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Environmental, social and governance trends in Asian firms: a systematic review and bibliometric analysis using the antecedents-decisions-outcomes–theories-context-methods framework

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ABSTRACT

This study systematically reviews 246 Scopus-indexed articles (2013–2023) on environmental, social and governance (ESG) practices in Asian firms using the antecedents-decisions-outcomes (ADO)–theories-context-methods (TCM) framework. This integrative approach—combining ADO with TCM—offers a novel lens to map ESG research in emerging economies. Asian firms operate within unique institutional contexts marked by family ownership, relational governance and hierarchical decision-making, distinguishing their ESG adoption from Western counterparts. The study reveals key antecedents such as corporate governance, financial strategies and technological readiness; ESG decisions are shaped by disclosure practices, stakeholder engagement and sustainability alignment. Outcomes include financial resilience, innovation and improved ESG performance. Practical implications highlight the need for enhanced ESG governance through leadership development, diverse boards and executive incentives; access to green finance; and adoption of digital technologies such as artificial intelligence and blockchain. This study contributes a structured synthesis of ESG adoption in Asia and identifies contextual gaps for future research.

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1. Introduction

Environmental, social and governance (ESG) has become progressively dominant to investment strategies around the world over the last few years as investors have come to realize their importance in encouraging sustainable business practices (Mohammad & Wasiuzzaman, 2021). The rapid growth of ESG-driven investment is evident, with global sustainable investments projected to reach US$ 5–7 trillion by 2030 (Jin & Lei, 2023). As business operations increasingly become focused on sustainability, the profile of ESG factors has risen as a way to mitigate risks but also as a tool to innovate and achieve long-term profitability (Bodhanwala & Bodhanwala, 2018). While Western economies have led ESG adoption, Asia's role in the ESG landscape is increasingly prominent (Alsayegh et al., 2020; Chung et al., 2024; Phang & Chia, 2024; Rahman & Alsayegh, 2021).

However, despite Asia's economic rise growing from $10 billion in 2018 to over $100 billion in 2022, ESG investments in the region remain comparatively small compared to those in Western markets. Asian firms operate within distinct cultural and regulatory environments, differing from their Western counterparts (Handoyo & Anas, 2024). Business practices in Asia often emphasize family-owned structures, hierarchical decision-making and relational governance, which may influence ESG adoption differently compared to Western firms (Nasir et al., 2024). Additionally, Asian economies, particularly China, Indonesia and Vietnam, have experienced rapid industrial growth, leading to heightened environmental concerns such as deforestation and high greenhouse gas emissions (Y.-M. Tan et al., 2023). With global regulatory frameworks for ESG becoming more stringent, Asian firms are faced with greater pressure to bring their ESG practices into line with international standards, despite the diversity in regulatory environments

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around the region (Agbakwuru et al., 2024). Within this context, it is insightful to explore ESG trends of Asian firms to understand the Asian region's special path on sustainable business features.

Indeed, previous studies have demonstrated the growing inclusion of ESG principles in corporate strategy, especially when considering the engagement with the principles for responsible investment (PRI) (Cabaleiro-Cerviño & Mendi, 2024). The PRI has seen great traction in the marketplace since 2006, over 5300 companies from more than 80 countries have committed to implement ESG oriented principles (Yu et al., 2024). It is found that ESG publications on Asian firms have grown significantly in recent years, with 137 publications in 2023 (Figure 1), a strong increase over the past decade. Even with this upward trend, there is little aggregated understanding of the theoretical foundation, drivers, strategies and outcomes of ESG adoption in Asia. Many prior reviews have approached ESG from a narrow perspective. For instance, Alsayegh et al. (2020) and Fahad and Rahman (2020) primarily focused on ESG disclosure, neglecting the interrelationships among ESG drivers, strategic decisions and multi-dimensional outcomes. Others, concentrated on single-country contexts or sector-specific implications, limiting their generalizability across Asia's diverse institutional and cultural settings (Y. He et al., 2023; J. Liu et al., 2023; J. Wang et al., 2023). Additionally, much of the existing ESG literature is sourced from Google Scholar, which lacks the rigorous peer-review and indexing standards found in Scopus thus affecting the reliability and coherence of bibliometric evaluations (Clément et al., 2023; Giuli et al., 2024; Martiny et al., 2024).

A key novelty of this study lies in its representation-focused approach to ESG research in Asia. Unlike previous works that analyze ESG trends in isolation, this study systematically maps and assesses the intellectual territory of ESG adoption using the ADO-TCM framework (Mukhtar et al., 2025). The antecedents-decisions-outcomes (ADO) framework can be applied to ESG to help firms to identify the internal and external drivers (antecedents) that encourage firms to adopt ESG practices, the strategies that firms choose to implement (decisions) and the consequences of these strategies on corporate performance and stakeholder relationships (outcomes) (Lim & Rasul, 2022). In tandem with this, the theories-context-methods (TCM) framework also serves to further study the ESG concepts, research methods and the Asian context in which ESG praxis is located (Priya & Sathish, 2024). An aspect of ADO and TCM frameworks that lends itself as a broad angle for critical review of ESG practices, and from whence we review existing studies, is the combination of them (Aulia et al., 2024).

This study adopts a representation-oriented review approach, which systematically maps ESG research trends and evaluates how the field has developed over time (Kunisch et al., 2023). This aligns with the knowledge-mapping function of systematic reviews, where bibliometric analysis is used to codify and assess scholarly contributions (Yeboah, 2023). According to Liguori et al. (2024), representation-oriented reviews aim to understand the progression and intellectual structure of a research field, making this study a valuable reference for academics, practitioners and policymakers interested in ESG developments in Asia. The primary purpose of this study is to represent and synthesize the evolution of ESG-related research in Asia by identifying dominant themes, theoretical foundations and methodological approaches

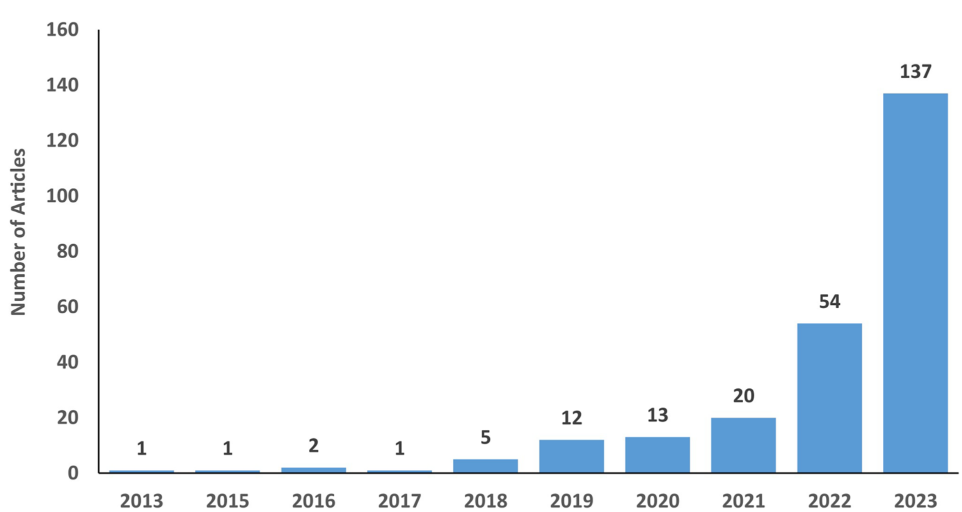

Figure 1. Publication trends. *Source:* Author's elaboration.

across a decade of literature. In doing so, we aim to reveal not only the state-of-the-art but also key research gaps and future directions. To achieve this purpose, we address the following research questions:

1. What are the dominant theoretical perspectives used to explain ESG adoption in Asian contexts?
2. What key drivers, strategic responses and performance outcomes are most frequently studied in ESG research in Asia?
3. How has the thematic focus of ESG research in Asia evolved over time, and what emerging trends can be identified?

In answering these questions, we draw on peer-reviewed journal articles indexed in the Scopus database from 2013 to 2023. Scopus was selected due to its broad and high-quality coverage of international academic literature. The use of this data source ensures a rigorous and comprehensive foundation for bibliometric analysis. By combining systematic literature review (SLR) and bibliometric techniques, and applying the ADO-TCM framework, this study categorizes and interprets ESG-related publications based on antecedents, decisions and outcomes, while incorporating theoretical lenses, context and methodological patterns. The results include performance analysis, science mapping and thematic clustering, offering a holistic view of how ESG scholarship in Asia has progressed—and where it is headed.

2. Theoretical review

This section examines the key underlying factors that shape ESG adoption and implementation. Specifically, we explore how the unique cultural and institutional context of Asian firms influences ESG strategies, the different types of ESG initiatives emerging in the region and the evolving regulatory landscape that affects corporate sustainability practices.

2.1. Firm culture and ESG orientations in asia

Asian corporate culture plays a decisive role in shaping how firms perceive and implement ESG initiatives. Unlike their Western counterparts, which often prioritize financial performance and shareholder value, many Asian firms operate within a broader set of cultural and institutional norms. This section explores three key cultural dimensions influencing ESG adoption: family-owned enterprises and long-term orientation, collectivism and stakeholder engagement, and the balance between regulatory compliance and voluntary ESG practices.

2.1.1. Family-owned enterprises and long-term orientation

Prevalent in Asian firms is the fact of family controlled businesses, as some prefer long-term growth rather than immediate profitability, and that makes them specifically well placed to incorporate ESG principles in their business model (Fang et al., 2022). According to a study by Garger and Lees, in Asia 42% of family businesses regard sustainability as their key issue in place of North America. Nevertheless, ESG adoption in family businesses is presented with both opportunity and challenge in the long-term orientation of the businesses. As the family controlled firms, they have a stake in environmental and social sustainability as they are interested in preserving wealth to future generations (Du & Cao, 2023). The concentration of decision-making power in family structures can, however, be a source of ESG-driven trans-formations resistance if sustainability investments are raised as being costly in the short run (Yin et al., 2023). In many cases, ESG adoption in family-owned enterprises is driven by external pressures rather than internal conviction (Sun et al., 2024).

2.1.2. Collectivism and stakeholder engagement

The cultural fabric of Asia is deeply rooted in collectivism, shaping corporate relationships with employees, communities and supply chain partners (Thorisdottir & Johannsdottir, 2020). Unlike individualistic cultures that prioritize shareholder interests and short-term profitability, collectivist societies manifest in ESG policies that focus on social responsibility, community engagement and ethical labor practices

(Silalahi et al., 2023). As a result, Asian firms tend to view sustainability initiatives as a shared responsibility rather than an obligation dictated by external stakeholders as reflected in Asia Pacific's leadership in sustainability reporting, with 89% of companies in the region undertaking some form of ESG disclosure—the highest globally. This surpasses Europe (82%), the Americas (74%) and the Middle East and Africa (56%). According to Meng et al. (2023) high reporting rate shows the high commitment of the region to sustainability; it is largely caused by regulatory requirements, investors expectations and cultural norms that require the responsibility of the role of the corporations in the broader society.

Nevertheless, Asian firms tend to dominate the volume of sustainability reporting, but the depth and quality of these are very different. The prevalence of hierarchical corporate structure is a key matter for Asian ESG reporting, which sometimes results in suppression of transparency. In such collectivist cultures, disciplines with power dynamics that are punished, discouraging dissent and exposure from outside expected (J. H. Liu & Xie, 2023). The structure allows for opaque ESG disclosure where, the intention being to ensure internal harmony, firms put focus on maintaining rather than providing comprehensive sustainability data (Alduais, 2023). The impact of these tendencies is reflected in Asia Pacific's relatively low rate of integrated reporting (30%) compared to North America (97%) and Western Europe (85%) (KPMG International, 2022). The lower adoption rate suggests that many Asian firms still struggle with fully embedding ESG considerations into their core business strategies.

2.1.3. Regulatory compliance vs. voluntary ESG practices

Whereas European firms often see ESG as a means to gain competitive advantage, so do the Asian firms–but mainly as a reaction to a regulation (Suttipun, 2021). Policies, feedback structures related to incentives, reporting requirements and many other things play a central role of how governments shape what corporate ESG behavior does (Lin et al., 2021). For instance, the China 2022 ESG Reporting Guidelines compiled the publicly traded companies to report their environmental and social impact (Shen et al., 2023). Nevertheless, superficial implementation rather than actual corporate transformation can be the result of a compliance driven ESG approach (J. Wang et al., 2023). Firms have adopted ESG practices for lower regulatory minimums than for driving systemic change (Gu et al., 2021). Such authenticity concerns about the sustainability commitments and the risk of greenwashing (D. Zhang, 2022).

2.2. Types of ESG strategies in Asian firms

ESG strategies are implemented by Asian firms in a variety of ways based on the differences in industry dynamics, stakeholder pressures and government policies. There are firms who implement sustainability proactively, and there are those that are doing so out of the ecosystem pressure. For this part, three major ESG plans are considered: decarbonization and renewable energy investment; social sustainability and labor welfare; and corporate governance reforms.

2.2.1. Decarbonization and renewable energy investments

Asia Pacific accounts for nearly 60% of greenhouse gas emissions in 2023 (ESCAP, 2024). However, the region is also at the forefront of renewable energy investments. In 2023, China's wind energy capacity grew by 66% year-on-year, solidifying its leadership in the global renewable energy transition (IEA, 2024). Despite these efforts, the challenge of transition to clean energy lies in balancing economic growth with environmental responsibility, particularly in emerging economies that rely on fossil fuels for industrial development (Qamruzzaman & Karim, 2024).

2.2.2. Social sustainability and workforce well-being

Asian firms are increasingly prioritizing social sustainability, particularly in areas such as labor rights, workplace diversity and employee well-being (Fahad & Rahman, 2020). However, progress remains uneven across industries and countries due to cultural norms and regulatory disparities (J. Feng et al., 2022). While some multinational corporations have strengthened ethical labor policies, especially in sectors reliant on low-cost labor, such as manufacturing, construction and agriculture (Anner, 2020). Furthermore, gender diversity in corporate leadership remains a pressing challenge, despite gradual improvements.

The progress has been observed at other managerial levels—women's representation in senior manager and director roles rose from 32% in 2015 to 37% in 2024 (McKinsey & Company, 2024). Despite these gains, the McKinsey & Company (2024) indicates that at the current rate, it will take nearly 50 years to achieve full gender parity. These disparities underscore the need for stronger policies promoting workplace equity, inclusion and fair labor practices to ensure that ESG commitments translate into meaningful social impact (X. Zhang et al., 2021).

2.3. The evolving ESG regulatory landscape in asia

ESG regulations in Asia are rapidly evolving, driven by a combination of government policies, investor expectations and global sustainability commitments. Over the past decade, Asian governments have increasingly recognized the importance of ESG compliance, not only as a tool for corporate accountability but also as a mechanism for strengthening long-term economic resilience. But the regulatory landscape is fragmented in many ways: hugely different in enforcement, reporting standards and effectiveness from country to country. In addition, there remains an obstacle, greenwashing, inconsistencies in ESG disclosure frameworks, as well as the alignment of ESG amongst diverse regulatory environments.

2.3.1. Stock exchange ESG mandates

Evidently, stock exchanges in Asia are increasingly becoming a pivotal player in fostering application of ESG disclosure requirements (Weber, 2014). With capital markets moving towards sustainability invested funds, regulators are also tightening the reporting obligations that publicly traded firms are required to submit on ESG (J. Wang et al., 2023). ESG disclosure in Hong Kong has been mandatory since 2020 and additional climate-related risk reporting will become mandatory in 2025 (HKEX, 2024). Similar to other listed firms Singapore Exchange (SGX) has mandated sustainability reports that are also required by all listed firms with a large cap stated to disclose climate information based on Task Force on Climate-related Financial Disclosures (TCFD) recommendations (SGX, 2022). ESG compliance is, on the other hand, still voluntary across stock exchanges in Thailand, Malaysia and Indonesia, albeit the latter two are gradually integrating sustainability metrics (Sadiq et al., 2023). However, a uniformity in reporting framework is still a major challenge, especially due to the growing ESG mandates (Prajapati et al., 2021). Investors and stakeholders have raised concerns about greenwashing, as firms often provide ESG reports without standardized verification mechanisms (Elili, 2022).

2.3.2. Integration of ESG into financial markets

The integration of ESG into financial markets is accelerating across Asia, with sustainable finance instruments gaining popularity among institutional investors. Asia has become a major hub for green bond issuance, with China, Japan and South Korea leading the market (Schumacher et al., 2020). In 2023, China issued over US$ 150 billion in green bonds, accounting for nearly 40% of global issuance (IFC & Amundi, 2024). Meanwhile, ESG-linked loans are gaining traction, with firms using sustainability performance indicators to secure favorable financing terms (Sadiq et al., 2023). Asset managers currently oversee US$ 8 trillion in dedicated ESG funds, with projections suggesting this figure could reach US$ 30 trillion by 2030 as demand for sustainable investments accelerates (Broadridge, 2021). However, concerns over ESG rating inconsistencies and data verification persist, as rating agencies use diverse methodologies that can lead to conflicting assessments of corporate ESG performance (Park & Jang, 2021). Many firms still struggle with ESG data collection and impact measurement, limiting the effectiveness of ESG-linked financial products (Elili, 2022).

3. Methods

3.1. Study design

This study employed a mixed-method approach by combining bibliometric analysis and a SLR using the ADO-TCM framework to comprehensively explore ESG research trends in Asian firms. The combination of bibliometric analysis and SLR was chosen to provide both depth and breadth in understanding the field

(Marzi et al., 2025). The bibliometric analysis was conducted first to offer a quantitative overview of the intellectual landscape, following the methodology of Chytis et al. (2024). Using VOSviewer, co-authorship, co-citation and keyword co-occurrence networks were visualized, enabling the identification of influential scholars, dominant research clusters and thematic evolution in ESG studies (Kirby, 2023).

Building on these insights, the SLR was structured using the ADO-TCM framework, which organizes the findings into antecedents, decision strategies and outcomes, while connecting them through theoretical, contextual and methodological perspectives (Priya & Sathish, 2024). The SLR process followed Tranfield et al. (2003) three-phase model: searching, screening and analyzing. Clearly defined eligibility criteria ensured that selected studies aligned with the research objectives, and consistency in screening helped reduce bias (Mukhtar et al., 2025). Additionally, the GRADE approach was applied to assess the confidence level of results, particularly concerning financial and operational outcomes. This integrated approach allowed for both a macro-level mapping and a micro-level synthesis of ESG research in the Asian context (Clément et al., 2023).

3.2. Data collection

Scopus was selected as the sole data source due to its broad disciplinary coverage, robust metadata quality and comprehensive indexing of peer-reviewed journals, particularly in business, management and sustainability domains (Baas et al., 2020). Prior bibliometric studies have also validated Scopus as a reliable and dominant source for large-scale systematic reviews in management research (Aryawati et al., 2024; Gandasari et al., 2024; Khan et al., 2020). The timeframe of 2013–2023 was chosen to capture a full decade of ESG research following the post-2013 global sustainability policy momentum—including the UN Sustainable Development Goals (SDGs) (United Nations, 2015) and Paris Agreement (United Nations, 2016)—which marked a turning point in ESG discourse and implementation, especially in emerging markets. This period also coincides with a noticeable rise in ESG mandates and reporting obligations across more than 15 Asian countries, including Vietnam (2013), India and Japan (2015), Singapore, Israel and Bahrain (2016) and Saudi Arabia and the UAE (2019), reflecting the regional acceleration toward institutionalized sustainability reporting (Krueger et al., 2024).

As shown in Figure 2, we began with a structured search strategy using the Scopus database, applying the following keyword string in the Title–Abstract–Keywords fields: 'Environmental* Social* Governance*' OR 'Environmental, Social And Governance' OR 'Environment* Social* Governance*' OR 'Environment, Social And Governance' OR 'ESG'. To ensure geographical relevance, we included the terms 'Asia' and a comprehensive list of Asian country names. The search was limited to articles published between 2013 and 2023, in English, and within the subject areas of Economics, Econometrics and Finance, and Business, Management and Accounting. Only peer-reviewed journal articles were included, while gray literature, book chapters, conference proceedings and qualitative-only studies were excluded

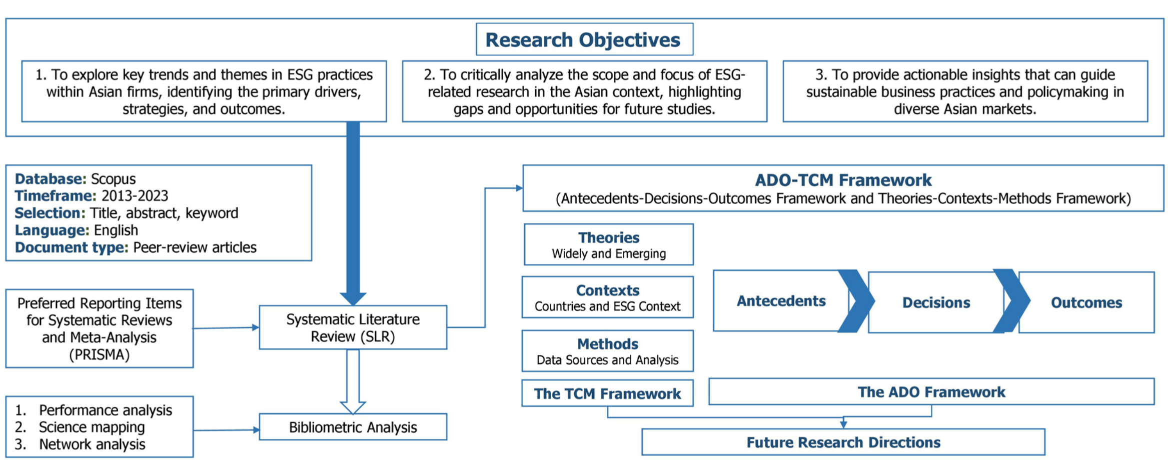

Figure 2. Research methodology. *Source:* Author's elaboration.

to maintain the academic rigor and consistency of the review. A summary of this search process is presented in Table 1.

The identification of relevant articles was guided by this refined search, setting the stage for the subsequent stages of screening and eligibility assessment in Figure 3 using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) diagram. To minimize reporting biases, we assessed the risk of missing results through a careful review of publication bias in the included studies. Subgroup analysis was performed to identify any potential biases that could arise from geographic or journal-specific reporting patterns. After title and keywords screening, 24 articles were excluded, leaving 391 articles. Subsequently, review paper screening was conducted, during which 11 review papers were excluded, resulting in 380 records. The next step was abstract screening in which 54 articles were excluded resulting in 326 articles for further assessment. Full text reviews excluded 80 articles during the eligibility assessment stage, because they did not explicitly discuss ESG practices or were deemed irrelevant to the study's focus. The result was 246 articles eligible for bibliometric analysis. PRISMA diagram outlined the final selection process, ending up with a dataset of 246 articles that were included for the bibliometric analysis with a goal of a complete and relevant set of studies on ESG practices in the Asian context.

4. Results and discussion

4.1. Bibliometric analysis

4.1.1. Performance analysis

The 246 articles included were published across 124 distinct academic journals, reflecting the multidisciplinary and expansive nature of the ESG field. Table 2 highlights the journals with multiple contributions to the dataset, showcasing their influence in shaping ESG research.

Among these, Finance Research Letters leads with 20 publications, supported by a high h_index of 101 and total citations reaching 1825, reflecting its prominence in this domain. Following this, The most influential articles on ESG research in the context of Asian firms are identified through citation analysis, which reveals the contributions that have significantly shaped the field. Beyond citation counts, the most influential publications in Table 3 have played a pivotal role in shaping ESG discourse within Asian contexts due to their methodological rigor, contextual relevance and novel insights that resonate with policymakers, practitioners and academics. Finance Research Letters, with the highest publication count, has served as a key outlet for timely, empirical ESG research, particularly studies responding to urgent

Table 1. Search criteria in scopus.

Item	Criteria
Database online	Scopus
Title–Abstract–Keywords (contexts)	'Environmental* Social* Governance*' OR 'Environmental, Social And Governance' OR 'Environment* Social* Governance*' OR 'Environment, Social And Governance' OR 'ESG' =16,643 documents
Title–Abstract–Keywords (countries)	Asia' OR 'Asian' OR 'India' OR 'China' OR 'Indonesia' OR 'Pakistan' OR 'Bangladesh' OR 'Japan' OR 'Philippines' OR 'Vietnam' OR 'Iran' OR 'Turkey' OR 'Thailand' OR 'Myanmar' OR 'South Korea' OR 'Iraq' OR 'Afghanistan' OR 'Yemen' OR 'Uzbekistan' OR 'Malaysia' OR 'Saudi Arabia' OR 'Nepal' OR 'North Korea' OR 'Syria' OR 'Sri Lanka' OR 'Kazakhstan' OR 'Cambodia' OR 'Jordan' OR 'United Arab Emirates' OR 'Tajikistan' OR 'Azerbaijan' OR 'Israel' OR 'Laos' OR 'Turkmenistan' OR 'Kyrgyzstan' OR 'Singapore' OR 'Lebanon' OR 'Palestine' OR 'Oman' OR 'Kuwait' OR 'Georgia' OR 'Mongolia' OR 'Qatar' OR 'Armenia' OR 'Bahrain' OR 'Maldives' OR 'Brunei' =2868 documents
Year	2013–2023 =1028 documents
Subject area	Economics, Econometrics and Finance; Business, Management and Accounting =530 documents
Document type	Scientific articles =439 articles
Publication status	Final =425 articles
Source type	Journal =424 articles
Language	English =416 articles

Source: Author's elaboration.

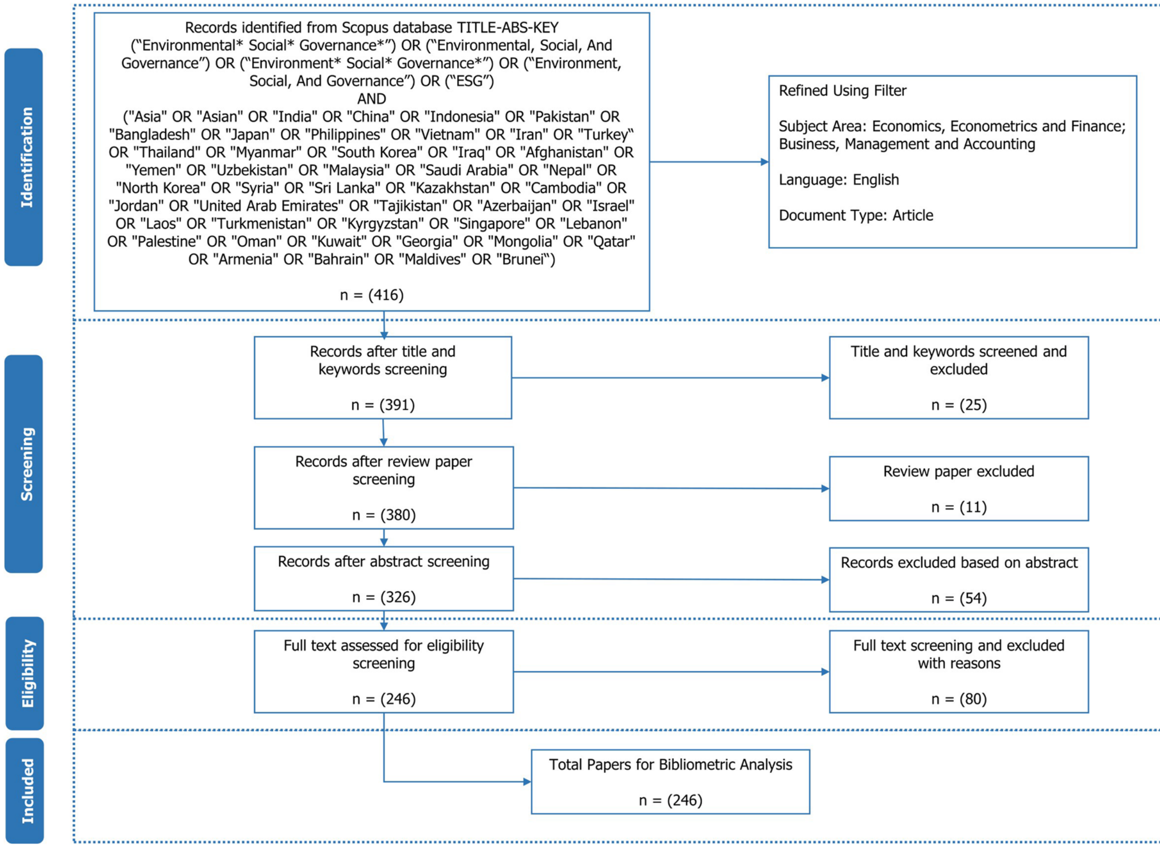

Figure 3. PRISMA diagram. *Source:* Author's elaboration.

regional issues such as the COVID-19 pandemic, corporate misconduct and green innovation in China and Southeast Asia.

For instance, Broadstock et al. (2021) the most cited article with 696 citations, goes beyond descriptive ESG performance relationships by using a robust regression framework to assess how ESG strategies buffer financial risk during systemic crises. This study gained attention not just for its topic relevance during the COVID-19 pandemic but also for empirically validating ESG as a risk mitigation tool in emerging markets—highlighting Asia's growing financial sensitivity to sustainability performance. Similarly, Ahmad et al. (2023) contributes to the literature by empirically testing how ESG certification impacts firm value and cost of capital among Malaysian firms, using firm-level panel regressions. Its importance lies in extending Western-centric valuation studies to Southeast Asia, revealing the tangible financial premiums associated with ESG certification even in less mature ESG ecosystems.

Y. Tan and Zhu (2022) add theoretical depth by unpacking the mechanisms through which ESG ratings foster corporate green innovation. Their identification of financial constraints and managerial environmental awareness as mediators offers a nuanced, contextually embedded explanation that speaks to internal firm dynamics in the Chinese regulatory environment. Zhou et al. (2022) and F. He, Du, et al. (2022) also introduce mediating and moderating mechanisms—financial performance and analyst coverage, respectively—highlighting that ESG's effects are neither linear nor context-free. These studies apply mediation and moderation analysis techniques that offer causal insights, thereby raising the methodological bar for ESG research in Asia. Further, the works of J. Wang et al. (2023) and Ren, Zeng, and Sun (2023) are among the first to explore the integration of digital finance and ESG, leveraging quasi-natural experiments and heterogeneity analysis. These contributions are particularly influential because they align ESG adoption with Asia's rapid digital transformation, offering a future-oriented perspective that goes beyond traditional ESG metrics.

Finally, Weber (2014) despite being older and less cited annually, holds foundational importance as one of the earliest comprehensive studies on ESG reporting in China. It employs both univariate and multivariate statistical analyses to examine the alignment between ESG disclosures and financial/environmental performance, paving the way for longitudinal ESG reporting frameworks in Asia. Collectively,

Table 2. Most impactful journals.

Journals	h_index	g_index	Total citation	Number of publication
Finance Research Letters	101	42	1825	20
Pacific Basin Finance Journal	75	18	355	8
Corporate Social Responsibility and Environmental Management	113	15	245	7
Economic Research-Ekonomska Istrazivanja	53	12	158	6
Energy Economics	210	16	273	6
Journal of Cleaner Production	309	12	166	6
International Journal of Energy Economics and Policy	53	9	95	5
International Review of Financial Analysis	91	19	384	5
Journal of Risk and Financial Management	40	9	92	5
Sustainability Accounting, Management and Policy Journal	48	6	48	5

Source: Author's elaboration.

Table 3. Most influential publication.

Title	Year	Total citations	Citations per year
The role of ESG performance during times of financial crisis: Evidence from COVID-19 in China	2021	696	232
Does ESG certification add firm value?	2021	289	96
The effect of ESG rating events on corporate green innovation in China: The mediating role of financial constraints and managers' environmental awareness	2022	284	142
Sustainable development, ESG performance and company market value: Mediating effect of financial performance	2022	256	128
Corporate ESG performance and manager misconduct: Evidence from China	2022	179	90
ESG rating and stock price crash risk: Evidence from China	2022	177	89
ESG reporting in China	2013	172	17
Do ESG ratings promote corporate green innovation? A quasi-natural experiment based on SynTao Green Finance's ESG ratings	2023	167	167
Digital finance and corporate ESG performance: Empirical evidence from listed companies in China	2023	143	143
Digital finance and corporate ESG	2023	142	142

Source: Author's elaboration.

these top-cited publications are not only influential because of their citation impact but also due to their methodological innovations (e.g. quasi-experiments, mediation/moderation models), regional specificity and ability to inform both academic theory and practical ESG implementation in emerging Asian economies. The literature matrix in Table 4 further distills each study's objective, methods and key contributions, underlining how this body of work has shaped a distinct ESG research trajectory in Asia—rooted in local institutional realities, technological transformation and governance dynamics.

The most productive authors in ESG research on Asian firms are highlighted in Table 5, which shows that Suttipun as the most productive authors with five articles. Following this, He F., Jiang Y. and Ismail A. M. have each contributed three articles, with He F. being the most influential among them, garnering 326 total citations, the highest in this dataset. In terms of total citations, Wong W. C. and Ren X., with two articles each, are notable contributors, achieving 290 and 194 citations, respectively. Ren X. stands out with the highest average 194 citations per year. Other impactful authors include Sadiq M. and Lin Y., with similar levels of productivity and total citations exceeding 140. Overall, the top 10 authors collectively produced 26 articles and amassed a total of 1519 citations in ESG research within the Asian context, underscoring their influence and contribution to the development of this research field.

The leading countries contributing to ESG research in Asian firms are presented in Table 6, showing significant regional representation. China emerges as the most prominent contributor, with 123 articles, of which 114 are single-country publications (SCPs), while only 9 involve multiple-country publications (MCPs), reflecting a low MCP ratio of 0.073. This is followed by India with 44 articles and Malaysia with 38 articles, showcasing their growing interest in ESG topics. Notably, Malaysia has a higher MCP ratio (0.421), indicating a strong inclination towards international collaboration. Indonesia and Thailand, with 25 and 16 articles, respectively, also show considerable research activity, with Thailand exhibiting the highest MCP ratio (0.625) among countries with substantial contributions, indicating its strong collaborative nature. Smaller yet significant contributors include Singapore (15 articles, MCP ratio of 0.800) and Vietnam (9 articles, MCP ratio of 0.667), highlighting their collaborative research efforts.

Table 4. Literature matrix of influential articles.

Authors	Objective	Research method	Findings	Effect
Broadstock D. C.; Chan K.; Cheng L. T. W.; Wang X.	To examine the role of ESG performance during financial crises, specifically the COVID-19 pandemic, by investigating its effects on stock performance and financial risk mitigation.	Regression	High ESG portfolios mitigate financial risks during crises.	Positive
Ahmad A. H.; Wong W. C.; Batten J. A.; Mohamed-Arshad	To assess the impact of ESG certification on Malaysian firms, particularly its effects on firm value, cost of capital and Tobin's Q	Regression	ESG certification reduces cost of capital and increases firm value (Tobin's Q)	Positive
Tan Y.; Zhu Z.	To explore the mechanisms linking ESG ratings and corporate green innovation in Chinese firms, particularly the mediating roles of financial constraints and managerial environmental awareness.	Regression	Positive impact of ESG ratings on green innovation.	Positive
Zhou G.; Liu L.; Luo S.	To analyse the impact of ESG performance on corporate market value in China, using financial performance and operational capacity as mediating variables.	Regression, mediation analysis	ESG performance positively impacts market value; financial performance mediates this relationship.	Positive
He F.; Du H.; Yu B.	To examine how ESG engagement impacts managerial misconduct in Chinese firms, focusing on the mediating role of analyst coverage and the moderating effects of information transparency, institutional shareholding and voluntary ESG disclosures.	Regression, robustness checks	High ESG engagement reduces manager misconduct, mediated by analyst coverage	Positive
Feng J.; Goodell J. W.; Shen D.	To investigate the relationship between ESG ratings and stock price crash risk, considering agency and stakeholder theories.	Regression	ESG ratings reduce stock price crash risk	Positive
Weber O.	To analyse ESG reporting trends in Chinese firms and their relationship with financial and environmental performance.	Statistical analysis, Uni- and multivariate analysis	ESG reporting influences both environmental and financial performance	Positive
Wang J.; Ma M.; Dong T.; Zhang Z.	To explore how ESG ratings influence corporate green innovation in Chinese firms, particularly in terms of green patents and innovation quality.	Regression, quasi-natural experiment	ESG ratings positively impact green innovation, especially invention patents	Positive
Ren X.; Zeng G.; Zhao Y.	To examine the impact of digital finance on corporate ESG performance in Chinese firms, investigating the mediating roles of green innovation and external supervision.	Regression, heterogeneity analysis	Digital finance promotes corporate ESG performance, particularly environmental and social performance.	Positive
Mu W.; Liu K.; Tao Y.; Ye Y.	To analyse how digital finance enhances corporate ESG performance in Chinese firms, focusing on differential impacts on non-state-owned and smaller firms.	Regression, robustness checks	Positive effect of digital finance on ESG performance. Stronger for non-state-owned and smaller firms.	Positive

Source: Author's elaboration.

Table 5. Top influential authors.

Authors	Number of publications	Total citations	Citations per year	h_index	g_index
Suttipun M.	5	111	56	21	10
He F.	3	326	163	12	18
Jiang Y.	3	93	47	53	9
Ismail A. M	3	53	11	13	7
Wong W. C.	2	290	97	11	17
Ren X.	2	194	194	42	13
Sadiq M.	2	184	46	11	13
Lin Y.	2	148	74	13	12
Qoyum A.	2	65	22	14	8
Zhang D.	2	55	28	37	7

Source: Author's elaboration.

4.1.2. Science mapping

To set up the research for the study, science mapping was used to find links among the key elements of the ESG research in the Asian context, and to research the relations between the subjects and disciplines, specialties and individual publications (Y. Li & Wang, 2023). This was done by using co-word analysis, which is the identification of keywords that frequently occured so as to map out the intellectual structure of the field, and thematic analysis that categorizes the research topics into thematic clusters in order to highlight existing trends and identify new avenues for the field. In this section we perform a

Table 6. Top countries by articles.

Country	Articles	SCPs	MCPs	Frequency	MCP ratio
China	123	114	9	0.283	0.073
India	44	37	7	0.101	0.159
Malaysia	38	22	16	0.087	0.421
Indonesia	25	10	15	0.057	0.600
Thailand	16	6	10	0.037	0.625
Japan	15	7	8	0.034	0.533
Singapore	15	3	12	0.034	0.800
South Korea	11	5	6	0.025	0.545
Saudi Arabia	10	3	7	0.023	0.700
Vietnam	9	3	6	0.021	0.667
Philippines	8	0	8	0.018	1.000
Pakistan	6	3	3	0.014	0.500
Turkey	6	2	4	0.014	0.667
Kuwait	6	1	5	0.014	0.833
United Arab Emirates	6	1	5	0.014	0.833
Oman	5	0	5	0.011	1.000
Qatar	5	0	5	0.011	1.000
Kazakhstan	4	2	2	0.009	0.500
Bangladesh	4	1	3	0.009	0.750
Bahrain	4	0	4	0.009	1.000
Cambodia	4	0	4	0.009	1.000
Iraq	4	0	4	0.009	1.000
Mongolia	4	0	4	0.009	1.000
Myanmar	4	0	4	0.009	1.000
North Korea	4	0	4	0.009	1.000
Jordan	3	1	2	0.007	0.667
Azerbaijan	3	0	3	0.007	1.000
Bhutan	3	0	3	0.007	1.000
Brunei	3	0	3	0.007	1.000
Iran	3	0	3	0.007	1.000
Israel	3	0	3	0.007	1.000
Maldives	3	0	3	0.007	1.000
Sri Lanka	3	0	3	0.007	1.000
Uzbekistan	3	0	3	0.007	1.000
Afghanistan	2	0	2	0.005	1.000
Armenia	2	0	2	0.005	1.000
Cyprus	2	0	2	0.005	1.000
Georgia	2	0	2	0.005	1.000
Kyrgyzstan	2	0	2	0.005	1.000
Laos	2	0	2	0.005	1.000
Lebanon	2	0	2	0.005	1.000
Nepal	2	0	2	0.005	1.000
State of Palestine	2	0	2	0.005	1.000
Syria	2	0	2	0.005	1.000
Tajikistan	2	0	2	0.005	1.000
Timor-Leste	2	0	2	0.005	1.000
Turkmenistan	2	0	2	0.005	1.000
Yemen	2	0	2	0.005	1.000

Source: Author's elaboration.

cluster analysis for the most frequently used keywords in the titles and abstracts to identify major research areas of ESG trends in Asian firms. The selected articles were extracted for these keywords and were aggregated and then visualized in VOSviewer software that groups them into thematic clusters. A minimum occurrence threshold of 20 was set in order to allow VOSviewer to create a co-occurrence map for ESG research (Figure 4).

4.1.3. Network analysis

As shown in Figure 4, four distinct clusters emerged, each representing thematic areas within the ESG literature. Cluster 1 (red) focuses on corporate transparency, reporting practices and the implementation of ESG principles, with 'Disclosure' (150 occurrences), 'ESG disclosure' (66 occurrences) and 'ESG practice' (56 occurrences) as the most frequent keywords. These themes highlight foundational aspects of the ESG framework. Cluster 2 (green) emphasizes performance and policy-related aspects, with keywords such as 'ESG performance' (194 occurrences), 'Risk' (81 occurrences) and 'Enterprise' (74 occurrences), reflecting research on measurable ESG outcomes, risk management and policy development. Cluster 3 (blue) explores the financial implications and industry-specific dynamics of ESG adoption,

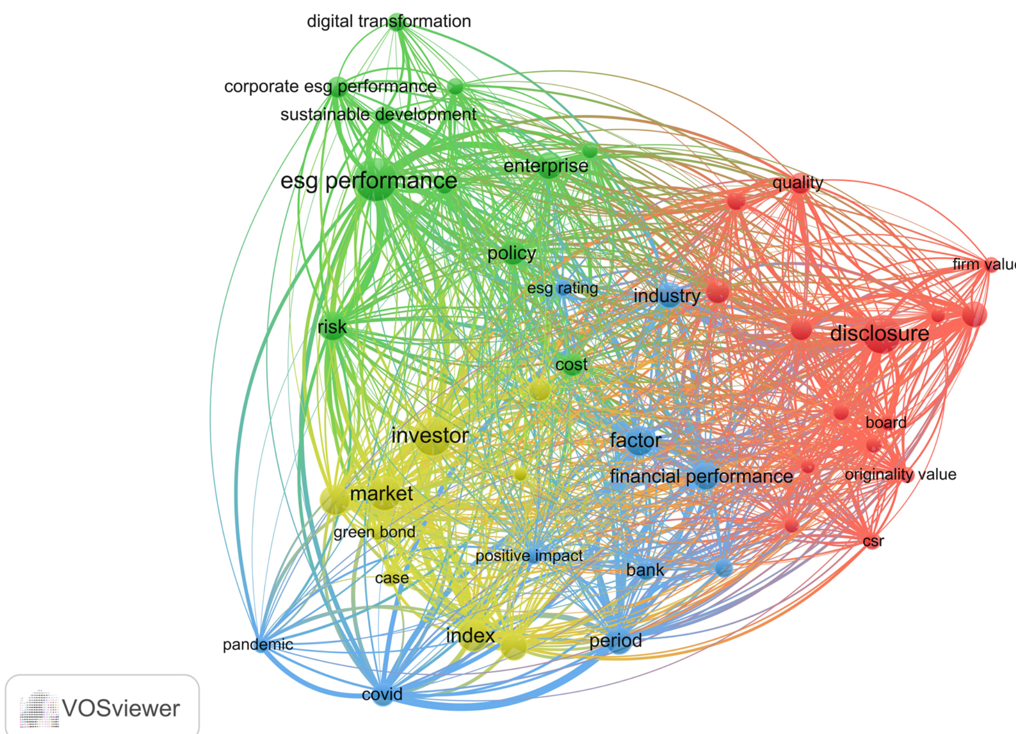

Figure 4. Co-word analysis. *Source:* Author's elaboration using VOSviewer.

with 'Factor' (87 occurrences), 'Financial performance' (78 occurrences) and 'Return' (71 occurrences) being the most prominent terms, underscoring the economic impacts of ESG practices and their integration into financial strategies. Lastly, Cluster 4 (yellow) as evidenced by keywords like 'Investor' (153 occurrences), 'Market' (122 occurrences) and 'Index' (103 occurrences), showcasing the growing interest in investor-driven initiatives, market indices and sustainable finance instruments such as green bonds. Taken together, these clusters offer a comprehensive picture of the burgeoning ESG landscape in Asia, highlighting the relevance of disclosure and performance metrics, and suggesting what more needs to be understood: how ESG is embedded in the financial and investment space.

Figure 5 shows network analysis to discover relationships between highly cited ESG literature works stating that there is shared content and influence (Błoński, 2023). Each node in the network represents a publication, with its size corresponding to co-citation frequency. The analysis identified five interconnected clusters, each reflecting distinct thematic areas. Cluster 1 (red) includes influential works by Y. Tan and Zhu (284 citations), H. Wang et al. (167 citations) and Ren, Zeng, and Sun (143 citations), focusing on foundational topics such as ESG disclosure, firm transparency and corporate governance practices. Cluster 2 (green) features authors like Weber (172 citations) and Wasiuzzaman & Mohammad (97 citations), addressing ESG performance measurement, risk management and the integration of sustainability within policy frameworks. Cluster 3 (blue) is dominated by highly cited contributions from Broadstock et al. (696 citations), X. Zhang et al. (73 citations) and P. Roy et al. (72 citations), emphasizing financial performance, investment implications and the economic impacts of ESG adoption. Cluster 4 (yellow) highlights market-oriented studies by Wong et al. (289 citations) and J. Feng et al. (177 citations), exploring sustainable finance instruments, market mechanisms and investor-driven ESG initiatives. Lastly, Cluster 5 (purple) includes works by Zhou et al. (256 citations) and P. Liu et al. (63 citations), focusing on ESG frameworks in emerging markets, regional development and comparative analyses of Asian firms.

4.2. ADO-TCM framework

In this section, the paper analyzes ESG trends in Asian firms through the lens of the ADO-TCM framework, as depicted in Figure 6. The application of the ADO-TCM framework in this study provides a structured understanding of ESG research trends in Asian firms, highlighting antecedents (A), decisions (D)

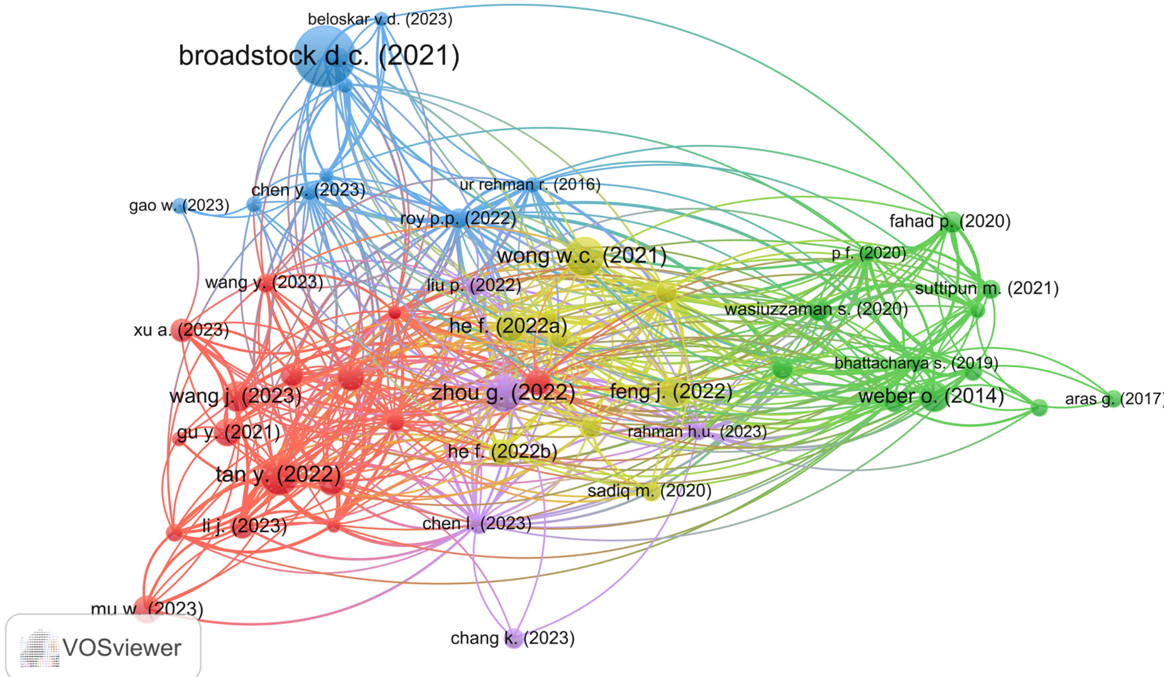

Figure 5. Co-citation network analysis. *Source:* Author's elaboration using VOSviewer.

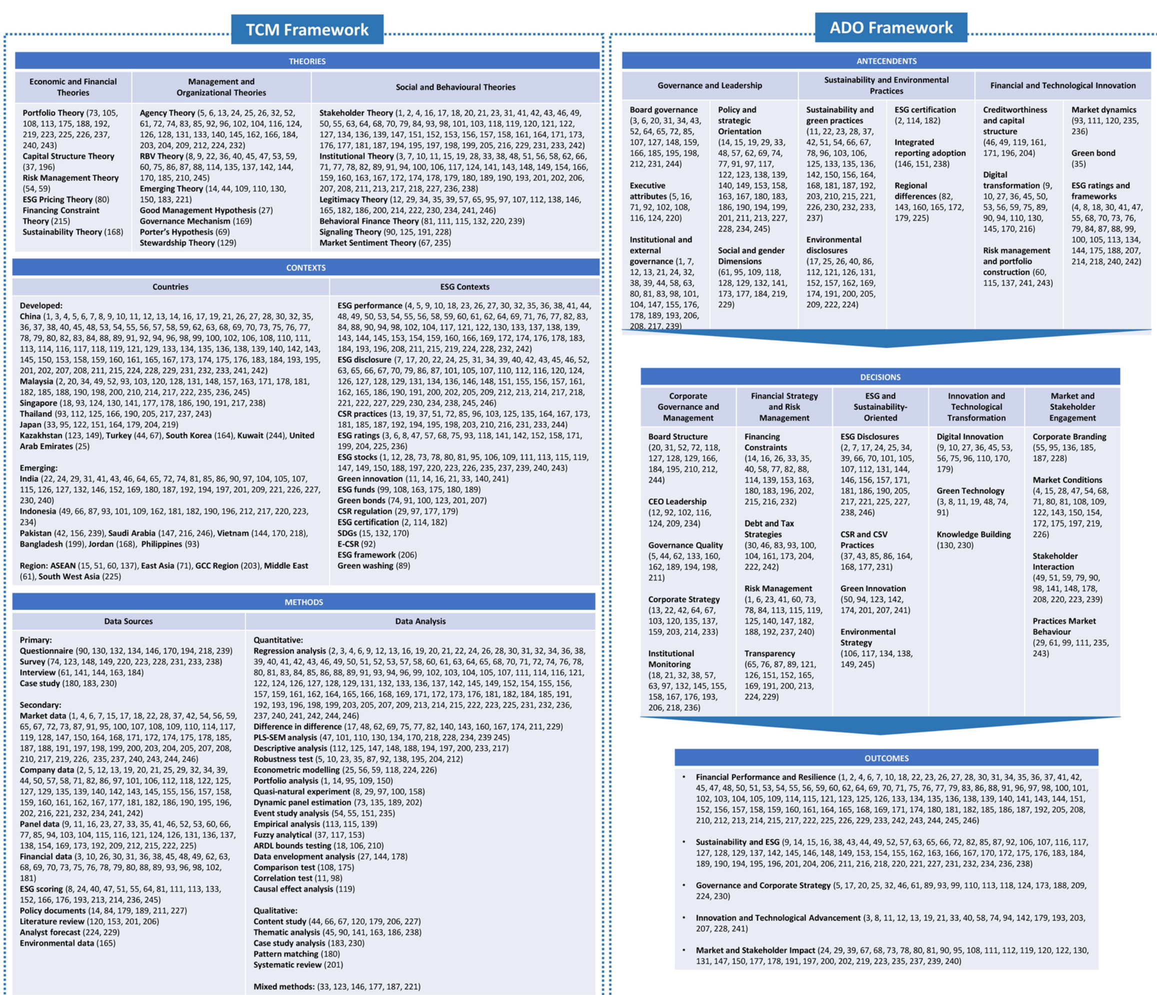

Figure 6. ESG research based on the ADO-TCM framework. *Source:* Author's elaboration.

and outcomes (O), while also examining the theories (T), contexts (C) and methods (M) (Agarwala et al., 2023). Governance and leadership factors, such as board governance and executive attributes, emerge as dominant antecedents, emphasizing the role of corporate leadership in driving ESG adoption. Additionally, sustainability practices, environmental disclosures and financial and technological innovations—such as ESG certifications, creditworthiness and digital transformation—further influence firms' ESG strategies. The decision-making dimension underscores the importance of corporate governance, financial strategies and stakeholder engagement, reflecting how firms operationalize ESG principles through board structures, risk management and sustainability-oriented initiatives. The outcomes of ESG adoption primarily focus on financial performance, governance and technological advancements, reinforcing the economic and strategic benefits of ESG integration.

While ESG research in Western contexts often emphasizes institutional investor pressure, standardized disclosure frameworks [e.g. Sustainability Accounting Standards Board (SASB), Global Reporting Initiative (GRI), TCFD] and mature market mechanisms (Ahmad et al., 2023; Sundarasen et al., 2024), the Asian landscape presents a more diverse and fragmented ESG adoption pattern shaped by rapid economic development, regulatory asymmetries and varied cultural orientations (Handoyo & Anas, 2024; Suttipun, 2021). Unlike Western firms where ESG strategies are frequently driven by shareholder activism and litigation risk (Hamdi et al., 2022; Tahmid et al., 2022), Asian firms tend to adopt ESG through top-down governance, regulatory mandates and reputational motivations (Handoyo & Anas, 2024; X. Liu et al., 2024).

Government intervention, such as state-led green finance and ESG disclosure mandates, is more pronounced in Asia, especially in countries like China, India and Singapore, compared to market-led initiatives in Europe and North America (J. Wang et al., 2023; Xue et al., 2023). Moreover, Asian firms uniquely integrate ESG with digital transformation and technological leapfrogging, leveraging innovations like blockchain and artificial intelligence (AI) for ESG reporting and sustainable operations (Lai & Zhang, 2022; Malik et al., 2024). This technological angle, combined with culturally embedded stakeholder obligations (e.g. Confucian ethics in East Asia), creates a hybrid ESG logic that blends economic performance with social harmony (Alessa et al., 2024; Budiman et al., 2022). These unique insights highlight the importance of regional institutional and cultural dynamics in shaping ESG decisions, offering valuable implications for multinational firms and policymakers seeking to adapt ESG strategies across global markets (Ding & Tseng, 2023; D. Zhang et al., 2023).

4.2.1. Antecedents (A)

Antecedents refer to the factors influencing ESG adoption and integration within firms. This review categorizes antecedents into three main typologies, drawing on insights from governance theories, sustainability practices and innovation frameworks as shown in Figure 7.

4.2.1.1. Governance and leadership. The analysis determines that corporate governance and leadership are important antecedents in the extent to which Asian firms implement ESG as shown in Table 7. Collectively, elements that include board characteristics, executive attributes, institutional frameworks and policy orientations shape ESG decision making and strategic direction. Specifically, board characteristics, including diversity, independence, size and governance mechanisms, are of particular importance among these, with their impact on ESG outcomes. For instance, Board diversity is positively related with ESG Practice; diverse boards lead to more inclusive decision making, and boards with more diverse perspectives are more likely to take action on sustainability. On the contrary, board independence and size are mixedly associated, such that their impact might be contingent upon contextual variables and external governance dynamics. Nevertheless, governance mechanisms tend to positively correlate with ESG decision making and therefore the use of robust frameworks is critical to advance sustainable practices.

Finally, executive attributes support the reinforcing role leadership plays in ESG integration. This underscores the fact that executives who take a stand on environmental awareness have a hand in making environmental decisions. But Chief Executive Officer (CEO) duality has had mixed effects, asking whether centralized authority or stakeholder responsibility should predominate. At the same time, there are also institutional and external governance structures that support ESG strategies (Wijaya et al., 2020). External governance factors, like regulatory frameworks, as well as institutional ownership serves as a

Figure 7. Triangle map of antecedents. *Source:* Author's elaboration.

Table 7. Governance and leadership antecedents.

Antecedents	Sub-factor	References	Association with ESG decision
Board characteristics and governance	Board size	Agarwala et al. (2023), Ismail et al. (2019), Suttipun (2021), Uzliawati et al. (2023), Yadav and Jain (2023)	Mixed
	Diversity	Cho et al. (2021), Ismail and Latiff (2019, Lin et al. (2021), Tran (2023), Wasiuzzaman and Mohammad (2020)	Positive
	Independence	Agarwala et al. (2023), Fahad and Rahman (2020), Jarboui et al. (2023), Song et al. (2023), Yadav and Jain (2023)	Mixed
	Governance mechanism	R. Huang and Wei (2023), L. Wang et al. (2022)	Positive
Executive attributes	CEO duality	Boresli et al. (2022), Fahad and Rahman (2020)	Mixed
	Executive pay gap	D. Zhang et al. (2023), H. Zhang et al. (2023)	Positive
	Environmental awareness	Jarboui et al. (2023), J. Liu et al. (2023), Ng et al. (2023), P. P. Roy et al. (2022), Y. Wang et al. (2023)	Positive
Institutional and external governance	Institutional ownership	X. Wang and Jin (2023)	Positive
	External governance factors	R. Huang and Wei (2023), L. Wang et al. (2022), X. Wang and Jin (2023), Zeng et al. (2023)	Positive
Policy and strategic orientation	Belt and road initiative	Jian et al. (2021)	Positive
	Policy intervention	S. Li et al. (2022), Lin et al. (2021), J. Liu et al. (2023), Schumacher et al. (2020), N. Xu et al. (2023)	Positive
	Strategic orientation	Agarwala et al. (2023), Ospangaliyev et al. (2022), Setiarini et al. (2023), D. Zhang et al. (2023), H. Zhang et al. (2023)	Mixed
Social and gender dimensions	Women empowerment	Cho et al. (2021), Fahad and Rahman (2020), Ismail and Latiff (2019), Tran (2023), Wasiuzzaman and Mohammad (2020)	Positive
	Board gender diversity	Cho et al. (2021), Ismail and Latiff (2019), Lin et al. (2021), Tran (2023), Wasiuzzaman and Mohammad (2020)	Positive
	Social trust	Hu et al. (2023), N. Xu et al. (2023)	Positive

Source: Author's elaboration.

means of ensuring compliance as well as linking firms to the ESG objective. Perhaps the most researched are policy and strategic orientations, with policy intervention being the leading factor. We find that government led initiatives are effective stimuli to ESG adoption (Fedorchak et al., 2024). Moreover, positive ESG outcomes are strongly correlated with gender and social dimensions, such as, board gender diversity and women empowerment (Boresli et al., 2022; Jarboui et al., 2023; J. Li et al., 2023).

4.2.1.2. Sustainability and environmental practices. Table 8 shows the emphasis is on environmental responsibility, compliance with regulations and sustainable development practices. Sustainability and environmental practices integration are an integral part of Asian firms' ESG strategies. The growing emphasis on environmental responsibility, regulatory frameworks and pursuit of sustainable development

Table 8. Sustainability and environmental practices antecedents.

Antecedent	Sub-factor	References	Association with ESG decision
Sustainability and green practices	Green finance policies	Y. Tan and Zhu (2022), Y. Wang et al. (2023), Wu et al. (2023), N. Xu et al. (2023), Zhou et al. (2022)	Positive
	Green innovation	J. Li et al. (2023), Ren, Zeng, and Zhao (2023), Y. Tan and Zhu (2022), Y. Wang et al. (2023), Zheng et al. (2023)	Positive
	Sustainability governance	Bodhanwala and Bodhanwala (2018), Fahad and Rahman (2020), J. Li et al. (2023), Schumacher et al. (2020), Y. Wang et al. (2023)	Positive
Environmental factors and regulation	Emission trading system	J. Li et al. (2023), Luo et al. (2023), Park and Jang (2021), Ren, Zeng, and Zhao (2023), N. Xu et al. (2023)	Positive
	Waste management	An and Mikhaylov (2023), S. Li et al. (2022), Park and Jang (2021), Rangaswamy et al. (2020), Sugiarto et al. (2023)	Positive
	Environmental disclosures	Park and Jang (2021), Fahad and Nidheesh (2021), Sadiq et al. (2020). Wasiuzzaman and Mohammad (2020)	Positive
Certification and compliance	ESG certification	Lai and Zhang (2022), Wong et al. (2021)	Positive
	Compliance in investments	Broadstock et al. (2021), Elili (2022), Gu et al. (2021), Park and Jang (2021), Schumacher et al. (2020)	Mixed
Reporting and transparency	Integrated reporting adoption	Elili (2022), Schumacher et al. (2020), Suttipun (2021), Wasiuzzaman and Mohammad (2020), Weber (2014)	Positive
	Corporate transparency	Elili (2022), F. He, Du, et al. (2022), F. He, Qin, et al. (2022), Lian et al. (2023), Wasiuzzaman and Mohammad (2020)	Positive
Regional and cultural context	Geographical and cultural factors	Budiman et al. (2022), Ding and Tseng (2023), Lei et al. (2023)	Positive
	Regional differences	Lai and Zhang (2022), Ren, Zeng, and Zhao (2023), L. Wang et al. (2022), Xue et al. (2023)	Positive

Source: Author's elaboration.

is this category. Here, green finance policies, sustainability governance, environmental factors, certifications and reporting mechanisms jointly influence ESG responsible behavior. For example, corporate environmental responsibility speaks to being sustainable and using green practices. For example green finance policies that promote such investment in SDGs have a positive relation with ESG performance. ESG adopts several sectors, and green innovation is also an important expression of a sustainable technological development, known as green innovation. Additionally, studies indicate that sustainability governance also has a positive role in an organization's commitment towards environmental practices, which is also an important lever for the organizations' ESG decision (Bodhanwala & Bodhanwala, 2018; Y. Tan & Zhu, 2022; Y. Wang et al., 2023).

The role also includes environmental factors and regulatory frameworks. For example, Emission Trading System policies encourage firms to reduce carbon emissions by providing positive incentives. Variations in the efficiency of resource utilization to waste reduction strategies have been related to better ESG performance (Karbovska et al., 2024). Additionally, environmental disclosures enable stakeholders to know about corporate environmental impact, increase stakeholder trust and enforce global sustainability standards. In ESG practices there are certification and compliance mechanisms that ensure accountability. EGS certifications positively correlate with improved sustainability outcomes but, in investments, there are mixed compliance results, positing the role of contrasting regulatory environments and corporate strategies. And importantly, there are reporting and transparency initiatives: among them is the adoption of integrated or corporate transparency. Financial and non-financial reports are brought together in integrated reporting to boost organizational accountability. In contrast, corporate transparency refers to openness in communication and decision making and improves ESG credibility (An & Mikhaylov, 2023; Park & Jang, 2021; Schumacher et al., 2020).

Finally, ESG strategies are influenced by regional and cultural contexts such that geographical and cultural factors drive firms' sustainability priorities. Such diversity of ESG practices across Asia is rooted in regional differences, including in regulations, and cultural attitudes towards environmental issues. In terms of research focus, compliance in investments is the most studied antecedent, followed by integrated reporting adoption, environmental disclosures, corporate transparency and sustainability governance (Budiman et al., 2022; Ren, Zeng, and Zhao, 2023; Xue et al., 2023).

4.2.1.3. Financial and technological innovation. Financial strategies and technological advancements serve as critical enablers of ESG transformation within Asian firms as mapped in Table 9. This typology explores the interplay between financial mechanisms, technological progress and ESG integration, emphasizing their potential to drive sustainable corporate practices. Among financial factors, the role of capital

Table 9. Financial and technological innovation antecedents.

Antecedent	Sub-factor	References	Association with ESG decision
Financial factors	Capital structure	Adeneye et al. (2023), Boresli et al. (2022), Tanjung (2023)	Mixed
	Debt cost	Adeneye et al. (2023), Lai and Zhang (2022), Lian et al. (2023)	Mixed
	Creditworthiness	Lei et al. (2023), Lian et al. (2023), S. Li et al. (2022), Luo et al. (2023), Prajapati et al. (2021)	Positive
Digital transformation and technology	Blockchain integration	An and Mikhaylov (2023), X. Liu et al. (2023)	Positive
	Digital innovation	Q. Huang et al. (2023), Mu et al. (2023), Ren, Zeng, and Zhao (2023), Y. Wang et al. (2023), Yang and Han (2023)	Positive
Risk management and portfolio factors	Behavioral portfolio construction	Dai (2021), Rehman et al. (2016), X. Zhang et al. (2021)	Positive
	ERM	Ding and Tseng (2023), J. Li et al. (2023), Lin et al. (2021), Park and Jang (2021), Y. Tan and Zhu (2022)	Positive
Market dynamics and investment	Green bond	Jian et al. (2021), Prajapati et al. (2021), Schumacher et al. (2020), Bodhanwala and Bodhanwala (2018)	Mixed
Ratings, indices and frameworks	ESG ratings	J. Feng et al. (2022), Lin et al. (2021), Y. Tan and Zhu (2022), Y. Wang et al. (2023), Zhou et al. (2022)	Positive
	ESG frameworks	J. Li et al. (2023), Park and Jang (2021), Fahad and Nidheesh (2021), Rahman and Alsayegh (2021)	Positive

Source: Author's elaboration.

structure has received mixed attention, as its impact on ESG decision-making varies depending on debt-to-equity configurations and organizational contexts. Like debt, the cost of debt is critical to financial health yet the relationship with ESG practices has been diverse. Conversely, ESG initiatives also have a consistent positive relationship with a firm's creditworthiness. Digital transformation and technological innovation become the main driving forces for ESG adoption (Nguyen, 2024). Blockchain technology integration increases transparency and accountability in ESG reporting, while aiding in sustainable supply chain management and other green initiatives (Malik et al., 2024). In addition, the digitalization enables new technological solutions in terms of AI based sustainability tools that positively impact ESG performance (Adeneye et al., 2023; R. Huang & Wei, 2023; Lai & Zhang, 2022).

Evidently, there are certain risk management and portfolio strategies that also have a significant impact in ESG transformation. The behavioral portfolio construction which aligns the behavior of the investor with the goals of sustainability, improves allocation of resources to the ESG compliant investments. Similarly, the enterprise risk management (ERM) frameworks help the firms proactively take care of environmental and social risks strengthening their ESG commitments. Financial instruments and economic conditions are also shown to play a further role as market dynamics and investment factors with respect to ESG strategies. As a sustainable financing tool green bonds reinforce investments in eco-friendly projects and positively relate to ESG outcomes. But, market conditions—such as economic cycles and investor sentiment—tend to positively and negatively impact the ESG adoption (Dai, 2021; Ding & Tseng, 2023; Prajapati et al., 2021).

Ratings, indices and frameworks finally provide critical benchmarks for ESG performance. The relationship between ESG ratings and better corporate sustainability practice has been positive. Similarly, the use of ESG frameworks has provided the structured guidelines for firms to use and report sustainability measures effectively (P. Feng et al., 2020; Y. Tan & Zhu, 2022). From a research perspective, the most extensively studied sub-factor is market conditions, followed by ESG ratings, digital innovation, ESG frameworks and debt cost.

4.2.2. Decisions (D)

The decision-making processes of Asian firms regarding ESG initiatives can be broadly categorized into five key domains. Corporate governance and management decisions focus on board structure and dynamics, CEO leadership and overall governance quality, emphasizing the alignment of corporate strategies with robust institutional and investor monitoring (Fatyandri et al., 2023; Jiang et al., 2022). In the realm of financial strategy and risk management, firms navigate financing constraints, debt and tax strategies and risk management practices to balance productivity and transparency with investor expectations and market behavior (Setiarini et al., 2023). Moreover, decisions under ESG and sustainability-oriented practices prioritize ESG disclosures, corporate social responsibility (CSR) and creating shared value initiatives and green innovation, underlining firms' environmental strategies and commitment to sustainability

(Elili, 2022; N. Xu et al., 2023). Similarly, innovation and technological transformation highlights choices around digitalization, green technology adoption and capacity building to drive efficiency and competitive advantage (Mu et al., 2023). Finally, market and stakeholder engagement decisions reflect efforts to strengthen corporate reputation, adapt to market conditions and foster meaningful interactions with stakeholders (Alessa et al., 2024; Yadav & Jain, 2023).

4.2.3. Outcomes (O)

The outcomes of ESG-related decisions in Asian firms are evident across several dimensions. Schumacher et al., 2020 demonstrate that financial performance and resilience become key metrics related to the financial stability and profitability of sustainable practices. Firms' commitments to creating long-term value through better sustainability and ESG outcomes feature better environmental metrics and social impact (Wong et al., 2021; Zhou et al., 2022). Enhanced board effectiveness and strategic alignment, and breakthroughs in digital and green technologies, are governance and corporate strategy outcomes, while innovation and technological advancement outcomes include innovation and technological advancement outcomes (Setiarini et al., 2023). Market and stakeholder impact shows improved corporate reputation, stakeholder trust and market positioning, evincing the whole gamut of benefits that ESG integration brings to corporate decision making.

4.2.4. Theories (T)

This study identifies frequently applied theories and emerging perspectives that guide ESG research. Table 10 highlights stakeholder theory (62 studies), institutional theory (57 studies) and agency theory (35 studies) as the most widely utilized theoretical frameworks. Additionally, legitimacy theory (26 studies) and resource-based view (RBV) theory (21 studies) are also frequently applied, indicating their importance in explaining ESG practices. However, theories like risk management theory, sustainability theory and various emerging frameworks (emerging theory, ESG pricing theory and government mechanism theory) remain underexplored.

4.2.4.1. Stakeholder theory: explaining high ESG disclosure but low reporting quality. Stakeholder theory suggests that firms are accountable not only to shareholders but also to a broader group of stakeholders (Murhadi & Wijaya, 2021). In the context of ESG, this theory provides a compelling explanation for the high ESG disclosure rates in Asia. Firms in the region are increasingly responsive to stakeholder pressures for transparency and sustainability, leading to increased disclosures (Alessa et al., 2024). However, this theory also helps to understand the disconnect between disclosure quantity and quality, particularly in integrated reporting (Amin et al., 2024). While disclosures are made to signal legitimacy and satisfy stakeholder expectations, they may lack depth or integration, reflecting symbolic compliance rather than substantive strategy (Yadav & Jain, 2023). This aligns with findings that integrated reporting quality remains limited in many Asian firms despite the growing volume of ESG reporting (Park & Jang, 2021).

4.2.4.2. Institutional theory: ESG adoption driven by regulatory and normative pressures. Institutional theory explains how firms adopt ESG practices in response to regulatory, normative and cultural pressures

Table 10. Widely used and emerging theories.

Theories	Number of articles	References
Stakeholder theory	62	Broadstock et al. (2021), Wong et al. (2021), Zhou et al. (2022), Gu et al. (2021), J. Li et al. (2023), F. He, Qin, et al. (2022), Park and Jang (2021), Wasiuzzaman and Mohammad (2020), Wu et al. (2023), Naseem et al. (2020)
Institutional theory	57	Y. Tan and Zhu (2022), Weber (2014), Mu et al. (2023), Zheng et al. (2023), Sadiq et al. (2023), N. Xu et al. (2023), X. Zhang et al. (2021), P. P. Roy et al. (2022), Schumacher et al. (2020), Y. Wang et al. (2023)
Agency theory	35	J. Feng et al. (2022), Lin et al. (2021), Fahad and Rahman (2020), Elili (2022), Lian et al. (2023), Jiang et al. (2022), Ismail and Latiff (2019), Sudha (2015), Agarwala et al. (2023), Prajapati et al. (2021)
Legitimacy theory	26	Sadiq et al. (2020), Luo et al. (2023), S. Li et al. (2022), Kumar et al. (2021), Yen et al. (2019), Marshall et al. (2022), Suttipun and Yordudom (2022), Chouhan et al. (2021)
RBV theory	21	Y. Wang et al. (2023), Ren, Zeng, and Zhao (2023), Bodhanwala and Bodhanwala (2018), Chen et al. (2023), Rehman et al. (2016), Chairani and Siregar (2021), Q. Huang et al. (2023), Yang and Han (2023)

Source: Author's elaboration.

(Eitrem et al., 2024). In Asia, this is evident in how policy interventions, institutional ownership and regional frameworks influence ESG adoption (Wijaya et al., 2020). For instance, state-led initiatives such as the Belt and Road Initiative or carbon trading mechanisms pressure firms to conform to environmental and social expectations (Haralambides & Merk, 2020). This theory also helps explain cross-country differences in ESG reporting practices, as firms align with local institutional norms and regulatory maturity (Annesi et al., 2024). In countries with strong institutions, firms exhibit more robust ESG integration, whereas in weaker institutional contexts, ESG adoption may be more symbolic (Clementino & Perkins, 2021).

4.2.4.3. Agency theory: governance structures and conflicts in ESG decision-making. Agency theory addresses the conflict between managers and shareholders when ESG initiatives are perceived as misaligned with short-term financial returns (Al-Faryan, 2024). Managers may pursue ESG strategies for reputational or personal motives, raising concerns among shareholders (Zhu et al., 2024). In Asian firms, governance structures like board independence and CEO duality shape how agency problems manifest in ESG decisions (Gu et al., 2021; R. Huang & Wei, 2023). For example, mixed results regarding board size and independence indicate that governance effectiveness in aligning ESG with shareholder interests is highly context-specific (Agarwala et al., 2023). Disclosure mechanisms are often used to reduce information asymmetry, but their effectiveness depends on enforcement and stakeholder scrutiny (Alessa et al., 2024).

4.2.4.4. Legitimacy theory: ESG disclosure as a means of gaining societal approval. Legitimacy theory asserts that firms seek societal approval by conforming to expected norms and values. ESG disclosures are thus used as tools for gaining or maintaining legitimacy (Kuruppu et al., 2019). This theory is particularly relevant in Asian contexts where external legitimacy—especially from regulators and the public—is critical (Sadiq et al., 2020). Firms may overemphasize ESG disclosures to signal alignment with societal values, even if actual practices are limited (Luo et al., 2023). This can contribute to the gap between high ESG disclosure rates and the lack of integrated, high-quality reporting, as disclosures are sometimes designed more for impression management than for strategic alignment (Khamisu et al., 2024).

4.2.4.5. RBV theory: ESG capabilities as strategic resources for competitive advantage. RBV focuses on how firms develop inimitable internal resources—such as sustainability capabilities, green innovation and knowledge systems—to achieve competitive advantage (Rianawati et al., 2024). In ESG research, RBV explains why some firms go beyond compliance and adopt ESG practices proactively (H. Wang et al., 2023). Firms with strong ESG capabilities are more likely to innovate in areas like green finance and sustainable supply chains, turning ESG into a strategic resource (Garrido-Moreno et al., 2024). However, findings suggest that such resource-driven ESG strategies are more common in multinational or large-cap firms, while many small or medium Asian firms focus on compliance rather than capability-building (Budiman et al., 2022; Xue et al., 2023).

4.2.5. Contexts (C)

Narayanan and Pradhan (2023), pose that the present research revolves around the contextual dimensions of ESG research with a specific focus on geographical and economic classification of countries in which the research occurred. In particular, we focus on the dividing line between developed and developing countries in Asia. The findings were based on a finding that 63.91% of Asian ESG studies have been done in developed countries of Asia such as Singapore, UAE, South Korea, Qatar and Brunei. These nations are tremendously dedicated to ESG practices, thanks to the presence of robust governance and regulatory power, and advanced financial markets. Conversely, research focusing on developing Asian countries remains relatively underrepresented, indicating potential for further exploration in these emerging markets. Additionally, our analysis identifies key contexts within ESG research in Asia. The most studied context is ESG performance, reflecting a predominant focus on evaluating the outcomes of ESG initiatives. This is followed by ESG disclosure, CSR practices, ESG stocks and ESG ratings and scores.

4.2.6. Methods (M)

The third component of the TCM framework, methodology, highlights the data collection methods and analysis techniques employed in ESG research focusing on Asian firms. Our analysis indicates a strong preference for secondary data collection methods, which account for 89.43% of studies, while primary methods and mixed methods contribute 8.13% and 2.44%, respectively. In terms of data analysis, quantitative approaches dominate as the preferred choice. Regression analysis is the most widely used method, encompassing techniques such as panel data, generalized method of moments (GMM) and binary regressions, followed by difference-in-differences, structural equation modeling analysis, robustness tests and descriptive analysis. Qualitative methods are less prevalent, with thematic analysis featured in five studies, while case studies, content analysis and pattern matching are less frequently employed. These findings highlight the predominance of quantitative methodologies and the increasing integration of mixed-method approaches to address the complexities inherent in ESG research in Asia.

4.3. Practical implications

To accelerate the adoption of ESG principles in Asian firms, it is crucial to align governance structures, financial strategies and technological advancements with sustainability imperatives. This section highlights three major themes and a set of emerging practical recommendations that will aid firms, regulators and investors in their path through the current ESG landscape.

4.3.1. Strengthening ESG governance and leadership for sustainable growth

Corporate governance plays a critical role in adoption for ESG given that decisions of leadership will determine sustainability strategies and for long-term resilience. In the area of integrating ESG into governance structures, Asian firms have made significant progress but less than half of the firms even view sustainability as a driver of corporate success rather than a compliance obligation. In this regard, the following reccomendations discuss their main governance challenges and propose the actionable steps that can help Asian firms achieve ESG leadership.

For firms, embedding ESG into leadership and governance structures is a critical foundation for long-term sustainability (Alsayegh et al., 2020). ESG integration should not be limited to symbolic compliance but must be institutionalized through board-level ESG committees, inclusion of sustainability experts in corporate leadership and routine ESG training for senior executives (Aras et al., 2017; Cho et al., 2021; Wu et al., 2023). For example, DBS Bank in Singapore mandates ESG oversight at the board level and publicly discloses executive sustainability training programs, helping institutionalize accountability DBS (2025). Companies that treat ESG as a core driver of value—rather than a regulatory burden—are more likely to withstand environmental and social disruptions (Cabaleiro-Cerviño & Mendi, 2024; Jin & Lei, 2023; Wong et al., 2021).

For regulators, mandating ESG competency at the board level and enforcing standardized ESG reporting frameworks are essential to guide firms toward sustainable governance (Amin et al., 2024; Elili, 2022; Weber, 2014). Regulatory bodies like the Hong Kong Stock Exchange (HKEX) require listed companies to provide ESG disclosures aligned with international frameworks, such as GRI, TCFD, SASB and mandate board responsibility for ESG strategy (HKEX, 2024). This move sets a regional precedent for making ESG governance a compliance and strategic issue (Q. Huang et al., 2023; Kumar et al., 2023; Schumacher et al., 2020; Suttipun, 2021).

For investors, aligning executive incentives with ESG performance metrics enhances transparency and accountability (Jin & Lei, 2023; Kuruppu et al., 2019; Wasiuzzaman & Mohammad, 2020). Institutional investors should advocate for executive compensation schemes that reflect long-term ESG performance indicators—such as carbon reduction, gender diversity and supply chain ethics (F. He, Du, et al., 2022; Weber, 2014; D. Zhang, 2022). Indian conglomerate Infosys, for instance, links 20% of executive bonuses to ESG-related goals, demonstrating how compensation can support sustainability transformation (Infosys, 2023).

4.3.2. Advancing sustainable finance and risk management for ESG resilience

It is financial strategies that will drive ESG adoption because firms with capital should fund more sustainability initiatives so there are environmental and social risks to mitigate. Green finance is escalating rapidly in Asia and provides firms with an opportunity to integrate sustainability into their decision making. Nevertheless, the challenges remain such as financing limitations, regulatory uncertainties and data on ESG incompleteness. Based on that, the following recommendations are listed as how firms can use sustainable finance mechanisms to build ESG resilience.

For firms, access to green financial instruments such as green bonds, ESG-linked loans and sustainability-linked derivatives—offers the capital needed to fund transitions toward net-zero business models (Jian et al., 2021; Lian et al., 2023; Prajapati et al., 2021). Despite the growth of sustainable finance in Asia, firms often face high eligibility thresholds and uncertain regulatory landscapes (Jian et al., 2021; Prajapati et al., 2021; Schumacher et al., 2020). Malaysian corporates like Commerce International Merchant Bankers (CIMB) have successfully issued green bond to fund renewable energy and sustainable infrastructure projects, illustrating how tailored ESG instruments can drive sectoral change (CIMB Bank, 2024).

For regulators, reducing barriers to green finance through guarantees, subsidies and ESG scoring assistance can enable broader market participation (Clément et al., 2023; Lee et al., 2023; D. Zhang, 2022). For example, the Monetary Authority of Singapore (MAS) provides ESG disclosure grants and technical assistance to help firms adopt digital tools and AI-based ESG reporting dashboards—making it easier for smaller firms to comply and compete (Monetary Authority of Singapore, 2024). Additionally, governments can provide tax credits for green investments or subsidize ESG rating costs to incentivize action (Y. He et al., 2023). In Thailand, the government introduced the Thai ESG Fund, involving 15 asset management companies offering 22 ESG-themed funds. Investors in these funds are eligible for personal income tax deductions of up to 30% of their annual income, capped at 100,000 baht (approx. US$ 2,851) per year, effectively promoting retail investor participation in ESG finance (Bank of Thailand, 2021; Hubbis, 2025). Meanwhile, Malaysia offers tax deductions of up to RM50,000 per year (from YA 2024 to YA 2027) for companies incurring ESG-related expenditures, including enhanced sustainability reporting frameworks, climate risk scenario analysis, tax corporate governance, e-invoicing for MSMEs and ESG disclosures to approved regulators—reflecting a broad fiscal commitment to ESG ecosystem development (PwC, 2025).

For investors, encouraging robust ESG risk assessment and climate scenario analysis promotes market resilience (J. Feng et al., 2022; F. He, Qin, et al., 2022; Naseem et al., 2020). Investors should require companies to disclose ESG risk exposures in financial reports and adopt climate-related stress testing, as recommended by the TCFD (CFA Institute, 2019; SGX, 2022). Japan's Government Pension Investment Fund, the world's largest pension fund, integrates ESG ratings into investment decisions and requires disclosures aligned with the TCFD, encouraging firms to strengthen ESG risk visibility (The Investment Integration Project, 2019).

4.3.3. Leveraging innovation and market strategies for ESG competitiveness

The key drivers of ESG success in Asian firms are technological transformation and how Asian firms position themselves in the market. The fact that we are experiencing such rapid digitization of business processes while there is also a need to reduce our impact on the environment provides an opportunity to make ESG reporting more effective, to optimize resource efficacy and to improve stakeholder engagement on the path to net zero. Firms, however, must also position themselves as ESG leaders on the global market to draw sustainable investments and bolster brand value at same time. This paper explores how firms can use innovation and market positioning to enhance ESG performance through the following recommendations.

For firms, integrating digital technologies, such as AI, blockchain and IoT into ESG reporting and operations can significantly enhance transparency, efficiency and stakeholder engagement (X. Liu et al., 2023; J. Wang et al., 2023; A. Xu et al., 2023). Singapore-based DBS Bank, for instance, uses AI-driven ESG dashboards that consolidate carbon metrics, supply chain traceability and real-time reporting, helping the bank and its stakeholders track ESG performance dynamically (DBS, 2025). Firms that proactively innovate in ESG processes can gain reputational and financial advantages in sustainability-sensitive markets (Agbakwuru et al., 2024; Elili, 2022; Zhou et al., 2022).

For regulators, supporting ESG harmonization across jurisdictions can simplify compliance and enhance cross-border competitiveness (Elili, 2022; Gunawan et al., 2022; Schumacher et al., 2020). Currently, the fragmented ESG landscape across Asia poses compliance challenges, particularly for multinationals (Lim & Rasul, 2022; Prajapati et al., 2021; Priya & Sathish, 2024; D. Zhang, 2022). Collaborative efforts among governments, industry associations and multinational corporations can help align ESG disclosure requirements, ensuring consistency across jurisdictions and reducing compliance burdens (CFA Institute, 2019). Regional initiatives such as the ASEAN Taxonomy for Sustainable Finance represent steps in the right direction (ASEAN Taxonomy Board, 2024).

For investors, prioritizing ESG-forward companies that leverage innovation and market positioning to drive impact can reshape capital markets. Investors should favor companies that go beyond ESG compliance to embed sustainability into their brand, product innovation and stakeholder communication (Bian & Panyagometh, 2023; Bodhanwala & Bodhanwala, 2019; Zhou et al., 2022). For instance, Japanese retailer Fast Retailing Group (Uniqlo) integrates circular economy practices into its supply chain and promotes ESG values through transparent reporting—enhancing investor trust and consumer loyalty (Fast Retailing Group, 2025).

4.4. Future research recommendations

Future ESG research in Asian contexts should adopt methodologically diverse and context-sensitive approaches to address current gaps. While quantitative methods such as regression analysis and GMM dominate the current literature, future studies are encouraged to employ mixed-method designs—for example, using qualitative case studies (Chouhan et al., 2021) to explore greenwashing behavior (D. Zhang, 2022) or behavioral finance surveys to examine investor psychology in sustainable decision-making (Dhasmana et al., 2023). The limited use of case studies and qualitative content analysis highlights a need to investigate firm-level ESG strategies and managerial decision-making from an interpretive perspective (Gutiérrez-Martínez & Duhamel, 2019).

Additionally, the growing complexity of ESG issues necessitates the use of comparative studies across Asian countries to better capture intra-regional variation in regulatory systems, cultural values and institutional pressures (Budiman et al., 2022; Jian et al., 2021). For instance, cross-country studies could examine how different levels of regulatory maturity or social trust influence the adoption of ESG certifications or green bonds (Janda et al., 2022; Lai & Zhang, 2022). These comparative efforts can also help unpack how board dynamics or CEO traits interact with cultural norms to shape ESG priorities (L. Wang et al., 2022; H. Zhang et al., 2023).

Moreover, future research should extend beyond current emphases on ESG performance, disclosures and financial returns by examining underexplored outcomes such as business resilience, innovation in green technologies (Chen et al., 2023) and the long-term impact of ESG certifications (Wong et al., 2021). Investigating the influence of corporate reputation, capacity building and risk management also offers promising directions (Efrata et al., 2019; Uzliawati et al., 2023). Furthermore, research can explore how ESG initiatives are filtered through broader macro-level strategies, such as the Belt and Road Initiative (Haralambides & Merk, 2020), and how external factors like market sentiment or investor perception influence sustainability adoption (Efthymiou et al., 2023; Wijaya et al., 2024).

To enhance theoretical contributions, scholars are encouraged to integrate underused lenses such as behavioral finance theory, signaling theory and market sentiment theory to explain ESG-related decision-making processes more comprehensively (Dhasmana et al., 2023; Efthymiou et al., 2023). Researchers can also address ongoing inconsistencies in the literature—such as the relationship between CEO duality, board size and ESG outcomes—through longitudinal or cross-regional analyses (Gu et al., 2021; R. Huang & Wei, 2023).

Lastly, future studies should investigate critical but understudied ESG contexts such as greenwashing, CSR regulation and ESG fraud, especially in Southeast Asia and other emerging economies where governance frameworks are evolving (Ismail & Latiff, 2019; Jarboui et al., 2023; D. Zhang, 2022). These studies should also explore the role of innovation ecosystems, digital transformation and environmental technologies (An & Mikhaylov, 2023; Khamisu et al., 2024; J. H. Liu & Xie, 2023), as well as financial instruments like green bonds and capital structure strategies under different market dynamics (Janda et al., 2022; Jian et al., 2021). Taken together, these directions underscore the need for future research to integrate sustainability, governance and innovation across diverse methodological, contextual and theoretical fronts in the Asian ESG landscape.

5. Conclusion

This study provides a systematic, representation-oriented review of ESG research in Asian firms by applying the ADO-TCM framework across 246 articles from 2013 to 2023. Our findings highlight distinctive features—such as collectivist stakeholder engagement, intergenerational family ownership and compliance-led ESG behavior—often overlooked in Western literature (Fang et al., 2022; Suttipun, 2021; Thorisdottir & Johannsdottir, 2020). These features are shaped by institutional mandates and socio-cultural dynamics rather than market-driven motives (Du & Cao, 2023; Y.-M. Tan et al., 2023), revealing the need for regionally grounded ESG frameworks (Alduais, 2023; Handoyo & Anas, 2024). We also observe a regional shift toward ESG institutionalization through regulatory support in Asian markets like China, Singapore and Hong Kong (HKEX, 2024; SGX, 2022; Shen et al., 2023), and a growing focus on environmental investment and governance modernization (McKinsey & Company, 2024; Qamruzzaman & Karim, 2024). Methodologically, this study contributes a novel application of the ADO-TCM framework (Hermawan et al., 2025), offering an integrated agenda for future research to explore internal firm cultures, stakeholder models and issues like greenwashing and fragmented reporting (Lim & Rasul, 2022; Prajapati et al., 2021; Priya & Sathish, 2024; D. Zhang, 2022).

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Author contributions

CRediT: **Jessica Hermawan**: Conceptualization, Data curation, Project administration, Visualization, Writing – original draft; **Liliana Inggrit Wijaya**: Formal analysis, Investigation, Supervision; **Andri Rianawati**: Conceptualization, Methodology, Resources, Writing – review & editing.

Registration and protocol

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Data availability statement

The data that support the findings of this study are available from the corresponding author, [Liliana Inggrit Wijaya], upon reasonable request.

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