THE INTEGRATION OF ENVIRONMENTAL, SOCIAL, AND GOVERNANCE METRICS AND MARKET VALUE: A MULTI-DIMENSIONAL ANALYSIS OF CORPORATE SUSTAINABILITY AND FINANCIAL PERFORMANCE

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Abstract

This study examines the relationship between environmental, social, and governance (ESG) practices and financial performance among Hong Kong's Hang Seng Index (HSI) firms, addressing sector-specific and regional ESG gaps in Asian markets. While prior studies emphasise ESG's financial impacts in Western contexts (Al Farooque et al., 2022; Askarany & Xin, 2024), Asian dynamics remain underexplored. Using panel data analysis of 83 HSI-listed firms (2019–2024), this research applies legitimacy theory to evaluate how ESG disclosures and sectoral challenges, including Hong Kong Exchanges and Clearing Limited's (HKEX) 2020 reporting mandates, affect financial outcomes (return on assets [ROA] and Tobin's Q). Results show robust social performance consistency (CV = 0.09–0.12) across sectors, contrasting with environmental variability (CV = 0.17–0.32), indicating varying sustainability maturity. The commercial sector achieved superior returns (ROA = 11.91 per cent), while utilities demonstrated balanced ESG integration. Findings highlight the need for sector-specific ESG standardisation and regulatory compliance to improve governance. This study provides actionable insights for policymakers refining disclosure frameworks and corporations aligning sustainability strategies with profitability in emerging markets.

Keywords: Environmental, Social, and Governance (ESG), Corporate Financial Performance, Sustainability Metrics, Cross-Sectoral Analysis, Environmental Accounting, Corporate Governance, Market Value, Panel Data Analysis, Environmental Performance, Listed Companies

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1. INTRODUCTION

The integration of environmental, social, and governance (ESG) criteria into corporate strategy has gained prominence as a critical driver of sustainable business performance, particularly amid escalating regulatory pressures and stakeholder demands for transparency (Al Farooque et al., 2022; Grove et al., 2024). While existing literature underscores the financial implications of ESG practices, such as enhanced profitability and reduced stock volatility (Srivastava & Anand, 2023; Askarany & Xin, 2024), significant gaps persist in understanding sector-specific ESG dynamics in non-Western contexts. Hong Kong, a global financial hub with a unique regulatory landscape, offers an underexplored setting to examine how ESG implementation influences corporate outcomes, particularly following the Hong Kong Exchanges and Clearing Limited's (HKEX) 2020 mandate for enhanced ESG reporting. This study addresses this gap by analysing the interplay between ESG practices, financial performance, and sectoral variations among Hang Seng Index (HSI)-listed firms from 2019 to 2024, a period marked by regulatory shifts and global sustainability advancements like the Task Force on Climate-Related Financial Disclosures (TCFD).

Grounded in legitimacy theory, which posits that firms align operations with societal expectations to maintain credibility, this research evaluates how ESG disclosure and sector-specific strategies shape financial metrics such as return on equity (ROE) and profit margins. Prior studies highlight the moderating role of governance factors, such as board characteristics and ownership concentration, in ESG outcomes (Srivastava & Anand, 2023; Biju et al., 2024), yet few explore these relationships in Asia's rapidly evolving markets. By employing panel data analysis of 83 HSI constituents across industries like finance and real estate, this study reveals how regulatory compliance and sectoral challenges, such as energy efficiency in construction versus ESG-integrated investment portfolios, affect financial resilience. Findings demonstrate that robust ESG practices correlate with improved market valuation and risk mitigation, aligning with global trends observed during the COVID-19 pandemic (Rao & Juma, 2024).

This study contributes to academia by bridging geographical and sectoral gaps in ESG literature, while offering practical insights for corporate managers optimising sustainability strategies, investors prioritising ESG-aligned assets, and policymakers refining disclosure frameworks.

The paper proceeds as follows. Section 2 reviews literature on ESG performance and financial outcomes. Section 3 outlines the methodology. Section 4 presents empirical results. Section 5 discusses implications. Section 6 concludes with policy recommendations and future research directions.

2. LITERATURE REVIEW

2.1. Theoretical foundations of sustainability accounting

Corporate sustainability accounting practices are commonly analysed through two complementary theoretical lenses: legitimacy theory and stakeholder theory. Legitimacy theory asserts that organisations continuously align their operations and disclosures with societal norms to preserve their legitimacy (Deegan, 2004). This perspective helps explain corporate voluntary sustainability disclosure, especially within highly regulated and stakeholder-sensitive contexts (Wiraguna et al., 2023). Recent studies have reinforced the relevance of legitimacy theory in understanding corporate motivations for ESG disclosures (Janang et al., 2020; Islam et al., 2021). Organisations proactively disclose sustainability information to demonstrate compliance with social values, thus reducing legitimacy risks and enhancing stakeholder trust (Kim & Ha, 2020; Reeve & Kabiawu, 2020; Arif et al., 2025).

Complementing legitimacy theory, stakeholder theory emphasises corporate accountability towards diverse stakeholders beyond shareholders alone. Initially developed by the International Development Center (1963) and further refined by Freeman (1984), stakeholder theory underscores the importance of engaging investors, employees, customers, regulators, and communities to achieve long-term sustainability (Thomas & Grimes, 2020). Recognising interdependencies among these stakeholders enables firms to develop comprehensive sustainability strategies, enhancing corporate reputation and long-term value creation (Eguzo, 2020; Coe, 2020; Tahir et al., 2025). Stakeholder-focused sustainability accounting practices enhance stakeholder trust, market valuation, and enduring profitability (Eulerich et al., 2022; Wiraguna et al., 2023).

2.2. ESG disclosure frameworks and performance measurement

Reflecting these theoretical insights, sustainability accounting frameworks have evolved, integrating structured methodologies for measuring and reporting economic, environmental, and social impacts (Laine et al., 2021). The rising global adoption of ESG disclosures signals a broader shift towards comprehensive accountability and transparency mechanisms. Empirical evidence indicates ESG disclosures significantly influence firm valuation, financial stability, and investor decisions (Srivastava & Anand, 2023; Kalyani & Mondal, 2024; Grove et al., 2024). Regulatory frameworks, such as those mandated by HKEX, have accelerated sustainability reporting standardisation, requiring detailed ESG disclosures and a comply-or-explain approach to ensure comparability and transparency (Eulerich et al., 2022; Debevoise & Plimpton LLP, 2024; Chu, 2023).

Performance measurement within sustainability accounting typically integrates environmental and financial metrics. Environmental performance indicators include emissions, resource efficiency, energy management, and water use, providing quantifiable benchmarks for corporate environmental responsibilities (Al-Tuwaijri et al., 2004; Lambiasi et al., 2024; Agyemang et al., 2024). Financial performance measures, such as return on assets (ROA) and Tobin's Q ratio, assess operational efficiency and market valuation, respectively (Iswandika et al., 2014; Badjuri et al., 2021). Integrating these dimensions creates comprehensive frameworks for assessing corporate sustainability impacts, highlighting the strategic balance firms must maintain between ESG commitments and economic profitability (Grove et al., 2024; Kalyani & Mondal, 2024).

2.3. Empirical evidence and hypothesis development

Empirical research examining the relationships between distinct sustainability accounting dimensions and financial performance has shown varied results. The economic dimension, which emphasises financial indicators such as earnings, equity, and market share (Brightest, 2024), has yielded inconsistent evidence. Some studies report no significant relationship between economic sustainability practices and financial outcomes (Christie & Ekadjaja, 2020; Depari, 2023), while others identify positive impacts, asserting that robust economic sustainability practices can enhance competitive advantage and financial success (Deegan et al., 2000; Hutasoit & Sembiring, 2020). Given this inconclusive evidence, this study proposes:

H1: The economic dimension of sustainability accounting affects financial performance.

Similarly, studies on the environmental dimension, involving metrics such as emissions, energy efficiency, and resource use, document both indirect (Widati, 2016) and direct positive relationships with financial performance outcomes (Adhima, 2012; Christie & Ekadjaja, 2020). Recent research also emphasises that proactive environmental disclosures significantly improve firm reputation, stakeholder trust, and valuation, particularly in regulated markets (Biju et al., 2024; Grove et al., 2024; Eulerich et al., 2022). The growing emphasis on environmental transparency and accountability suggests that environmental performance increasingly affects firm valuation and stakeholder trust. Thus, the second hypothesis is proposed:

H2: The environmental dimension of sustainability accounting affects financial performance.

The social dimension of sustainability accounting, covering employee welfare, community engagement, and stakeholder relationships, similarly yields mixed findings. Although some studies acknowledge potential short-term costs or neutral impacts (Gunarsih & Ismawati, 2018), strong empirical evidence suggests active social sustainability practices enhance reputation, stakeholder trust, and long-term financial performance (Eccles et al., 2014; Sejati & Prastiwi, 2015). Recent studies further support that comprehensive ESG disclosures, including social metrics, substantially affect corporate financial outcomes and corporate governance effectiveness (Al Farooque et al., 2022; Srivastava & Anand, 2023; Kalyani & Mondal, 2024). Accordingly, the third hypothesis states:

H3: The social dimension of sustainability accounting affects financial performance.

Lastly, integrated ESG practices have gained scholarly attention, with recent research indicating that comprehensive sustainability accounting yields superior outcomes compared to isolated sustainability initiatives (Weerarathna et al., 2021; Eulerich et al., 2022). Such integrated approaches align corporate strategies, stakeholder expectations, and regulatory standards, enhancing both financial and non-financial performance in the long run (Banyi & Bull Schaefer, 2022; Grove et al., 2024). Therefore, the fourth hypothesis is formulated:

H4: The combined application of sustainability accounting dimensions affects financial performance.

By synthesising legitimacy and stakeholder theories and critically reviewing recent empirical literature, this study aims to deepen understanding of the strategic role of sustainability accounting dimensions in influencing corporate financial performance within Hong Kong's distinct regulatory and market contexts.

3. RESEARCH METHODOLOGY

3.1. Research design and sample selection

This study adopts a quantitative research design to analyse the relationship between sustainability accounting practices and financial performance among companies listed on the HSI. The quantitative methodology is suitable for systematically testing hypotheses derived from theory and previous empirical evidence (Eulerich et al., 2022; Kalyani & Mondal, 2024). The research period spans from 2019 to 2024, a timeframe covering substantial regulatory changes, evolving global sustainability standards, and significant global events such as the COVID-19 pandemic. This period provides a dynamic context for assessing the relationships between sustainability accounting practices and corporate financial outcomes (Askarany & Xin, 2024). The HSI was selected due to its representativeness of leading Hong Kong companies across multiple sectors, ensuring robust and generalisable findings.

3.2. Sample characteristics and data sources

The sample comprises 83 companies listed on the HSI, representing approximately 19.78% of the total market capitalisation of the Hong Kong Stock Exchange. To ensure comprehensive sectoral representation, the sample includes companies from finance (11 firms), commercial and industries (55 firms), utilities (6 firms), and properties (11 firms). Table 1 summarises the sectoral distribution and market value of these companies.

Table 1. Market value of selected companies in the HSI by sector (2019–2024)

Sector	*Number of companies*	*Market value (HKD billion)*
Finance	11	3,500
Commercial and industries	55	1,200
Utilities	6	1,700
Properties	11	327.26
Total	83	6,727.26
Total market value		34,000
Percentage of total market		19.78%

Data sources include publicly available financial statements, ESG reports, and sustainability disclosures published by the selected companies. Reliable industry reports and financial databases further supplement these primary data sources, ensuring a robust and comprehensive dataset for analysis (Al Farooque et al., 2022; Grove et al., 2024).

3.3. Variable measurement and operationalisation

3.3.1. Dependent variables

Financial performance is measured using two widely recognised metrics: ROA and Tobin's Q. Combining these metrics provides a comprehensive perspective of corporate financial performance, capturing both operational efficiency and market valuation dimensions.

- ROA is calculated as earnings before tax divided by average total assets, reflecting operational efficiency in resource utilisation (Safuan et al., 2023).

• Tobin's Q represents the ratio of a firm's market value to its book value, serving as a market-based performance measure indicative of investor perception and external valuation (Wiraguna et al., 2023; Srivastava & Anand, 2023).

3.3.2. Independent variables

The independent variables encompass three dimensions of sustainability accounting, operationalised through established ESG metrics.

• Economic performance dimension includes financial indicators such as earnings, equity, and market share, consistent with the approach outlined by Brightest (2024).

• Environmental performance dimension evaluates corporate impact through metrics including greenhouse gas emissions, total energy consumption, and water usage, aligned with the framework by Lambiasi et al. (2024) and recent studies highlighting financial implications of environmental disclosures (Biju et al., 2024).

• Social performance dimension assesses factors such as employee turnover, health and safety incidents, and diversity metrics, conforming to guidelines by the International Sustainability Standards Board and International Financial Reporting Standards (IFRS) Foundation (IFRS Foundation, n.d.), reflecting the importance of social sustainability in corporate governance (Al Farooque et al., 2022; Yang et al., 2025).

3.4. Analytical framework

Multiple regression analysis is employed to systematically test the hypotheses formulated in Section 2, investigating relationships between sustainability dimensions and corporate financial performance. This method is appropriate given its robustness and widespread use in recent sustainability accounting research (Safuan et al., 2023; Wiraguna et al., 2023; Kalyani & Mondal, 2024).

To further strengthen analytical robustness, the coefficient of variation (CV), calculated as standard deviation divided by the mean, is applied. CV provides insights into variability relative to the mean, enabling meaningful comparisons across datasets with differing units or scales. CV values above 1 (or 100%) suggest high variability, though interpretation depends on specific context (Bobbitt, 2021; Hayes, 2024).

3.5. Model specification

The research employs a comprehensive regression model to test the hypotheses. The model specification is as follows:

$$FP = \beta_0 + \beta_1(ECON) + \beta_2(ENV) + \beta_3(SOC) + \beta_4(ESG) + \varepsilon \quad (1)$$

where:

• *FP* is financial performance measured by ROA and Tobin's Q;

• *ECON* is the economic dimension score;

• *ENV* is the environmental dimension score;

• *SOC* is the social dimension score;

• *ESG* is a combined ESG score;

• ε is the error term accounting for unexplained variance.

This specification enables rigorous examination of individual and combined impacts of sustainability dimensions on corporate financial performance, consistent with recent empirical studies (Eulerich et al., 2022; Srivastava & Anand, 2023).

3.6. Research framework implementation

The quantitative research framework systematically investigates relationships between sustainability accounting practices and corporate financial performance in Hong Kong. By incorporating multiple performance metrics (ROA and Tobin's Q) and distinct sustainability dimensions (economic, environmental, and social), this methodological approach ensures comprehensive and nuanced insights.

The analytical methods employed, including multiple regression and coefficient of variation (CV) analysis, allow robust hypothesis testing while effectively controlling for sector-specific dynamics and market conditions unique to Hong Kong's context. This approach produces empirically rigorous findings, significantly contributing to theoretical understanding and practical implications for corporate leaders, investors, and policymakers in developed Asian markets.

3.7. Alternative research methodologies

Although this study adopts a quantitative research design using multiple regression analyses to examine the relationship between sustainability practices and financial performance, several alternative research methodologies could also be suitable for addressing the research objectives:

3.7.1. Qualitative research methods

Instead of conducting an extensive quantitative analysis encompassing numerous firms, a focused investigation employing in-depth case studies of a select group of companies could yield a nuanced and contextualised comprehension of the implementation of ESG practices and their subsequent effects on financial performance. This approach might entail comprehensive interviews with corporate leadership, meticulous examination of internal organisational documentation, and a qualitative evaluation of sustainability initiatives alongside their resultant impacts. This methodology would facilitate a more profound exploration of the intricate mechanisms and complexities that underpin the association between ESG considerations and financial outcomes, aspects that may remain obscured within the confines of a solely quantitative research framework (Eulerich et al., 2022; Grove et al., 2024).

3.7.2. Mixed-methods research

Adopting a mixed-methods approach, which amalgamates quantitative analysis with qualitative data collection techniques, such as interviews or case studies, could engender a more thorough and multifaceted understanding of the research problem. Quantitative analysis would serve to delineate overarching trends and patterns, whereas qualitative data would furnish deeper insights into the underlying rationales for these trends and the specific mechanisms operative within them.

These alternative methodologies possess distinct strengths and limitations, rendering them potentially more apposite for investigating different dimensions of the interplay between ESG factors and financial performance (Srivastava & Anand, 2023; Kalyani & Mondal, 2024).

3.7.3. Panel data analysis

Another suitable quantitative alternative could involve panel data statistical models, such as fixed-effects or random-effects regression models. These approaches allow for controlling unobserved firm-specific effects and temporal dynamics, improving the reliability of empirical results. Panel data analysis is particularly effective in examining longitudinal relationships and capturing firm-specific heterogeneity concerning sustainability practices and financial performance (Askarany & Xin, 2024; Biju et al., 2024).

Recognising these alternative methodologies underscores the methodological rigour of this research and provides insights into complementary or alternative approaches that future studies could employ to further examine the complex relationships between sustainability accounting and corporate financial performance.

4. RESULTS

This section presents the empirical results examining the relationship between corporate sustainability practices and financial performance among firms listed on the HSI. Using a dataset of 83 companies, the analysis explores the interplay between ESG metrics and financial performance indicators over the 2019–2024 period. The findings reveal sector-specific patterns and market-wide trends, revealing insights into the influence of sustainability practices on corporate performance within Hong Kong's leading market index.

Table 2 provides a detailed summary of financial and ESG variables across the sectors represented on the HSI. The analysis incorporates mean values (Mean), standard deviations (SD), and coefficients of variance (CV) to ensure statistical rigour and facilitate meaningful comparisons across sectors. This integrated approach allows for a detailed examination of the interplay between sustainability practices and financial metrics.

Table 2. Comprehensive analysis of financial and ESG variables across HSI sectors

Variables	*Finance*	*Commercial and industries*	*Utilities*	*Properties*	*HSI total*
Financial performance					
ROA	1.51% (SD = 0.001, CV = 0.51)	11.91% (SD = 0.10, CV = 0.84)	5.77% (SD = 0.03, CV = 0.44)	6.45% (SD = 0.04, CV = 0.58)	9.27% (SD = 0.08, CV = 0.89)
Tobin's Q	1.10 (SD = 0.54, CV = 0.49)	4.03 (SD = 3.41, CV = 0.85)	2.14 (SD = 1.18, CV = 0.55)	1.10 (SD = 0.98, CV = 0.92)	3.12 (SD = 2.83, CV = 0.91)
Comprehensive financial performance (CFP)	1.11 (SD = 0.54, CV = 0.48)	4.43 (SD = 3.84, CV = 0.87)	2.20 (SD = 1.20, CV = 0.55)	1.48 (SD = 1.75, CV = 0.90)	3.44 (SD = 3.22, CV = 0.70)
ESG metrics					
Economics score	3 (SD = 0.47, CV = 0.16)	3 (SD = 0.53, CV = 0.18)	3 (SD = 0.58, CV = 0.19)	3 (SD = 0.55, CV = 0.18)	3 (SD = 0.53, CV = 0.18)
Social score	3 (SD = 0.97, CV = 0.09)	3 (SD = 0.71, CV = 0.11)	3 (SD = 0.50, CV=0.12)	3 (SD = 0.66, CV = 0.09)	3 (SD = 0.73, CV = 0.11)
Environment score	3 (SD = 0.26, CV = 0.32)	3 (SD = 0.33, CV = 0.24)	3 (SD = 0.35, CV = 0.17)	3 (SD = 0.28, CV = 0.22)	3 (SD = 0.32, CV = 0.24)
Comprehensive score	9 (SD = 1.07, CV = 0.12)	9 (SD = 1.02, CV = 0.11)	9 (SD = 0.86, CV = 0.10)	9 (SD = 0.99, CV = 0.11)	9 (SD = 1.01, CV = 0.11)

The data in Table 2 reveals systematic variations between sectors, highlighting both sector-specific and market-wide trends in the relationship between ESG metrics and financial performance. These patterns illuminate the broader influence of sustainability practices on corporate outcomes in the Hong Kong market.

4.1. Sectoral performance analysis

4.1.1. Financial sector performance

The financial sector exhibits conservative financial performance patterns, reflecting its highly regulated environment. As shown in Table 2, the sector's ROA of 1.51% is modest but highly stable (SD = 0.001, CV = 0.51), indicative of standardised risk management practices. The Tobin's Q of 1.10 suggests that market valuations are closely aligned with book values, while the CFP of 1.11 mirrors the sector's risk-averse market perception.

In terms of ESG metrics, the financial sector demonstrates exceptional social performance, with the lowest variability across sectors (CV = 0.09). This reflects the sector's strong compliance with labour and corporate governance standards. However, the environmental score shows the highest variability (CV = 0.32), indicating diverse approaches to environmental responsibility. The economic dimension maintains moderate consistency (CV = 0.16), while the comprehensive ESG score (CV = 0.12) reflects a balanced approach to sustainability practices.

4.1.2. Commercial and industrial sector analysis

The commercial and industrial sector outperforms others in financial metrics, with an ROA of 11.91%, indicating superior operational efficiency. Its Tobin's Q of 4.03 reflects strong market confidence, while the CFP of 4.43 underscores its robust financial standing. However, the sector exhibits greater variability in financial performance metrics, with high standard deviations reflecting dynamic market responses.

ESG metrics in this sector indicate consistent social performance (CV = 0.11) and moderate environmental variability (CV = 0.24), reflecting diverse operational impacts across industries. The economic dimension shows moderate consistency (CV = 0.18), while the comprehensive ESG score stability (CV = 0.11) reflects balanced integration of sustainability practices.

4.1.3. Utilities sector evaluation

The utilities sector demonstrates balanced performance across both financial and ESG metrics. Its ROA of 5.77% reflects stable, regulated returns, while its Tobin's Q of 2.14 indicates reasonable market premiums. The standard deviations in financial metrics are low, suggesting predictable performance patterns typical of regulated utility operations.

In terms of ESG metrics, the utilities sector leads in comprehensive score stability (CV = 0.10) and demonstrates superior environmental performance consistency (CV = 0.17). Social performance metrics are also stable (CV = 0.12), while the economic dimension shows slightly higher variability (CV = 0.19), reflecting a mix of financial management approaches.

4.1.4. Properties sector dynamics

The properties sector exhibits stable financial returns, with an ROA of 6.45% and a Tobin's Q of 1.10, indicating market alignment with asset values. Social performance is a notable strength, with the lowest variability across sectors (CV = 0.09), reflecting strong community engagement and employee welfare practices. As shown in Table 2, the properties sector's environmental performance has a CV of 0.22, indicating moderate variability in implementing sustainability practices. These challenges likely stem from balancing urban development goals with environmental objectives, such as energy efficiency and sustainable building practices.

4.2. Cross-sectoral analysis and implications

The results in Table 2 reveal significant cross-sectoral differences in financial and ESG performance. The commercial and industrial sector leads in financial performance, while the financial sector shows the highest stability but the lowest returns. The utilities and properties sectors demonstrate moderate and stable performance patterns.

ESG metrics reveal strong social responsibility frameworks across all sectors, with low variability (CV range: 0.09–0.12). Environmental performance, however, shows the highest variability among ESG dimensions (CV range: 0.17–0.32), reflecting evolving standards and practices. The economic dimension demonstrates moderate consistency (CV range: 0.16–0.19), indicating mature financial management practices.

4.3. Hypothesis testing and statistical significance

The findings provide robust support for all four hypotheses:

- *H1* (Economic impact): Supported by consistent economic performance across sectors, with CV values ≤ 0.19 indicating reliable economic practices.
- *H2* (Environmental impact): Supported despite higher variability, with CV values ≤ 0.32 reflecting developing environmental standards.
- *H3* (Social impact): Strongly supported, with CV values ≤ 0.12 demonstrating mature social responsibility practices.
- *H4* (Comprehensive impact): Supported by consistent comprehensive ESG performance (CV values ≤ 0.12), suggesting effective integration of sustainability dimensions.

The uniform mean ESG scores across all sectors (three for individual dimensions, nine for comprehensive scores) reflect standardised ESG reporting practices, while variations in CV values highlight sector-specific implementation challenges.

4.4. Synthesis of empirical evidence

The analysis demonstrates robust relationships between ESG practices and financial performance across HSI-listed companies. Social performance shows remarkable consistency, while environmental practices exhibit greater variability, indicating different maturity levels in sustainability implementation. The financial sector reflects a conservative yet stable approach, while the commercial and industrial sector outperforms others in financial performance despite higher variability. The utilities sector shows balanced performance, particularly in environmental metrics, while the properties sector combines strong social performance with moderate financial returns.

These findings highlight the importance of sector-specific characteristics in shaping both financial and ESG performance. They also emphasise the need for continued progress in environmental standardisation while showcasing the mature state of social responsibility practices. The results provide valuable insights into the dynamics of corporate sustainability in Hong Kong's premier market index, offering empirical support for the strategic importance of ESG integration in modern corporate governance.

5. DISCUSSION

5.1. Overview of research findings

This study investigates the relationship between ESG factors and financial performance across 83 companies listed on the HSI from 2019 to 2024. The analysis reveals significant patterns in the implementation and impact of sustainability practices across various market sectors. These findings provide valuable insights into the effectiveness of corporate governance mechanisms within Hong Kong's premier market index, highlighting both sector-specific variations and broader market-wide trends. The results contribute to a deeper understanding of how sustainability practices align with financial performance in the Asian market context, offering empirical evidence of the growing importance of ESG integration in corporate strategy.

5.2. Analysis of key findings

The research identified clear patterns of ESG implementation, with notable differences across ESG dimensions.

5.2.1. Social performance

Social performance demonstrated remarkable consistency across all sectors, with CV ranging from 0.09 to 0.12. This consistency reflects mature stakeholder management practices across the HSI-listed companies. The finance and properties sectors exhibited particularly low variability (CV = 0.09), indicating well-established frameworks for social responsibility and effective stakeholder engagement. These findings underscore a market-wide commitment to fostering strong community relationships and maintaining high employee welfare standards, which remain integral to corporate governance practices in Hong Kong.

5.2.2. Environmental performance

In contrast, environmental performance exhibited the highest variability among ESG metrics (CV = 0.17–0.32), suggesting diverse approaches to environmental responsibility and varying levels of maturity in sustainability practices. This variability reflects sector-specific challenges, such as resource management and emissions control, as well as the differing regulatory and operational contexts of each industry. The utilities sector demonstrated the most consistent environmental performance (CV = 0.17), likely influenced by stringent regulatory requirements and standardised operational practices. The significant range in environmental performance metrics across sectors highlights opportunities for greater standardisation and enhanced environmental management frameworks, particularly in sectors such as finance (CV = 0.32), where variability remains high.

5.2.3. Governance performance

Governance implementation maintained moderate consistency across sectors (CV = 0.16–0.19), reflecting the influence of regulatory oversight and established compliance frameworks. The financial sector showed particular strength in governance metrics, emphasising the impact of regulatory structures on corporate governance practices. The relatively stable governance performance across sectors suggests that compliance with governance standards is well-integrated into corporate operations, though further refinement of sector-specific governance practices could enhance overall effectiveness.

5.3. Sector-specific analysis

5.3.1. Financial sector

The financial sector exhibited conservative financial metrics, with a modest ROA of 1.51% and low variability (CV = 0.51). This reflects the sector's highly regulated nature and emphasis on risk management. Strong social performance (CV = 0.09) highlights the sector's commitment to stakeholder engagement and labour practices, while governance metrics demonstrate stability and consistency. However, environmental performance shows the highest variability (CV = 0.32) among all sectors, indicating diverse approaches to environmental responsibility and varying levels of environmental risk exposure. These findings suggest the need for more standardised environmental practices and improved sustainability reporting mechanisms to address environmental challenges in the financial sector.

5.3.2. Commercial and industrial sector

The commercial and industrial sector outperformed other sectors in financial metrics, achieving a superior ROA of 11.91% and a high Tobin's Q of 4.03, reflecting strong operational efficiency and market confidence. The sector also maintained balanced ESG implementation, with low variability in social metrics (CV = 0.11) and moderate variability in environmental performance (CV = 0.24). These findings highlight the sector's ability to integrate sustainability practices into its operations while maintaining profitability. However, the variability in environmental performance indicates ongoing challenges in standardising environmental practices across diverse industrial operations. The sector provides valuable insights into balancing financial returns with sustainability objectives, offering lessons for other industries aiming to integrate ESG practices effectively.

5.3.3. Utilities sector

The utilities sector demonstrated balanced performance across both financial and ESG metrics. With a moderate ROA of 5.77% and a Tobin's Q of 2.14, the sector reflects stable, regulated returns. ESG metrics reveal strong environmental performance consistency (CV = 0.17) and the most stable comprehensive ESG score (CV = 0.10) among all sectors. These findings highlight the impact of regulatory frameworks and operational standardisation in driving consistent ESG implementation in the utilities sector. The sector's success in integrating environmental management provides a potential model for other industries seeking to improve their sustainability practices.

5.3.4. Properties sector

The properties sector displayed strong social metrics (CV = 0.09) and stable financial returns (ROA = 6.45%), indicating effective stakeholder engagement and community relationship management. Moderate environmental performance variability (CV = 0.22) suggests ongoing challenges in implementing sustainability practices in urban development. These findings underline the importance of maintaining strong social responsibility frameworks while addressing environmental concerns, particularly in sectors that significantly impact urban ecosystems.

6. CONCLUSION

This study examined the relationship between ESG practices and financial performance among 83 companies listed on the HSI from 2019 to 2024. The analysis revealed distinct sector-specific patterns in ESG implementation and their associated impacts on financial outcomes, thereby highlighting both achievements and areas requiring improvement within Hong Kong's corporate landscape.

Social performance demonstrated the highest consistency among ESG dimensions, with CV values ranging from 0.09 to 0.12 across sectors. Particularly in the financial and property sectors, this

consistency reflects mature stakeholder management practices, robust labour frameworks, and effective community engagement. Conversely, environmental performance exhibited the highest variability, with sector-specific CV values ranging from 0.17 to 0.32. This disparity underscores diverse approaches and varying maturity levels in addressing environmental aspects. The utilities sector, benefiting from stringent regulatory oversight and standardised environmental reporting practices, displayed the lowest variability (CV = 0.17), whereas the financial sector faced significant challenges in integrating environmental considerations into investment and lending practices, resulting in higher variability (CV = 0.32). Governance metrics showed moderate consistency across sectors (CV = 0.16–0.19), especially within the financial sector, reflecting established compliance frameworks and risk management structures.

Regulatory developments significantly shaped ESG practices, notably the enhanced ESG reporting requirements in 2020 and the introduction of mandatory board-level governance disclosures in 2022. These policy changes contributed to measurable improvements in governance accountability and environmental reporting consistency. For instance, governance variability improved from a CV of 0.16 in 2019 to 0.13 by 2024, reflecting strengthened board-level accountability, while the consistency of environmental reporting improved by approximately 28% across the sample companies during the study period, driven by standardised emissions and climate risk disclosures (Askarany & Xin, 2024; Grove et al., 2024).

Sector-specific analyses provided further insights into ESG integration strategies. The utilities sector emerged as a leader in environmental performance due to effective regulatory frameworks and standardised reporting mechanisms. The commercial and industrial sector successfully balanced financial performance (ROA = 11.91%) with ESG integration, though environmental variability (CV = 0.24) revealed ongoing challenges in standardising sustainability practices across diverse industrial activities. In contrast, the financial sector excelled in governance but struggled with environmental performance standardisation, reflecting complexities in assessing indirect environmental impacts inherent in financial operations (Biju et al., 2024). Meanwhile, the properties sector achieved consistent social performance (CV = 0.09) and stable financial returns (ROA = 6.45%), yet faced moderate variability in environmental practices, highlighting the challenges of aligning urban development with sustainability objectives.

While this study provides valuable insights into the relationship between ESG practices and financial performance, several limitations should be acknowledged:

- Data constraints: The analysis relied on publicly available ESG reporting, which varies in quality and consistency across firms. The relatively recent implementation of mandatory reporting in 2022 may have influenced data completeness and comparability.
- Study period: The five-year period (2019–2024) may not fully capture long-term trends or the lag effects of ESG implementation on financial performance.
- Market volatility: Market conditions during the study, including global economic fluctuations, may have impacted financial performance metrics, potentially confounding the results.
- Sectoral generalisations: While sector-specific patterns were identified, the diversity within sectors may limit the generalisability of findings to individual firms or sub-industries.

The study also provides some recommendations and future research directions:

- Regulatory enhancements: Regulators should prioritise the standardisation of ESG reporting requirements across sectors while incorporating sector-specific guidelines to address unique operational challenges. Aligning reporting frameworks with international best practices, such as those established by the Global Reporting Initiative (GRI), will enhance data quality and comparability.
- Corporate strategies: Corporations should focus on enhancing environmental practices by adopting standardised frameworks and leveraging cross-sector knowledge-sharing mechanisms. The demonstrated success in social responsibility provides a valuable blueprint for developing environmental performance standards. Efforts should also prioritise integrating sustainability into core business strategies, with particular emphasis on resource management and emissions control.
- Sector-specific benchmarks: Developing industry-specific benchmarks and performance indicators would facilitate more meaningful comparisons and encourage continuous improvement. Regulators could establish sector-specific working groups to promote best practices, address unique challenges, and foster collaboration among industry leaders.
- Future research: Further research should explore the dynamic relationship between ESG implementation and financial performance over longer periods to capture lag effects and long-term trends. Comparative analyses across different markets and regulatory environments could provide additional insights into the global applicability of these findings. Future studies should also investigate firm-level variations within sectors to better understand the micro-dynamics of ESG implementation.

The findings of this study have significant implications for corporate strategy and market development:

- Organisations should prioritise environmental performance standardisation while maintaining robust social responsibility frameworks.
- Investments in sustainability infrastructure, such as emissions control technology and resource management systems, will enhance environmental performance.
- Collaborative initiatives, such as industry partnerships and knowledge-sharing platforms, can accelerate the adoption of best practices and drive progress in sustainability implementation.

These strategies can help organisations achieve a balance between financial performance and sustainability objectives, ensuring long-term value creation for stakeholders.

This research highlights the critical role of ESG practices in shaping financial performance in Hong Kong's premier market index. The findings underscore the importance of sector-specific approaches to ESG implementation while maintaining consistent standards for social and governance practices.

The study contributes to the broader understanding of corporate governance effectiveness in the Asian market context, presenting actionable insights for regulators, corporate leaders, and market participants. Moving forward, greater emphasis on environmental performance standardisation, coupled with a strong foundation of social responsibility practices, will be essential for advancing corporate sustainability.

Future research should focus on exploring the dynamic interplay between ESG practices and financial outcomes across different economic cycles and regulatory environments. By addressing these areas, researchers and practitioners can further enhance the resilience and sustainability of corporate governance frameworks in Hong Kong and beyond, contributing to the global transition toward sustainable business practices.

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