

Evolution of Sustainable Finance Frameworks in Emerging Economies: A Systematic Review of ESG Integration and Policy Instruments (2010–2025)

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ABSTRACT

The paper performs a comprehensive systematic narrative review of the development of sustainable finance frameworks in emerging economies for 2010–2025. It focuses on the interactions among policy instruments, ESG integration practices, and institutional contexts. The study identifies three evolutionary phases: early efforts, 2010–2014, characterized by pilot initiatives and multilateral influence; institutionalization, 2015–2019, where policy coherence and ESG mainstreaming were at play; and consolidation, between 2020 and 2025, driven by digitalization, global alignment, and data transparency. Informed by more than 90 peer-reviewed studies and policy documents, the review evidences that regulatory instruments, market mechanisms, and voluntary frameworks together developed sustainable finance systems, albeit with uneven regional coverage. The results point at key drivers of regulatory clarity, investor demand, and technological innovation-and persistent barriers of governance deficiencies, data gaps, and market immaturity. By proposing an integrated framework on policy design, ESG adoption, and institutional strength, the research provides practical insights to policymakers, financial regulators, and researchers. The paper concludes that a coherent, data-driven, and adaptive policy ecosystem has been a prime driver for embedding sustainability into financial systems and achieving long-term development goals in emerging economies.

Keywords: Sustainable finance; ESG integration; emerging economies; policy instruments; framework evolution; systematic review; narrative review; 2010–2025.

INTRODUCTION

Background and Rationale

Over the last ten years, there has been a definite transformation in the state of finance worldwide: sustainable finance, that is, environment, society, and governance (ESG) values integrated into financial systems is arising as one of the main features of finance (Goel et al., 2022). A topic which previously had mainly niche and normative resonances in finance has transformed into one of the main financial approaches because of changes in finance regulations and the acknowledgment of the idea that finance value creation cannot disregard sustainability risks (Zairis, 2024). At the same time, EEs (that belong to lower- and middle-income countries and have evolving financial systems) find themselves running increasing risks related to sustainability (environment, biodiversity, equity) issues and struggling to access new financial sources to finance development (Goel et al., 2022).

Despite such increasing global attention, however, the dynamics of sustainable finance in EEs differ from developed countries. Matters such as less developed capabilities in financial institutions, less developed capital

market structures, young regulatory structures, and greater exposure to environmental and social risks make it necessary to have special tools for EEs (Goel et al., 2022).

However, there appear to be critical knowledge gaps in the literature, as there have been comparatively less research efforts done to systematically discuss and document the development related to sustainable finance framework structures encompassing related policies and ESG approaches across EEs from 2010-2025 worldwide. The absence of such an overview impedes learning from past developments and dynamics to define critical success factors related to sustainable finance development in EEs (Zairis, 2024; Ali et al., 2024).

Hence, by focusing on these arguments, the rationale of this study can be summarized to be dual in nature; first to acknowledge the fact that EEs do not emulate sustainable finance structures in developed countries but have their own paths in terms of their institutional and development constraints shaping their sustainable finance structures; and second to address the literature gap by delivering this narrative literature review of sustainable finance structures implemented by EEs in terms of ESG and policy tools from 2010 to 2025.

Research Problem Statement

Despite increased global attention towards sustainable finance, it can be postulated that emerging economies have remained less explored from the perspective of examining how their sustainable finance ecosystems, whereby ESG integrative techniques and tools (regulatory, market structures, voluntary), have developed from 2010 to 2025. The presence of such a gap in comprehensive literature fusion exercises signifies that several EEs' relevant stakeholders would be lacking clarity and direction towards areas of best practices and associated markers of development towards sustainable finance development. The result would be sustainability finance's development in emerging economies possibly becoming disorganized/ improperly regulated and not aligned to relevant market realities.

Research Objectives

The study sets out to achieve the following objectives:

- 1) To map the temporal evolution (2010-2025) of sustainable finance frameworks in emerging economies, with particular attention to ESG integration and policy instruments.
- 2) To classify and analyse the various policy instruments (regulatory, market-based, voluntary) adopted in emerging economies to promote sustainable finance and support ESG integration.
- 3) To examine how firms, financial institutions and markets in emerging economies are integrating ESG considerations into their practices, including reporting, investment decision-making and product innovation.
- 4) To synthesise the key drivers and barriers that influence the evolution and effectiveness of sustainable finance frameworks in emerging economies.
- 5) To propose an integrated conceptual framework for sustainable finance tailored to emerging economies, drawing on the narrative review, and to provide policy and practice-oriented implications.

Research Questions

In order to address the objectives above, the study poses the following research questions (RQs):

1. How have sustainable finance frameworks in emerging economies evolved between 2010 and 2025 in terms of structure, scope and maturity?
2. What policy instruments (regulatory, market-based, voluntary) have emerging economies adopted to promote sustainable finance and ESG integration, and how effective are they?

3. How are firms, financial institutions and markets in emerging economies integrating ESG considerations into their practices, and what gaps and challenges persist?
4. What are the primary drivers and barriers shaping the evolution and effectiveness of sustainable finance frameworks in emerging economies?
5. How can an integrated framework be designed to guide sustainable finance policy and practice in emerging economies, based on the findings of the review?

Scope of the Study

The present review concentrates on emerging economies in the time framework of 2010 to 2025 and analyzes developments in sustainable finance frameworks, paying particular attention to (i) ESG integration in practice by companies and financial institutions, and (ii) policy tools which aim to promote sustainable finance (regulatory requirements, tools and incentives, taxonomies, reporting obligations). While developed economies provide context to these developments, emerging economies form the main level of research because of their particularities.

Significance of the Review

The first significance of this literature review stems from its scope across 15 years. The paper encompasses the early development stages of sustainable finance to newer developments related to ESG mainstreaming in emerging markets (Goel et al., 2022). IMF The second significance of this literature review relates to highlighting policy tools and ESG integration simultaneously. The paper bridges not only financial practice but also ESG considerations because these two have generally remained distinct areas of study but now provide a comprehensive overview for emerging economies. The last significance of this literature review derives from synthesizing forces & hindrances in the context of emerging economies. The paper provides policymakers & market participants with critical insights to build sustainable finance in their context.

Contribution to the study

The research makes several contributions to the literature of sustainable finance in emerging economies by presenting an integrated and comprehensive narrative literature review for the period from 2010 to 2025. The research contributes to switching from disjointed national/industry-level reviews to understanding the historical development process of sustainable finance framework systems by encompassing ESG integration methods and their accompanying enabling policies. The research illustrates how financial transformation in emerging economies has been shaped by diverse mandatory and market-enabled voluntary approaches to ESG investment. The research identifies major motivational elements such as regulatory assurance, demand from fund agents, and data availability and challenges such as institutional rigors, market development level, and data capabilities to provide insight into what makes sustainable finance systems flourish. The research encompasses these developments in synthesizing ESG issues into the overall architecture of sustainable finance systems in emerging economies. The research uses PRISMA methodology to make it more scientifically comprehensive and provide policymakers and practitioners with empirical knowledge to align financial management systems from policymakers' perspectives to fulfill sustainable goals. The research provides theoretical significance by developing theoretical explanations about the history of sustainable finance systems' development and provides policymakers' practical knowledge to improve ESG-aligned finance systems in emerging economies.

Conceptual Foundations / Theoretical Underpinnings

Conceptual Foundations

Sustainable Finance

The meaning of sustainable finance can be referred to as the effort to make finance systems take ESG issues into consideration to ensure lasting financial development. The European Commission (2022) described sustainable

finance as implementing ESG issues into financial choices to allocate financial resources to sustainable financial activities. The idea here stresses financial systems' importance in enabling low-carbon and resilient economies. In response to challenges associated with sustainable finance, other organizations have come forward to define sustainable finance. The Organisation for Economic Co-operation and Development (OECD, 2023) described it as implementing ESG information to ensure financial systems align with global development goals such as the Paris Agreement and SDGs.

Emerging economies require sustainable finance not only as a method to mitigate risks associated with environmental and social issues but also as a way to mobilize financial resources to build sustainable infrastructure and ensure sustainable development and adaptation to climate change. According to Goel et al. (2022), for sustainable finance to be relevant in emerging economies, it must address challenges associated with structural issues such as limited capacity and weak financial structures. Therefore, sustainable finance in emerging economies not only relates to ethical investing but also represents a material source to ensure financial services align with sustainability (Zairis, 2024).

ESG Integration

ESG Integration refers to the uniform incorporation of E, S, and G considerations into investment research and financial decision-making (Gillan et al., 2021). ESG Integration also represents a paradigm shift from traditional ethical screening to ESG considerations as material financial variables (Rezaee, 2023). The concept of ESG Integration can be perceived as 'the operating heart of sustainable finance.' According to Rezaee (2023), ESG Integration bridges sustainability objectives and financial actions.

Current literature shows that ESG integration improves financial performance and helps to mitigate risks and reputational issues (Kotsantonis & Pinney, 2022; Boffo & Patalano, 2021). Nevertheless, ESG integration also poses distinct challenges in emerging countries such as data quality issues and lack of common regulatory structures (Ali et al. 2023). It can be seen that despite gaining prominence across the global platforms, ESG integration across emerging regions faces distinct challenges (Rahman & Barua, 2024).

Policy Instruments

In the context of sustainable finance, policy instruments can be described as the tools used by governments and financial regulators to encourage or enforce financial activities aligned to sustainability goals. In general, these tools come in three types:

- i. Regulatory tools such as mandatory ESG reporting requirements, taxonomies, and prudential guides;
- ii. Market-based instruments such as green bonds, carbon pricing, and sustainability-linked loans; and
- iii. Voluntary instruments such as codes of conduct in certain industries and ESG reporting guidelines (Fischer, 2023; Zhang & He, 2022).

The International Finance Corporation (2023) further identifies that policy tools play a critical role in informing market incentives and overcoming information asymmetry, hindrances to sustainable finance development in developing countries. The selection and sequencing of sustainable finance policy tools are critical in emerging economies due to their weak institutional capabilities and market dynamics (World Bank, 2023). For successful sustainable finance planning, there must be consistency between their regulatory environment and market development preparedness (G20 Sustainable Finance Working Group, 2022).

Emerging Economies

Emerging economies represent countries in the process of changing from less developed to developing countries and have evolving financial structures, increased manufacturing capabilities, and greater global market integration. According to IMF (2021), emerging market economies are those countries whose economies have relatively high rates of growth and increasing macroeconomic stability, together with changing structures and institutions; these countries are susceptible to external forces. Other features of such countries include increased financial transactions and development of sustainability management structures (World Bank, 2022).

Insofar as sustainable finance is concerned, emerging economies have a very interesting and complex role to play; these economies are very sensitive to environmental and social risks but simultaneously pose boundless opportunities to invest sustainably (Ali et al., 2023; Goel et al., 2022). Nevertheless, due to variations in emerging economies scattered across Asia, Africa, and Latin America, it can be seen that their sustainable finance structures differ significantly depending on their level of regulatory maturity (OECD, 2023).

Conceptual Interplay

The interlocking framework of sustainable finance, ESG integration, policy instruments, and emerging economies provides a complex but intrinsic context to define what sustainable finance brings to the table—that of aligning financial systems to make environmentally responsible and socially responsible decisions. ESG Integration brings to bear this requirement by incorporating sustainability criteria into financial systems. Policy Instruments serve as the framework in which ESG criteria can be developed to target market-level changes (Fischer, 2023). Emerging economies add to this complex environment their distinct systems and processes to these three dimensions. The way these elements play out together makes it critical to comprehend their dynamics to build roadmap strategies for implementation from 2010 to 2025 (Goel et al., 2022; Rahman & Barua, 2024).

THEORETICAL REVIEW

The theoretical framework to comprehend the dynamics of sustainable finance framework development in emerging economies is based on several interlinked approaches combined to comprehend how institutions and actors interplay to make financial systems sustainable. The first major theoretical perspective to note here related to understanding financial systems development in sustainability terms contributes to knowledge by understanding institutional behavior in financial organizations systematically. According to Scott (2021), institutional theory suggests that organizations function in systematically structured settings shaped by rules and regulations and cultural systems; and consequently, organizations seek to be like one another even in their policies to be in tune with these set structures shaped by rules and regulations (isomorphism). In sustainable finance systems development, this theory suggests that financial organizations in emerging economies have to adapt to external forces such as global norms shaped by rules from bodies such as United Nations Principles for Responsible Investment (UNPRI), Task Force on Climate-Related Financial Disclosures (TCFD), and other global organizations despite their immaturity (Suchman, 2022). The theory here helps to comprehend that legitimacy in these institutions acquires utmost importance to make these organizations act sustainably to sustain legitimacy in global financial systems (DiMaggio & Powell, 2021; Ioannou & Serafeim, 2023). In emerging economies related to sustainability framework development, it acquires importance to note here about Policy Diffusion related to sustainability framework development in financial systems related to global norms shaped by bodies like UNPRI & TCFD (Goel et al., 2022).

The second analytic framework is Policy Instrument Typology. The Policy Instrument Typology helps to describe how governments and policymakers make use of different tools to ensure sustainable finance. Fischer (2023) identifies three types of tools related to ESG issues. The first type of tools related to ESG issues is regulatory tools such as ESG mandatory disclosure requirements. Green taxonomies and prudential regulations also form part of these tools. Green bonds would form part of market tools related to ESG issues. Carbon pricing and sustainability-linked loans would also be classified under market tools related to ESG issues. The third type would be voluntary tools such as codes of conduct.

The three approaches mentioned above represent coercive power; normative power; and incentive power. According to Zhang & He (2022), these approaches have had intensive applications in sustainable finance development. In emerging countries like China and other BRICS countries whereby institutions and ability to enforce policies may not be mature yet, selection and sequencing approaches to policy instruments would be strategic to ensure sustainability. A combination of all these approaches to policy instruments would ensure ESG values to be embedded into financial systems (World Bank, 2023).

The Stakeholder Theory provides additional depth by focusing on the inter-relationships between companies, investors, supervisors, and societal players in promoting sustainable finance approaches. Freeman et al. (2021)

highlight how firms must be responsible towards diverse stakeholder interests besides shareholder interests if they seek to build value sustainably over time. Under sustainable finance approaches, it represents increased fiduciary duties involving broad areas such as environment management, social equity, and responsible governance. According to Gillan et al. (2021), if firms align stakeholder approaches to their business structures and processes, these firms would reflect increased transparency, reduced risks, and increased long-term financial sustainability. In their perspective, stakeholder approaches in emerging economies like new financial systems provide legitimacy to ESG strategies summarized by strategic community engagement and investor confidence to provide increased alignment towards sustainability challenges (Rahman & Barua, 2024).

To complement these approaches, the Financial Stability and Resilience Lens looks at systemic sustainability from the perspective of financial stability. Indeed, sustainable finance not only aims to align financial systems according to sustainable development objectives but must also make financial systems resilient to risks from climate and social events (Nguyen & Salisu, 2023). The Financial Stability and Resilience Lens recognizes ESG considerations as integral to stress management and makes financial systems less vulnerable to risks of asset abandonment and challenges like climate change and social instability (Apostolakis et al., 2022). The International Monetary Fund (2022) aligns with this perspective and states relatedly that sound sustainability systems have helped improve financial systems' sustainability by aligning financial systems to sustainability decisions related to lending and supervision. The Resilience Lens also applies to emerging economies because of market instability and vulnerability to climate risks.

Taken together, these theoretical approaches present a rich and multifaceted understanding of sustainable finance development in emerging economies. The Institutional Theory provides insight into the processes of norm and regulative convergence towards adoption of sustainable finance; Policy Instrument Typology helps to clarify how governments and policymakers pursue ESG conformity; Stakeholder Theory emphasizes financial stakeholder-interest dynamics; and finally, Financial Stability provides context about ESG finance development in terms of financial/microeconomic systems to ensure sustainable finance development as part of financial microeconomic systems development. The closest theoretical framework to supply comprehensive insight and grounding related to sustainable finance in emerging economies would be Institutional Theory since it encompasses processes related to legitimacy and development of these processes according to global contexts and demands related to sustainable finance and embedded development in emerging economy systems from 2010 to 2025.

CONCEPTUAL FRAMEWORK

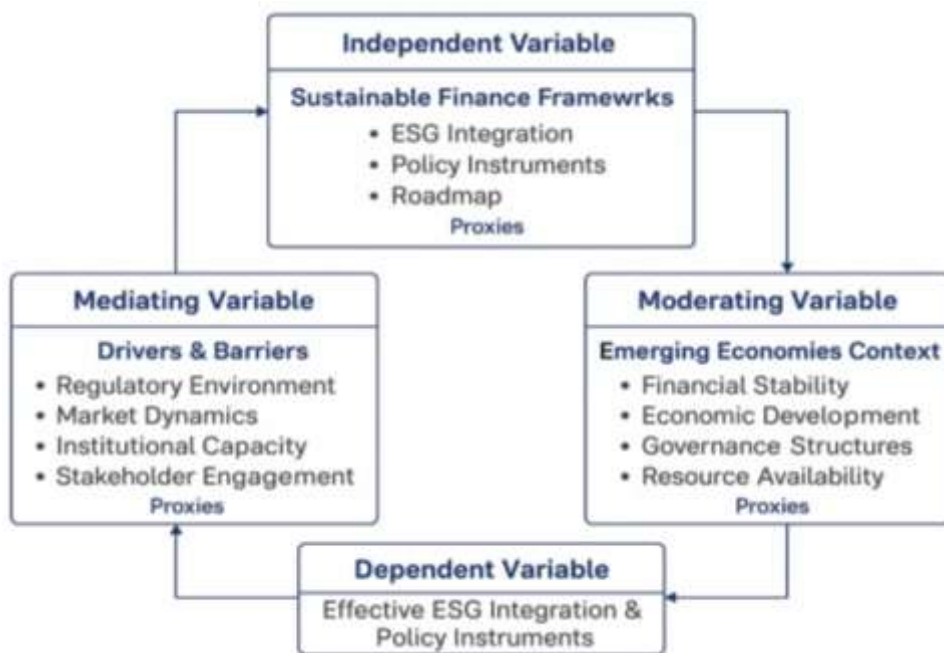


Figure 1: Conceptual Framework for the Evolution of Sustainable Finance Frameworks in Emerging Economies (2010–2025)

Explanatory notes on Conceptual Review

The conceptual framework shows how several interlinked processes occur for sustainable finance to be fully developed in emerging economies. The independent variable, Sustainable Finance Frameworks, covers all forces related to market and voluntary policies needed to provide a basic framework for sustainability in financial systems. The dependent variable, Sustainability Outcomes, comprises greater ESG reporting, greater investments in greener activities, better financial resilience, and sustainable growth while maintaining attention to the environment.

The linkage exists via the mediating variable ESG Integration Practices, whereby sustainability tenets are translated into practice via considerations encompassing environmental, social, and governance criteria in investment choices, credit ratings, and corporate governance framework designs. Conversely, the moderating variable Institutional & Market Context—encompassing governance quality, regulatory ability, financial development, and investor activism either reinforces or attenuates the influence of sustainable finance framework approaches. Interwovenly, it encompasses interlinkages between institutional dynamics, policy consistency, and market development to determine momentum, intensity, and sustainability dynamics of emerging economy sustainable finance transitions.

METHODOLOGY

Review Design

In extension to this objective, this research study will use narrative reviewing as its methodology for adopting a systematic mapping process to study the development of sustainable finance models in emerging economies from 2010 to 2025. The narrative reviewing method permits the complete and interpretive assessment of present knowledge to construct theoretical models from different disciplines (Snyder, 2019). In order to provide data rigidity to this research methodology, it will be conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) framework (Page et al., 2021), which helps follow a systematic flow of study selection from the universe of literature to selection. To enhance methodological transparency, this study adopts a clearly defined systematic review protocol aligned with PRISMA 2020 guidelines. The review process involved predefined inclusion and exclusion criteria, structured database searches, and rigorous screening procedures to ensure reproducibility and minimize selection bias. The inclusion criteria of PRISMA will ensure that only relevant and quality literature related to this topic from peer-reviewed journals will be assessed. The PRISMA diagram will represent pictorially the complete flow of data from selection to inclusion for interpretation.

Search Strategy

The literature search was systematically performed via three major academic databases known for their global, inter-disciplinary literature coverage: Scopus, Web of Science, and Google Scholar. The selection of these three academic search engine sites ensured comprehensive literature inclusion from published articles to research and policy reports related to sustainable finance and ESG issues in emerging countries. The search strategies utilized boolean logic along with ESG-related search terms identified below:

(“sustainable finance” OR “green finance” OR “ESG integration”) AND (“emerging economies” OR “developing countries”) AND (“policy instruments” OR “regulatory frameworks” OR “green bonds” OR “transition finance”).

The time scope of this search runs from 2010 to 2025 because it represents the current development of sustainable finance structures since the adoption of SDGs (2015) and Paris Agreement (2016). Only articles published in peer-reviewed journals and written in English were evaluated to ensure quality. In addition to keyword-based searches, backward and forward citation tracking was conducted to identify seminal and highly cited studies relevant to sustainable finance in emerging economies. This approach ensured comprehensive coverage beyond database indexing limitations.

Inclusion criteria included trials which were:

Specifically focus on sustainable finance/ESG issues in either emerging economies or developing countries.

Examine policy, regulatory, or institutional frameworks related to finance and sustainability.

Were published from 2010 to 2025 in peer-reviewed journals and/or institutional reports.

Exclusion criteria were:

Research not related to financial systems and instruments. Articles solely related to developed countries. Non-English language and not peer-reviewed literature,

Selection Process

The search process consisted of three systematic steps: screening, eligibility, and full-text checking to ensure methodology quality and reliability. First, 1,248 records were identified from electronic searches. After duplicate removal ($n = 236$), 1,012 title and abstract screenings were conducted to determine their relevancy according to inclusion criteria. Of these results, 234 articles were selected for full-text evaluation. After completing the eligibility test, 97 articles were utilized for inclusion in the final meta-synthesis. The search process was recorded in PRISMA flow diagrams to accurately represent the number of records eliminated and justifiable exclusions. In full-text screening results collection, data were gathered according to research goals, geographic attention to either national or other regions, methodology types, major research results, and identified policy/ESG variables. The collection process enabled intercomparison across all extracted articles according to study themes (Booth et al., 2021).

Data Synthesis

The data synthesis utilized narrative theming, time mapping, and policy instrument classification to effectively represent changes in sustainable finance for emerging economies. In particular, narrative theming entailed grouping literature around key themes like ESG Integration, Regulatory Innovation, Market-Based Instruments, and Institutional Dynamics (Bai et al., 2023). Time mapping allowed researchers to follow changes in sustainable finance methods from adoption (2010-2014) to consolidation and subsequent mainstreaming (2015-2025). Policy instrument classification utilized Fischer (2023) typology to group literature into regulatory instruments, market-based instruments, and voluntary instruments to effectively note prevalent approaches across different regions.

The developed insights were also utilized to discuss and highlight the driving forces, hindrances, and policy considerations to present a clear understanding related to how institutional, market, and regulatory elements together define sustainable finance in emerging economies. Themes were enabled to be compared across research to ensure results were reliable across empirical data and theoretical foundations such as Institutional Theory, Stakeholder Theory, and Financial Resilience Framework (Ioannou & Serafeim, 2023; Apostolakis et al., 2022).

Limitations of the Review

In spite of its comprehensive development, this systematic review recognizes several study restrictions. Firstly, language and publication biases could have resulted in the avoidance of relevant literature written in other languages and published as 'grey literature' in emerging economy institutions. Secondly, the 'temporal restriction' from 2010 to 2025 may disregard relevant pioneer research published prior to main adoption in sustainable finance. Thirdly, even though narrative synthesis allows inclusion of theoretical development in depth, quantifiable generalizability remained restricted. Fourthly, financial systems and governance structures differ across emerging economies; consequently, findings would not be generalizably common across all regions. Finally, as ESG policies and regulations related to sustainable finance keep evolving dynamically, new

approaches incorporated from mid-2025 onwards would transform the constantly shifting context addressed in this systematic review.

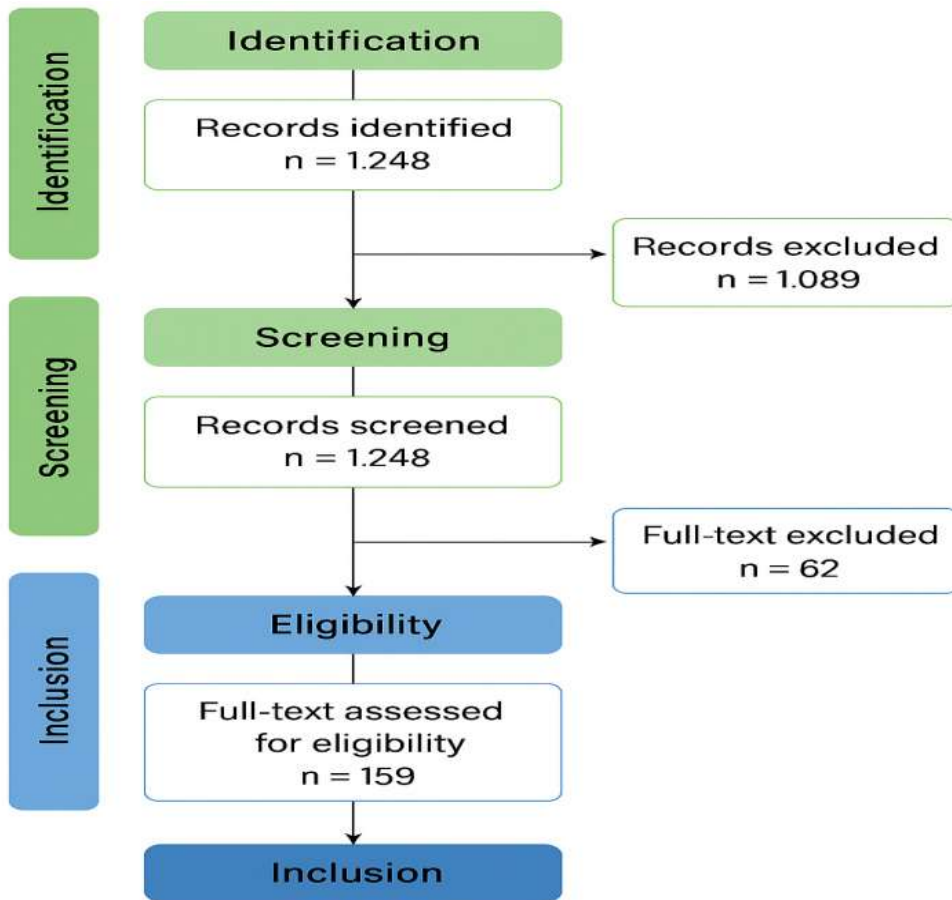


Figure 2: PRISMA 2020 Flow Diagram for Literature Selection on Sustainable Finance Frameworks in Emerging Economies (2010–2025)

In this PRISMA 2020 flow diagram, there are four steps identified in completing a systematic review: Identification, Screening, Eligibility, and Inclusion. It shows how 1,248 records were identified and narrowed down to 97 eligible studies. The color-coded flow diagram makes it easier to document methodology about selection of evidence relevant to this systematic review.

While the review covers multiple regions, there remains uneven geographic representation, with a higher concentration of studies from Asia relative to Africa and Latin America. Future research should prioritize broader regional inclusion to enhance generalizability.

Quality Assessment of Included Studies

To ensure the credibility of the synthesized evidence, all selected studies underwent a quality assessment based on three criteria: (i) methodological rigor, (ii) relevance to sustainable finance and ESG integration, and (iii) empirical or theoretical contribution. Studies were categorized as high, moderate, or low quality, and only high- and moderate-quality studies were included in the final synthesis.

Evolution of Sustainable Finance Frameworks in Emerging Economies (2010–2025)

The development of sustainable finance frameworks in Emerging Economies (EEs) has been marked by continued institutionalization, increased stakeholder engagement in financial markets, and development of global sustainability strategies. These three development stages of EEs towards sustainable finance development and implementation have occurred in three phases. The first development stage took place from 2010 to 2014. The second stage took place from 2015 to 2019. The third development stage took place from 2020 to 2025.



Figure 3: Chronological Evolution of Sustainable Finance Frameworks in Emerging Economies (2010–2025)
 Below is the timeline of sustainable finance development in three stages in emerging economies: Early Efforts (2010-2014), which showcased pioneering activity involving green bonds; Institutionalization (2015-2019), which had ESG regulations and alignment to SDG goals; and Consolidation & Digital Transformation (2020-2025), which showcased mainstream ESG adoption and transparency efforts.

Phase 1 (2010–2014): Early Efforts, Green Bond Beginnings, and Initial Policy Instruments

The period from 2010 to 2014 appeared to be in its formative stage for sustainable finance in emerging economies. During these years, pilot projects were scattered around to test new policy structures. The countries did not have any particular sustainable finance taxonomy followed by their regulations. The multilateral forces such as the World Bank, International Finance Corporation (IFC), and United Nations Environment Programme Finance Initiative (UNEP-FI) acted as catalysts to ensure new policy instruments were developed (IFC, 2023; OECD, 2023).

One of the major hallmarks of this era was the development of the Green Bond market; it started with the pioneer issue from the World Bank and paved the way for developing market institutions. Emerging market countries such as China, Brazil, and South Africa started to look into their domestic structures to issue Green Finance (Boffo & Patalano, 2021). The major focus here remained project-linked solutions aimed mainly at renewable energies, agriculture, and water (Boffo & Patalano, 2021). In particular, early models were structured around voluntary environmental and corporate social responsibility (CSRs)-linked financial solutions to eventually provide ESG-compliant enabling regulations (Goel et al., 2022).

During this stage, ESG integration efforts were limited and disorganized. In financial institutions in EEs, tools for managing risks related to the environment were mainly adopted internationally, but very few had ESG considerations (Ali et al., 2023). The lack of common criteria restricted cross-country comparisons. However, this stage marked the acknowledgment of sustainability risks affecting financial systems to some extent, laying down foundations for ESG mainstreaming to be encouraged by financial policies in subsequent stages (IMF, 2022).

Phase 2 (2015–2019): Expansion, ESG Institutionalization, and Emergence of Transition Finance

The era between 2015 and 2019 represents the era of acceleration and institutionalization of sustainable finance in emerging economies. The adoption of the UN’s Sustainable Development Goals (SDG) in 2015 and Paris Agreement in 2016 created global responses which in turn prompted national responses (Fischer, 2023; Zairis, 2024). Emerging economies developed national sustainable finance plans and strategies to harness ‘green money.’

During this phase, ESG considerations became systematically incorporated into financial regulations and governance structures. The development of green bonds regulations in China (2015) and then the Sustainable Banking Network by IFC broadened ESG sentiment across Asian, African, and Latin American regions. Central banks/regulators in regions such as Nigeria, Kenya, and Malaysia started to require climate and social risks to be systematically addressed in lending processes (World Bank, 2023). The development of transition finance (mechanisms to provide financing for gradual decarbonization of economies) became apparent to act as a middle ground for high-carbon sectors to be transformed (OECD, 2023; Rahman & Barua, 2024).

Practices of ESG integration underwent major developments. There was increased adoption of ESG rating systems by institutional investors and sustainability reporting requirements by stock exchanges. Frameworks by Global Reporting Initiative (GRI), Sustainability Accounting Standards Board (SASB), and Integrated Reporting (IR) became popular among companies in search of global acceptance (Rezaee, 2023). Inclusion of diversified policy tools such as green loans, sustainability-linked bonds, and blended finance facilities also increased (Kotsantonis & Pinney, 2022).

However, structural issues remained. Many MINT countries had data challenges, unclear ESG criteria, and investor inability to interpret sustainability reporting (Ali et al., 2023). Rather, it ushered in a new era. The concept of sustainable finance transformed from corporate social welfare to institutionalized efforts towards financial reallocation.

Phase 3 (2020–2025): Consolidation, ESG Mainstreaming, and Digital Transformation

The period of 2020-2025 is the consolidation and maturation period of sustainable finance in emerging economies. Three interrelated dynamics at play during this period include: (1) ESG mainstreaming throughout the financial systems, (2) digitalization and data-driven innovation, and (3) global regulatory convergence. The COVID-19 pandemic served as an inflection point by emphasizing sustainability and its connection with resilience and financial stability (Nguyen & Salisu, 2023). Governments and central banks in emerging economies then integrated the sustainability objectives into post-pandemic recovery programs, which expanded the issuance of sovereign green and sustainability bonds (IMF, 2022).

At the institutional level, ESG integration became systemic: it was integrated within risk management, credit assessment, and corporate governance. Financial institutions started to use fintech, artificial intelligence, and blockchain to improve ESG data gathering, reporting accuracy, and investment traceability (Rahman & Barua, 2024). Green finance taxonomies were also introduced to systematize investment classification in emerging markets like India, Indonesia, and South Africa in line with the EU Sustainable Finance Taxonomy and the G20 Sustainable Finance Roadmap (G20 Sustainable Finance Working Group, 2022).

Comprehensive policy instruments came to incorporate climate risk disclosure, carbon markets, and sustainable investment incentives. This saw the introduction of climate stress testing and taxonomy-based capital allocation integrated into the work of regulatory authorities and entwined financial regulation with the management of environmental risks World Bank 2023. ESG performance metrics have become increasingly sophisticated with their inclusions of double materiality and impact assessment indicators that capture the bidirectional influence between corporate sustainability and financial performance Ioannou & Serafeim, 2023.

This phase of consolidation represents deeper cross-border policy alignment, in which multilateral bodies like the IMF, World Bank, and OECD have facilitated policy harmonization across the emerging markets. In fact, the development of green fintech ecosystems, improved standards for disclosure, and capacity-building programs for ESG have made emerging economies some of the active players in building the global architecture of sustainable finance Bai, Zhao, & Zhang, 2023. However, the varying levels of regulatory enforcement, the capacity for governance, and data transparency continue to temper the effectiveness of the frameworks across regions.

Collectively, 2010–2025 represents the trajectory of gradual movement from exploratory policy experimentation toward institutional consolidation. Sustainable finance in emerging markets has developed into a multidimensional system underpinned by global regulatory alignment, domestic capacity building, and digital

transformation. This maturity signifies not only a growing convergence with global sustainability standards but also the contextual adaptation of ESG and policy instruments to local economic and institutional realities.

Empirical Validation through Selected Case Studies

To enhance the practical robustness of the findings, this study incorporates illustrative case studies from selected emerging economies namely China, Nigeria, and Brazil, representing Asia, Africa, and Latin America respectively. These cases were selected based on their relative advancement in sustainable finance frameworks and availability of documented policy and ESG integration practices.

In China, the introduction of the Green Credit Policy and national green taxonomy significantly accelerated sustainable lending and green bond issuance, demonstrating the effectiveness of strong regulatory instruments in deep financial markets. Nigeria provides an example of a hybrid approach, where the Central Bank's Sustainable Banking Principles have promoted ESG integration primarily through voluntary compliance mechanisms, albeit with moderate effectiveness due to enforcement limitations. Brazil illustrates the role of market-based instruments, particularly green bonds and agricultural sustainability financing, in mobilizing private capital toward environmental objectives.

These case studies validate the study's core argument that the effectiveness of sustainable finance frameworks is contingent upon institutional capacity, regulatory coherence, and market maturity. They also highlight regional variations and reinforce the need for context-specific policy design in emerging economies.

ESG Integration Practices in Emerging Economies

The incorporation of environment, society, and governance factors within the financial architecture of emerging economies has shifted from the fringes to the forefront of policy considerations. ESG incorporation in emerging economies occurs at the corporate sector level, financial sector level, as well as the investor/market level, which creates a fascinating intersection of regulatory requirements, institutional practices, and market forces. Nonetheless, the pace of this incorporation has been stifled due to the shortage of available data, inadequate regulatory architecture, and capacity constraints (Goel et al., 2022). This section will study the state of ESG incorporation practices in emerging economies from the above-enumerated perspectives.

Corporate Level: Integrating ESG into Governance, Reporting, and Investment Decisions

In the corporate context, the integration of ESG factors in emerging markets has become a crucial part of corporate governance. Today, businesses understand the significance of sustainable practices because it helps them become less vulnerable to risks while also accessing funding from global investors who support the concept of ESG investing (Ioannou & Serafeim, 2023). In emerging markets, corporate boards are also incorporating the oversight role of sustainability in their governance framework through the establishment of sustainability review panels, ESG reporting teams, and promoting corporate boardroom diversity (Freeman et al., 2021).

Regarding disclosure practices, there has been a shift from the voluntary method of sustainability reporting to formal ESG disclosure practices using global formats such as the Global Reporting Initiative (GRI), the Sustainability Accounting Standards Board (SASB), and the Task Force on Climate-Related Financial Disclosures (TCFD) standards (Rezaee, 2023). This has greatly helped in increasing the level of transparency and comparability across industries though this has been unbalanced. Companies from nations like India, South Africa, and Brazil are at the forefront of this development through their support of integrated reporting standards whereby sustainability performance has been linked to financial performance (Ali et al., 2023).

ESG considerations also begin to affect investment and operational choices, especially concerning environment efficiency, labor practices, and governance principles. Empirical research reveals that the firms practicing best ESG principles were found to enjoy better access to finance, reduced costs of capital, and improved reputations (Kotsantonis & Pinney, 2022). However, ESG practices are observed mostly in large firms and globally operational firms only. This has made small and medium-sized enterprises (SMEs) fall behind because of the

costs of compliance and technological challenges. The pressure of global value chains and investors plays a crucial role in promoting ESG practices at the corporate level (Boffo & Patalano, 2021).

Financial Sector Level: Banks, Asset Managers, and ESG-Linked Instruments

The financial sector of emerging nations has played a crucial role in promoting the integration of ESG factors. The banking sector has also aligned their credit offerings and risk management practices pertaining to loans through the development of frameworks regarding the assessment of environment and social risks. The move has been encouraged through government regulations and building goodwill (World Bank, 2023). For example, the central banks of Nigeria, Bangladesh, and Malaysia launched sustainable banking principles which require banks to factor ESG risks within credit and risk assessments of their investment portfolios (OECD, 2023).

The emergence of this regulatory evolution has encouraged asset managers and institutional investors to create ESG investment offerings through green, social, and sustainability bonds (GSSs) and sustainability-linked loans (SLLs). The development of the green bond market in emerging economies such as China, Brazil, and Indonesia has placed emerging markets at the forefront of sustainable financial flows globally (G20 Sustainable Finance Working Group, 2022). This development has enabled the financial sector to contribute to the development of renewable energy sources and climate adaptation initiatives through a sustainable asset base (Zairis, 2024).

In addition, the growth of sustainability-linked loans that see the interest rates attached to the achievement of ESG factors demonstrates the market-driven approach used to encourage good performance (Nguyen & Salisu, 2023). Financial institutions are leaning towards the usage of ESG rating agencies and data analytics tools to make their investment choices. The harmonization of ESG ratings faces challenges of divergent methodologies across different geographical locations (Rahman & Barua, 2024). The development of sustainable finance frameworks has seen emerging nations shift from a compliance approach to performance-oriented ESG integration and linking financial performance to sustainability performance.

Investor and Market Level: Institutional Investors, ESG Funds, and Disclosure Regimes

In the investor and market environment, the integration of ESG considerations in emerging markets marks an increasing but noticeable shift in the awareness and evolution of products available to investors. Institutional investors, pension funds, insurance companies, and sovereign wealth funds are beginning to shift their asset allocations to ESG-compliant assets (Fischer, 2023). The emergence of ESG equity mutual funds and exchange-traded funds (ETFs) in Latin America, Asia, and Africa confirms that there is increasing interest in sustainable investments from the mass market and institutional asset managers (Ali et al., 2023).

Stock exchanges in various nations like South Africa, India, and Malaysia have launched the concept of sustainability indices and the requirement of disclosure to ensure transparency in their markets. In this regard, the Johannesburg Stock Exchange (JSE) and the Bombay Stock Exchange (BSE) require their listed firms to provide information related to ESG topics as part of their annual requirement in line with the best practices followed globally (Ioannou & Serafeim, 2023).

Despite this, ESG investing in emerging markets remains largely compartmentalized within a micro-world of institutional investors, and consumer access remains limited due to the lack of financial and product sophistication (OECD, 2023). In addition to this deficit of quality disclosure, many firms continue producing 'cut and paste' disclosures containing non-quantitative terms of engagement. This state of affairs has been improved through the development of regional harmonization frameworks of disclosure practices through the support of global groups such as the 'ASEAN Taxonomy of Sustainable Finance and Africa's Sustainable Finance Framework' (World Bank, 2023).

Challenges and Barriers: Data, Capacity, and Market Constraints

Although there has been considerable development, the integration of ESG considerations within emerging markets has had continuous structural and functional challenges. The single most important factor that hinders the effectiveness of ESG integration within emerging markets remains the unavailability and unreliability of

ESG data (Goel et al., 2022). This has been because many firms do not have structured reporting channels and the information disclosed remains non-quantitative.

The constraints presented by the institutional capacity of financial institutions also form a barrier to the implementation of ESG practices. The regulatory bodies' ability to monitor the financial institutions' strict implementation of the ESG concept can be challenged due to the absence of specialized personnel. The same case applies to financial institutions due to the scarcity of qualified personnel who understand the concept of sustainability (Rahman & Barua, 2024). The depth of the financial market can also be a barrier to the scalability of financial products based on ESG principles because the financial markets of developing countries are not large enough to accommodate large investments (Nguyen & Salisu,

The next crucial factor that hinders the growth of sustainable investments globally and especially in emerging economies is the additional risk premium linked to sustainable investments in emerging markets. This can be due to factors such as the risks of macroeconomic instability, political uncertainties, and exchange rate risks that might scare global investors away from the project though its credentials are impressive (IMF, 2022). Additionally, the fragmentation of the rules of sustainability across nations creates an obstruction to the flow of global investments (OECD, 2023).

To address these challenges, there must be collective action along various fronts: the development of ES data platforms at the national level, improving national capacity through the delivery of targeted ES training, and the unification of national disclosure standards along global baselines from the International Sustainability Standards Board (ISSB). Only when this is achieved can emerging economies upgrade the effectiveness of their ES Integration agenda.

Policy Instruments and Their Effectiveness in Emerging Economies

The architecture of sustainable finance in emerging economies (EEs) has been built through a myriad of policy instruments that border along the regulatory continuum from mandated rules to market-oriented and voluntary approaches aimed at steering financial flows toward sustainable economic activities. The various policy instruments available and their levels of effectiveness depend on the level of institutional development and the capacity to govern (Fischer, 2023; Goel et al., 2022). This section will provide an overview of the typology of policy instruments used in sustainable finance in EEs and will also list the predominant practices.

Typology of Policy Instruments

The policy tools applied in the context of sustainable finance can be bifurcated into regulatory tools, market-driven tools, and voluntary soft tools, which operate in their own unique and complementary spheres (Fischer, 2023; OECD, 2023).

Rule-based tools are the building blocks of sustainable finance practices because they provide enforceable rules, norms, and classifications to direct financial participants towards investing according to ESG considerations. They can be ESG disclosure rules, green/sustainable finance taxonomy, prudential rules, and reporting requirements that must be followed as per the regulations of central banks and financial regulatory bodies. They can also be rules establishing guidelines to address credit risk management from the viewpoint of sustainability. Examples of rule-based tools are The People's Bank of China's Green Finance Guidelines (2016), the Sustainable Banking Principles of the Central Bank of Nigeria, and The Sustainable Finance Policy of Bangladesh (2020). They promote accountability, transparency, and minimize information asymmetry in financial markets (Ioannou & Serafeim, 2023).

Market-based instruments work through the use of price signals and incentives that link profitability and sustainability performance. Examples of market-based instruments are green bonds, sustainability-linked loans, carbon prices, and green taxes through tax incentives. The green bond market has played a crucial role in the mobilization of long-term financial support toward renewable energy sources and adaptation projects. Emerging economies such as China, Brazil, and the emerging markets of India cumulatively represented about a third of globally raised green bonds from the years 2015 to 2023 (G20 Sustainable Finance Working Group, 2022). The

success of market-based instruments can be greatly dependent on market participants' trust and the certification of ESG performance (Zairis, 2024).

Voluntary or soft law instruments can complement hard law through the provision of non-binding principles that promote a gradual change in the behavior of institutions. The Equator Principles, United Nations Principles for Responsible Banking (PRB), and the United Nations Principles for Responsible Investment (PRI) are good examples of principles that promote the adoption of sustainability commitments without the force of law through financial institutions (Boffo & Patalano, 2021). Although important in emerging markets, soft law's effectiveness can be challenged when its objectives are driven by reputation rather than legal authority (Rahman & Barua, 2024).

Figure 4: Typology and Comparative Roles of Policy Instruments in Emerging Economies

Type	Example Instruments	Policy Effects
Regulatory	Taxonomy, Disclosure, Mandates	Standardization, Risk Control
Market-Based	Green Bonds, SLLs	Incentivization, Innovation
Voluntary	Codes, Guidelines	Soft Adaptation, Awareness

This matrix above identifies the different policy instruments according to their types: Regulatory Instruments, Market-Based Instruments, and Voluntary Instruments. The Regulatory Instruments emphasize standardization of taxonomy and mandates, the Market-Based Instruments stress the development of taxonomy through the usage of green bonds and sustainability loans, and the Voluntary Instruments promote an adaptation through code-based initiatives. These instruments complement each other in the context of sustainable finance in emerging markets.

Mapping Major Instruments in Emerging Economies

The emerging economies are continuously institutionalizing sustainable finance through various national and regional tools that represent the increasing alignment of national actions with global initiatives. The establishment of sustainable finance national taxonomy, central banks' regulatory guidelines, and global coordination through the G20 Sustainable Finance Working Group (SFWG) are the most important trends in this sector (G20 SFWG, 2022).

National taxonomy classification systems identify environmentally sustainable practices and form the backbone of regulatory innovations. The first national taxonomy, the Green Bond Endorsed Project Catalogue, was pioneered in China in 2015. South Africa, Indonesia, and Colombia had national taxonomies built according to best practices (OECD, 2023). The ASEAN Taxonomy for Sustainable Finance of 2021 reflects the regional approach to standardization and the stimulation of regional investment in the region of Southeast Asia (World Bank, 2023).

The role of central banks and financial regulatory institutions has also come to the forefront in this policy context. The Central Bank of Nigeria has issued the Sustainable Banking Principles (2012), which has been extended to cover climate risk management and green loans. Likewise, the Bangladesh Bank has introduced the climate risk management practices in its supervisory framework. The Value-Based Intermediation approach also combines the principles of Islamic banking and sustainability principles (Ali et al., 2023).

Globally, the G20 Sustainable Finance Working Group (SFWG) has played an important role in the policy agenda regarding standardization, transparency, and emerging market capacity building in the context of sustainable finance. In this regard, the SFWG's publication of the *2022 Sustainable Finance Report* has helped to provide global principles regarding the development of taxonomy architecture and transition finance initiatives to promote harmonization across emerging and developing markets (G20 SFWG, 2022). This has been aligned with support from various global institutions like the IMF, World Bank, and OECD regarding technical support to support harmonization across markets (IMF, 2022; OECD, 2023).



Figure 5: Geographic Distribution of Sustainable Finance Policy Instruments Across Emerging Economies

The above geographic distribution map illustrates the adoption of the important sustainable finance policy instruments in the emerging economies of the world. The map provides color-coding of the regions regarding the adoption of the different sustainable finance policy instruments: the Green Bond (green), Taxonomies (blue), ESG Disclosure (orange), and the Transition Finance (red). The map also indicates the prominent regions of Asia, Africa, and Latin America.

Comparative Effectiveness of Policy Instruments

The factors that affect the effectiveness of policy tools in the emerging economies include financial market depth, institutional capability, governance quality, and investor sophistication (Goel et al., 2022; Fischer, 2023).

However, regulatory instruments work best in states possessing strong institutions. The taxonomy regulatory framework in China and the green credit policy of Brazil provide concrete evidence of the achievement of the goal of finance respecting the environment (OECD, 2023). By contrast, in less advanced states regarding regulations, the effect of mandated information disclosure has been the production of information discourse rather than improvement in ESG performance (Rahman & Barua, 2024).

The market-based approach has found favor mainly in economies that have deep capital markets and engaged investor communities. The green bond market in emerging markets such as those of China, Chile, and South Africa has been quite resilient due to fiscal benefits (Nguyen & Salisu, 2023). However, the challenges of insufficient secondary markets, awareness among investors, and risk premiums might impede the scalability of the market-based approach in immature markets (IMF, 2022).

Voluntary frameworks represent the area where capacity building has been mixed. In the absence of corporate accountability and investor activism in particular regions, the effect of soft law remains ineffective. However, various soft law initiatives, the United Nations Responsible Investments, and the Equator Principles acted as breeding grounds for regulators to develop hard law based on best practices being followed globally (Zairis, 2024).

In general, the best policy model in the emerging economy seems to be a hybrid of both government regulations and market principles. This allows the development of adaptive institutions along with encouraging innovations through the active engagement of the corporate sector (World Bank, 2023).

Table 2: Comparative Effectiveness of Sustainable Finance Instruments Across Selected Emerging Economies.

Country/Region	Instrument	Type	Year	Effectiveness/Outcome	Source
China	Green Bond Guidelines	Regulatory	2015	Strong	OECD (2023)
Nigeria	Sustainable Banking Principles	Voluntary	2012	Moderate	World Bank (2023)

Gaps and Fragmentation

Although there has been increasing sophistication in the emergence of sustainable finance policy instruments in emerging markets, there remain several challenges. The first challenge is the absence of standard taxonomy across the different regions. For example, while there has been standardization of the green taxonomy between China and the EU, this has not been the case across many emerging markets regarding the meaning of "green" or "sustainable" investments (G20 SFWG, 2022).

Second, the existence of data gaps constitutes a crucial bottleneck. This can be explained by the poor disclosure of ESG information, the poor quality of data infrastructure, as well as the absence of a unified sustainability database that can help the government track the implementation of the policy (Goel et al., 2022). The absence of proper data support makes the evaluation of policy and its enforcement in the realm of sustainability a reactive rather than proactive approach (OECD, 2023).

Another problem at hand will be the "first-mover disadvantage." The first adopters of environmentally friendly financial frameworks will experience a situation of inappropriate incentives and expensive transition costs due to the gradual development of regulatory enforcement and investor engagement (Nguyen & Salisu, 2023). Smaller emerging nations will encounter limited capacity to allow regulatory guidelines to be applied in practice (Ali et al., 2023).

Finally, there also exists fragmentation regarding global and local standards. Although global efforts through the TCFD and the International Sustainability Standards Board (ISSB) have achieved standardization progress, the incorporation of local realities in emerging economies has been a partial approach (Rahman & Barua, 2024). The challenge of maintaining global standards without neglecting developmental aspects in the local standard framework persists.

To fill this gap, there needs to be increased global coordination and support through better structures of data availability. It will be vital to promote coordination across central banks, financial regulators, and global institutions to address the challenges of fragmentation and develop the framework of sustainable finance practices within emerging markets.

Synthesis: Toward an Integrated Sustainable Finance Framework

The development of sustainable finance practices in emerging economies (EEs) from 2010 to 2025 can be seen as the transition from dispersed development to institutionalized frameworks that combine policy tools and ESG integration along with context-driven governance factors. In synthesizing lessons learned from the previous analyses, this section suggests an overarching conceptual framework whereby the operational nucleus of

sustainable finance involves ESG integration itself as driven by regulatory and market forces in its own unique context. The lessons also bring to the forefront the developing factors at work within this development.

Proposed Conceptual Model

The conceptual framework combines the three interrelated dimensions of policy instruments, ESG integration practices, and the context of the institutional and market framework to understand the sustainable finance dynamics in emerging markets. The conceptual framework suggests that policy instruments are the institutional enabling factors of sustainable finance because they represent rules and incentives that encourage financial stakeholders to support sustainable financial investments and disclosure practices (Fischer, 2023; OECD, 2023). The policy instruments affect financial institutions and corporations to implement ESG integration practices because the latter are the implementation tools through which the objectives of policy instruments can be achieved in the financial sector through investment choices and corporate governance practices (Rahman & Barua, 2024).

The role of policy instruments and ESG integration is conditioned by the context of corporate governance quality relative to the regulatory enforcement capability and financial depth as well as the sophistication level of investors in defining the ability of sustainable finance practices (Ioannou & Serafeim, 2023; Goel et al., 2022). In improved governance contexts, the regulatory framework promotes the active uptake of ESG considerations, but in poor governance contexts, the adoption of sustainability practices becomes cosmetic.

In the final analysis, the complementarity of the three factors presented above results in verifiable sustainability results: better ESG disclosure practices, enhanced green financial outlays, and improved financial robustness. The above model can therefore be said to embody a cycle of interaction whereby better results contribute to improved policy development and institutional learning regarding sustainable financial development in emerging economies (Nguyen & Salisu, 2023; Zairis, 2024).



Figure 8: Integrated Sustainable Finance Framework for Emerging Economies

This graphic combines the workings of policy instruments and ESG integration in the institutional context to bring about sustainability results. This framework locates ESG Integration Practices at the forefront, fueled by Policy Instruments (regulatory, market-based, and voluntary). The Institutional and Market Context shapes this interaction and results in Sustainability Outcomes: The power of resilience, ESG performance, and capital mobilization—encompassing the larger picture of the transformation of sustainable finance.

Emergent Drivers and Barriers

The synthesis of empirical and policy findings reveals a constellation of drivers and barriers that collectively shape the trajectory and effectiveness of sustainable finance in emerging markets.

Key Drivers / Enablers

Regulatory Clarity and Coherence: Clear taxonomies, mandatory ESG disclosure rules, and consistent reporting standards reduce uncertainty and enhance market confidence (G20 Sustainable Finance Working Group, 2022). Countries such as China, Indonesia, and South Africa demonstrate that well-articulated policy frameworks catalyze market participation and attract international investment (World Bank, 2023).



Figure 6: Drivers and Barriers Influencing Sustainable Finance Frameworks in Emerging Economies

This infographic presents the key enablers and constraints shaping sustainable finance in emerging economies. On the left, drivers such as regulatory clarity, investor demand, data systems, and fintech innovation enhance progress. On the right, barriers including governance gaps, market immaturity, risk premiums, and data scarcity illustrate persistent challenges that moderate the speed and depth of ESG framework adoption.

Investor Demand and Market Pressure: Growing global and domestic demand for ESG-compliant assets has stimulated product diversification, including sustainability-linked loans, green bonds, and impact investment vehicles (Ali, Alam, & Shahzad, 2023).

Technological and Data Infrastructure: Digitalization, artificial intelligence, and blockchain technologies are enhancing ESG data collection, transparency, and traceability, thereby improving risk assessment and investment alignment (Rahman & Barua, 2024).

Institutional Collaboration and Capacity Building: Partnerships among central banks, financial institutions, and multilateral agencies—such as the IMF and OECD—have been instrumental in strengthening supervisory capacity and facilitating policy diffusion (OECD, 2023).

International Policy Convergence: The harmonization of reporting frameworks through global initiatives like the Task Force on Climate-Related Financial Disclosures (TCFD) and the International Sustainability Standards Board (ISSB) has accelerated policy alignment and improved investor comparability (Ioannou & Serafeim, 2023).

Key Barriers / Constraints

Governance Deficiencies: Weak institutional frameworks, corruption, and regulatory capture undermine enforcement and erode confidence in sustainability policies (Goel et al., 2022).

Market Immaturity: Underdeveloped capital markets limit the absorption of ESG-linked financial instruments, resulting in low liquidity and limited investor participation (Nguyen & Salisu, 2023).

Capacity Constraints: The shortage of skilled professionals trained in ESG risk management and sustainability reporting hampers effective policy implementation (Rahman & Barua, 2024).

Data and Measurement Gaps: The absence of standardized ESG metrics and centralized data repositories impedes monitoring and cross-country comparability (OECD, 2023).

High Risk Premiums and Cost of Capital: Sustainable projects in emerging markets face higher financing costs due to macroeconomic volatility, exchange rate risks, and policy uncertainty (IMF, 2022).

Fragmentation Across Jurisdictions: Inconsistent taxonomies and disclosure frameworks among countries hinder cross-border investments and impede the creation of integrated regional markets (G20 SFWG, 2022).

The balance between these drivers and barriers determines the trajectory of sustainable finance evolution. Where institutional coherence, investor alignment, and data transparency converge, sustainable finance frameworks tend to mature faster and generate measurable outcomes.

Implications for Policy, Practice, and Future Research

The synthesis offers critical implications for policymakers, practitioners, and scholars seeking to advance sustainable finance in emerging economies.

Policy Implications

Policymakers must prioritize coherent and adaptive regulation that balances stringency with flexibility. The establishment of national sustainable finance taxonomies aligned with global standards, complemented by regional harmonization, will enhance consistency and attract cross-border investments (G20 SFWG, 2022; OECD, 2023). Strengthening institutional capacity through specialized training for regulators, the creation of ESG data hubs, and the integration of sustainability into financial supervision frameworks are also imperative. Fiscal incentives, such as green investment tax credits or concessional financing for sustainability-linked projects, can further deepen market participation (World Bank, 2023).

Practical Implications

Financial institutions and corporations should embed ESG considerations within core governance, lending, and investment strategies, moving beyond symbolic compliance toward performance-based integration. Adopting data-driven tools and fintech solutions for ESG monitoring will improve accuracy and credibility. Collaborative industry initiatives—such as sustainability alliances among banks or ESG knowledge-sharing platforms—can promote peer learning and convergence of practices (Ali et al., 2023; Rahman & Barua, 2024).

Research Implications

For scholars, this study underscores the need for comparative and longitudinal analyses that examine how sustainable finance policies evolve across different institutional settings. Future research should explore quantitative linkages between policy instrument effectiveness, ESG integration, and financial performance using panel and mixed-method designs. Additionally, studies focusing on regional policy convergence (e.g., ASEAN, ECOWAS, and SADC frameworks) and digital innovations in ESG data governance could provide valuable insights into the next phase of sustainable finance development in emerging economies (Nguyen & Salisu, 2023; Ioannou & Serafeim, 2023).

In conclusion, achieving a resilient and coherent sustainable finance ecosystem in emerging economies requires a systemic, multi-level approach. By integrating robust policy instruments, effective ESG practices, and supportive institutional contexts, emerging economies can transition from fragmented sustainability initiatives

toward holistic, data-driven, and globally aligned financial systems capable of advancing long-term development and climate goals. To strengthen analytical rigor, future extensions of this study could employ comparative indices such as a Sustainable Finance Maturity Index to quantitatively assess cross-country variations in ESG integration and policy effectiveness. This would enable benchmarking and provide stronger empirical grounding for policy recommendations.

CONCLUSIONS AND RECOMMENDATIONS

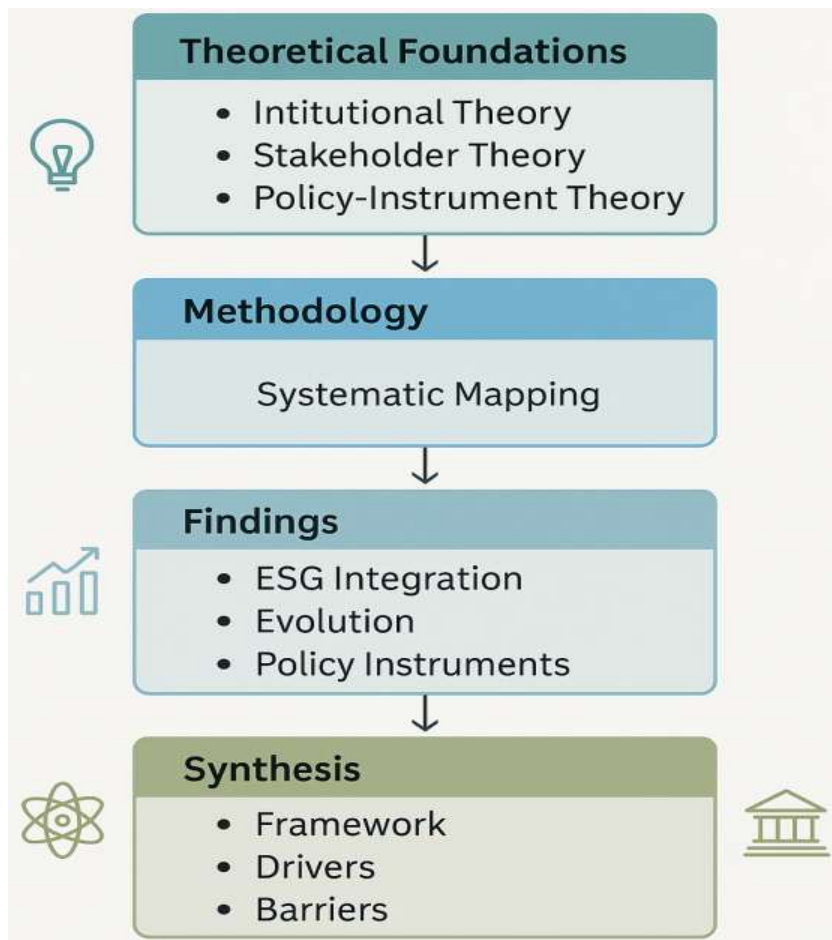


Figure 9: Overview of the Analytical and Thematic Flow of the Study

This conceptual map illustrates the reasoning and analytical flow of the research. The conceptual map links Theoretical Frameworks (Institutional Theories, Stakeholder Theories, Policy Instrument Theories) via the research’s Methodology (systematic mapping of the methodology), then finally synthesizes the results of the research at Findings (ESG Integration Processes, Evolution of Integration Processes, Policy Instruments of Integration Processes) until final Policy Implications are attained.

The development of sustainable finance regimes in emerging economies (EEs) from 2010 to 2025 has been a transformative experience from isolated efforts to organized and formalized regimes incorporating environment, society, and governance (ESG) considerations in financial choices. This closing section of the study summarizes the findings of the study and provides policy recommendations informed by them. The review has limitations that will be discussed below.

SUMMARY OF KEY FINDINGS

The structured narrative review reveals the development of sustainable finance in emerging markets has occurred over three different stages: the initialization phase (2010–2014), the growth phase (2015–2019), and the consolidation phase (2020–2025). Every phase marks an enhanced level of development.

The early phase saw the development of financial instruments characterized by sustainability, which were mostly experimental and the result of global initiatives and corporate actions rather than national regulations (Boffo & Patalano, 2021). The middle phase from 2015 to 2019 saw the integration of ESG considerations at the national level through national taxonomies and transition finance approached through the lens of the SDGs and the Paris Agreement (Fischer, 2023; Goel et al., 2022). The consolidation phase from 2020 to 2025 saw the integration of ESG through digital innovation and policy convergence through the efforts of the G20 Sustainable Finance Working Group and the OECD (G20 SFWG, 2022; OECD, 2023).

The research reveals that there has been a strengthening of ESG integration practices at the level of the corporate sector, financial sector, and investors. Companies begin to integrate sustainability considerations in their governance and disclosure practices, financial institutions develop ESG-indexed financial instruments, and there has been a push for greater ESG transparency (Rahman & Barua, 2024). However, there are many challenges that remain unaddressed: weaknesses in taxonomy development, lack of quality ESG information, limited enforcement power, and differences in market development (Nguyen & Salisu, 2023).

POLICY RECOMMENDATIONS

For Emerging Economy Governments

A coordinated sustainable finance policy from the government can be achieved through the development of a national sustainable finance taxonomy compatible with the global standard of the EU Taxonomy and the ISSB standards (OECD, 2023). Fiscal support through green taxes, subsidies for renewable energy sources, and blending can be used as a policy tool to promote the engagement of the private sector. The government can also provide support and investment in ESG data infrastructure and national sustainability databases.

For Financial Regulators and Central Banks

Regulators must begin incorporating sustainability risk assessments within their prudential oversight and credit risk assessments. The addition of climate stress tests and ESG factors to capital adequacy guidelines can help upgrade the resilience of the financial system (IMF, 2022). A coordination effort from central banks, through forums of the Network for Greening the Financial System (NGFS), must be achieved to standardize best practices. Regulators must also begin strict enforcement of ESG disclosure requirements of listed companies while supporting capacity building efforts to upgrade the institutions' readiness.

For Financial Institutions and Market Participants

Financial sector players must integrate ESG factors into the basic principles of their business models to promote sustainability as a crucial factor in risk management practices and as part of their investment activities. Financial banks can create credit instruments linked to sustainability principles, while asset managers can develop ESG-based fund management offerings and impact investing instruments. Sector players can develop voluntary principles of sustainability practices through industry sector associations to promote self-regulatory practices. Partnership with fintech companies can hasten the development of data-driven ESG analytics to promote improved sustainability practices (Rezaee, 2023; World Bank, 2023).

Research Implications

The results point to numerous avenues of study within the field of academia. Firstly, there must be research aimed at the quantitative measurement of the effectiveness of sustainable finance policies in emerging economies concerning the allocation of capital and the effect of said allocation on the environment (Ali et al., 2023). Second, research can be done concerning the impact of the take-up of ESG practices within financial systems over time.

Thirdly, the role of regional convergences and divergences in emerging market groups of the type of ASEAN, ECOWAS, and SADC must be investigated through research to learn best practices and regional factors. Also, research must also encompass the impact of the digital revolution and the financial technologies of blockchain green bonds and AI-driven ESG analytics in accelerating the integration of financial sustainability. (Rahman &

Barua, 2024; Nguyen & Salisu, 2023). Future research should move beyond macro-level analysis to examine sector-specific applications of sustainable finance frameworks. For instance, investigating ESG integration in sectors such as energy, agriculture, banking, and infrastructure would provide deeper insights into how sustainability practices vary across industries with different risk profiles and capital structures.

Additionally, there is a need for longitudinal studies assessing the long-term impact of digitalization and ESG adoption on financial system performance. Emerging technologies such as artificial intelligence, blockchain, and big data analytics are increasingly shaping ESG data ecosystems, yet their implications for financial stability, capital allocation efficiency, and risk management remain underexplored.

Empirical research using panel data and econometric modeling could further clarify the causal relationship between ESG adoption, digital innovation, and financial performance in emerging economies.

Such research will improve the empirical base of sustainable finance theory and generate practical insights in the challenging context of emerging markets for policymakers and financial investors.

Limitations of the Current Review and Final Remarks

Although this review provides a profound level of insights, it also expresses understanding of certain limitations. The review of this study has been done through the usage of English-language peer-reviewed articles, which might affect the relevant regional work and exclude policy articles written in English. The time framework of this study has been from 2010 to 2025 and might miss the previous sustainability work that has affected the institution's baseline. As a final point, due to the rapid development of ESG regulations and online tools, this result might need periodic revision because of the emerging regulations and tools.

Nevertheless, the review remains a rich source of information regarding the development of the sustainable finance frameworks in emerging economies. The concept of the integrated model illustrates that sustainable financial systems can be achieved through the interplay of consistent policy settings, the power of institutions, the level of market development, and ESG integration. Emerging economies will continue to harmonize their financial structures to achieve their objectives of sustainability. As a result of this development in financial architecture, the frameworks will be supportive of the mobilization of green capital.

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