companies in countries in the Emerging Asia category in 2016-2021 specifically in companies in the manufacturing category. Based on the IMF definition, these countries are China, India, Indonesia, Malaysia, Philippines, Thailand, and Vietnam.

The measurement of firm risk is measured using cash flow volatility as measured by the standard deviation of Operating Cash Flow divided by Assets (Sattar et al., 2022). Based on this measurement, the higher the cash flow volatility value, the higher the uncertainty or risk of the company (Keefe & Nguyen, 2023). The same applies to vice versa with a lower cash flow volatility value.

\[ CFV = \sigma \left( \frac{OCF}{Asset} \right) \]
Environmental, Social, and Governance (ESG) can be assessed based on several data sources for each industry related to ESG activities. In this study, ESG score data sourced from Refinitiv Eikon will be used. Refinitiv (2020) introduced an approach to calculate ESG scores both for each factor separately (such as environmental, social, and governance) and in combination (ESG) which aims to measure the extent to which companies report information related to environmental, social, and governance aspects. The data sources used in Refinitiv Eikon for ESG scoring are based on information disclosed by companies through annual reports, company websites, CSR reports, and others.

In this study, the measurement of the strategic deviation score is carried out in line with (Chen et al., 2023; Ye et al., 2021; Provaty et al., 2022) through 6 elements, namely: (1) net property, plant, and equipment per gross PPE to measure capacity development (2) inventory per sales to measure working capital and production cycle strategy (3) Selling, General and Administrative Expenses or SG&A per sales to measure cost structure (4) total debt divided by total equity to measure capital structure (5) advertising expenses per sales to measure marketing strategy, and (6) R&D expenses per sales to measure innovation. These six indicators are standardized by industry and last year's difference is measured against the average industry score for each indicator in each element. This is then summed up to form a Strategic Deviation score. The higher the strategic deviation score, the further the company differs from its industry peers.

<table>
<thead>
<tr>
<th>Label</th>
<th>Variable Type</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFV</td>
<td>Dependent</td>
<td>Cash flow volatility</td>
</tr>
<tr>
<td>ESG</td>
<td>Independent</td>
<td>ESG Score from Refinitiv Eikon</td>
</tr>
<tr>
<td>STR</td>
<td>Independent</td>
<td>Strategic Deviation</td>
</tr>
<tr>
<td>LEV</td>
<td>Control</td>
<td>The ratio of total debt to total Asset</td>
</tr>
<tr>
<td>MOD</td>
<td>Moderating</td>
<td>ESG*STRDEV</td>
</tr>
<tr>
<td>LIQ</td>
<td>Control</td>
<td>Liquidity ratio</td>
</tr>
<tr>
<td>ROA</td>
<td>Control</td>
<td>Return on assets</td>
</tr>
<tr>
<td>SIZE</td>
<td>Control</td>
<td>Firm size, measured by ln(total asset)</td>
</tr>
<tr>
<td>MTB</td>
<td>Control</td>
<td>Market to Book Value</td>
</tr>
<tr>
<td>DIST</td>
<td>Control</td>
<td>Financial Distress, measured by z-score manufacturing weighted</td>
</tr>
<tr>
<td>CASH</td>
<td>Control</td>
<td>Cash holding, measured by the ratio of Cash and cash equivalent to Asset</td>
</tr>
</tbody>
</table>

**Empirical model**

To analyze the effect of ESG and strategic deviation on corporate risk, model 1 is used as follows:
Effect of Environmental, Social, Governance (ESG) and Strategic Deviation on Firm Risk: Evidence from Manufacturing Sector in Emerging Market Asia

\[ CFV_{it} = \alpha_0 + \alpha_1 ESG_{it} + \alpha_2 STRDEV_{it} + \alpha_3 LEV_{it} + \alpha_4 LIQ_{it} + \alpha_5 ROA_{it} + \alpha_6 SIZE_{it} + \alpha_7 MTB_{it} + \alpha_8 DIST_{it} + \alpha_9 CASH_{it} + \varepsilon_{it} \]

To analyze the moderating effect of strategic deviation on the relationship between ESG and corporate risk, model 2 is used as follows:

\[ CFV_{it} = \alpha_0 + \alpha_1 ESG_{it} + \alpha_2 STRDEV_{it} + \alpha_3 ESG*STRDEV_{it} + \alpha_4 LEV_{it} + \alpha_5 LIQ_{it} + \alpha_6 ROA_{it} + \alpha_7 SIZE_{it} + \alpha_8 MTB_{it} + \alpha_9 DIST_{it} + \alpha_{10} CASH_{it} + \varepsilon_{it} \]

Results and Discussion

Descriptive statistics

In this study, there are 695 observations from 6 emerging Asian countries with a total of 139 companies from the manufacturing sector. Descriptive analysis is done using Stata. Based on processing, statistical results are obtained as in Table 2.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. dev.</th>
<th>Min</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFV</td>
<td>695</td>
<td>0.040891</td>
<td>0.0286111</td>
<td>0.0027967</td>
</tr>
<tr>
<td>ESG</td>
<td>695</td>
<td>49.55641</td>
<td>20.1647</td>
<td>0.6591417</td>
</tr>
<tr>
<td>STRDEV</td>
<td>695</td>
<td>0.6915933</td>
<td>0.314734</td>
<td>0.1348061</td>
</tr>
<tr>
<td>ROA</td>
<td>695</td>
<td>0.0747602</td>
<td>0.0717309</td>
<td>-0.2842493</td>
</tr>
<tr>
<td>SIZE</td>
<td>695</td>
<td>22.72961</td>
<td>1.184958</td>
<td>19.08694</td>
</tr>
<tr>
<td>LIQ</td>
<td>695</td>
<td>1.747501</td>
<td>1.130902</td>
<td>0.1064569</td>
</tr>
<tr>
<td>MTB</td>
<td>695</td>
<td>5.536403</td>
<td>9.046235</td>
<td>0.2187394</td>
</tr>
<tr>
<td>LEV</td>
<td>695</td>
<td>0.2487257</td>
<td>0.2258933</td>
<td>6.70E-07</td>
</tr>
</tbody>
</table>

ESG has a score range of 1-100. The highest observed ESG score was 92. The higher the ESG score, the higher the company's involvement in business activities that are implemented with ESG. Based on the data in Table 4.1, it is obtained that the average manufacturing company in Emerging Asia only obtained an ESG score of 49 in the Index. This indicates that the average company in the manufacturing sector is in the medium to low category. This is reasonable because the implementation of ESG in Asia is still gradual and not yet established like in Europe.

The average strategic deviation score of companies is 0.691 with the highest strategic deviation score held by Chinese companies engaged in technology.

Regression results

After conducting several tests, such as the Chow test and Hausman test, to analyze panel data, Models 1 and 2 are estimated using a fixed effect model. This study uses a two-tailed hypothesis test.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESG</td>
<td>-0.0002217</td>
<td>-0.0001491</td>
</tr>
<tr>
<td>STRDEV</td>
<td>0.001329</td>
<td>0.0074658</td>
</tr>
<tr>
<td>ROA</td>
<td>-0.0045071</td>
<td>-0.0040289</td>
</tr>
</tbody>
</table>
Model 1. Based on the panel data regression results, the first hypothesis of this study which states that ESG hurts cash flow volatility is accepted because the results show an insignificant effect at a significance level (α) of 5% or p-value > α (p-value 0.039). This indicates that companies in the manufacturing sector in emerging Asia that have good ESG scores tend to have lower risks (lower cash flow volatility). This result validates several previous studies by Shakil (2020) who found that ESG reduces company risk as measured by stock price volatility. In conjunction, this suggests that investors' tendency to avoid companies with poor ESG scores is evident in terms of the company's financial performance due to the tendency of higher cash flow volatility risk in companies with low ESG scores. In addition, He et al. (2023) also found that companies with good ESG alleviate financing constraints so that risk exposure becomes lower.

The second hypothesis of this study which states that strategic deviation has a positive effect on cash flow volatility is rejected because the results show an insignificant effect at a significance level (α) of 5% or p-value > α (p-value 0.602). Referring to the dataset used in this study, it is evident that companies that engage in high levels of strategic deviation do not exhibit high cash flow volatility. For example, the average value of strategic deviation is 0.69 and cash flow volatility is 0.04. UltraTech Cement Ltd, a company in India, produced a lower average enterprise risk/cash flow volatility (value 0.0219) despite having a high level of strategic deviation in 2018 (value 2.75). Another example is China Resources Sanjiu Medical & Pharmaceutical Co Ltd, which is considered the second highest company by strategic deviation management level in 2018, which has below-average cash flow volatility (value 0.005).

Companies that strategically deviate from industry standards have a pattern that cannot be equated with the industry norm. (Chen et al., 2023) found that strategic deviations can improve the competitiveness and performance of firms and are less vulnerable to financial constraints. Strategically deviant firms borrow less from banks and use more trade credit. Supplier financing/trade credit increases market value for strategically deviant firms because the trade credit buffer provides a financial cushion against uncertainty and facilitates these firms to overcome financial constraints that may prevent firms from making more value-enhancing investments without the financial cushion.
(Weinzimmer et al., 2023) who found that strategic aggressiveness is not bad for firm risk but rather positive for firm performance, both for small and large firms. Then, strategic differences can be defined even more broadly. The firm's relative strategic emphasis on value appropriation rather than value creation reduces firm risk, resulting in better firm performance (Han et al., 2017).

Model 2. The third hypothesis of this study which states that strategic deviation has a negative influence on the relationship between ESG and cash flow volatility is rejected because the results show an insignificant effect at the 5% significance level ($\alpha$) or $p$-value > $\alpha$ ($p$-value 0.64).

This can be attributed to the company's strategic priorities. The orientation of the Company's strategy relates to its marketing and innovation activities, which represent a multidimensional construct that embodies the relative emphasis on understanding and managing the environmental forces acting on it. Looking in terms of entrepreneurial orientation and market orientation, entrepreneurial orientation represents a culture driven to pursue new market opportunities and renewal of existing areas of operation. Market orientation represents a market-driven culture that places the highest priority on creating and maintaining superior and profitable customer value. Firms with entrepreneurial orientation increase idiosyncratic risk, while market orientation reduces it. Overall, the results of this study suggest that firm decisions regarding strategic orientation should be examined based on the likelihood of risks and returns to make appropriate resource allocation decisions (Bhattacharya et al., 2019).

Strategic priorities that have not been directed towards risk control shift the focus so that the moderating effect of strategic deviation on the relationship between ESG and cash flow volatility is not significant. On the one hand, managerial incentives to 'play it safe' lead to risk reduction, but such actions destroy value. Especially when the incentive mechanism that counteracts this is weak (Islam and Rahman, 2023).

**Conclusion**

ESG is perceived as an important metric for assessing company performance. The results indicate that the impact of ESG on firm risk as measured by Cash flow volatility is statistically significant. The negative relationship means firms with high ESG scores have lower risk in terms of cash flow volatility. Therefore, it is suggested for managers to comply with better aspects of every ESG point to have better performance in terms of risk.

On the other hand, the strategic deviation is not significant in both affecting firm risk and moderating the relationship of ESG and firm risk. This is because of mixed relationships between strategic deviations and firm risk. Also, strategic priorities that might not been directed towards risk control shift the focus so that the moderating effect of strategic deviation on the relationship between ESG and cash flow volatility.
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