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INSTITUTE OF FINANCE AND SUSTAINABILITY
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NOVEMBER 2022

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Sustainable Finance
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During the preparation of this report, the World Bank Group organized a series of webinars under the Sustainable ExchangE Development Series (SEEDS) that helped to inform this report's content. The SEEDS webinars featured discussions of best practices on the legal and regulatory environment to support the development of sustainable finance as well as discussions on innovative sustainable financial products and services, using a peer-to-peer format. There were five SEEDS webinars: Malaysia (covering innovative developments on sustainable banking), Thailand (covering blockchain bonds for sustainability); South Africa and Nigeria (also focused on innovative developments on sustainable banking), and the Republic of Korea (featuring the carbon trading markets).

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Foreword

Climate change is one of the greatest developmental challenges of our time. As the world rises to the challenge and embarks on the much needed transformation to greener and low-carbon economies, with greater emphasis on sustainable development. Financial markets also need to embrace this more sustainable future. As shown in this report, global debt financing of sustainable investments has expanded rapidly, with the total outstanding amount growing from US$24 billion in 2013 to an estimated US$2.3 trillion in 2021.

Despite this remarkable expansion, emerging and developing economies account for only a small fraction of this financing for sustainable investments. The bulk of these funds has gone to finance sustainable investments in developed economies. This uneven distribution in global sustainable finance leaves us with the important and difficult question of how to foster the development of these markets in less developed economies. This question is especially pertinent for the ASEAN region, one of the most economically dynamic regions in the world, which faces massive risks of adverse impacts from climate change. Investments in climate change mitigation and adaptation will be crucial for their sustainable economic development.

The World Bank Group Inclusive Growth and Sustainable Finance Hub in Malaysia and the Institute of Finance and Sustainability (IFS) have co-authored this report to shed some light on the opportunities and challenges faced by a select set of ASEAN economies to develop sustainable financial markets. To do so, the report first takes a step back and looks into the current state of development of sustainable debt and equity markets in the region, comparing it against other developing and developed economies.

The findings provide a cautionary tale of the complexity of the challenges in front of us. Some of the ASEAN economies, in comparison with other developing economies, have made greater efforts in recent years to develop their sustainable finance markets, with significant strides in setting up enabling policy frameworks. Nonetheless, the outreach of sustainable financial markets remains extremely limited—only 83 corporations in the five ASEAN economies covered in this report (Indonesia, Malaysia, Philippines, Thailand, and Vietnam) have obtained financing via sustainable financial instruments since 2017.

What would it take to unlock the tremendous untapped potential for further market development? A survey of financial institutions conducted for this report and an assessment of the enabling policy frameworks reveals that countries in the region must *REACT* to mobilize private capital for sustainable investments. Supporting sustainable financial development requires decisive action in five areas: ***R****eadiness*, mitigating the investment challenges for financial institutions; ***E****nabling Environment*, ensuring that supportive policies are in place; ***A****nalytics*, bridging efforts to close critical data gaps and develop robust frameworks for measurement, reporting, and verification; ***C****apabilities*, enhancing capacity building efforts to support sustainable investments; and ***T****ransition*, minimizing the distributional impacts associated with the economic transformation. Policy implementation is a critical, high-priority cross-cutting theme. In many areas, supportive policy frameworks are in place across ASEAN economies, but they are not yet effectively implemented. Policy makers should also strive for policy coherence, for instance with the alignment of fiscal, economic, environmental, and financial sector policies, to create the right incentives for the financial sector to direct financing for sustainability.

Understanding the catalyzing role of sustainable financial markets and the complex challenges of bringing together investors, the private sector, and policy makers to scaling up sustainable investments, both the World Bank and IFS are firmly committed to financial development for sustainable investments. Through both country engagements and our convening role through international platforms—such as the G-20, the Network of Central Banks and Supervisors for Greening the Financial System (NGFS), and the Green Finance Leadership Platform (GFLP), among many others—we are supporting our various stakeholders to REACT and rise to the challenge.

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Abstract

Climate change mitigation and adaptation efforts are urgently needed across Southeast Asia. The region has some of the most greenhouse gas (GHG)-intensive economies in the world. At the same time, climate change is significantly impacting and altering the operating environment for firms, investors, and communities. Economies in Southeast Asia are among the most exposed in the world. Climate-change-related disasters cause significant economic and social losses, and pose severe risks to Southeast Asia's long-term economic development agendas. To achieve low-carbon and climate-resilient economies, the ASEAN-5 economies—Indonesia, Malaysia, Philippines, Thailand, and Vietnam—must undergo a costly but necessary economic transformation toward low-carbon and climate-resilient economies.

The financial sector can play a critical role supporting countries in their journey toward greater resilience and sustainability, but it must adapt to do so effectively. This economic transformation will entail large scale investments, which in turn, will require massive funding. Public sector financing alone is not sufficient and needs to be complemented with private financing. Well-developed financial markets can catalyze large amounts of funds for climate change mitigation and adaption efforts. But for that to occur, sustainability considerations must become mainstream, entering the core of the decision-making processes of financial institutions. Developing financial systems for these goals entails addressing two interrelated challenges: (i) management of climate risks to the financial sector itself; and (ii) capital mobilization for sustainable investments. This report focuses on the latter.

This report shows that while sustainable finance has experienced widespread expansion, sustainable financial markets remain small and unable to meet the funding needs of ASEAN-5 economies for their various sustainability objectives. Sustainable debt and equity markets have shown impressive growth over the last five years across the ASEAN-5. For example, the total amount of sustainable debt raised annually increased from US$0.25 billion in 2016 to US$6.75 billion in 2021, bringing the total amount of outstanding sustainable debt to about US$24 billion. Yet, ASEAN-5 economies are still at the stage of trying to deepen sustainable financing from "millions to billions," far from the much-needed escalation from "billions to trillions." Furthermore, the research shows that sustainable debt and equity markets remain a small fraction of conventional markets, suggesting the potential for further growth of sustainable finance is largely untapped.

The outreach of sustainable financial markets is extremely limited, with a sizeable gap in sustainable financing, especially for small and medium enterprises (SMEs). Only 83 non-financial firms in the ASEAN-5 have tapped sustainable equity and debt markets since 2017. Sustainable debt markets have financed mostly listed firms with an investment grade, whereas private equity markets have funded small corporations with projects in climate and/or clean technologies. Novel survey results in this report indicate a limited range of other sustainable financial products in the offerings of financial institutions in the ASEAN-5. Insurance is notably absent.

A marked gap in climate-related information hampers investments in sustainability and is further exacerbated by limited capabilities across a wide range of stakeholders in sustainable finance. About 88 percent of the surveyed financial institutions in the ASEAN-5 cited the limited availability and complexity of climate-related information as core challenges for sustainable investing—from the high costs of gathering and processing climate-related information, if at all available, to the complexity of sustainability metrics and the lack of reporting standards. The lack of well-established standards and the information gap is particularly challenging in an environment with limited capabilities. Survey findings indicate that limited capabilities, particularly shortage of expertise in the financial sector, hinder the development of sustainable finance. The results also suggest a lack of green projects, which arguably stems from a lack of capabilities needed to generate a pipeline of sustainability projects, such as the lack of technical expertise in the private sector.

Financial performance is a key driver of sustainable investments for financial institutions, often prioritized over sustainability considerations. Even in the absence of information gaps, assessing the financial benefits of sustainable investments is particularly challenging in the context of climate change, as many benefits of mitigation and adaptation efforts are realized, for example, as avoided damages rather than direct revenue streams. Difficulties in accessing and analyzing climate-related information exacerbate this challenge. To the extent that financial concerns and interrelated, complex challenges hinder sustainable financing, thus motivation for change can come via "incentives from the top." The research in this report highlights that swift and strong actions by the top echelon of financial institutions and governments can play a critical role in driving investments toward sustainability.

To unleash sustainable finance in Southeast Asia, policy makers must *REACT* to mobilize private capital towards sustainability. This report highlights the importance of developing the financial architecture for sustainability in financial markets. While the ASEAN-5 economies have made significant headway in this regard, enabling policy frameworks are often at an early stage of implementation. ASEAN-5 economies have a lengthy road to travel before sustainability is fully integrated into investment decisions. This report proposes a new framework for policy action, the five REACT policy priorities, with policy implementation as an important cross-cutting theme:

(i) ***R****eadiness:* Policy makers should mitigate investment challenges for creditors and investors, especially those associated with the high riskiness (whether real or perceived) of investments in sustainability. Policies should aim to de-risk sustainable investments, support better risk diversification across investors, and foster pricing efficiency in financial markets. Policy makers can also be instrumental in addressing the lack of sustainable assets for investments.

(ii) ***E****nabling environment:* Policy makers should foster a supportive enabling environment to broaden financial market development, focusing on improving local financial market infrastructures for deeper and more accessible financial systems.

(iii) ***A****nalytics:* Closing data gaps and enhancing information systems should be a policy priority. High-quality, granular, and timely data must be collected and accessible to a broad set of stakeholders. An important next step for most of the ASEAN-5 is to push forward with an effective implementation of taxonomies and disclosure standards, with the ultimate goal of wider implementation across the private sector at large.

(iv) ***C****apabilities:* Building capabilities and enhancing sustainable finance literacy can accelerate the mainstreaming of sustainability in finance. These efforts should go beyond financial institutions themselves and encompass policy makers and the private sector at large.

(v) ***T****ransition:* To ensure a 'just transition,' policy makers should pay close attention to firms that may be negatively impacted by the transition toward greater sustainability as well as those that face greater risks of exclusion from current sustainable financial markets. These firms may *de facto* be excluded from critical financing sources, which in turn could lead to economic inefficiencies.

Fostering sustainable financial market development will require a deliberate and holistic approach to catalyze private investments. Although not directly addressed in this report, policy makers should also recognize that adjustments to supervisory practices and frameworks to mitigate the potential impact of climate-related risks on financial stability can provide further incentives for financial institutions to reallocate their portfolios toward more sustainable investments. In addition, policy makers need to consider the broader and complex policy landscape for the development of more sustainable and resilient economies. Of particular importance is the agenda supporting firms in building climate change resilience and becoming more sustainable.

Executive Summary

The Financial Sector Needs to Adapt to Effectively Spur the Economic Transition to Sustainability

Climate change is significantly impacting and altering the operating environment for firms, investors, communities, and countries in Southeast Asia. Countries in the region are among the most exposed in the world, vulnerable to a range of climate-related hazards, such as floods, tropical cyclones, landslides, droughts, and extreme heat, to name a few. Since 2000, these climate-related natural hazards have accounted for approximately 83 percent of all natural disasters in Southeast Asia. Their intensity is expected to grow. These disasters often cause large economic and social losses and pose serious risks to the countries' economic development agendas. A growing body of evidence supports the claim that these disasters exacerbate inequality, leaving poor households, communities, and underdeveloped countries exceedingly vulnerable to the adverse impacts of climate change.

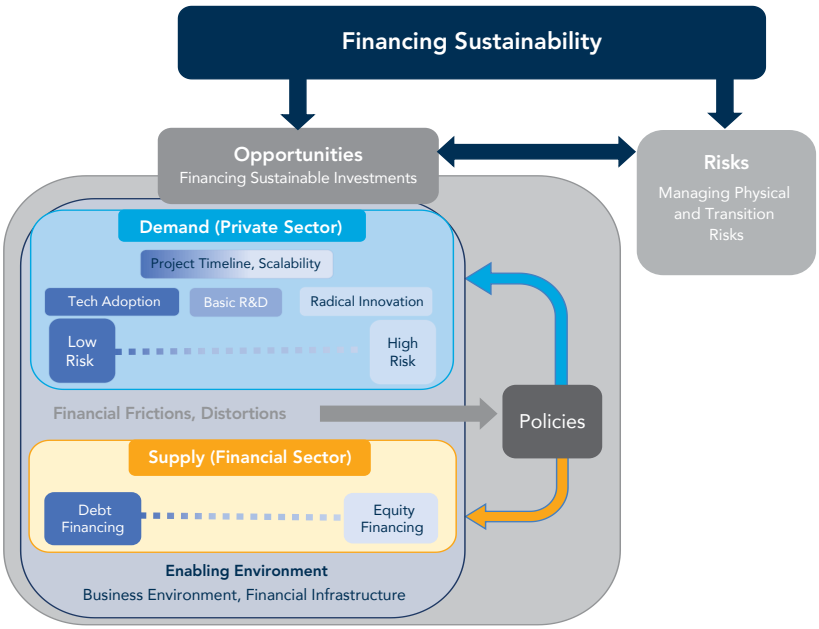
Southeast Asia has some of the most greenhouse gas (GHG)-intensive economies, creating an urgent need to transition towards sustainability. Since the turn of the century, total GHG emissions have continued to increase while the economic challenges associated with climate change have intensified. Pre-pandemic statistics show that Indonesia was the world's fourth largest carbon emitter, accounting for 3.9 percent of global emissions in 2019. During the same year, per capita emissions in Malaysia were higher than the average for Organization for Economic Co-operation and Development (OECD) countries. Indonesia and Vietnam have some of the most GHG-intensive economies in East Asia, significantly higher than China, Japan, and the Republic of Korea. The challenges created by GHG emissions and the associated environmental degradation have motivated an urgent call for global transition toward more sustainable economies.

To achieve low-carbon and climate-resilient economies, countries in Southeast Asia must undergo a costly economic transformation. Delivering on climate and development goals while undergoing this economic transformation will entail large scale investments, technological breakthroughs, and widespread adoption of technologies and products geared toward resilience to climate change and greater sustainability. These investments will require significant funding. Estimates show that emerging markets and developing economies (EMDEs) will need trillions of dollars of annual financing for climate change mitigation and adaptation efforts. Within EMDEs, financing for low-carbon, climate-resilient infrastructure alone is estimated to reach at least US$1.55 trillion annually between now and 2030 (World Bank, 2021).

The financial sector can play an instrumental role supporting countries in their journey toward greater sustainability, but it must adapt to do so effectively. Sustainability considerations must become mainstream, entering the core of the

decision-making processes of financial institutions. Developing financial systems to support resilience and sustainability goals, not only in Southeast Asia but also around the world, entails addressing two interrelated challenges, as shown in Figure ES1: (i) management of climate risks to the financial sector itself ("Risks"); and (ii) capital mobilization for sustainable investments ("Opportunities"). To address the "Risks," the financial sector needs to build stronger resilience to both physical risks (e.g., risks stemming from natural disasters) and transition risks (e.g., risks originating from the economic transformation toward greater sustainability). The materialization of both risks often translates into financial and economic costs to firms and households, especially those caught unprepared, which can ultimately jeopardize the functioning and stability of the financial system itself. A transformation is also needed so that the financial sector can catalyze vast amounts of private capital and efficiently allocate it toward climate mitigation and adaptation efforts (the "Opportunities").

FIGURE ES 1
Conceptual Framework



Source: Authors' own elaboration.

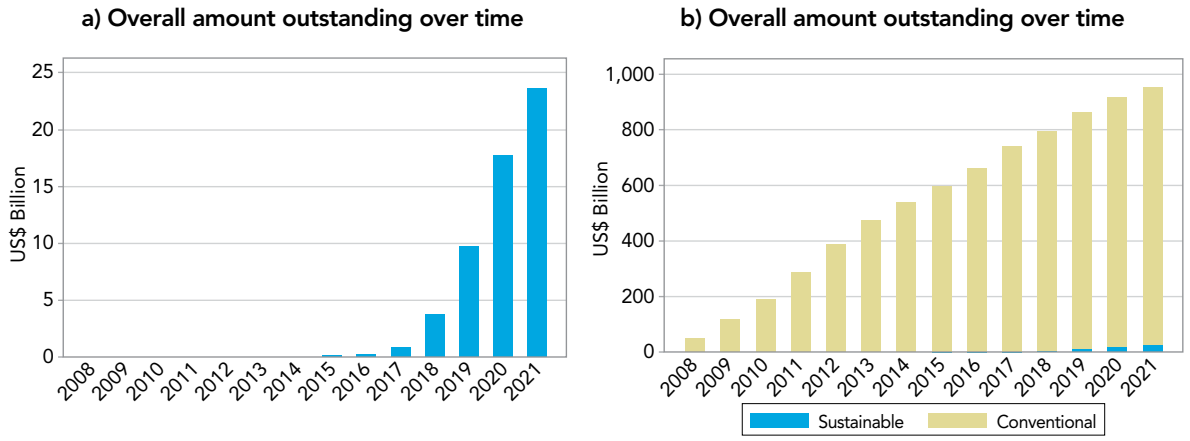
This report puts the spotlight on the Opportunities side, focusing on the current state of development of financial markets for sustainability in Southeast Asia, the enabling environment, and the scope for policy action to unlock further growth.[1] Specifically, Chapter 1 provides a novel benchmarking assessment of the development of sustainable financial markets in a set of ASEAN-5 economies—namely, Indonesia, Malaysia, Philippines, Thailand, and Vietnam. Chapter 2 discusses the challenges and opportunities of fostering sustainability in financial markets based on new evidence from a World Bank survey of financial institutions (the so-called supply-side) active in the region. Chapter 3 provides an assessment of the enabling policy frameworks supporting the sustainable financial markets in the ASEAN-5. These stock-taking analyses allowed us to identify gaps and opportunities to foster financial development for sustainability in the region. Chapter 4 thus concludes with a set of high-level policy priorities that emerge from the analyses in the report, highlighting the importance of developing the financial architecture for sustainability in financial markets.

1 This report has contributed to the World Bank's Country Climate and Development Reports (CCDRs) for Indonesia (*forthcoming*) and the Philippines.

Large Untapped Potential for Sustainable Financial Market Development in Southeast Asia

Sustainable financial markets have shown impressive growth over the last five years across the ASEAN-5. Prior to 2013, primary sustainable debt and equity markets were virtually non-existent, not only in the ASEAN-5 but also globally. Since then, the expansion has been remarkable (Figure ES2, Panel a). For example, the total amount of sustainable debt raised annually in the ASEAN-5 increased from US$0.25 billion in 2016 to US$6.75 billion in 2021, bringing the total amount of outstanding sustainable debt to about US$24 billion. Green debt accounts for the largest share of the sustainable debt among the ASEAN-5 economies, although there has been an expansion of other thematic issuances recently. Sustainable private equity markets have also grown markedly over the past five years, but they remain small. For example, the amount of private equity financing for clean and climate technologies in the ASEAN-5 is estimated at about US$265 million in total during 2017-2021, less than 5 percent of the amount raised in sustainable debt markets.

FIGURE ES 2
Relative Size of Sustainable Debt Markets for the ASEAN-5



Note: This figure shows the total amount of outstanding bonds and syndicated loans in global sustainable and conventional (conventional) markets based on accumulated transaction-level issuance data. Source: Authors' calculations based on data from Climate Bonds Initiative (CBI) and Refinitiv's Securities Data Corporation (SDC).

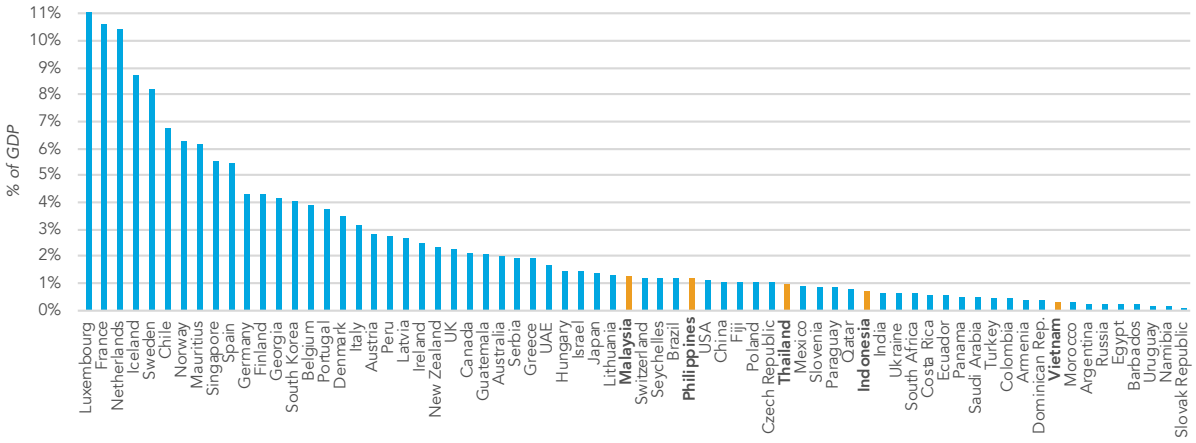
While sustainable finance has experienced widespread expansion across the ASEAN-5 economies, market development is uneven. In terms of the depth of sustainable debt markets, Malaysia and the Philippines outperform peer countries (that is, countries with similar economic structures and similar levels of economic development). For instance, at 1.25 percent of GDP, the average depth of sustainable debt markets in Malaysia is about 86 percent above the median depth observed in peer countries. In contrast, Indonesia and Thailand perform on par with their peers, and Vietnam noticeably underperforms. In private equity markets, Indonesia has the largest volume of venture capital investments in climate and clean technologies (almost US$30 million between 2017-2021), whereas Malaysia, the Philippines, and Thailand each had less than US$1 million in total over the same time frame.

The government has been driving sustainable debt market development in Indonesia, whereas corporations are spearheading market growth in Malaysia, the Philippines, and Vietnam. In Indonesia, issuances by the government and government-backed entities accounted for 67 percent of the total amount of funding raised through green bonds since 2017, while the Philippines and Vietnam have had no government issuances in green debt markets. In Malaysia, corporations accounted for more than 70 percent of the green debt issuances between 2017-2021. In Thailand, sustainable debt markets are split across issuers: corporations account for the majority of the green debt issuances, whereas the government is the most active in other debt markets for sustainability.

Despite rapid growth, the potential for further development of sustainable finance in the ASEAN-5

economies is largely untapped. Sustainable debt markets in the ASEAN-5 remain a small fraction of conventional markets, accounting for about 2.5 percent of total debt in 2021 (Figure ES2, Panel b). This is significantly smaller than the shares observed in more developed markets—e.g., shares range from 5 to 16 percent among the top-20 countries. Similar patterns emerge in private equity financing, where funding for climate and clean technologies represented 0.57 percent of total private equity in the ASEAN-5 during 2017-2021. In contrast, when considering the more developed markets in the East Asia and the Pacific (EAP) region, private equity financing for climate and clean technologies represented 7.9 percent of all private equity investments. The potential for growth in sustainable financial markets among the ASEAN-5 is also evident from comparisons with global markets. Although Malaysia and the Philippines rank the highest among the ASEAN-5 in terms of depth of sustainable debt markets, they are only at 36th and 40th out of 76 economies with sustainable debt issuances (Figure ES3). Thailand, Indonesia, and Vietnam rank even further down the list at 46th, 51st, and 63rd, respectively.

FIGURE ES 3
Depth of Sustainable Debt Markets around the World



Note: This figure shows the total amount of outstanding sustainable bonds and syndicated loans (referred to as sustainable debt) as a share of GDP across countries in 2021. Bonds and syndicated loans are classified as per CBI's classification. Source: Authors' calculations based on CBI and WDI.

The outreach of sustainable financial markets is extremely limited— excluding financial institutions, only 83 firms in the ASEAN-5 have tapped sustainable debt and equity markets since 2017. Sustainable debt markets have financed 31 non-financial corporations through sustainable bonds or syndicated loans during 2017-2021, with a total amount raised of US$8.96 billion during this timeframe. Private equity markets have funded another 52 corporations with projects in climate and/or clean technologies over the same time frame. A survey across financial institutions in Indonesia, Malaysia, Thailand, and the Philippines indicates that other sustainable financial products, including those offered by banking institutions, remain limited. Capital markets remain the main source of sustainable financing. Insurance, to both corporate and retail clients, is notably absent from the offerings of financial institutions.

Research indicates a sizeable gap in sustainable financing for small and medium enterprises (SMEs). Issuers of sustainable debt in the ASEAN-5 tend to be listed firms with an investment grade, indicating that the largest firms in the ASEAN-5 can indeed raise capital in sustainable debt markets. At the same time, private equity markets, although still very small in the ASEAN-5 when compared to more developed markets, have financed some of the smallest, innovative firms. For firms in between these two extremes, which are typically SMEs relying on bank financing, access to sustainable financial markets seems limited.

Gaps in Information, Capabilities, and Investment Opportunities are Fundamental Challenges

Limited capabilities, particularly shortage of expertise, hinder the development of sustainable financial markets. Within the ASEAN-5, a majority of the surveyed financial institutions, banks in particular, identified internal resource constraints, including a shortage of expertise, as a top-5 challenge for sustainable investments. Such constraints contribute to increased uncertainty and heightened greenwashing risks. Not surprisingly, financial institutions cited screening, especially negative screening, as the most common approach to incorporate sustainability considerations into investment decision processes. Screening is a relatively simple strategy to adopt as it requires little analytical assessment. For instance, it is straightforward to screen out sectors with a negative impact on climate and the environment or to focus on "best-in-class" sectors regarding a positive impact. Hence, its widespread adoption might reflect, at least in part, the limited capabilities of financial institutions.

Novel survey findings in the report indicate a limited range of investment opportunities in sustainability, suggesting that challenges can also stem from lack of green projects, for example.[2] More than 60 percent of the surveyed financial institutions in Indonesia and the Philippines perceived opportunities for investments in climate action as limited or non-existent. These perceptions included lack of investment opportunities in projects related to reductions in greenhouse gas emissions. These results can be partly explained by a lack of capabilities in the private sector, such as the limited availability of technical expertise and knowledge of sustainable management practices needed to generate a pipeline of sustainability projects.

In addition to the challenges associated with limited capabilities and a lack of investment opportunities, marked gaps in climate-related information further complicate sustainable investing across the ASEAN-5. Access to information is crucial to develop risk management practices (including pricing of risks), support greater market discipline and transparency, enable effective monitoring and evaluation frameworks to measure impact and outcomes, and allow for course correction when needed. But for financial institutions in the ASEAN-5, the availability and complexity of climate-related information are perceived as core challenges for sustainable investing. About 88 percent of the financial institutions cited at least one constraining challenge related to information—from the high costs of gathering and processing climate-related information, if at all available, to the complexity of sustainability metrics, the lack of reporting standards, and the lack of comparability across firms with sustainable projects.

This information gap heightens another challenge: the ability of both firms and investors to distinctly demonstrate financial returns on their sustainable investments. Fully capturing the financial benefits of sustainable investments is particularly challenging in the context of climate change, as many benefits of mitigation and adaptation efforts are realized as avoided damages or public goods, rather than direct revenue streams. Difficulties in accessing and using climate-related information exacerbate this challenge, constraining the ability of firms to properly assess the financial performance of investing in sustainability.

Financial performance is a key driver of the sustainable investments of financial institutions, often prioritized over sustainability considerations. The World Bank survey results reveal that risk and returns remain prominent considerations of financial institutions when deciding to embed sustainability practices into investment strategies. For instance, less than 20 percent of the financial institutions in the ASEAN-5 stated prioritizing sustainability considerations over financial performance. Incentives for portfolio managers and lenders arguably drive this approach to sustainable investing. It is common among institutional investors to be evaluated and rewarded against portfolio performance, and such an emphasis on financial return would explain prioritizing performance over sustainability considerations.

While financial incentives matter, "incentives from the top" also play a critical role in driving investment decisions toward sustainability. The survey results highlight the importance of a top-down approach toward sustainability, whereby motivation for change from top management is perceived to be just as critical as incentives from laws and regulations

2 The World Bank conducted a survey among financial market participants. The survey was circulated during the period of January 2022 to March 2022. A total of 100 responses were received, comprising respondents from Indonesia, Malaysia, the Philippines, Thailand, and a set of "frontier" countries, including the EU, China, Australia, the United States, and Singapore. The sample of respondents was roughly split in half between banking institutions and non-banking institutions.

enacted by policy makers. Yet, fifty percent or less of the financial institutions in Indonesia, Malaysia, the Philippines, and Thailand indicated that there is a clear reference to sustainability in their institutions' long-term strategies. In fact, very few financial institutions in the ASEAN-5 fully integrate sustainability considerations into investment decisions or measure how investment strategies influence clients' actions toward more sustainable behavior. Interestingly, a full integration of sustainability considerations into investment decisions is believed to have the largest impact on firms' actions towards more sustainable behavior. These findings highlight the need for swift and strong actions by the top echelon of financial institutions and governments to foster sustainability in the financial sector.

Enabling policy frameworks: Building blocks mostly in place, but effective implementation still incipient

While some of the ASEAN-5 economies have made significant headway in developing taxonomies, there is room for further development. Taxonomies are a classification tool that offers a uniform and harmonized way of determining sustainable economic activities conducted by financial institutions and firms. Taxonomies are thus instrumental in setting standards in sustainable financial markets. Novel results in this report show that taxonomies can indeed have an important impact on market development by prompting firms to raise capital in sustainable debt markets. The perceptions of gaps in climate-related information in the ASEAN-5 are particularly relevant once one considers that the surveyed countries have recently issued taxonomies and/or guidelines for sustainable investments. For instance, all five countries have benefited from the ASEAN sustainable finance taxonomy introduced in 2021. Nonetheless, the assessment in this report shows that there is still scope for further development when comparing the scope of these taxonomies with that of the frontier. For example, although the environmental objectives in the taxonomy of Indonesia and Malaysia are similar to the initial environmental objectives of the EU taxonomy, other aspects, such as circular economy and biodiversity, are not covered in depth.

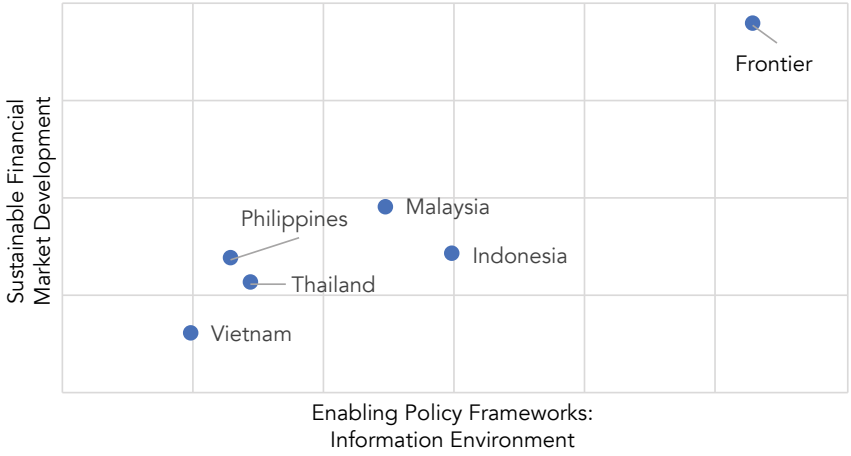
Enhanced financial disclosure frameworks for climate-related information have also been adopted in the ASEAN-5, but implementation is yet to be effective. Information disclosures and reporting frameworks are the cornerstone of development of information systems. While there have been clear efforts from regulators across all ASEAN-5 economies towards enhancing sustainability-related disclosure frameworks, many of the policies are at an early stage of implementation, with significant room for improvement. In addition, reporting frameworks do not provide adequate guidance on access and usage of data. They also have limited coverage of the private sector. For example, mandatory reporting requirements in the Philippines and Thailand only apply to listed companies, whereas in Indonesia, Malaysia, and Vietnam, requirements are extended to financial institutions and bond issuers. But these firms typically account for a small fraction of legal entities in the ASEAN-5. One notable data gap thus relates to reporting and disclosures associated with bank financing for sustainability, which leads to an important information gap for private firms, especially those excluded from capital markets, such as SMEs.

Even at Early Stages of Development, Regulations Matter

The enabling policy environment, especially for the information environment, matters for sustainable financial development. This finding sheds light on some of the underlying factors behind the uneven development among the ASEAN-5. While there are marked differences across the ASEAN regarding the extent of development and implementation of the enabling environment, a pattern emerges. As shown in Figure ES4, ASEAN-5 economies with relatively more developed markets—especially Malaysia—

tend to have more developed in supporting policy frameworks. Similarly, Vietnam trails behind in both the enabling environment and sustainable financial market development. This evidence suggests that there is a positive relation between the development of enabling policy frameworks and the depth of sustainable financial markets.

FIGURE ES 4
Assessment of Policy Frameworks



Note: Frontier represents the assessment for the highest ranked benchmark country (China, Japan, Republic of Korea, Singapore, and the European Union countries) within each considered indicator.

Unlocking Sustainable Finance in Southeast Asia: REACT!

While the growth of sustainable financial markets in the ASEAN-5 indicates progress, countries are still at the stage of trying to grow from "millions to billions," far from the much-needed escalation from "billions to trillions." Sustainable financial markets do not yet have the scale required to meet the ASEAN-5 economies' funding needs for their various sustainability objectives—ranging from the Sustainable Development Goal (SDG) targets to net-zero aspirations. Systematic evidence suggests significant potential for expansions in the access and depth of sustainable financial markets.

Fostering sustainable financial market development will require a deliberate and holistic approach to catalyze private investments. Policy makers can spearhead change, creating a better enabling environment for sustainable finance and pushing economies toward greater sustainability. As highlighted in this report, incentives matter greatly in changing financial behavior and driving capital towards sustainability goals. In this regard, a top-down approach is important. For starters, policy makers can provide assurances affirming their commitment toward sustainability to financial market participants, investors, and firms. Although not directly addressed in this report, policy makers should also recognize that adjustments to supervisory practices and frameworks to mitigate the potential impact of climate-related risks on financial stability can provide further incentives for financial institutions to reallocate their portfolios toward more sustainable investments. In addition, policy makers need to consider the broader and more complex policy landscape for the development of more sustainable and resilient economies. For instance, the policy agenda for the private sector is crucial, particularly when considering the challenges of fostering firms' investments in innovation and technology adoption toward greater sustainability.

Policy makers in the ASEAN-5 economies must "REACT" to mobilize private capital towards sustainability. This report proposes a new framework

for policy action, namely, the five REACT policy priorities, as follows:

i. ***R**eadiness*;
ii. ***E**nabling environment*;
iii. ***A**nalytics*;
iv. ***C**apabilities*;
v. ***T**ransition*.

***Readiness:* A key policy priority focuses on mitigating the investment challenges for creditors and investors.** One such challenge lies with the relatively high level of real and/or perceived riskiness of sustainable investments. The investments needed for the transition toward more sustainable economies are socially desirable, but many may not be commercially viable due largely to project riskiness. In many instances, inefficiencies in the marketplace, especially those related to gaps in climate-related information, amplify these risks. Hence, policies should aim at de-risking sustainable investments, especially those in new, unproved technologies. Policies can also support better risk diversification across investors—for example, securitization to crowd-in a more diverse and larger set of investors (including institutional investors) and partial credit guarantees (PCGs).

In addition, fostering sustainable sovereign issuances could support pricing efficiency in sustainable debt markets, which is an important component underlying the riskiness of investments. They also provide nascent sustainable debt markets with the scale and liquidity needed to encourage trading and facilitate price discovery. Furthermore, sovereign issuances can signal government commitment to sustainability, promote market transparency (including developing best practices), and foster investor capabilities to invest in these thematic issuances—encouraging a local market that motivates private sector issuances.

Policy makers can also be instrumental in addressing the lack of sustainable assets for investments. Firms can face difficulties in identifying eligible expenditures needed for thematic issuances, the scale of projects may be too small for capital market issuances, or the transaction cost of issuances too high, among other obstacles. Financial sector policies can mitigate some of these challenges—for example, subsidizing the relatively higher costs associated with sustainable financing (e.g., associated with compliance and third-party verification). But in deciding these policies, governments need to carefully consider local circumstances, priorities, and the main binding constraints currently in the marketplace.

***Enabling Environment:* Policy makers need to foster a supportive enabling environment to broaden financial market development.** Countries with deeper conventional debt markets and a larger institutional investor base tend to have more developed sustainable debt markets. ASEAN-5 economies are confronted with structural shortcomings in the financial sector, which hold back sustainable financial development as well as financial development more broadly. Policy makers should focus on improving local financial market infrastructures for deeper and more accessible financial systems. In particular, financial infrastructures must be enhanced by improving information systems, insolvency frameworks, and consumer protection, to name a few.

***Analytics:* Policy makers must continue to improve the informational environment and close critical data gaps by focusing on effective policy implementation.** Although the state of standard setting and information disclosure frameworks are relatively advanced in some of the ASEAN-5, implementation is yet to be effective, and availability and access to climate-related data remains difficult. Hence, a crucial next step for most of the ASEAN-5 is to push forward with an effective implementation of taxonomies and disclosure standards, with the ultimate goal of wider implementation across the private sector at large. While aggregated disclosures reveal broad patterns and trends, the various market participants share commonalties in their need for more disaggregated, high-quality, standardized, and timely climate-related data. An important issue to consider moving forward is how to foster information sharing, without overwhelming market participants, including both firms and financial institutions. This is particularly important when climate-related information gathering and processing is costly and capabilities are limited.

***Capabilities:* Capacity building efforts should be an integral part of the agenda to foster sustainable finance.** The lack of capabilities across a wide range of stakeholders in sustainable finance, including financial intermediaries, intensify the challenges brought about by the lack of well-established standards and the information gap. For instance, implementation challenges associated with financial sector policies for sustainability will certainly emerge along the way, partly due to the lack of capabilities in the financial sector. Moreover, gaps in availability and access to climate-related information make the need for well-developed "sustainable finance literacy" imperative for informed decision-making processes. Policy makers should engage in a broad-based effort to foster learning and knowledge sharing of best practices

among financial intermediaries regarding the relatively new concepts and tools that may be required to incorporate sustainability into investment strategies. In addition, efforts should go beyond capacity building efforts for financial institutions themselves. For policy makers, knowledge sharing on best practices can help countries leapfrog through market development with faster learning facilitated by the experience of other countries. For private sector firms, sustainable finance literacy can enhance firms' capacity to access and benefit from the use of these financing sources. Overall, enhancing the capabilities of financial intermediaries, policy makers, and the private sector at large can accelerate widespread adoption and the mainstreaming of sustainability in finance.

***Transition:* While fostering sustainable finance, policy makers should pay close attention to ensure a "just transition."** The distributional impacts of developing financial markets for sustainability can be substantial. Policy makers need to carefully consider and support those who would be the most affected during the transition, especially those segments that face greater risks of exclusion from current sustainable financial markets. Reinforcing the policy priority on "*analytics*," improved access to information would be particularly helpful in identifying, monitoring, and providing support to those who face a greater risk of being left behind. As discussed above, this report shows that sustainable equity and debt markets in the ASEAN-5 are highly concentrated and, even in the more developed ASEAN markets, they have financed a very small set of firms. This highlights the need to foster sustainable finance through a wide range of financial intermediaries, including banking institutions, to support greater financial access for sustainability for those unable to access capital market financing. Scalability of solutions is an important factor in this policy agenda.

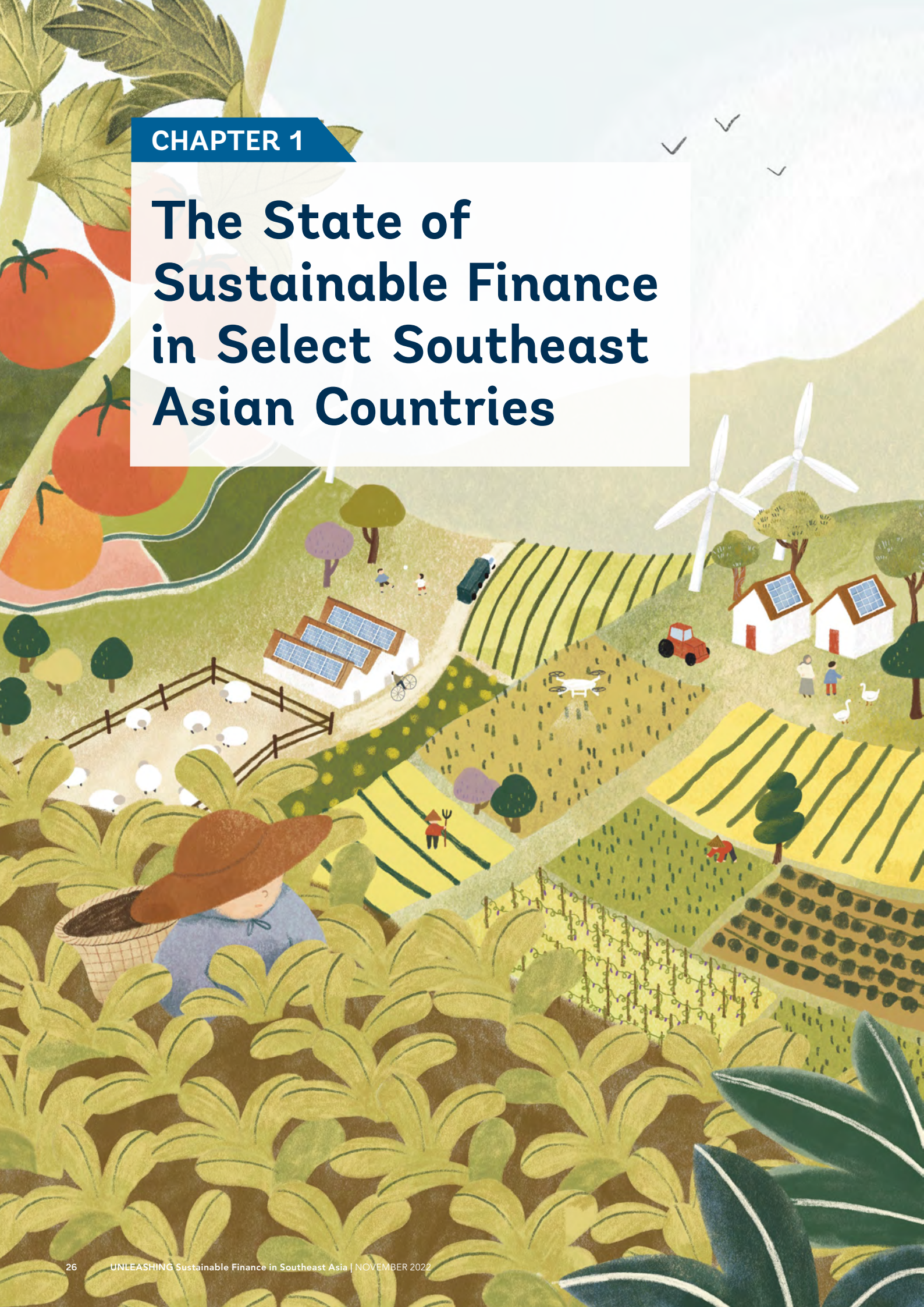
Furthermore, policy makers should closely monitor the potential negative distributional impact of new regulatory and supervisory frameworks for sustainability on underserved segments, especially those segments that face greater risks of exclusion from current sustainable financial markets. For instance, they may negatively impact financing to some underserved segments, such as SMEs, precisely because of their opacity. These reforms typically entail additional disclosure requirements, including on climate-related risk exposures. Financial institutions may thus retreat from financing those unable to adequately collect this information. For firms, the need for this additional layer of reporting would mean greater transaction costs to obtain financing from regulated financial institutions. These issues can be particularly challenging when firms' capabilities and financial literacy are already in need of strengthening.

Policy makers should also pay close attention to those that may be negatively impacted by the transition toward greater sustainability—e.g., high CO2-emitting firms, such as those in the coal and oil sectors. The extensive adoption of negative screening and the widespread perceptions of stranded asset risks may *de facto* exclude these firms from critical financing sources. This in turn could create sizeable economic inefficiencies, especially in countries in which high GHG-emitting sectors represent a large share of the economic activity. Financing for high CO2-emitting firms that seek to transition to greener, low-carbon activities—dubbed transition finance—is thus important for a smooth transformation toward more sustainable practices.

Overall, the ASEAN-5 economies still have a lengthy road to travel before sustainability is mainstreamed into the financial sector. Financing climate change adaptation and mitigation is challenging, with significant constraints from both the demand and supply side, as well as institutional barriers inside and outside of the financial system. There are a wide range of actions that public authorities, especially financial sector policymakers (such as central banks, supervisors, and regulators), could take to mitigate existing constraints to market development and enhance the role of the financial sector in supporting the transition toward a more sustainable economy. In fact, policy makers in the ASEAN-5 economies must *REACT* to mobilize private capital towards sustainability, placing significant emphasis on effective implementation of policies.

CHAPTER 1

The State of Sustainable Finance in Select Southeast Asian Countries



Key Messages

- **Stylized Fact 1.** Global sustainable debt markets have grown significantly over the past five years, but they remain relatively small and are currently unable to meet countries' investments needs. The aggregate patterns for ASEAN-5 economies—Indonesia, Malaysia, Philippines, Thailand, and Vietnam—mirror global trends.
- **Stylized Fact 2.** Social and sustainability debt issuances have increased in a select set of countries in the aftermath of the pandemic crisis. But green debt, which typically funds environmentally-friendly projects, still accounts for the largest share of sustainable debt, globally and among the ASEAN-5 economies.
- **Stylized Fact 3.** The ASEAN-5 economies are at markedly different stages of development. While Malaysia and the Philippines have deeper sustainable debt markets than peer countries, Vietnam consistently lags behind.
- **Stylized Fact 4.** Among the ASEAN-5, the government has a substantial presence in sustainable debt markets in Indonesia, whereas corporations account for the bulk of the issuances in Malaysia, the Philippines, and Vietnam.
- **Stylized Fact 5.** A large share of the proceeds from green bond issuances in the ASEAN-5 is allocated toward the energy sector. While similar trends are seen at the global level, funds are allocated to a wider range of projects, especially in more developed economies, such as Singapore.
- **Stylized Fact 6.** Sustainable debt markets have funded scarcely any firms in the ASEAN-5. Excluding financial institutions, only 31 firms issued sustainable bonds and syndicated loans in these economies between 2017-2021.
- **Stylized Fact 7.** Globally, sustainable corporate debt tends to have longer maturities and lower coupon rates than conventional debt. Across the ASEAN-5, almost all issuances from Indonesia were in foreign currency, whereas all but one issuance from Thailand were in local currency.
- **Stylized Fact 8.** Private equity financing for climate and clean technology is even smaller than sustainable debt financing within the ASEAN-5.
- **Stylized Fact 9.** Despite the much smaller financing volumes, private equity markets for climate and clean technologies have funded a greater number of corporations than sustainable debt markets in the ASEAN-5. Firms receiving venture capital funding were typically small (less than 15 employees) and young, though past the start-up stage.
- **Stylized Fact 10.** In the ASEAN-5, financial institutions, including banks, tend to offer few sustainable financial products to their clients. Sustainable capital markets instruments are the most common and insurance is notably absent.

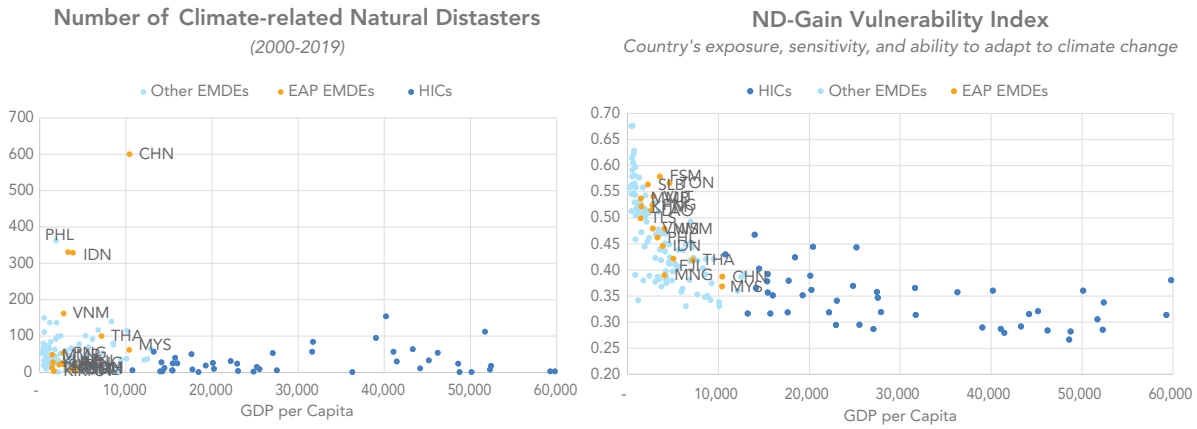
1.1 Introduction

Climate change is significantly impacting and altering the operating environment for firms, investors, communities, and countries around the world. Parts of Asia are among the most exposed and vulnerable regions (Figure 1.1). Countries in the Southeast region, in particular, are vulnerable to a range of climate-related hazards, such as floods, tropical cyclones, landslides, droughts, and extreme heat, to name a few. Since 2000, these climate-related natural hazards have accounted for approximately 83 percent of all natural disasters across Southeast Asian countries. Their intensity is expected to grow. These disasters often cause large economic and social losses and pose serious risks to the countries' economic development agendas. A growing body of evidence supports the claim that these disasters exacerbate inequality, leaving poor households, communities, and underdeveloped countries exceedingly vulnerable to the adverse impacts of climate change.[1]

While the economic challenges associated with climate change have intensified, total greenhouse gas (GHG) emissions, measured in per capita terms, have increased significantly since the turn of the century. Increases in GHG are apparent across several countries in Southeast Asia (Figure 1.2, Panel A). In 2019, Indonesia was the world's fourth largest carbon emitter, accounting for 3.9 percent of global emissions. During the same year, per capita emissions in Malaysia were higher than in Organization for Economic Co-operation and Development (OECD) countries. Indonesia and Vietnam have some of the most GHG-intensive economies in East Asia, significantly higher than China, Japan, and the Republic of Korea. The usage of carbon-intensive resources varies across countries in the region, as indicated by differences in their GHG emission profiles (Figure 1.2, Panel B). According to data from Climate Watch, emissions from electricity and heat usage accounted for between 31 to 35 percent of all GHG emissions in Malaysia, the Philippines, and Vietnam. In Indonesia, deforestation and land use change accounted for almost 50 percent of all GHG emissions in 2019. In the Philippines, agriculture accounted for 25 percent of emissions. Importantly, Southeast Asian's dependence on carbon-intensive growth can undermine its resilience to climate shocks. Countries in the region must undergo a significant economic transformation to achieve low-carbon, climate-resilient economies, though the nature of the challenges will likely vary across countries.

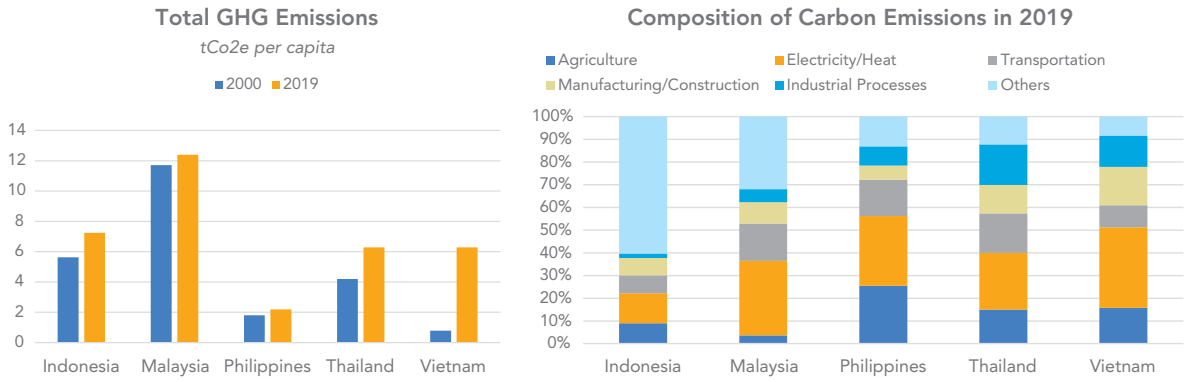
1 See for example Rozenberg and Hallegatte (2015), Hallegate et al. (2016), Rai and Fisher (2017), Shakia and Byrnes (2017), and IPCC (2022).

FIGURE 1.1
Exposures and Vulnerability to Climate Change



Source: Authors' calculations based on International Disaster Database (EM-DAT) and Notre Dame Gain database.

FIGURE 1.2
Carbon Emissions



Source: Authors' calculations based on Climate Watch Data.

The challenges created by a rapidly warming planet and the associated environmental degradation have motivated an urgent call for global transition toward more resilient, sustainable, and equitable economies. Governments in Southeast Asia have committed to the Paris Agreement's goals of reducing GHG emissions (through nationally determined contributions (NDCs)) and have adopted the Sustainable Development Goals established by the United Nations (UN). More recently, governments in the region have also made pledges to achieve net-zero emissions and adopt carbon pricing mechanisms (Table 1.1).

Despite these commitments, global efforts to reduce emissions still fall short of what is required to meet existing targets and goals (IEA, 2021). For example, even if the pledges made by countries through their updated NDCs commitments were successfully fulfilled, the projected 2030 emissions would be reduced by only 7.5 percent. This is well below the 30 percent needed to limit global warming to 2°C and the 55 percent needed for 1.5°C (UNEP, 2021). Looking at prices, estimates indicate that less than 5 percent of emissions covered under explicit carbon pricing initiatives are priced at a level that would be consistent with the Paris Agreement (World Bank, 2019).

TABLE 1.1
Commitments to Climate Change Goals

	Updated NDC Commitments	Target Year	Carbon Pricing	Net Zero Commitments
Indonesia	From 29 percent reduction (unconditional) to 41 percent conditional on additional support (*July 2021*)	2030	Commitment to Develop	2060
Malaysia	45 percent (unconditional) reduction in emissions intensity (*July 2021*)	2030	Commitment to Develop	Yes
Philippines	From 2.7 percent (unconditional) to 75 percent reduction conditional on additional support (*April 2021*)	2030	Commitment to Develop	Commitment to Adopt
Thailand	From 20 percent (unconditional) to 25 percent conditional on additional support (*October 2020*)	2030	–	Commitment to Adopt
Vietnam	From 9 percent (unconditional) to 27 percent conditional on additional support (*September 2020*)	2030	Commitment to Develop	–

Source: UN NDC Registry and local sources.

Delivering on climate and development goals and the required economic transformation entails large scale investments, technological breakthroughs, and widespread adoption of technologies and products geared toward resilience to climate change and greater sustainability. For example, climate change mitigation efforts are highly dependent on the improvement and deployment of renewable energy technologies. Such investments in clean, renewable energy can create millions of jobs, reduce energy costs, and increase energy security by enhancing energy access and reliability at affordable prices, thus supporting Sustainable Development Goal (SDG) 7 ("ensure access to affordable, reliable, sustainable and modern energy for all"). Similarly, investments in climate adaptation, including climate-resilient infrastructure, can mitigate the impact of extreme weather events, while delivering significant economic opportunities in the short run and supporting the achievement of SDG 13 ("take climate action to combat climate change and its impacts"). Climate-smart agriculture can stimulate rural economies by supporting adversely affected smallholder farmers through increased productivity and food security, while enhancing their resilience to climate shocks.

Embarking on the complex journey toward greater climate resilience and achieving the broader transition to carbon neutrality, and eventually net zero, will be costly. It will require long-term funding, as many of these endeavors will likely take years to deliver on resilience and sustainability goals. Although there are varying estimates of finance needs for climate change mitigation and adaptation for emerging markets and developing economies (EMDEs), the general consensus is that the estimate is in the range of trillions of dollars annually.[2] UNCTAD's World Investment Report (2014) is a key reference that highlights the volume of investments needed to meet the 2030 SDG agenda. Total annual investments in SDG-relevant sectors in developing countries were estimated to range between US$3.3 trillion and US$4.5 trillion. A closer look at the sectoral level reveals large investment needs related to infrastructure. For example, recent estimates for low-carbon, climate-resilient infrastructure in EMDEs are estimated to reach at least US$1.55 trillion annually between now and 2030.[3] More broadly, IFC estimates indicate cumulative climate investment opportunities of about US$30 trillion by 2030 across six urban sectors in developing countries (Table 1.2). About 60 percent of these investments are in cities across EAP. The bulk of the investments needed are for green buildings, both new constructions and retrofits, as cities work toward accommodating growing populations.

2 Estimates depend on both analysis approach, the level of climate change, and the geographic and sectoral scope of analysis (UNEP, 2016, 2020; Chapagain et al., 2020; UNEP, 2020).

3 See World Bank (2021).

TABLE 1.2
Investment Opportunities in Cities around the Developing World, by 2030

	East Asia Pacific	South Asia	Europe & Central Asia	Middle East & North Africa	Sub-Saharan Africa	Latin America & Caribbean	Total
Waste	US$82 billion	US$22 billion	US$17 billion	US$28 billion	US$13 billion	US$37 billion	US$200 billion
Renewable energy	US$266 billion	US$141 billion	US$88 billion	US$31 billion	US$89 billion	US$226 billion	US$842 billion
Public transportation	US$135 billion	US$217 billion	US$116 billion	US$281 billion	US$159 billion	US$109 billion	US$1 trillion
Climate-smart water	US$461 billion	US$110 billion	US$64 billion	US$79 billion	US$101 billion	US$228 billion	US$1 trillion
Electric vehicles	US$569 billion	US$214 billion	US$46 billion	US$133 billion	US$344 billion	US$285 billion	US$1.6 trillion
Green buildings	US$16 trillion	US$1.8 trillion	US$881 billion	US$1.1 trillion	US$768 billion	US$4.1 trillion	US$24.7 trillion
TOTAL	US$17.5 trillion	US$2.5 trillion	US$1.2 trillion	US$1.7 trillion	US$1.5 trillion	US$5 trillion	US$29.4 trillion

Source: IFC (2018)

The financial sector can play a vital role in supporting the journey toward climate resilience and carbon neutrality, by helping channel funds to climate change mitigation and adaption efforts, as well as sustainability efforts more widely.[4] A simple, stylized framework, conceptualized in Figure 1.3, outlines how the financial sector can play such a role, while clearly framing the various discussions in this report. Despite the financial sector's crucial enabling role for regional and global change, financial markets for sustainability are marked by financial frictions and market failures that can lead to under-investments, by firms and investors alike. One such market failure relates to externalities and the public good nature of sustainability investments that leads to mispricing of benefits, costs, and risks. Therefore, developing financial systems to support sustainability goals entails addressing two interrelated challenges: (i) management of climate and environmental risks to the financial sector ("Risks"); and (ii) capital mobilization for sustainable investments ("Opportunities").

On the Risks side, the financial sector can help firms and households build stronger resilience to climate-related hazards and other environmental physical and transition risks. Physical risks stem from both gradual and abrupt impacts of climate change and natural disasters, such as droughts, floods, and hurricanes. Transition risks originate from efforts to mitigate climate change and improve environmental conditions by greening the economy, which may create economic adjustment costs in a broad range of sectors. These costs can create financial and economic risks for firms and investors that did not anticipate the transition, and can ultimately jeopardize the functioning and stability of the financial system itself.

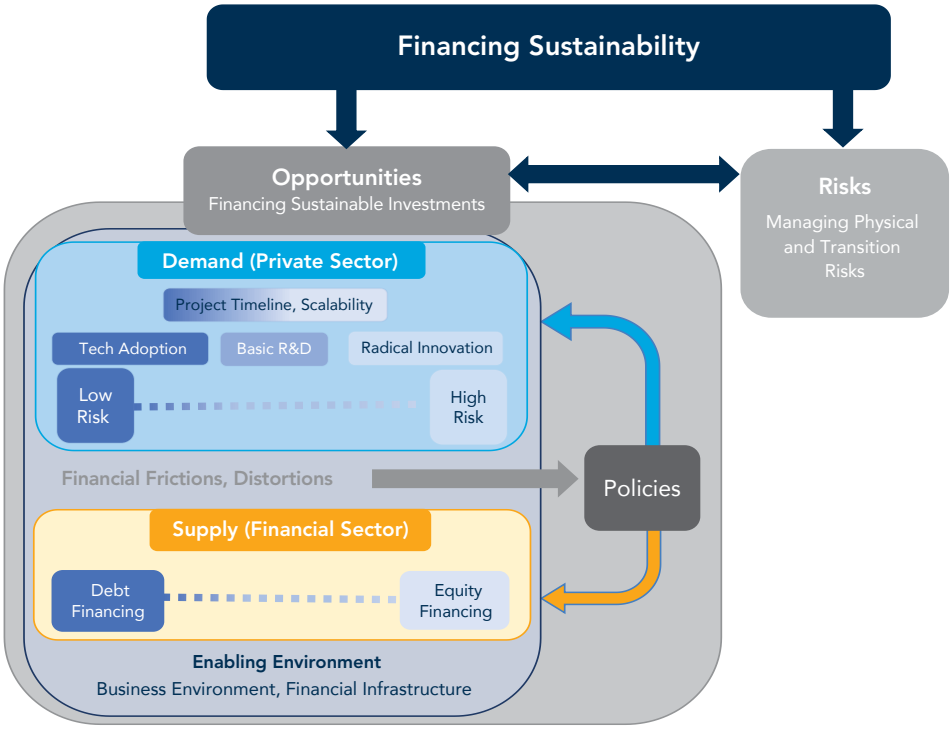
On the Opportunities side, financial markets can help mobilize vast amounts of private capital and efficiently allocate it toward climate mitigation and adaptation investments. Fostering finance for resilience and sustainability often entails the development of a diverse range of financing instruments, sources of capital, financial structures and maturities. These instruments can fund projects with varying risk-return profiles, from high-risk innovative projects aiming at technological revolution to low-risk activities such as the adoption of well-known, but more sustainable, technologies. A key set of factors underlying the financing of sustainable investments relate to the enabling environment. For the private sector (the demand side), the enabling environment encompasses a range of issues related to the business environment, including the quality of the regulatory framework, the protection of intellectual

4 The financing for these investment needs has to come not only from the public sector, but also from private investors. While the public sector tends to dominate infrastructure investments in developing countries, fiscal resources are scarce to meet the sector needs, at least in part because of strained budgets in the aftermath of the pandemic shock.

property, and trade barriers, among others. For the financial sector (the supply side), financial market infrastructure—including credit information systems, insolvency systems, secured transactions frameworks, consumer protection, and creditors' rights, among others—could help mitigate market failures and financial frictions that hinder financial market development.

Research has shown that the composition of financing (e.g., debt versus equity) can constrain firms' ability to pursue certain investments.[5] Not only can it affect the composition of firms' investments, but it can also lead to under-investments. In fact, corporate financing decisions are often driven by what is available, not by choice. Debt financing is often an adequate financial instrument for low-carbon and climate-resilient infrastructure projects, including investments in renewable energy. These tend to be relatively low risk projects with high upfront capital costs and long-dated and frequently inflation-linked income streams. Moreover, bonds in particular are instruments designed to facilitate sustainable investing at scale, attracting institutional investors, such as pension funds, insurance companies, mutual funds, and sovereign wealth funds. In contrast, equity financing (rather than debt financing) is often a more adequate type of funding for riskier projects, especially innovative ones at their early stages of development. As discussed earlier in this Introduction, technological breakthroughs will likely play a critical role in moving the global economy towards sustainability. Importantly, no single technology will address all the world's sustainability challenges. Instead, countries are expected to develop and adapt differing technologies to their unique circumstances and needs. In this context, equity markets can be particularly suitable in providing at-risk capital to finance firms' innovative activities. Hence, an all-encompassing financial market development strategy to support countries efforts to achieve their sustainability goals would entail fostering both equity and debt markets.

FIGURE 1.3
Conceptual Framework



Source: Authors' own elaboration.

5 See World Bank (forthcoming) and references herein.

This report puts the spotlight on the Opportunities side, focusing on the challenges and opportunities for developing sustainable financial markets and the scope for policy action to unlock further development. The proceeding sections in Chapter 1 summarize, in 10 Stylized Facts, the results of an extensive assessment of the landscape of sustainable financial markets during the 2017-2021 timeframe for a core set of five ASEAN economies. These "ASEAN-5" economies include Indonesia, Malaysia, Philippines, Thailand, and Vietnam. The benchmark assessment compares financial market development in the ASEAN-5 against that of peer countries.

Admittedly, the scope of this assessment has been constrained by measurement challenges and data availability. Despite an important complementarity between debt and equity financing for sustainability, the assessment places greater emphasis on the former. Access to data beyond mainstream capital markets instruments remains limited. Proprietary datasets, such as the one explored in this report, cover the debt issuances of sustainable bonds and syndicated loans in a systematic manner. The bulk of the issuances currently in the marketplace are Use of Proceeds (UoP) issuances—i.e., issuances whose proceeds are exclusively applied to finance or re-finance a specific green and/or social project. Hence, the identification of these issuances is relatively straightforward. In contrast, no such earmarking exists for equity financing in public markets. Publicly listed firms tend to be large multi-product firms, thus tracking the purpose of the equity funding is particularly challenging. Moreover, to the best of our knowledge, no proprietary dataset tracks down equity financing for sustainability. Public equity markets have in fact developed around firms' Environmental, Social, and Governance (ESG) ratings, which tend to have a wider scope than the identification of sustainable projects. However, the assessment does cover private equity financing into climate and clean technologies. The measurement challenge for these private issuances is attenuated. Among the ASEAN-5, most firms funded by private equity were single-product firms, in that they do not have a wide range of business endeavors. Hence, equity financing arguably was channeled toward the set of identified projects.

The main goal of the benchmarking assessment is to identify potential gaps and highlight opportunities for further developing financial markets for sustainability in the ASEAN-5. Sharing lessons and best practices among regulators, central banks, other policymakers, and the private sector at large can help countries move from blueprints to large-scale action, thereby creating a thriving sustainable financial landscape. Before this chapter delves into the Stylized Facts, Box 1 provides important definitions and clarifications regarding the different segments comprising sustainable financial markets.

BOX 1

Sustainable Finance Terminology Used in this Report[6]

No uniform, harmonized definition exists which characterizes the nature of investments in sustainability. Nor does a definition exist for the different families of finance securities, products, and services for sustainability currently available in the market. In fact, definitions of sustainable financial markets, as in markets that finance sustainability projects, differ across economies.[7] Guidelines have emerged due to the absence of globally accepted definitions for sustainable financial markets. They are consolidated in the financial industry for some key categories of securities, such as green and social bonds. To ensure consistency and transparency regarding the findings and discussions in this report, the following definitions are adopted.

Green or Environmental instruments are defined as those contributing positively to environmental objectives, such as climate change mitigation and adaption, natural resource conservation, biodiversity conservation, pollution prevention and control, while doing no significant harm to other environmental goals. Examples of projects funded with these instruments include renewable energy, energy efficiency, emissions reduction, waste management, environmentally sustainable agriculture, clean transportation, and water management. The green category encompasses other instruments such as **Blue** instruments, which target marine and ocean-based activities. Examples include marine and ocean-related climate change adaptation, climate change mitigation, natural resource conservation, biodiversity conservation, pollution prevention and control, water supply and sanitation.

Social instruments are defined as those addressing specific social issues where the social issue threatens, hinders, or damages the well-being of society or a specific target population. Examples of social projects funded with this type of instrument include affordable basic infrastructure (clean drinking water, sanitation, transport, energy), access to essential services (health, education, healthcare, financial services), affordable housing, employment, food security, socioeconomic advancement and empowerment. Examples of targeted populations include, but are not limited to, those who live below the poverty line, excluded and/or marginalized populations, people with disabilities, migrants and/or displaced persons, underserved peoples and other vulnerable groups.

Sustainability instruments are defined as those that fund projects with a combination of both Green and Social activities, with both types of activities required to be present. **Sustainable** instruments (or sustainable finance) are defined as any instrument financing Green and/or Social activities. Hence, this is an overarching umbrella term capturing either Green, Social, or both types of projects. Typically within sustainability are the so-called **Transition** instruments (sometimes referred to as "just transition"). These instruments are often used in the context of transitioning away from coal and/or other carbon-intensive sources of energy, toward a clean energy, while mitigating environmental impacts and supporting affected groups of people. Consequently, they tend to fund activities that support high-carbon companies implementing long-term changes toward climate neutrality, thus becoming more sustainable. The concept of climate transition focuses on the credibility of an issuer's climate change-related commitments and practices. Transition finance supports the implementation of firms' climate change strategies (ICMA, 2020). An issuer's identification of an eligible climate-related project does not necessarily imply that the company has a broader corporate strategy toward sustainability in the long-term. Hence, the establishment of a corporate strategy to incorporate sustainability and address climate change-related risks is often a pre-requisite to issuing a transition-labelled instrument.

In Figure B1.1., **Sustainable and Responsible Investment (SRI)** is defined as investments in activities that contribute to a positive environmental and/or social outcome, with or without an explicit linkage to the Sustainable Development Goals. These activities should do no significant harm to other environmental objectives. Generally, these activities overlap with Sustainable activities. Similarly, instruments linked to

6 The definitions adopted in this report were guided by the following publications: International Capital Market Association (ICMA)'s guidelines (Green Bond Principles 2021, Social Bond Principles 2021, Sustainability Bond Guidelines 2021, Climate Transitions Finance Handbook 2020), the Climate Bond Initiative (The Climate Bonds Standard 3.0, CBI Taxonomy 2021), World Bank (Toolkits for Policymakers to Green the Financial System), International Finance Corporation (IFC Guidelines for Blue Finance), the ASEAN Taxonomy Board (ASEAN Taxonomy 2021), Securities Commission Malaysia (Sustainable and Responsible Investment Taxonomy 2021 discussion paper), Bank Negara Malaysia (Climate Change and Principle-based Taxonomy 2021), Ministry of Environment Japan (Green Bond Guidelines 2017) and the United Nations Global Compact (Practical Guidance to Issue a Blue Bond). The adopted definitions are also consistent with TCFD's terminology of "sustainability, climate change and climate finance."

7 The term sustainable finance throughout this report refers to financing for sustainability. It is not intended to reflect the viability of projects nor of the funding itself.

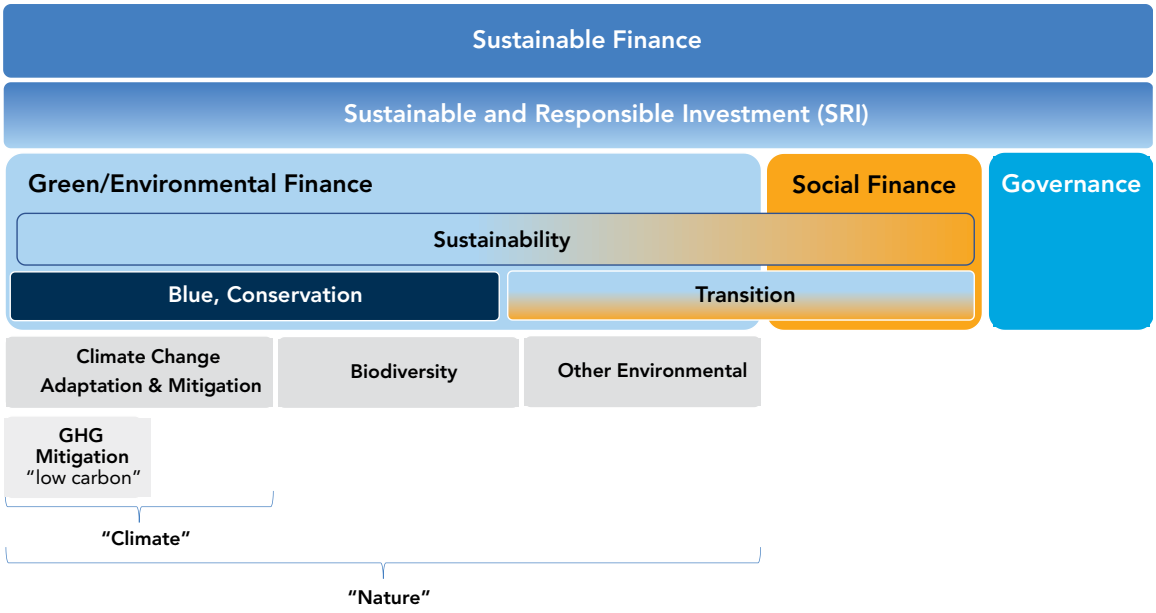
the **Sustainable Development Goals (SDG)**, such as SDG bonds, often overlap partly or fully with the green, social, sustainability definitions. **Governance** reflects the governance performance underlying the decision-making process of governments and corporations, including the board of directors, managers, shareholders and stakeholders. To date, no financing instrument has been tagged to the governance component.

Conventional instruments are defined as financing activities not considered to be sustainable.

Sustainable financial Instruments tend to be either **use-of-proceeds** instruments or **performance-linked instruments**. The former comprises instruments whose proceeds are exclusively applied to finance or re-finance a specific green and/or social project. This *ex-ante* commitment made by borrowers on the usage of funds allow issuers to credibly signal that they are indeed committed to undertaking investments in sustainable projects and improving their environmental and social footprints. Performance-linked instruments are designed to incentivize borrowers' achievement of pre-determined sustainability performance objectives through pricing incentives. There is no explicit commitment that restricts the use of proceeds. Instead, the financial terms of the instrument are tied to the issuer's performance. For instance, return profiles can be linked to the issuer's performance in meeting pre-designated key performance indicators (KPIs). De la Orden and Calonje (2022) provide some evidence that shows, as of the end of 2021, performance-linked instruments represented 5 percent of total sustainable debt issuance in emerging economies. This report makes no distinction between these types of instruments.[8]

This report distinguishes between **corporate** and **government** issuances in sustainable debt markets. The report builds on the definition of issuing entities available in the main source of data, namely the Climate Bonds Initiative dataset. Government debt in this report includes debt issuances by the sovereign, sub-national governments, development banks, and government-backed entities. In addition, corporate issuers are further split into financial corporations and non-financial corporations.

FIGURE B1.1
Characterizing Sustainable Financial Instruments



Source: Authors' own elaboration.

8 See Barbalau and Zeni (2022) for a discussion of the optimal design of sustainable debt securities.

1.2 Characterizing Sustainable Financial Markets

1.2.1 Sustainable Debt Markets

Debt finance, especially bond, is a natural fit for a wide range of sustainable investments, particularly for low-carbon, climate-resilient infrastructure. The structure of sustainability projects tends to fit the capital streams associated with debt finance. For instance, investments in large-scale renewable energy projects would likely have high upfront capital costs and long-dated, frequently inflation-linked, income streams. Moreover, bonds are instruments designed to facilitate investments by institutional investors, such a pension funds, insurance companies, mutual funds, and sovereign wealth funds.

Data on capital market debt finance are available in proprietary datasets, though they remain largely unexplored. The empirical analysis in this chapter is based on two proprietary databases, which provide comprehensive transaction-level data for primary debt markets from two datasets: Climate Bonds Initiative's (CBI) Green, Social, and Sustainability Debt databases and Refinitiv's Security Data Corporation (SDC) Platinum database.[9] Both of these databases cover the issuance of publicly and privately placed bonds and syndicated loans in domestic and international markets, by listed and unlisted corporations, sovereign and other government entities, and supranational entities.[10,11] The CBI dataset covers only sustainable debt issuances—green, social, and sustainability—based on their own classification, whereas the SDC dataset covers both sustainable and non-sustainable issuances—referred to as "conventional" issuances for the rest of this report. For the quantitative analysis, this report follows the CBI classification of sustainable issuances, a widely used classification.[12] The dataset contains 25,546 sustainable debt issuances, from 1,917 unique corporations, across 80 countries through the 2008-2021 time period. For conventional issuances, the dataset contains almost 600,000 debt issuances, from over 81,000 unique corporations, covering the same time period.

STYLIZED FACT 1

Global sustainable debt markets have grown significantly over the past five years, but they remain relatively small and are currently unable to meet countries' investments needs.[13] The aggregate patterns for ASEAN-5 economies—Indonesia, Malaysia, Philippines, Thailand, and Vietnam—mirror global trends.

Prior to 2013, primary markets for sustainable debt were virtually non-existent. Since then, the expansion in sustainable debt issuances has been remarkable (Figure 1.4). In 2013, total global issuances amounted to about US$13.1 billion and total outstanding sustainable debt was estimated at US$23.8 billion.[14] Starting in 2016, green, social, and sustainability debt increased exponentially. The total amount raised totaled US$890 billion and the global outstanding amount of sustainable debt reached US$2.26 trillion in 2021. The growth in sustainable debt for the ASEAN-5 economies has mirrored this global trend, with issuances increasing from US$0.25 billion in 2016 to US$6.75 billion in 2021.[15] Despite the rapid growth, sustainable debt remains a small fraction of conventional debt markets, accounting

9 SDC Platinum is one of the most widely used databases of capital market issuances. See for example Henderson et al. (2006), Kim and Weisbach (2008), and Bruno and Shin (2017). For both of these transaction-level datasets, individual issuances were aggregated over time to calculate outstanding debt amounts by assuming full repayment at maturity. Offshore financial centers were excluded from the analysis.

10 Data on non-syndicated commercial bank financing however remains largely unavailable. This is an issue closely related to reporting requirements, which is explored in Chapter 3 of this report.

11 The SDC dataset only covers issuances with a maturity of one year or more.

12 CBI screens self-labelled debt based eligible sectors and use of proceeds based on publicly disclosed documents. This is a more conservative approach than identifying all issuances by companies in certain industries, as done by one of the classifications available in the SDC dataset. See https://www.climatebonds.net/market/green-bond-database-methodology.

13 Sustainable projects can be financed through non-sustainable finance sources, though tracking down these investments is challenging and not attempted in this report. Instead, the report focuses on the development of sustainable financial markets.

14 Sustainable debt markets started back in 2008 with issuances by supranational organizations. For example, the overall amount outstanding in 2008 was US$3.5 billion. They accounted for virtually the entirety of the market back then. By the end of 2021, supranational issuances represented approximately 20 percent of sustainable debt markets, or about US$421 billion. For the rest of this chapter, these issuances are excluded from the analysis.

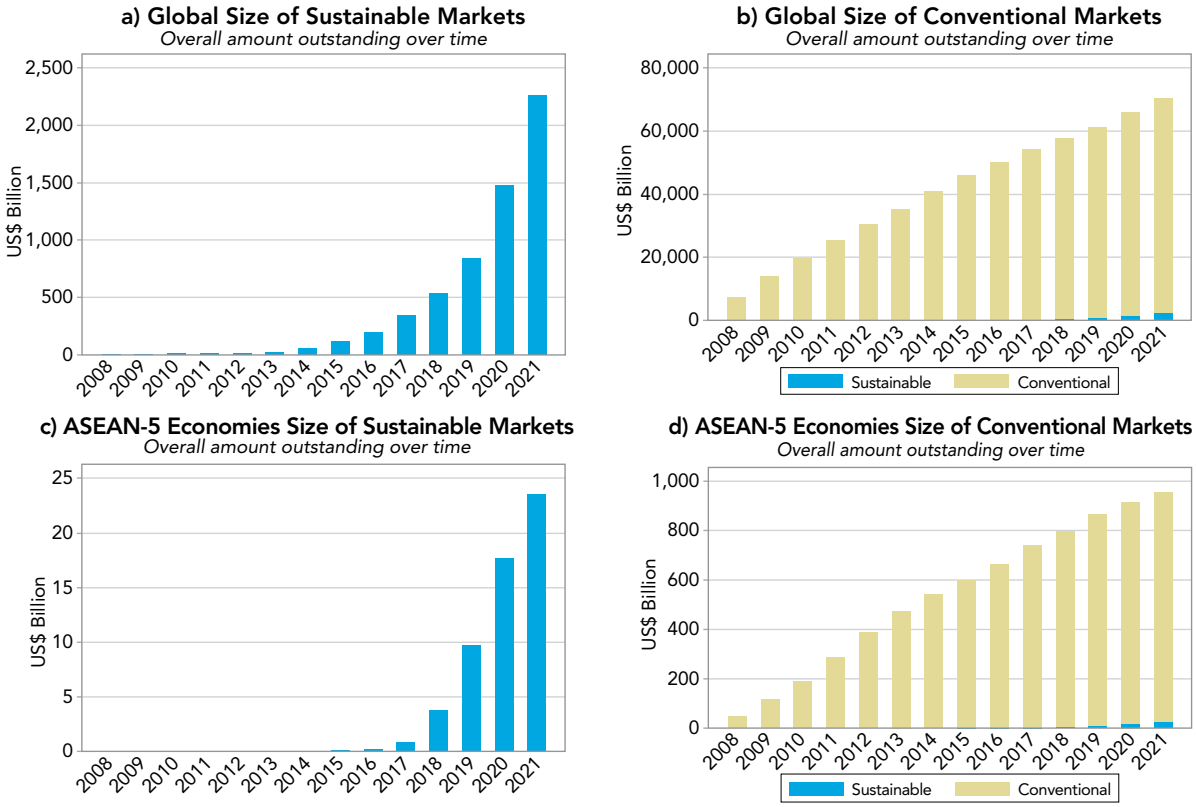
15 Between 2019-2021, sustainable debt markets increased by roughly 200 percent on average in the ASEAN-5 economies, a similar growth rate than that of high- and upper-middle income countries.

for about 3.3 percent of total debt in 2021 globally and 2.5 percent of total debt for the ASEAN-5 economies.

Importantly, the total amount raised between 2017-2021 in EMDEs has been significantly smaller than the lowest estimates of the financing needed for these countries to achieve their sustainability goals. Throughout this 5-year period, lower and upper middle-income countries jointly raised US$570 billion in total through sustainable debt issuances, whereas low-income countries have been absent from these markets altogether. As discussed above, the most conservative estimates of EMDEs financing needs (e.g., to transition to a low-carbon, climate-resilient infrastructure) are upwards of US$1 trillion on an annual basis. Hence, these statistics indicate a significant financing gap for sustainability among EMDEs.

While the expansion in sustainable debt has been widespread across both developed and developing countries, market development remains uneven (Figures 1.5 and 1.6). The volume of outstanding sustainable debt varies from over US$200 billion in issuances in China and the United States, between 2017-2021, to less than US$100 million in smaller markets like Kazakhstan, Kenya, and Lebanon during the same time period. However, when the total amount of sustainable debt is scaled by GDP, country rankings are markedly different. France and the Netherlands feature among economies with the most developed sustainable debt markets, with total outstanding debt around 10 percent of GDP in 2021. At the other end, a large number of EMDE countries, such as Colombia, India, Mexico, and Turkiye, have outstanding debt at less than 1 percent of GDP.

FIGURE 1.4
Global Bond and Syndicated Loan Markets

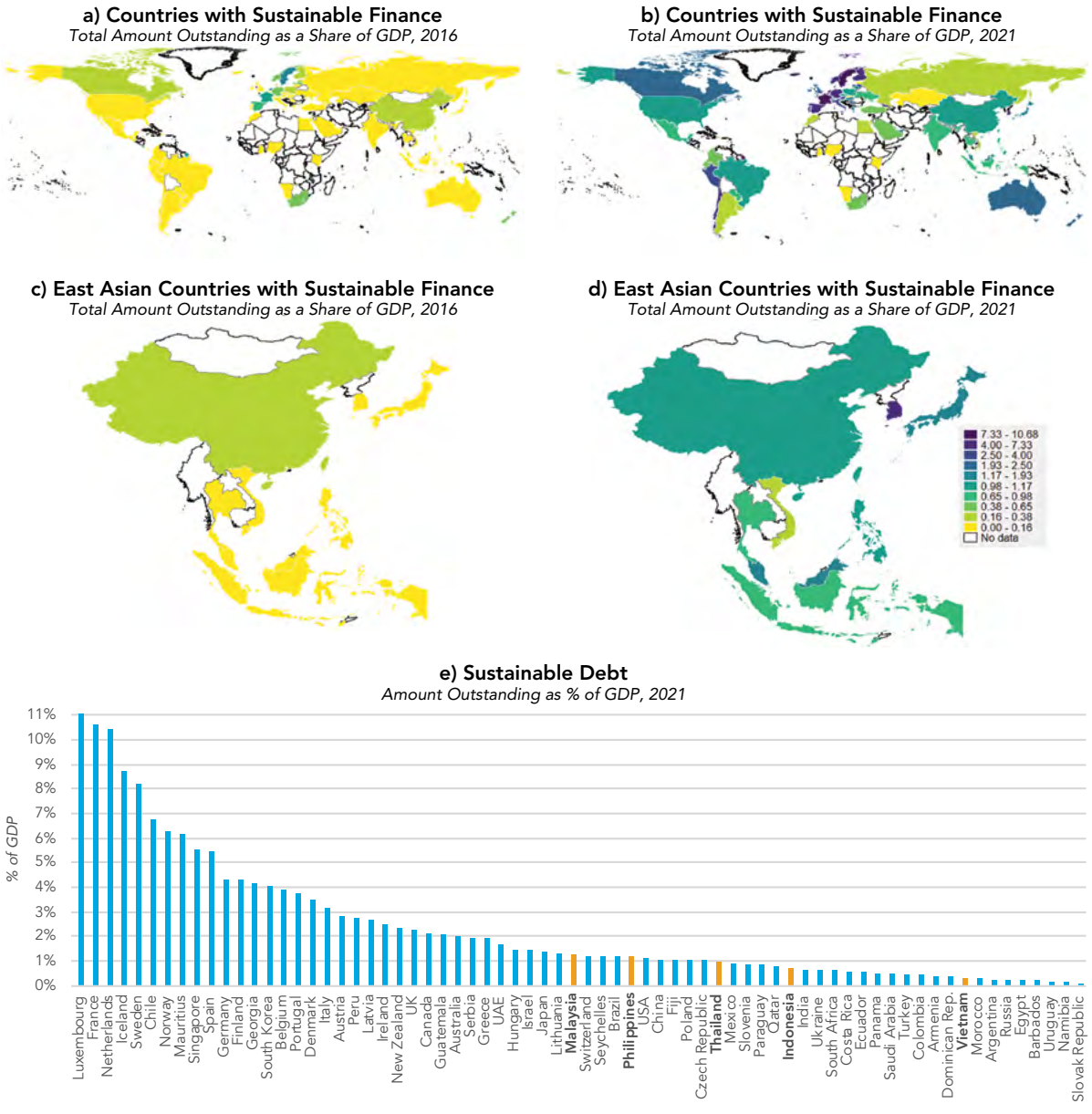


Note: This figure shows the total amount of outstanding bonds and syndicated loans in global sustainable and conventional markets based on accumulated transaction-level issuance data. Source: Authors' calculations based on CBI data for Sustainable Markets and SDC data for Conventional Markets.

The unevenness of market development is also observed across the ASEAN-5. Indonesia has the largest sustainable debt market, with an outstanding amount measured at just over US$8 billion in 2021. In the same year, total sustainable debt hovered around US$5 billion for Malaysia, Thailand, and the Philippines. However, Malaysia and the Philippines have the largest amount of outstanding sustainable bonds and syndicated loans as a share of GDP, at 1.25 percent and 1.14 percent, respectively. These shares are smaller in Thailand (at 0.96 percent) and in Indonesia (0.72 percent). On a global scale, Malaysia ranks 36th in the

world and the Philippines 40th in terms of market depth. Thailand, Indonesia, and Vietnam rank 46th, 51st and 63rd, respectively, out of a sample 76 economies. The Philippines and Indonesia have deeper markets than the other ASEAN-5 economies when sustainable debt is measured against conventional debt—around 3.55 percent and 2.98 percent, respectively (Malaysia 1.66, Thailand 2.65, Vietnam 2.08). Vietnam has the smallest market among the ASEAN-5 in both absolute and relative terms.

FIGURE 1.5
Global Debt Markets across Countries

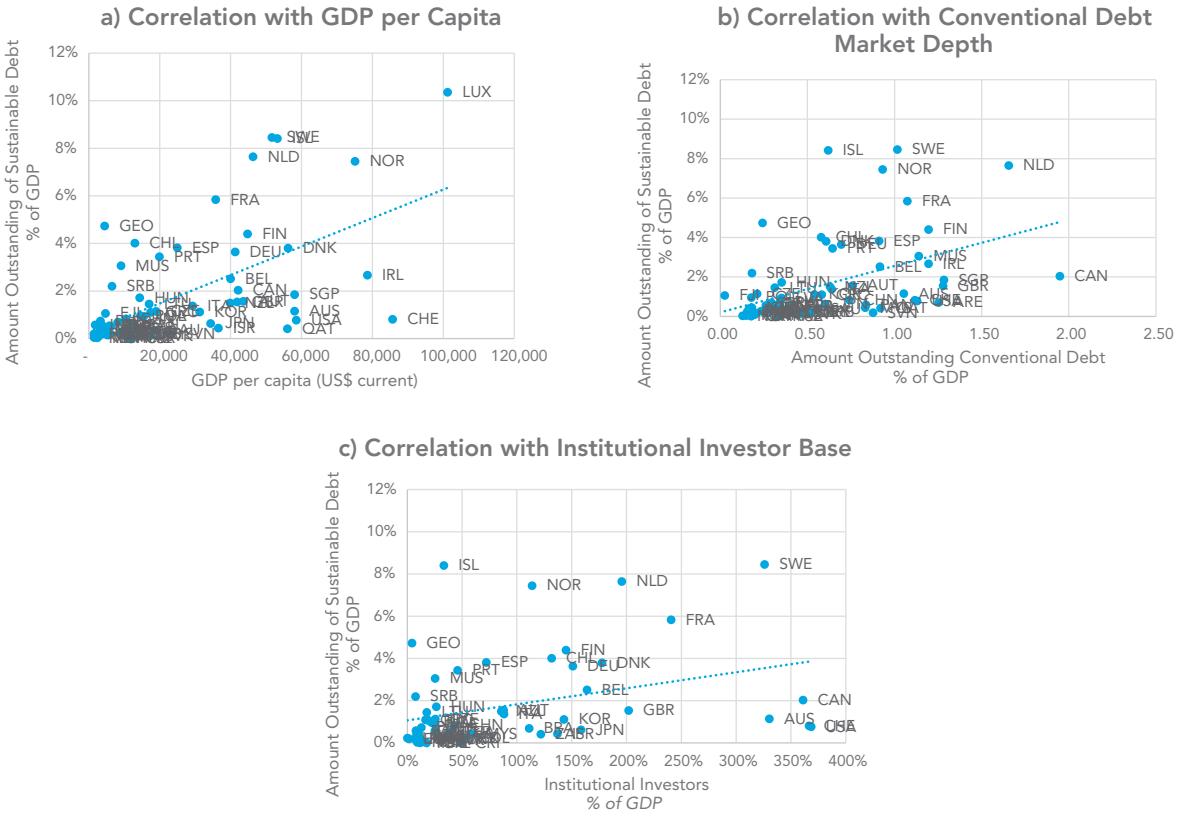


Note: This figure shows the total amount of outstanding sustainable debt as a share of GDP across countries in 2016 (panels a and c) and 2021 (panels b and d). These data are calculated by accumulating transaction-level issuance data. Panel e shows the dispersion in the total amount outstanding debt as a share GDP in 2021 across countries. Source: Authors' calculations based on CBI data for Sustainable Markets and WDI.

There is a positive correlation between the size of sustainable debt markets and economic and financial development (Figure 1.6). Importantly, countries with deeper debt markets (as proxied by the share of outstanding conventional debt), tend to have more developed sustainable debt markets, even

after controlling for countries' income levels and other characteristics (including country size), as suggested by robust regression estimates. Similarly, countries with a larger institutional investor base (mutual funds, pension funds, and insurance companies) tend to have deeper sustainable debt markets, even after taking into account differences in country size and level of economic development, for example.[16]

FIGURE 1.6
Sustainable Debt and Development



Note: This figure plots the total outstanding amount of sustainable debt issuances in 2021 (measured as a share of GDP) against countries' GDP per capita in 2021, outstanding amount of conventional debt in 2021 (measured as a share of GDP), and the latest estimates for the value of assets of pension funds, mutual funds, and insurance companies (measured as a share of GDP). Source: Authors' calculations based on CBI and WDI.

STYLIZED FACT 2

Social and sustainability debt issuances have increased in a select set of countries in the aftermath of the pandemic crisis. But green debt, which typically funds environmentally-friendly projects, still accounts for the largest share of sustainable debt, globally and among the ASEAN-5 economies.

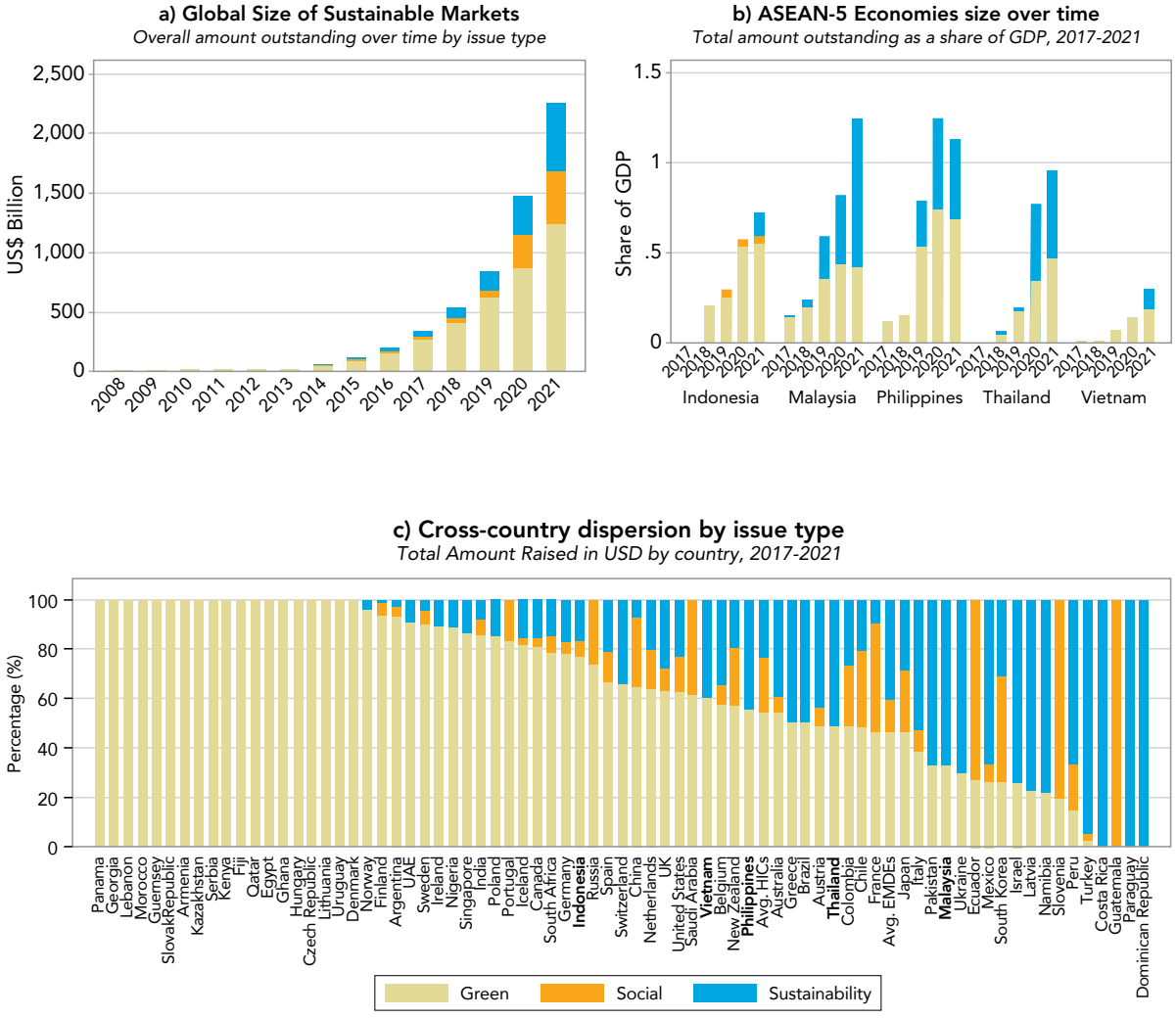
Green debt accounts for the bulk of sustainable debt, especially in more developed economies (Figure 1.7). Green bonds were the first type of sustainable debt instruments issued in global capital markets and became increasingly popular during 2017-2021. While social and sustainability debt has accelerated in recent years, the global outstanding value of green debt accounted for 54 percent of the total outstanding sustainable debt, or about US$1.2 trillion in 2021. The increase in social and sustainability issuances were particularly noticeable for EMDEs, arguably reflecting a greater need for social investments. For the average

16 Specifically, the conditional correlation between the size of countries' institutional investor base and the depth of sustainable debt markets is positive, after controlling for country characteristics, such as GDP, GDP per capita, and population density. However, there is a multicollinearity between these indicators and disentangling their different effects is left for future research.

EMDE country, sustainability bonds and syndicated loans accounted for almost 40 percent of the sustainable debt issuances during 2017-2021, the majority taking place during 2020-2021. Social issuances represented another 13 percent during the same timeframe.

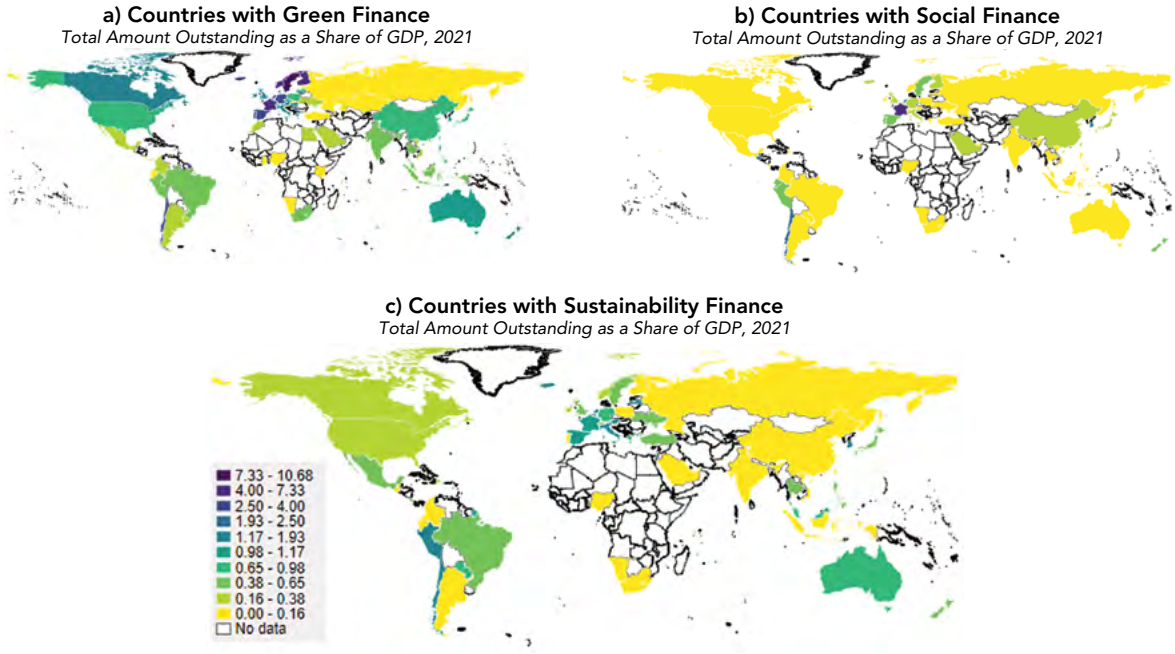
There is, however, marked variation in the composition of sustainable issuances across countries (Figure 1.8). Box 2 discusses the importance of sustainable Islamic sukuk issuances among the ASEAN-5 economies. Regarding social debt, only Indonesia has used this type of issuance. Sustainability issuances have been more widely and systematically used, with first issuances appearing in 2018. At the end of 2021, Malaysia had the largest amount of outstanding sustainability debt at US$3.1 billion (or about 0.8 percent of GDP). The Philippines and Thailand have also had a substantial amount of sustainability debt, approximately US$1.7 and US$2.7 billion, respectively. Their debt totals are significantly larger than Indonesia and Vietnam, which issued less than US$1.5 billion by the end of 2021. Despite this growth, green debt still accounts for the majority of sustainable debt—from around 77 percent in Indonesia to 60 percent in the Philippines and 62 percent in Vietnam. In 2021, Malaysia was the only exception to this trend, with green debt accounting for about 34 percent of total sustainable debt.

FIGURE 1.7
Green, Social, and Sustainability Debt



Note: This figure shows the total amount of outstanding sustainable debt in US$ billion (panel a) and as a share of GDP for the ASEAN-5 economies (panel b), and the total amount raised through sustainable debt markets over 2017-2021. Source: Authors' calculations based on WDI and CBI data.

FIGURE 1.8
Heterogeneity across Countries



Note: This figure shows the total amount of outstanding sustainable debt across countries in 2021, measured as a share of GDP. Source: Authors' calculations based on WDI and CBI data.

BOX 2

Sustainable Islamic Finance in Malaysia and Indonesia

The Islamic finance industry has expanded rapidly during the last two decades, experiencing annual growth rates of over 10 percent. Islamic financial assets are currently estimated at over US$2.7 trillion.[17] In fact, in many majority-Muslim countries, Islamic banking assets have been growing faster than conventional banking assets. There has also been increased interest in Islamic finance from non-Muslim economies such as the United Kingdom, Luxembourg, Hong Kong, Singapore, and South Africa.

Several features of Islamic finance align with SDGs' objectives, such as ensuring stable economic development, enhancing mutual stability and sustainable growth, reducing multi-dimensional poverty and inequality, and encouraging environmental sustainability and management. Additionally, Islamic finance can play a role in the transition toward more sustainable economies by facilitating the mobilization of *sharia*-compliant capital into the much-needed investments in renewable energy, energy efficiency, cleaner transport solutions, pollution prevention and control, recycling, and climate-resilient infrastructure, as well as ecological protection and climate adaptation.

Malaysia and Indonesia are pioneers in developing sustainable Islamic financial markets. The world's first green sukuk was issued in 2017 by Malaysia's Tadau Energy Sdn. Bhd. (Tadau Energy), a US$59.0 million sukuk to finance a large-scale solar power plant. In the same year, another Malaysian corporation, Permodalan Nasional Berhad (PNB), issued US$169.7 million green sukuk to finance its PNB118 Tower (the tallest building in Southeast Asia). It was the first sukuk that adopted the ASEAN Green Bond Standards. In addition, Indonesia issued the world's first sovereign green sukuk in 2018 with a total amount of US$1.25 billion.

In addition to being the first issuers, Malaysia and Indonesia have continued to dominate the sustainable Islamic finance landscape, being two of the largest issuers of sustainable Islamic sukuk, along with Saudi Arabia and the United Arab Emirates (Figure B2.1). From 2017 through the end of 2021, US$12.1 billion green and sustainability sukuk have been issued globally, with Indonesia accounting for 32 percent of the total amount raised and Malaysia accounting for 21 percent. More recently, however, other countries have started to tap into sustainable Islamic sukuk markets, with new issuers coming from Bangladesh and Turkiye.

Although Indonesia and Malaysia lead the sustainable sukuk markets, there are marked differences among issuers in local markets. Corporations have been the main issuers of sustainable Islamic sukuk in Malaysia, whereas the government has been the main issuer in Indonesia. In fact, corporations from Malaysia accounted for 72 percent of issuers over the 2017-2021 period, with the proceeds used to finance the energy sector and green building sectors. Green sukuk issuances dominated sustainable debt instruments on the market until 2019. Since then, social and sustainability issuances have gained market share, pushing green sukuk issuances downward. For instance, green sukuk accounted for only 55 percent of the amount raised in 2020 and decreased further to 29 percent in 2021 (Refinitiv, 2021a).

The issuance of green and social sukuk in Malaysia is under the Sustainable and Responsible Investment (SRI) sukuk framework, issued in 2014. Several incentives, such as tax incentives and grants, have been introduced under this framework. For example, in 2018 the Securities Commission Malaysia (SC) established a US$1.5 million Green SRI Sukuk Grant Scheme, administered by the Capital Markets Malaysia (CMM), to support external review costs incurred by sukuk issuers.[18] The grant scheme was expanded to include bond issuances under the ASEAN Green, Social, and Sustainability Bond Standards. The Scheme covers up to 90 percent of the external review costs incurred by green sukuk issuers (up to a maximum of US$70,000).

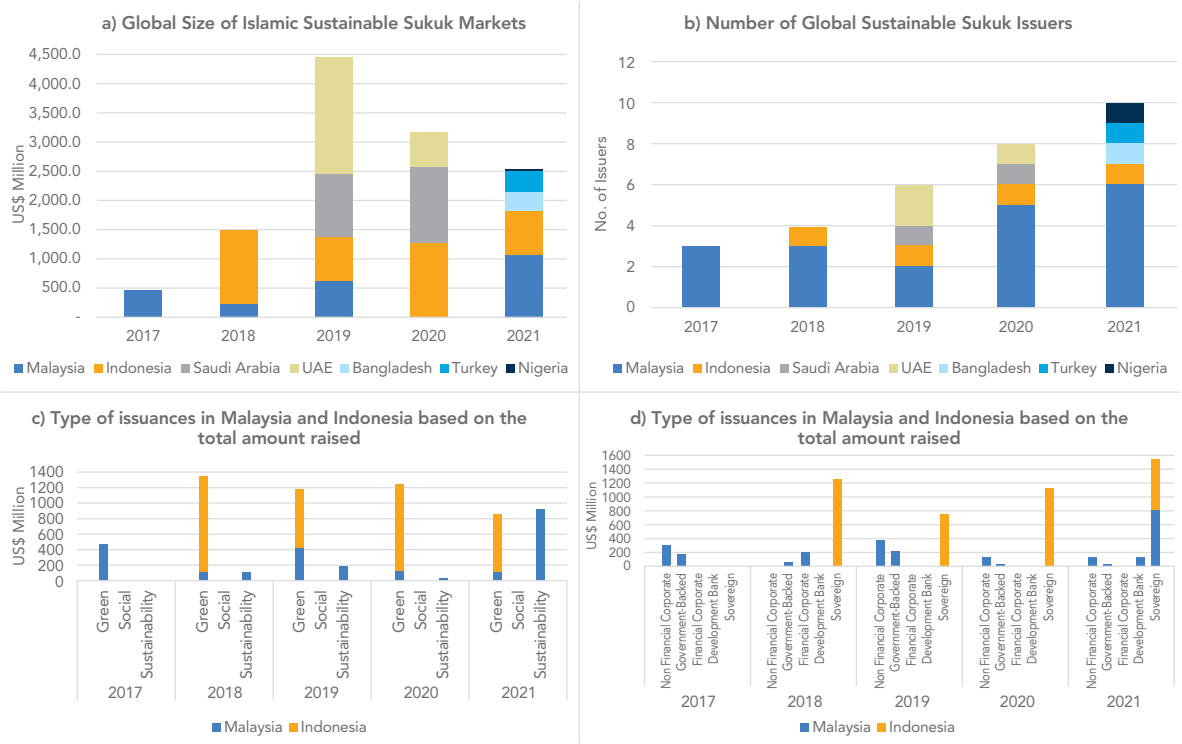
17 Islamic Financial Services Board (IFSB), *Islamic Financial Services Stability Report*, 2021.

18 See https://www.msfi.com.my/incentives-sri-sukuk-and-bond-grant-scheme.

Regarding equity markets, the SC issued the Guidelines on Sustainable and Responsible Investment (SRI) Funds in 2017 to facilitate and encourage greater growth of SRI funds in Malaysia. Since then, 16 Islamic Unit Trust Funds and four Islamic Wholesale Funds have been launched under these Guidelines.[19] Additionally, in 2021, Bursa Malaysia launched a Sharia-compliant ESG index known as the FTSE4Good Bursa Malaysia Shariah (F4GBMS). The index identifies whether constituents of the FTSE4Good Bursa Malaysia Index (F4GBM) are *sharia*-compliant, according to the Securities Commission Malaysia Shariah Advisory Council screening methodology.[20] As of December 2021, out of 80 eligible companies in the main index, the F4GBMS index identified 57 listed companies as *sharia*-compliant. The F4GBMS index allows fund managers to invest in a portfolio of *sharia*-compliant equities guided by sustainable investing principles.

Overall, the landmark issuances of sustainable sukuk in Malaysia and Indonesia have demonstrated the potential of Islamic finance as a source of capital for climate and environment-friendly investments, which typically have long gestation periods and require significant capital outlays. Other instruments such as forward contracts (*istisna* and *salam*) and dedicated Islamic funds can also be mobilized to support green investments, while *takaful* (Islamic insurance) can be used for adaptation purposes.

FIGURE B2.1
Sustainable Islamic Finance



Note: This figure shows the total amount raised in US$ million (panel a) and the number of issuers (panel b) in global sustainable sukuk markets. Panels c and d show the composition of issuances across types of sustainable sukuk and types of issuers over 2017-2021. Source: Authors' calculations based on CBI, Refinitiv, and ACMF data.

19 See https://www.sc.com.my/api/documentms/download.ashx?id=32eb683b-c134-49fb-a9d8-64b6cc44d849.

20 See https://www.bursamalaysia.com/cn/about_bursa/media_centre/bursa-malaysia-launches-new-ftse4good-bursa-malaysia-shariah-index-to-meet-financial-communitys-sustainable-investment-needs.

STYLIZED FACT 3

The ASEAN-5 economies are at markedly different stages of development. While Malaysia and the Philippines have deeper sustainable debt markets than peer countries, Vietnam consistently lags behind.

A statistical benchmarking analysis goes beyond simple comparisons with a regional median or an *ad hoc* set of peer group countries. This systematic approach to cross-country comparisons can give a better sense of how different components of a country's financial system are performing relative to other countries. This report applies a statistical benchmarking framework to sustainable debt markets (See Appendix I for details).[21] The estimations include countries' exposures to climate change and control for non-policy, structural country characteristics that may have an important bearing on market development for sustainability.[22] This backward-looking assessment can be informative to identify currently underdeveloped markets, where policy reforms may be helpful. It can also highlight relatively deeper financial markets for sustainability, which may be the result of sound and effective policies of developed economies that underdeveloped countries might seek to emulate.

The results of the analysis reveal that the Philippines and Malaysia tend to have deeper sustainable debt markets than "peer countries," that is, countries with similar levels of economic development and economic structures (Figure 1.9 and Table 1.3). At 1.25 percent of GDP, the average depth of sustainable debt markets in Malaysia is 0.58 percentage points (or about 86 percent) above the median depth observed in peer countries. However, the depth of conventional debt markets in Malaysia is more than double that of the median depth in peer countries, suggesting that there is still ample room for growth of sustainable debt markets in the country. Malaysia outperforms in the issuance of sustainability debt, consistent with the relatively large share of sustainability debt in Malaysia documented in Stylized Fact 2. The depth of sustainable debt markets in the Philippines in comparison to peer countries is also noteworthy.[23] It exceeds the median depth of markets in peer countries by about 37 percentage points (or 48 percent). In comparison, the outperformance of conventional debt markets in the Philippines is 33 percent above that of peer countries.

While market depth in Indonesia and Thailand closely compares to peer countries, Vietnam has underdeveloped sustainable debt markets. Sustainable debt in Indonesia reached about 72 percent of GDP in 2021. Its depth is largely due to the country's relatively deep green debt markets. Indonesia's conventional debt market is at par with peers. Conventional debt markets in Thailand are deeper than in peer countries (by about 17 percent), but its sustainable debt markets have relatively similar depth to peers. This can be traced back to the depth of sustainability debt, as the green debt market is relatively shallower. In contrast, the statistical benchmark analysis reveals that Vietnam has significant room to expand its sustainable debt markets. They are relatively shallow for both green and sustainability issuances, with an average gap of 63 percent below the market depth of peer countries.

TABLE 1.3
Benchmarking the Development of Sustainable Debt Markets

	Sustainable Debt Markets				Conventional Debt Markets
	Actual	Expected	Gap (p.p.)	Gap/Expected	Gap/Expected
Indonesia	0.72	0.72	0.00	0%	0%
Malaysia	1.25	0.67	0.58	86%	124%
Philippines	1.14	0.77	0.37	48%	33%
Thailand	0.96	1.00	-0.04	-4%	17%
Vietnam	0.30	0.82	-0.52	-63%	-27%

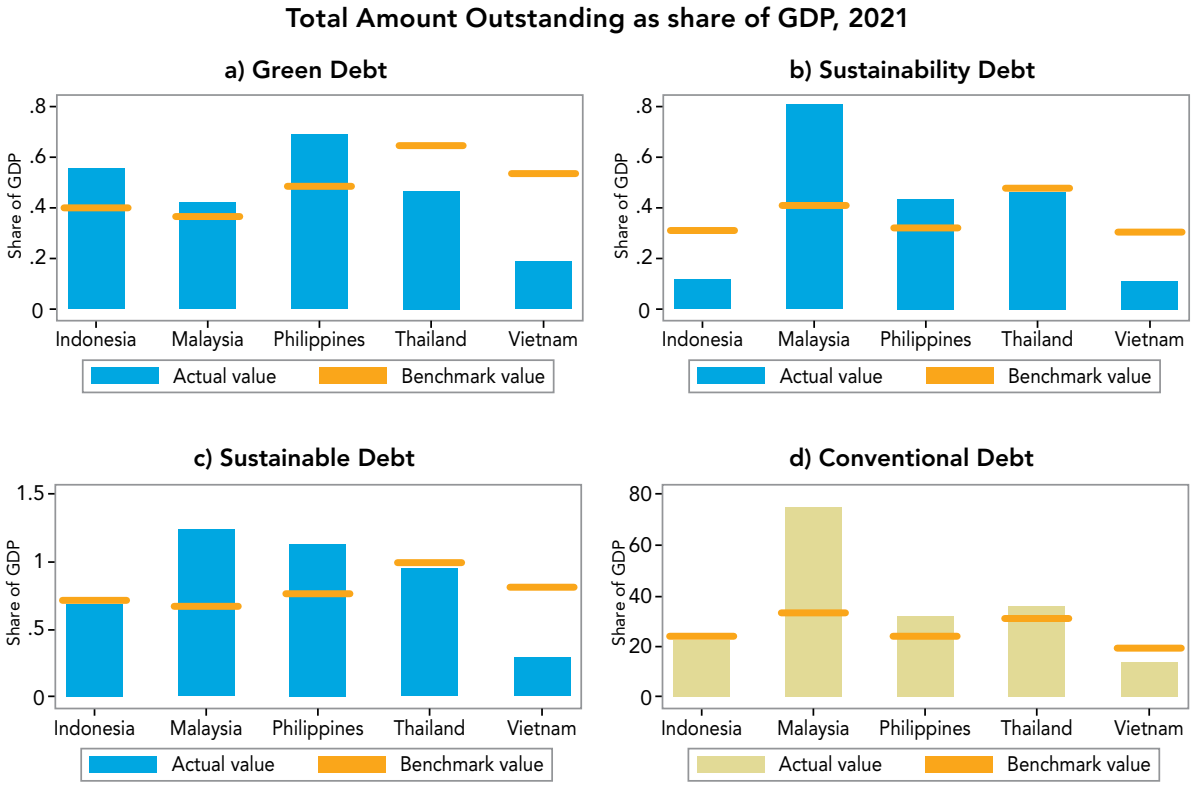
Note: This table shows the total amount of outstanding sustainable and conventional debt as a share of GDP for the ASEAN-5 economies in 2021. It also shows the predicted median value from the statistical benchmark analysis and calculates the differentials (gaps) between these two statistics. Source: Authors' calculations based on CBI data for sustainable debt and SDC for conventional debt.

21 Similar benchmark analyses have been adopted, for example, in Barajas et al. (2013) and de la Torre, Feyen and Ize (2013).

22 As robustness and to proxy for urgency for mitigation and adaptations strategies for a given country, which may affect both demand and supply for sustainable finance, the analysis included some information on countries' exposures to climate change. It is also important to note that a statistical benchmarking analysis when applied at the early stages of market development will not provide an accurate way to gauge the potential for overall market development say over the medium to long term as it based on the current state of market development across countries. Market dynamics can change tremendously from one year to another, as indeed has happened over the past few years.

23 When the actual level of financial development is above the predicted benchmark level, further assessments are needed to understand whether such depth is the result of a sustainable expansion. Sound and flexible institutional frameworks might allow the financial system to move beyond its structural benchmark. However, if the system moves beyond the predicted level due to a rapid increase in a specific segment, such an outcome might indicate an unsustainable expansion. The comparison with conventional bond markets sheds some light on this issue, by grounding the analysis of sustainable debt markets on overall market development.

FIGURE 1.9
Benchmarking ASEAN-5 Economies



Note: This figure shows the outstanding amount of sustainable and conventional debt as a share of GDP for the ASEAN-5 economies in 2021. It also shows the predicted median value from the statistical benchmark analysis. Source: Authors' calculations based on CBI and SDC data.

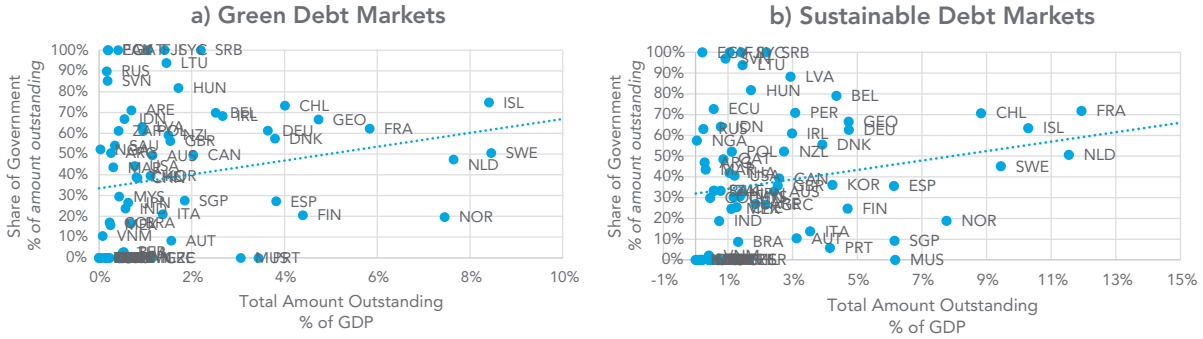
STYLIZED FACT 4

Among the ASEAN-5, the government has a substantial presence in sustainable debt markets in Indonesia, whereas corporations account for the bulk of the issuances in Malaysia, the Philippines, and Vietnam.

While the government and government-backed entities, including sovereign as well as sub-national entities (referred to as "government" for the rest of this report), account for roughly 50 percent of sustainable issuances in high-income countries, they represent only 37 percent in EMDEs. Many of the countries with the most developed sustainable financial markets—such as France, Germany, the Netherlands, and Sweden—have had significant participation of governments as issuers (Figure 1.10). There is a robust positive correlation between sustainable debt market depth and the share of government debt in the market. Future research should determine the extent to which sovereign issuances have spearheaded market development.

There is significant variation across countries in the extent of government participation sustainable debt markets (Figure 1.11). At the higher end of the spectrum, government issuances in developed countries, including Belgium, France, and Germany, accounted for more than 60 percent of total issuances during 2017-2021. At the lower end, government and government-related entities in Norway, Italy and Singapore, accounted for less than 20 percent of issuances. Even more marked variation is observed across EMDEs. For instance, in Turkiye and Vietnam, only corporations have actively participated in sustainable debt markets, while only the government has participated in Fiji and Serbia.

FIGURE 1.10
Government Issuances and Sustainable Debt Markets in 2021



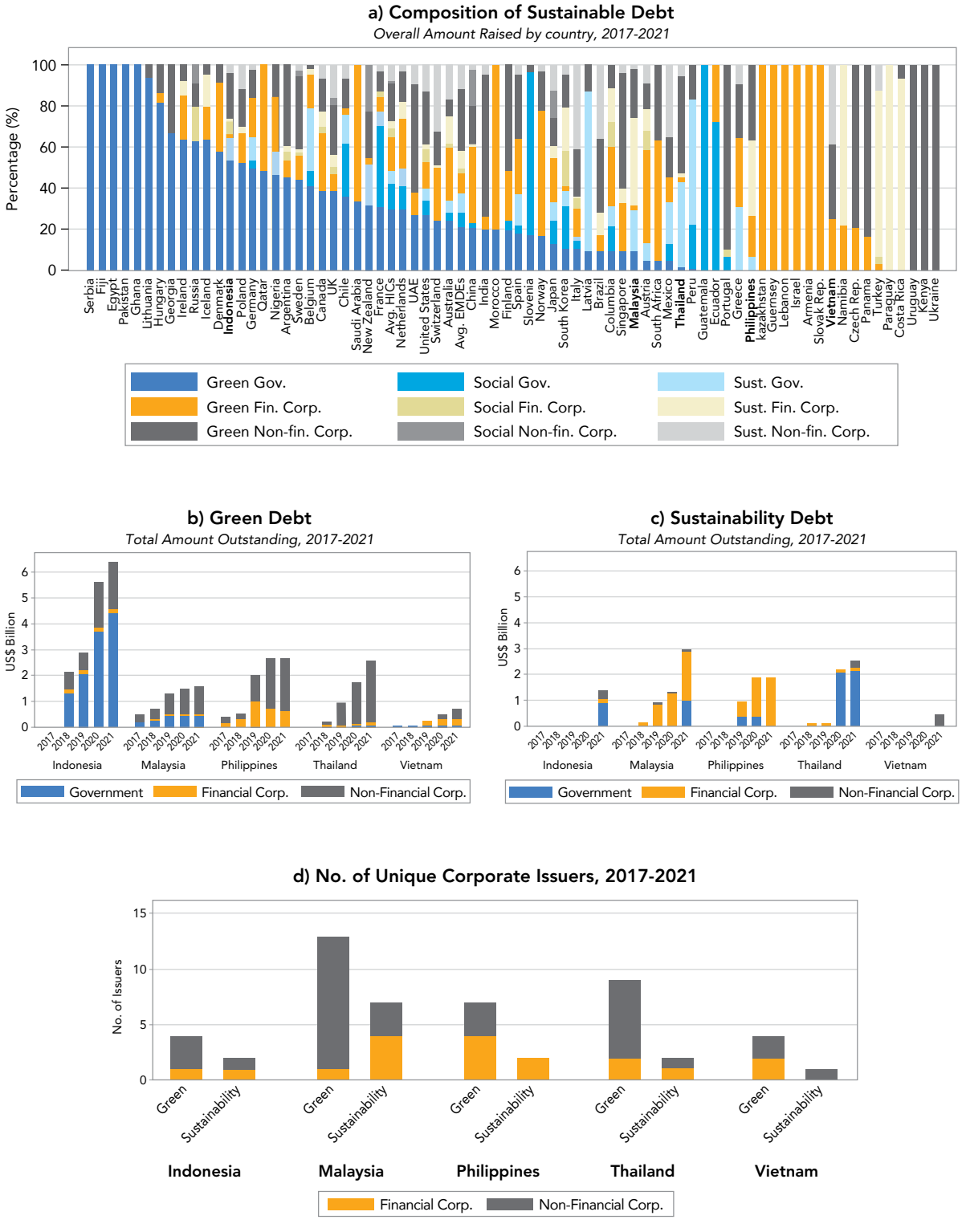
Note: This figure shows the correlation between sustainable market depth and the share of government debt in total outstanding market depth in 2021. Robust regressions show that these correlations are statistically significant. Source: Authors' calculations based on CBI data.

Similarly, there are marked differences among the ASEAN-5. While the government has a substantial presence in Indonesia, Vietnam's government has not participated in sustainable debt markets. In Indonesia, issuances by the government and government-backed entities accounted for 67 percent of the total amount raised through green bonds since 2017. The few sustainability issuances in the country were also concentrated around the government, which accounted for 64 percent of the amount raised in 2021. In contrast, (non-financial and financial) corporations were the dominant issuers in most of the other ASEAN-5 economies. Malaysia has had 15 unique corporate issuers of sustainable debt since 2018 and Thailand has had 10, whereas Indonesia has had only 4. In Malaysia, corporations accounted for more than 70 percent of the green debt issuances between 2017-2021, and the Philippines and Vietnam have had no government issuances in green debt markets. However, over the past couple of years, the government has increased active participation in sustainability debt markets in these countries, especially in Thailand.

Statistical benchmark analysis reaffirms these patterns (Figure 1.12). Corporate sustainable debt markets in Malaysia and the Philippines are significantly deeper than those in peer countries, in line with corporate conventional debt markets in these two countries. Similarly, in Vietnam, corporate issuances also explain the relative development of sustainable debt markets vis-a-vis peer countries. In contrast, Indonesia has deeper sustainable markets for government and government-related entities when compared to peer countries. This is especially the case in green debt markets for which the outstanding amount is more than double the amount in peer countries. This pattern is not mirrored in Indonesian conventional debt markets, where corporations account for a larger share of the market. These patterns suggest significant scope for growth in corporate sustainable debt markets. Thailand's sustainable markets are split across issuers: relatively well-developed corporate green debt markets on one hand and sustainability debt markets for government and government-related entities on the other hand.

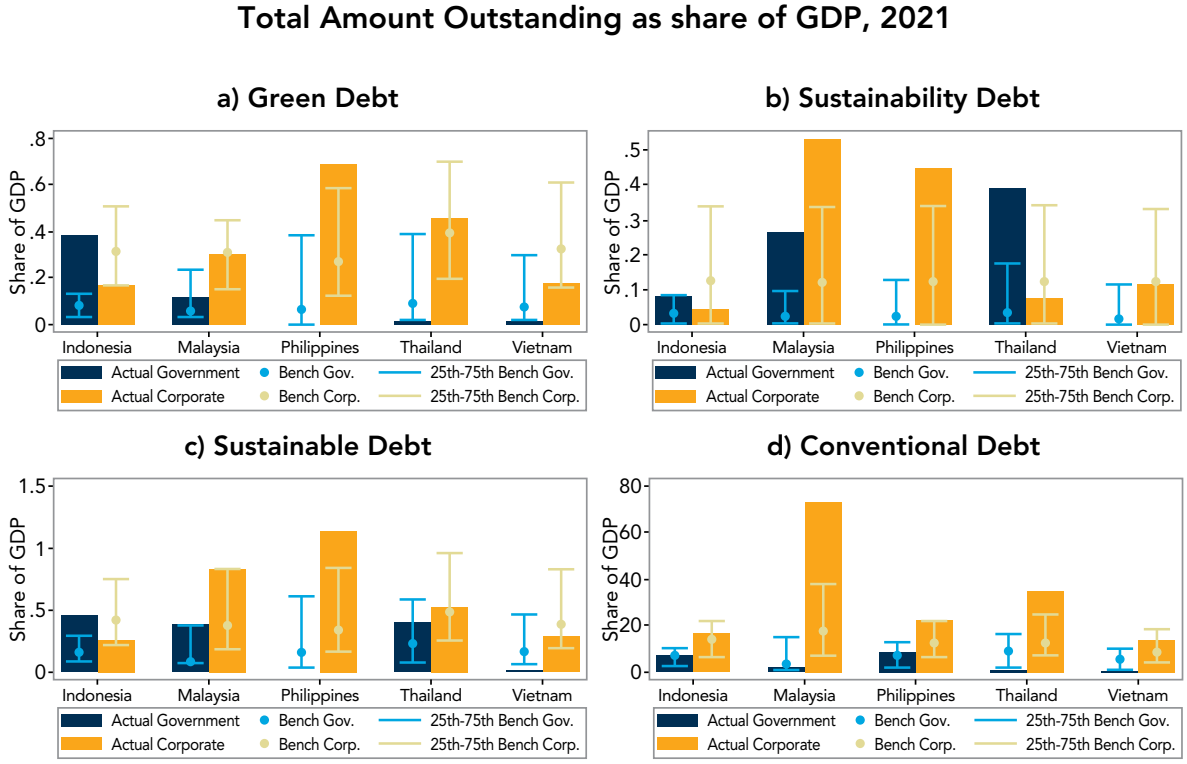
While non-financial corporations have been active issuers in green debt markets, financial corporations account for the bulk of the amount raised by the private sector in sustainability markets. This pattern is most clear in Malaysia. About 95 percent of the green debt issuances by Malaysia's private sector came from non-financial corporations, while financial corporations accounted for 90 percent of the private sector's sustainability debt issuances. Similar contrast is observed in the Philippines. In Indonesia and Thailand, non-financial firms also account for the bulk of the private sector issuances in green debt markets, but sustainability markets are concentrated around government issuances.

FIGURE 1.11
Composition of Sustainable Debt: Corporations vs. Government



Note: This figure shows the composition of the amount raised through sustainable debt issuances over 2017-2021 (panel a) and the composition of the total amount raised through sustainable debt issuances for ASEAN-5 economies (panels b and c). The figure also shows the number of unique corporate issuers of sustainable debt over the 2017-2021 period. Source: Authors' calculations based on CBI data.

FIGURE 1.12
Benchmarking Corporate and Government Sustainable Debt



Note: This figure shows the total amount of outstanding sustainable and conventional debt issued by the government and government-backed entities as well as corporations, measured as a share of GDP, for the ASEAN-5 economies in 2021. It also plots the predicted median value from the statistical benchmark analysis.
Source: Authors' calculations based on CBI data for sustainable debt and SDC for conventional debt.

STYLIZED FACT 5

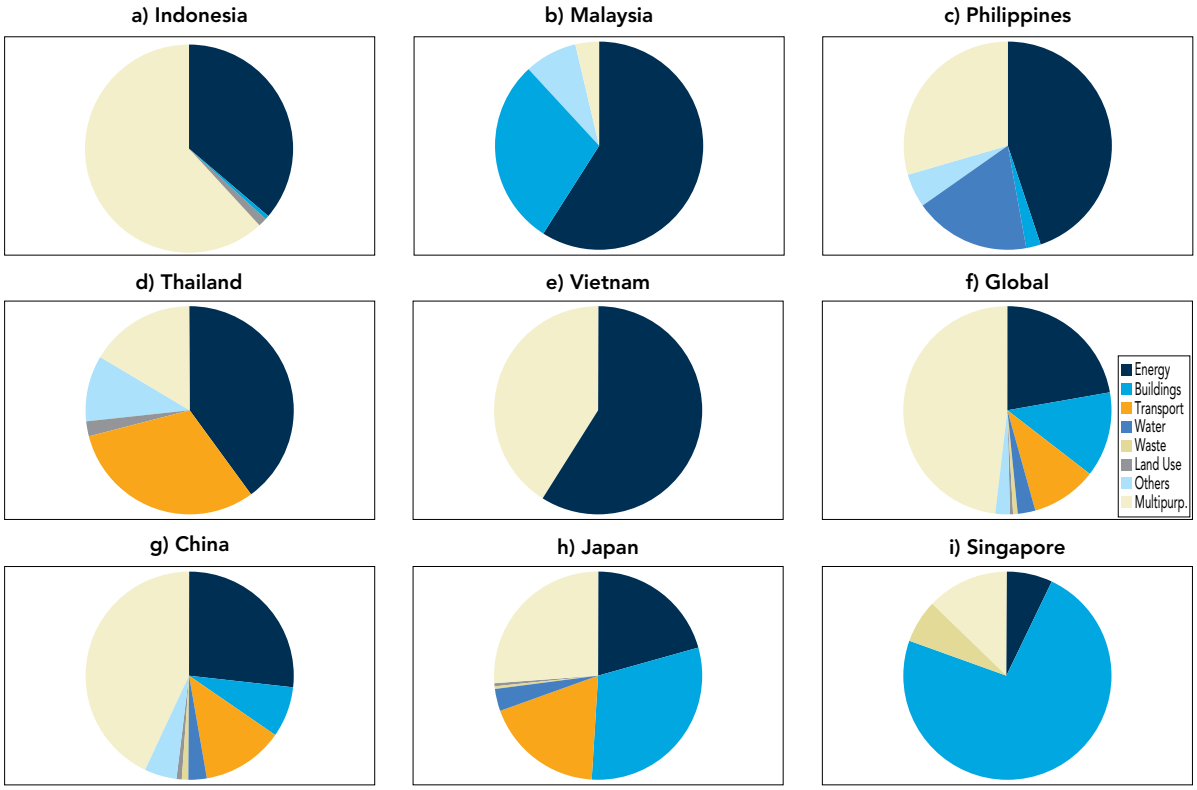
A large share of the proceeds from green bond issuances in the ASEAN-5 is allocated toward the energy sector. While similar trends are seen at the global level, funds are allocated to a wider range of projects, especially in more developed economies, such as Singapore.[24]

Among the ASEAN-5 economies, the proceeds from green bond issuances during 2017-2021 were allocated primarily toward the energy sector (Figure 1.13). For example, Indonesia's green issuances stated that approximately 98 percent of all the proceeds would be allocated (either partially or entirely) to projects in the energy sector.[25] Only two Indonesian non-financial corporations issued bonds with other purposes, namely projects related to green buildings and sustainable land use. Similar energy-heavy allocation is observed in Vietnam. The energy sector was also the major recipient of financing from sustainable bond markets in Malaysia, the Philippines, and Thailand. However, these countries have more widespread allocations across other segments. In Malaysia, about 30 percent of green bond issuances went toward sustainable buildings. In the Philippines, projects for the sustainable use of water accounted for about 20 percent of the amount raised. And in Thailand, at least 30 percent of the proceeds were allocated to projects directly related to the transport sector.

24 Data on the use of proceeds from debt issuances are only available for bond issuances. No information is available on a systematic basis for syndicated loans. In addition, CBI also does not have comprehensive data on the use of proceeds for social and sustainability bonds. Hence, this Stylized Fact is focused on green bond markets only.

25 A closer look at multipurpose issuances—bonds whose use of proceeds mention several sectors—reveals that for the ASEAN-5, the bulk of green bond issuances are used at least partially toward the energy sector.

FIGURE 1.13
Composition of Green Debt Issuances across Sectors, 2017-2021



Note: This figure shows the composition of the amount raised through green debt issuances over 2017-2021 across a select set of countries as well as the composition of issuances at the global level. Green bond and loan issuances that stated more than one use of the proceeds are classified as "multipurpose" in this figure. CBI does not have comprehensive data on the use of proceeds for social and sustainability debt. Source: Authors' calculations based on CBI data.

At the global level, a large share of the proceeds from green bond issuances also went into the energy sector. But funds were also allocated to a wider range of projects. For example, at least 75 percent of green bond proceeds in Singapore were allocated toward green buildings. In Japan, even without considering multipurpose issuances, more sustainable buildings and transportation accounted for almost 50 percent of the green bond proceedings, and another 4 percent went to the water sector. In China, buildings, transport, and water sectors represented close to 25 percent of the total amount raised through single purpose issuances, and a small fraction went to more sustainable waste management and more sustainable land use projects. In France, about 25 percent of green bonds with a single purpose funded more sustainable transport. In Finland, almost 10 percent went to more sustainable land use. In the United States, one of the largest sustainable green markets in the world, about 30 percent of green bond issuances went to more sustainable buildings and 10 percent to the transport sector. If multipurpose bonds are excluded from calculations, only 20 percent of US issuances were allocated to the energy sector. These differences in the allocation of proceeds, especially in more developed economies, arguably reflects the diversity of the needs and approaches toward sustainability across countries. Box 3 discusses the costs of financing renewable energy projects with debt issuances.

BOX 3

Capital Market Financing for Renewable Energy

Capital markets in Malaysia and Thailand have funded numerous renewable energy projects.[26] A sizeable portion of the bonds and sukuk financing these projects are sustainable issuances (such as green bonds). The Malaysian renewable energy (RE) sector primarily uses two major sustainable technologies—namely, solar energy and small-scale hydropower. Since the first corporate issuance in Malaysia in July 2017, there have been 15 domestic bond or sukuk issuances financing RE projects, raising a total of Malaysian Ringgit (MYR) 4.7 billion (or about US$1.12 billion) to build approximately 746 megawatts (MW) of RE capacity (Table B3.1). Assuming no other financing source, this yields an average cost of US$1.5 million per MW. This is a lower bound estimate as companies might have used other sources of financing to complement these capital market issuances. Small scale land-based solar energy projects (less than 50 MW) tend to be the cheapest projects, with an average cost of US$1.05 million per MW, compared with US$1.36 million per MW for larger scale projects. Small scale hydropower projects seem to be the most expensive, with an estimated average cost of US$2.61 million per MW. Floating solar projects are relatively cheaper than hydro but more expensive than land-based solar energy projects. The sample size is relatively small and there is significant variance across projects, ranging from US$0.56 million per MW for a small-scale land-based solar energy project to US$2.79 million per MW for a small-scale hydro project.

26 Capital market financing is not the only source of funding to these projects, but it is the most transparent one as detailed information on the project as well as on the terms of the financing are often publicly available.

FIGURE B3.1
Costs of Renewable Energy Projects in Malaysian Capital Markets

	RE Capacity	Total Issuance	Cost per MW
	MW	*MYR Million*	*US$ Million*
Land-based solar	570	3,060	1.28
<50 MW	156	692	1.05
50 MW and larger	414	2.367	1.36
Floating solar	90	768	2.03
Small-scale hydro	60	658	2.61
Other	26	210	1.96
Total	746	4,695	1.5

Source: Authors' calculations based on Bank Negara Malaysia.

Malaysia Renewable Energy Roadmap has set a target of 40 percent of RE in its national installed capacity mix by 2035, envisaging the use of various technologies. The target states that sustainable RE technologies will contributing to 7,175 MW of additional sustainable RE capacity with an additional 2,370 MW from additional large-scale hydro power plants. If the 7,715 MW of additional sustainable RE capacity were to be funded solely from Malaysia's domestic capital market, an additional US$10.76 billion in funding would be required, based on the historical average cost of RE projects funded in the domestic capital market.

Similar estimations were conducted for the Thai RE sector. A variety of major technologies are in use in Thailand, such as solar, small-scale hydro, wind, and geothermal. Since 2018, there have been 6 unique issuers of sustainable bonds funding various RE projects, with some repeat issuances from these companies. Collectively they have raised Thai Baht (THB) 44.5 billion (or about US$1.34 billion) to build approximately 1,659 MW of RE capacity. Assuming no other financing sources, this yields an average cost of US$0.8 million per MW. As with estimates for the Malaysian RE sector, this is a lower bound estimate, as companies may have used other sources of financing to complement these capital market issuances. Thai RE issuances appear to fund a more diverse variety of RE technologies than the Malaysian issuances, and to include larger-scale projects. These differences may explain the cost differential in these two markets.

Thailand targets a 30 percent share of RE in its national installed capacity mix by 2036, with various technologies to be used, representing an increase of 7,693 MW from the 2020 baseline. If the additional RE capacity were to be funded solely from Thailand's domestic capital market, an additional US$6.19 billion in funding would be required, based on the historical average cost of RE projects funded in the capital market.

FIGURE B3.2
Costs of Renewable Energy Projects in Thai Capital Markets

	RE Capacity	Total Issuance	Cost per MW
Issuers	*MW*	*THB Million*	*US$ Million*
Energy Absolute	260	10,000	1.15
Global Power Synergy	106	5,000	1.42
Ratch Group	432	8,000	0.56
B.Grimm Power	612	8,000	0.39
BCPG	164	12,000	2.20
SPCG	86	1,500	0.52
Total	1659	44,500	0.8

Source: Authors' calculations based on BMA, International Renewable Energy Agency (IRENA) Renewable Energy Outlook Thailand 2017, IRENA Energy Profile Thailand (2021).

STYLIZED FACT 6

Sustainable debt markets have funded scarcely any firms in the ASEAN-5. Excluding financial institutions, only 31 firms issued sustainable bonds and syndicated loans in these economies between 2017-2021.

Few firms in the ASEAN-5 have raised capital in sustainable debt markets during 2017-2021 (Table 1.4). Only 51 companies within the ASEAN-5 were funded through sustainable bonds and syndicated loans. Thirty-one of these 51 companies are non-financial firms, while the remaining twenty are financial institutions. This number of firms is equivalent to only about 0.18 firms per million people. By comparison, the global average in the sample is 1.76 firms per million people. Small countries, such as Singapore, Iceland, and Norway, tend to have larger shares—each of these countries had more than an average of 7 firms per million people. Out of 68 countries with corporate sustainable debt issuances, Malaysia ranks the highest among the ASEAN-5, but is still only at 28th overall in terms of the number of firms per million people. Indeed, although the majority of the fifty-one firms are headquartered in the country, Malaysia had about 0.6 firms per million people actively raising capital through sustainable debt over the 2017-2021 timeframe. Indonesia ranks the lowest of the ASEAN-5, appearing near the bottom of the list at 64th overall.

Firms issuing in the sustainable debt markets covered in this report are relatively larger firms. Firms are classified based on the volume of their capital raising activity. This classification thus considers only firms actively raising capital in debt markets. The average sustainable debt issuance size for what we refer to as medium firms in the ASEAN-5 is US$29.5 million.[27] For small firms, the average issuance size is US$7.3 million. Hence, these are not the typical small and medium enterprises (SMEs).

Among the pool of firms raising capital through bond and syndicated loan markets, medium-sized firms account for almost 70 percent of the total number of non-financial firms issuing sustainable debt from the ASEAN-5 economies (Table 1.4). In Malaysia, for example, 10 out of 12 issuers of green debt were medium-sized firms. When comparing the composition of non-financial firms issuing sustainable debt in other developed and developing countries, the ASEAN-5 economies are not unique. Medium-sized firms account for more than 50 percent of the non-financial corporations raising capital through sustainable debt markets. In EMDEs, smaller firms account for 30 percent, whereas in high-income countries, small firms account for 15 percent. In China, for example, large firms represented only 10 percent of the non-financial corporations in green debt markets.

Among the ASEAN-5, non-financial corporate issuers tend to have an investment grade rating (Figure 1.14). More than 80 percent of green and sustainability bond issuers have a Moody's rating of Baa, the bottom rating of the investment grade scale.[28,29] More than 70 percent of non-financial firms from high-income countries also tend to have an investment grade rating (of Baa or better). While similar patterns emerge for sustainability bonds across EMDEs, when it comes to green bonds, about 56 percent of the firms have a Ba Moody's rating, which is just below the investment grade. This share is higher than the average observed among conventional bond issuers, suggesting that green issuers are not necessarily the highest-grade corporations in EMDEs more broadly. Related to these patterns, Box 4 provides a discussion of greenwashing risks and the use of third-party validation.[30]

27 Medium size firms in this analysis are those firms in between the 25th and 75th percentile of the firm size distribution based on the value of capital raised in bonds and syndicated loans.

28 Data on ratings is limited and not available to all bond issuances; 16 percent of conventional bonds and 34 percent of the sustainable bonds in the sample have a Moody's rating.

29 Quantitatively similar results are obtained with Fitch ratings.

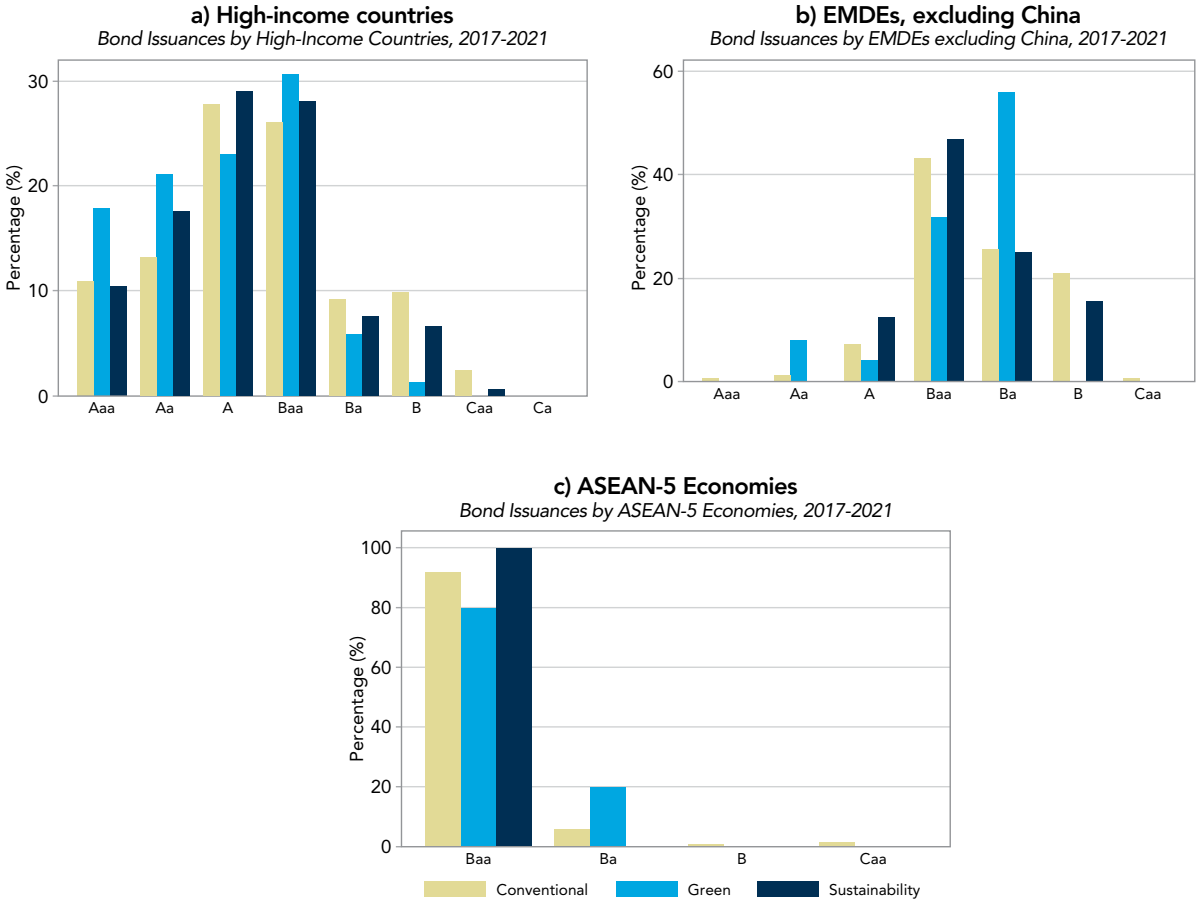
30 There are a number of additional steps depending on the type of sustainable debt including compliance with regulations or international standards, the securing of an independent review of compliance to a green bond framework, the cost of tracking and reporting on the underlying investments to bondholders, the calibration of sustainability performance targets, and/or annual audits of progress.

TABLE 1.4
Number of Non-Financial Corporations Issuing Sustainable Debt By Firm Size, 2017-2021

	Green Debt			Sustainable Debt		
	Large	Medium	Small	Large	Medium	Small
HICs	119	248	67	60	92	15
EMDEs excl. China	18	49	28	13	9	3
China	13	67	54	3	9	4
Indonesia	1	1	1	0	1	0
Malaysia	0	10	2	0	1	2
Philippines	1	1	1	0	0	0
Thailand	1	5	1	0	1	0
Vietnam	0	2	0	1	0	0

Note: This table shows the number of non-financial corporations, by size, that have issued sustainable debt during the 2017-2021 period. The classification of firms by size is done at the country level, based on firm-level data on debt issuances. Specifically, data availability on total assets and number of employees is very limited for debt issuers. Hence, the classification of firm size is based on the distribution of the size of issuances. All issuances (conventional and sustainable) over the 2017-2021 period are aggregated at the firm-level. Based on the distribution of amount raised across firms in a given country, firms at the 25th percentile or below are considered small firms, firms at the 75th percentile or above are considered large firms, and those in between are classified as medium firms. Source: Authors' calculations based on data from SDC and CBI.

FIGURE 1.14
Moody's Ratings of Bond Issuances



Note: This figure shows the distribution of Moody's ratings for conventional, green, and sustainability bond issuances over the 2017-2021 period. Source: Authors' calculations based on SDC data.

BOX 4

Greenwashing Risks and the Use of Certification

How can investors be sure that the proceeds of sustainable bonds are invested in a sustainable manner? No widely-accepted standard definition exists to precisely define what constitutes a sustainable use of proceeds. Consequently, investors face "green-washing risks," where sustainable debt issuances fund investments with the appearance of being more sustainable than what a deeper analysis would reveal. In response to these risks, a third-party certification industry has developed to mitigate this concern. Various organizations provide certifications to debt issuers, by providing either ratings or guaranteeing compliance to certain definitions of sustainability. To qualify as "certified" sustainable debt, issuers typically have to undergo a third-party verification process to establish that their proceeds are funding projects that generate environmental benefits, as outlined in the issuance prospectus. Compliance with these standards often requires substantial managerial effort and resources.[31,32] This certification process, while costly for issuers, tends to align the incentives and mitigate information asymmetries between issuers and investors. Chapter 3 delves further into this issue.

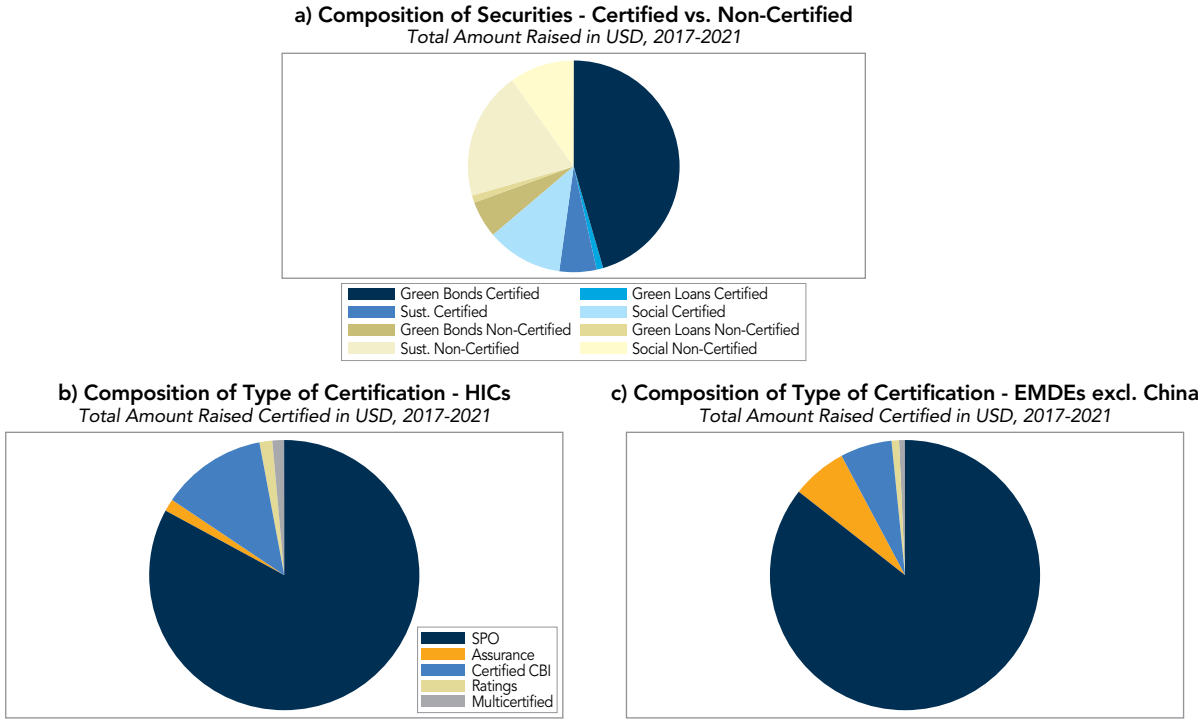
The use of third-party certification has been widespread among sustainable debt issuers. About 64 percent of all issuances between 2017 and 2021 received some form of certification. The most widely use case of certification has been for green bonds—more than 89 percent of the issuances have received certification (Figure B4.1). The use of certification is not concentrated in a few select countries or firms, but is actually widespread among corporations around the world (Table B4.1). Notably, all large EMDE companies issuing green debt did so by using a third-party validation. While the proportion is slightly lower for small and medium firms, between 84 to 89 percent, it is still widely used. The slightly lower adoption by smaller firms could arguably be related to the additional costs associated with the validation process.

More than 80 percent of the certified issuances from both High-Income Countries (HICs) and EMDEs have used "second party opinions" (SPOs) as their certifier. While the CBI certification accounts for a larger share of the issuances in HICs than in EMDEs, assurances are more often used among the latter. Sustainalytics, a private rating company with headquarters in the Netherlands, is the most widely used SPO provider, accounting for about 60 percent of the total amount certified over 2017-2021 in EMDEs and more than 30 percent in HICs. Centre for International Climate and Environmental Research (CICERO), a climate research institute based in Oslo, is another widely used SPO for firms in EMDEs, accounting for the certification of about 15 percent of the total amount raised through sustainable debt. In HICs, private providers Vigeo Eiris, Institutional Shareholder Services (ISS) ESG, as well as CICERO, have certified 10 percent or more of the sustainable debt issuances.

31 For example, the certification process for the CBI Standards entails a pre-issuance phase (when the project is certified as eligible under the CBI standards) and a post-issuance phase (when there is a verification that the proceeds have been allocated to projects in accordance with CBI standards). For details, see CBI (2020).

32 Non-compliance with certification, sometimes referred to as "green default", also requires effort and can be costly—See Flammer (2021) for some anecdotal evidence.

FIGURE B4.1
Certification in Sustainable Debt Markets



Note: This figure shows the composition of certified sustainable debt by type of debt instrument (panel a) and by type of certification (panels b and c). The calculations are based on the total amount raised during 2017-2021. Issuances that had more than one type of certification are classified as "multicertified" in this figure. Source: Authors' calculations based on CBI data.

TABLE B4.1
Use of Certification across Firms

Share of issuing firms using certification by firm size, 2017-2021						
	Green Debt			Sustainability Debt		
	Large	Medium	Small	Large	Medium	Small
HICs	85%	84%	72%	48%	34%	27%
EMDEs excl. China	100%	84%	89%	23%	67%	33%
China	100%	73%	65%	0%	22%	25%
Indonesia	100%	100%	0%	–	100%	–
Malaysia	–	70%	50%	–	100%	50%
Philippines	100%	100%	100%	–	–	–
Thailand	100%	100%	100%	–	100%	–
Vietnam	–	100%	–	100%	–	–

Note: This table shows the use of certification across non-financial corporations that have issued sustainable debt during the 2017-2021 period. The classification of firms by size is done at the country level, based on firm-level data on debt issuances. Specifically, data availability on total assets and number of employees is very limited for debt issuers, hence the classification of firm size is based on the distribution of the size of issuances. All issuances (conventional and sustainable) over the 2017-2021 period are aggregated at the firm-level. Based on the distribution of amount raised across firms in a given country, firms at the 25th percentile or below are considered small firms, firms at the 75th percentile or above are considered large firms, and those in between are classified as medium firms. Source: Authors' calculations based on data from SDC and CBI.

One of the main debates about sustainable finance is whether new financial instruments, such as green and sustainable bonds, are different from conventional bonds. At the core of this debate is why companies issue sustainable debt in lieu of conventional debt. In some cases, the proceeds from green issuances are committed to green projects, which restricts companies' investment policies. In other instances, firms have committed to meet certain KPIs, otherwise they would incur financial penalties. Moreover, to qualify as a certified green debt issuance, companies typically undergo third-party certification to establish that the proceeds are indeed funding environmentally friendly projects, as described in Box 4, which leads to higher transactions costs. Hence, firms should prefer to issue conventional debt rather than sustainable debt. Yet, firms have increasingly issued more sustainable debt, especially green debt, as highlighted above.

The literature has put forward a few explanations of why companies may prefer to issue sustainable debt over conventional debt.[33] First, there is a signaling reason. Green debt, especially green bonds, may serve as a credible signal of the company's commitment toward the environment, which can be invaluable to investors (see Chapter 2 for survey evidence on the reasons for engagement in sustainable finance from lenders and investors). Second, there could be regulatory arbitrage, with incentives for sustainable debt issuances.[34] And third, there is the cost of capital. If green debt investors are willing to trade off financial returns for societal benefits, firms may issue green debt to obtain cheaper financing. The next Stylized Fact sheds more light on this debate.

STYLIZED FACT 7

Globally, sustainable corporate debt tends to have longer maturities and lower coupon rates than conventional debt. Across the ASEAN-5, almost all issuances from Indonesia were in foreign currency, whereas all but one issuance from Thailand were in local currency.

At the global level, corporate sustainable debt tends to have larger issuance amounts, longer maturities and lower coupon rates than corporate conventional debt issuances (Table 1.5). However, social debt issuances in EMDEs are an exception to these patterns, although they represent a small fraction of the market, as described above. These issuances tend to have shorter maturities and higher coupon rates than conventional debt. Among ASEAN-5 economies, the aggregate profile of debt issuances indicates relatively cheaper costs of capital through sustainable debt issuances, consistent with global patterns. On average, corporate green debt issuances have longer maturities than conventional ones, but roughly similar coupon rates, whereas sustainability debt tends to have shorter maturities and lower coupon rates.

Although there is significant variation across countries regarding debt maturity, for the average EMDE country, about 50 percent of the sustainable debt issuances have a maturity greater than 10 years, while another 20 percent of issuances have a maturity between 5 and 10 years (Figure 1.15). ASEAN-5 economies follow similar patterns. For example, in Malaysia, more than 60 percent of the sustainable debt issuances between 2017-2021 had a maturity of 5 or more years; Indonesia and Thailand had close to 70 percent.

Roughly 30 percent of EMDE sustainable issuances were cross-border issuances and denominated in foreign currencies, especially sovereign issuances. A similar share is observed among high-income countries. Among the ASEAN-5, however, there is significant variation in the marketplace of issuance and the currency of denomination of sustainable debt. Almost all sustainable issuances from Indonesia were denominated in foreign currency, whereas all but one issuance from Thailand were denominated in local currency. The share of foreign currency sustainable debt issuances in Malaysia and the Philippines are similar to the observed shares in conventional debt markets—about 35 percent in Malaysia and 56 percent in the Philippines. These patterns for the ASEAN-5 have been stable over time.

Underlying these aggregate trends are both compositional effects (different firms issuing different types of debt) and within firm effects (same firm issuing conventional and sustainable debt with different attributes). An analysis at the firm-level for non-financial corporations reveals that for firms issuing both conventional and sustainable debt, the latter tends to be issued with lower coupon rates than the former (Table 1.6).[35] In HICs, there are also differences in issuance size and maturity—

33 See for example Tang and Zhang (2020) and Flammer (2021).

34 See for example Cao et al. (2021).

35 These results are simple comparisons of coupon rates, they do not incorporate potential issuance-specific characteristics, such as rate penalties or benefits typically observed in sustainability-linked bonds, the credit rating, currency of denomination, or maturity.

firms typically raise capital through significantly smaller issuances at longer maturities from green instruments than conventional issuances. In EMDEs, including the ASEAN-5, while coupon rates are indeed smaller, especially on sustainability issuances, there are no statistically significant differences in issuance size and maturity.[36]

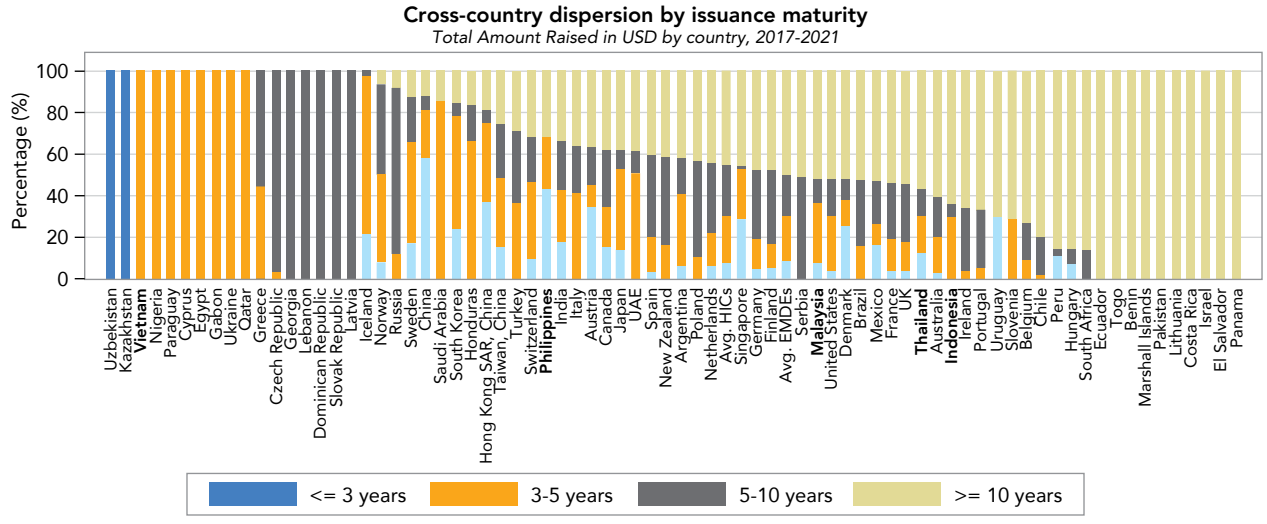
TABLE 1.5
Attributes of Sustainable vs. Conventional Debt

Summary Statistics

	Green	Social	Sustainability	Conventional
High-income Countries				
Average issuance amount (US$ billion)	0.29	0.45	0.47	0.28
Weighted average maturity (years)	8.88	7.29	8.72	6.54
Share foreign currency (%)	26.51	19.51	33.50	17.11
Median coupon rate (%)	1.25	0.32	1.46	2.64
Share certified (%)	67.03	23.73	34.98	–
EMDEs excl. China				
Average issuance amount (US$ billion)	0.10	0.24	0.31	0.15
Weighted average maturity (years)	8.44	3.24	7.62	6.95
Share foreign currency (%)	20.42	62.50	47.73	25.82
Median coupon rate (%)	4.73	7.80	3.75	6.00
Share certified (%)	81.92	34.78	10.85	–
ASEAN-5				
Average issuance amount (US$ billion)	0.04	–	0.15	0.10
Weighted average maturity (years)	9.47	–	6.23	7.30
Share foreign currency (%)	4.10	–	20.45	14.95
Median coupon rate (%)	4.60	–	3.35	4.56
Share certified (%)	78.88	–	62.96	–

Note: This table shows the attributes of corporate debt issuances between 2017-2021 across countries. The statistics pool all issuances from a given group of countries.
Source: Authors' calculations based on SDC.

FIGURE 1.15
Sustainable Debt Maturity across Countries



Note: This figure shows the maturity composition of the amount raised through sustainable debt issuances over 2017-2021. Source: Authors' calculations based on SDC data.

36 Similar analysis for financial corporations reveals qualitatively similar patterns.

The lower coupon rate of sustainable debt—typically referred to as the "greenium"—has received significant attention in the early literature about the development of sustainable financial markets. The results, however, have been mixed. A recent literature review conducted by MacAskill et al. (2021) found that estimations of the green premium has varied widely for the primary markets, whereas an average greenium of −1 to −9 basis points on the secondary market has been frequently observed. While the majority of the studies use a global dataset, the results of these studies tend to reflect the dominant market share of developed countries in green bond issuances. Studies have yet to examine greenium differentials within specific countries, including those in the East Asian region. A more thorough evaluation of the greenium for the ASEAN-5 is left for future research.

TABLE 1.6
Within Firm Differences in Sustainable vs. Conventional Debt

	Issuance Size (US$ Billion)		Maturity (Years)		Coupon Rate (%)	
	Green	Sustainability	Green	Sustainability	Green	Sustainability
HICs	-0.095 ***	-0.106 **	1.089 **	0.213	-0.341 ***	-0.408 ***
EMDEs excl. China	-0.016	0.066	1.883	-0.261	-0.499	-0.987 ***
ASEAN-5	-0.116	0.067	0.457	0.638	-0.119	-0.569 ***

Note: This table shows the results of statistical tests of differences in attributes between sustainable and conventional debt issuances for firms issuing both types of debt. The analysis is based on firm-level panel regressions with firm fixed effects. Source: Authors' calculations based on SDC.

BOX 5

Bank Financing for Sustainability in Malaysia

Access to data on commercial bank financing for sustainability is challenging, as such data is largely unavailable among the ASEAN-5 economies. One workaround to this lack of data is to look at data on incentives given to commercial banks or programs supporting the provision of financing for sustainability. While cross-country comparisons are not possible, these data can still shed light on the state of the engagement of these institutions.

Malaysia's Green Technology Financing Scheme (GTFS) is one such program. The Scheme, first introduced by the Government in 2010, is aimed at financing green technology users and producers. It focuses on projects that increase energy efficiency, material efficiency, waste management and recycling, sustainable mobility, sustainable water management, and environmentally friendly power generation and storage. The GTFS was set up to address the challenges of financing green technology—to help build capabilities in firms and financial institutions, thus closing knowledge gaps and technical capacity in evaluating new technologies, while de-risking these investments for financial institutions.[37]

The Malaysia Green Technology and Climate Change Technology Corporation (MGTC) administers the Scheme and is responsible for the promotion, assessment, certification and monitoring of producers and users financed under the Scheme. It also conducts an initial screening and certification prior to companies applying for financing at a financial institution. MGTC's certification process not only provides an external validation to the project, but it also verifies the technical capabilities of the businesses and assists them in assessing the commercial viability of projects. Debt to fund investments in new technologies is arguably not the most suitable type of financial instrument due to the high riskiness of these projects—see further discussions on financing innovation with private equity financing in Chapter 1. Hence, the Scheme also entailed a de-risking component through partial credit guarantees (PCGs). Specifically, the GTFS offers a guarantee covering 60 percent of the financing amount and provides a rebate of 2 percent on the interest rate charged by financial institutions. The Credit Guarantee Corporation (CGC) is responsible for managing, administering, and monitoring the PCG component of the Scheme, including the verification and processing of PCG applications, subsidy reimbursements, claim payments, and reports to the Government. In addition, lending guidelines were provided to financial institutions to establish assessment criteria for GTFS applications. The guidelines consider factors such as collateral, due diligence process, and the sectorial exposures of financial institutions.

The first tranche of the Scheme made available MYR 3.5 billion (about US$814 million) through 28 financial institutions. It was fully utilized by the end of 2017, benefitting 319 companies (MGTC, 2020). As reflected by its full utilization, the Scheme garnered strong interest. The scheme was extended in 2018, with financing available until December 2020. The extension included an additional funding of MYR2 billion (about US$495 million), with an expansion to include energy services companies (ESCO). The eligibility criteria for this second round of the Scheme included domestic Malaysian ownership of at least 51 percent of the company—additional criteria are shown in Table B5.1. The primary beneficiaries of the GTFS 2.0 were from the energy sector, with the projects in renewable energy accounting for 98.2 percent of the GTFS 2.0 funding. Since the introduction of the GTFS 1.0 in 2010 and the 2.0 version in 2018, growing anecdotal evidence indicates that financing for green technology has further developed in Malaysia, especially for the renewable energy sector.

Malaysia has introduced two renewable energy programs for small-scale projects—namely, the Feed-in Tariff (FiT) program and the Net Energy Metering (NEM) scheme. These programs were introduced to incentivize consumers to install solar photovoltaics in buildings or in homes. Building on these programs, commercial banks have started to develop financial solutions to accelerate their participation in renewable energy projects, particularly at a micro and small-scale level. Anecdotal evidence indicates that commercial banks have, in fact, partnered with solar panel producers to finance these small-scale renewable and energy efficiency projects, providing both financing and technical expertise in installation and maintenance of the solar panels.

TABLE B5.1
Eligibility Criteria for GTFS 2.0

	Green Technology Producers	Green Technology Users	ESCO
Financing size	RM100 million per company group	RM50 million per company group	RM25 million per group of company group
Financing Tenure	Up to 15 years	Up to 10 years	Up to 5 years
Purpose	Production of green products	Utilization of green technology	Energy efficient project and/or energy performance contracting

Source: GTFS.

37 See the "Green Technology Master Plan Malaysia, 2017-2030."

BOX 6

Carbon Pricing and Green Financial Markets

Carbon taxes and emissions trading systems (ETS), generally referred to as carbon pricing schemes, aim at providing incentives for reductions in greenhouse gas emissions. The fundamental purpose of carbon pricing is to provide incentives for private decision makers to optimally factor carbon costs into their decision-making process. In other words, it creates incentives for firms to reducing their carbon usage and emissions. The absence of carbon pricing, in turn, means that high-carbon investments may be favored over low-carbon alternatives (Thompson, 2021). As suggested by Stiglitz et al. (2017), "a well-designed carbon price is an indispensable part of a strategy for reducing emissions in an efficient way." Since the 1990s, 46 economies have implemented, or are in the process of implementing, such schemes.[38] Most of the ASEAN-5 economies are currently exploring carbon pricing schemes. Within Southeast Asia, only China and the Republic of Korea have an emissions trading system in operations.

While carbon pricing schemes in principle could fully support and fund the transition toward a greener, low-carbon economy, in practice, current levels of carbon pricing are not enough (Lagarde and Gaspar, 2019). For instance, a carbon tax in itself provides only limited incentives for adaptation to climate change and only indirectly reduces the vulnerability of the global economy to climate change. Moreover, there are market failures and inefficiencies that may hinder the effectiveness of carbon pricing mechanisms (Acemoglu et al. 2012, Grubb et al. 2014). Countries should thus consider a combination of instruments to support financial development for sustainability, with carbon pricing mechanisms playing a complementary, enabling role to more traditional financial markets.

There are, however, complex interactions from the joint emergence of financial markets for sustainability with carbon pricing, with different incentives and interactions arising depending on whether the latter is implemented as an ETS or a carbon tax (Heine et.al., 2019; Rannou et al., 2021). On one hand, if emissions leakages occur for companies under an ETS emissions cap, they can turn to green financial markets to fund certain projects to achieve the needed cap. Doing so would not necessarily affect the price of carbon permits, therefore the effectiveness of the initial emissions cap would be reduced. On the other hand, to the extent that the returns for green projects depend on carbon prices, more stable carbon prices create more stable returns on investments and accordingly greater demand for green bonds. Furthermore, anecdotal evidence from the Shenzhen carbon trading market suggests that green bonds can be a catalyst for the development of new and innovative financial instruments, such as carbon funds and carbon bonds, which can attract new investments into low carbon projects and sectors.

38 Counting both countries that have already implemented carbon taxes or emissions trading systems and countries where implementation plans are far advanced. See Heine et al. (2019).

1.2.2 Private Equity Markets for Sustainability

To shed light on the current state of development of equity markets for sustainability in the ASEAN-5, this section explores a transaction-level dataset, Pitchbook, on private equity investments into climate technology. Climate technologies are intended to help mitigate or adapt to the effects of climate change. These technologies include de-carbonization technologies and processes as well as clean technologies, which seek to reduce the environmental impact of human activities or significantly reduce the amount of natural resources consumed through such activities.[39]

In the literature, the term private equity broadly refers to investments into shares and securities that are not traded on a public stock market—that is, investments in private companies. This includes investments in the form of venture capital, growth equity, leveraged buyouts, consolidations, mezzanine, distressed debt investments, and a variety of hybrids (Lerner et al., 2016). For the purposes of this chapter, the empirical analysis distinguishes between two fundamentally different types of (private) equity transactions: venture capital (referred to as VC) and private equity (referred to as PE). While both VC and PE investments have the ultimate goal of increasing the value of their targeted companies over time and eventually exiting these investments at a profit, these two types of equity transactions have a distinct way of pursuing their investments and tend to target different types of companies, typically at different stages of their life cycles. VC investments are primarily risk-taking endeavors, where investors subsidize the negative cash flow of firms early on with the expectation of high future profitability. Firms receiving this type of funding tend to be high-risk, high-return firms. Venture capital investments can be particularly important for innovative firms, such as those at the technological frontier. These investments are typically made by venture capitalists, but also include accelerators, incubators, seed and angel investors, and crowdfunding, among others.[40] In contrast, PE investments focus on improving firms' operational efficiency, by enhancing firm capabilities and imposing greater discipline, for example, so that firms become more profitable (Pitchbook, 2022).[41] These investments are typically buyouts made by private equity firms.

Overall, global private equity markets have expanded considerably over the last decade—from around US$400 billion in 2010 to US$1.85 trillion in 2021. This growth has been particularly marked for middle-income countries, where annual investments increased more than six-fold, albeit from a relatively low base, reaching US$290 billion in 2021. Private equity in the ASEAN-5 has grown more than eight times since 2010, reaching almost US$18 billion in new financing in 2021 (VC funding accounting for 75 percent). Indonesia has the deepest market, with deals estimated around US$11.8 billion in 2021, significantly larger than Malaysia and Vietnam (estimated between US$2-2.5 billion), as well as the Philippines and Thailand (estimated between US$800-850 million).

STYLIZED FACT 8

Private equity financing for climate and clean technology is even smaller than sustainable debt financing within the ASEAN-5.

In terms of volume of financing, lower bound estimates indicate that private equity financing for projects in climate and clean technology was around US$265 million in total for the ASEAN-5 between 2017-2021, representing about 0.57 percent of total private equity financing in these countries (0.01 percent of GDP). VC investments accounted for only 13 percent of the total amount. In terms of volume of financing to corporations, these markets are small when compared to sustainable debt markets. During 2017-2021, private equity markets accounted for less than 5 percent of the amount raised in the sustainable debt markets analyzed in this chapter.

39 Given the private nature of these markets, access to data is challenging. Pitchbook does contain detailed information on private equity transactions, but in many cases, the available information is incomplete, sometimes without information on the value of the transaction, or who were the investors, or even information about the company receiving the financing. Hence, this section will present some evidence based on the volume of private equity financing as well as the number of transactions, aiming at a more complete view of the landscape for private equity financing.

40 Individual private investors using their own money are commonly referred to as angel investors, whereas venture capital investors are those intermediating the money of others. Building on the work of Hellman et al. (2019), who argue that angel investors and venture capitalists are substitutes, we treat these types of investors interchangeably in our research.

41 PE investments have been associated with efficiency gains associated with lower levels of employment in targeted companies. For a sample of French firms, Guery et al. (2017) provides some evidence of labor shedding effects associated with PE investments from foreign investors, but not domestic ones.

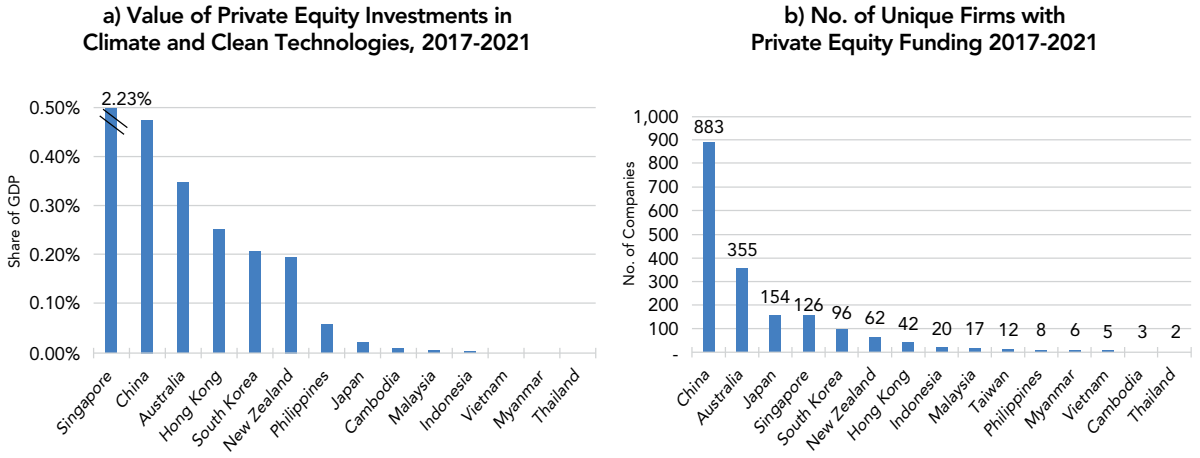
Private equity markets for clean and climate technologies are also relatively small in the ASEAN-5 when compared with other developed and developing countries (Figure 1.16). This pattern holds even after taking into account the shallower depth of overall private equity markets in the ASEAN-5. For example, companies with projects in either climate and/or clean technology companies represented about 2.2 percent of the number of companies that received private equity funding within the ASEAN-5 economies during 2017-2021. In contrast, the average for countries in EAP was about 4 percent, with firms engaged in climate and clean technologies capturing 7.6 percent of the total amount of investments. The global average was 9.4 percent (median was 6.7 percent) and 7 percent in upper-middle income countries.

Almost 1,800 firms in the clean and climate tech segment received about US$89 billion in private equity financing in the EAP region. Nearly half of these firms have headquarters in China, while another 20 percent have Australian headquarters. Globally, the volume of private equity financing for climate and clean technologies was estimated at US$375 billion between 2017-2021, 38 percent of which associated with VC investments. Over this period, private equity markets funded almost 14,000 firms. The United States, China, and the United Kingdom are the largest markets for this segment, along with Canada and Germany. India also features among the top-10 largest private equity markets for climate and clean technologies.

VC investments into ASEAN-5 companies came from both domestic and foreign investors. Foreign investors were mostly from developed countries, both within and outside of the region. For example, there were investors from Australia, China, and Singapore as well as from Belgium, the Netherlands, Norway, and the United States, among others. While some were large institutional investors, with assets under management of more than US$100 billion, others were relatively small, with US$50 million or less under management.

Private equity investments in the ASEAN-5 on climate and clean technologies were made by a wide range of institutions: angel investors, venture capital funds, incubators and accelerators, corporations and foundations, and strategic investment funds (SIFs). Among the latter, local SIFs have been actively investing in the segment, such as the Malaysia Venture Capital Management and the Malaysian Global Innovation and Creativity Centre, both government-backed investors. Regional and global SIFs have also had an active presence in this space, such as ADB ventures, the corporate arm of the Asian Development Bank, and the EU's Horizon 2020 SME Instrument fund, among others.

FIGURE 1.16
Private Equity Financing for Climate and Clean Technologies



Note: This table shows the value of private equity investments and the number of firms that received private equity funding in the EAP region during 2017-2021.
Source: Authors' calculations based on Pitchbook.

STYLIZED FACT 9

Despite the much smaller financing volumes, private equity markets for climate and clean technologies have funded a greater number of corporations than sustainable debt markets in the ASEAN-5. Firms receiving venture capital funding were typically small (less than 15 employees) and young, though past the start-up stage.

Despite their relatively small size, private equity markets for climate and clean technology financed a greater number of firms than sustainable debt markets in the ASEAN-5. During the 2017-2021 timeframe, 52 unique non-financial corporations with projects in either climate and/or clean technologies received private equity financing (Figure 1.16). In contrast, 27 non-financial corporations raised capital through green debt markets and 6 used sustainability markets. Most of these companies were headquartered in Indonesia or Malaysia. Regarding the composition of these investments, 80 percent of the ASEAN-5 firms received VC funding linked to clean technologies—out of 42 companies, 20 were from Indonesia and 11 from Malaysia.

ASEAN-5 companies that received VC investments were typically small and young, though past the start-up stage. The median company had about 14 employees, but the average was 25 employees, indicating significant variance across companies. The size of firms receiving VC funding ranged from companies with fewer than 10 employees to a company with nearly 200 employees. A few transactions involved companies with more than 50 employees. While most of the investments were for seed or early-stage financing, the average company that received VC funding was about 4 years old. Most of these companies were past the ideation phase and already generating revenues.

In funding typically small (less than 15 employees) and young firms, the amount of VC investments is thus smaller than the funding amount firms obtain in sustainable debt markets. The median VC investment in ASEAN-5 firms during 2017-2021 was roughly US$180 thousand, whereas the average amount raised through sustainable debt was US$7.3 million (as stated in Fact 6). The average VC investment was significantly higher, US$3.3 million, driven in large part by a single transaction of approximately US$25 million. Companies being financed in sustainable debt markets tend to be publicly listed firms, which are typically larger and older than the firms receiving private equity financing.

1.2.3 Public Equity Markets

Public equity markets are challenging to capture in a manner comparable to the other instruments covered thus far, because public equity is not associated with a particular project or product, but rather provides general funding to listed companies. Hence, identifying sustainable equity funding to corporations would be akin to looking at the sectorial classification of listed companies. Refinitiv (2021b) takes this approach, for example, by identifying a set of 30 industries associated with green activities (such as wind and solar electric utilities, hydrogen fuel, organic farming, biodiesel and ethanol fuel). This approach, however, does not guarantee that the activities of companies under these industries are sustainable.

This does not necessarily indicate that sustainable equity offerings in the marketplace are nonexistent. Stock exchanges themselves have played an important role in pushing the sustainability agenda forward. There are 47 stock exchanges worldwide that have created sustainability-related indexes. Among the ASEAN-5, Indonesia, Malaysia, Thailand, and Vietnam have established sustainable benchmark stock indexes. These indexes are comprised of listed firms with outstanding sustainability performance and practices. Indonesia's stock exchange also has a green bond listing segment. Moreover, all five stock exchanges in the ASEAN-5 have joined the Sustainable Stock Exchanges (SSE) initiative, which is a UN Partnership Program aimed at providing a global platform for exploring how exchanges, in collaboration with investors, issuers, regulators, policymakers, can enhance performance on ESG issues and encourage sustainable investment, including the financing of the UN Sustainable Development Goals. The SSE initiative is further explored in Chapter 3.

1.2.4 Range of Financial Products and Services Offered by Financial Institutions

STYLIZED FACT 10

In the ASEAN-5, financial institutions, including banks, tend to offer few sustainable financial products to their clients. Sustainable capital markets instruments are the most common and insurance is notably absent.

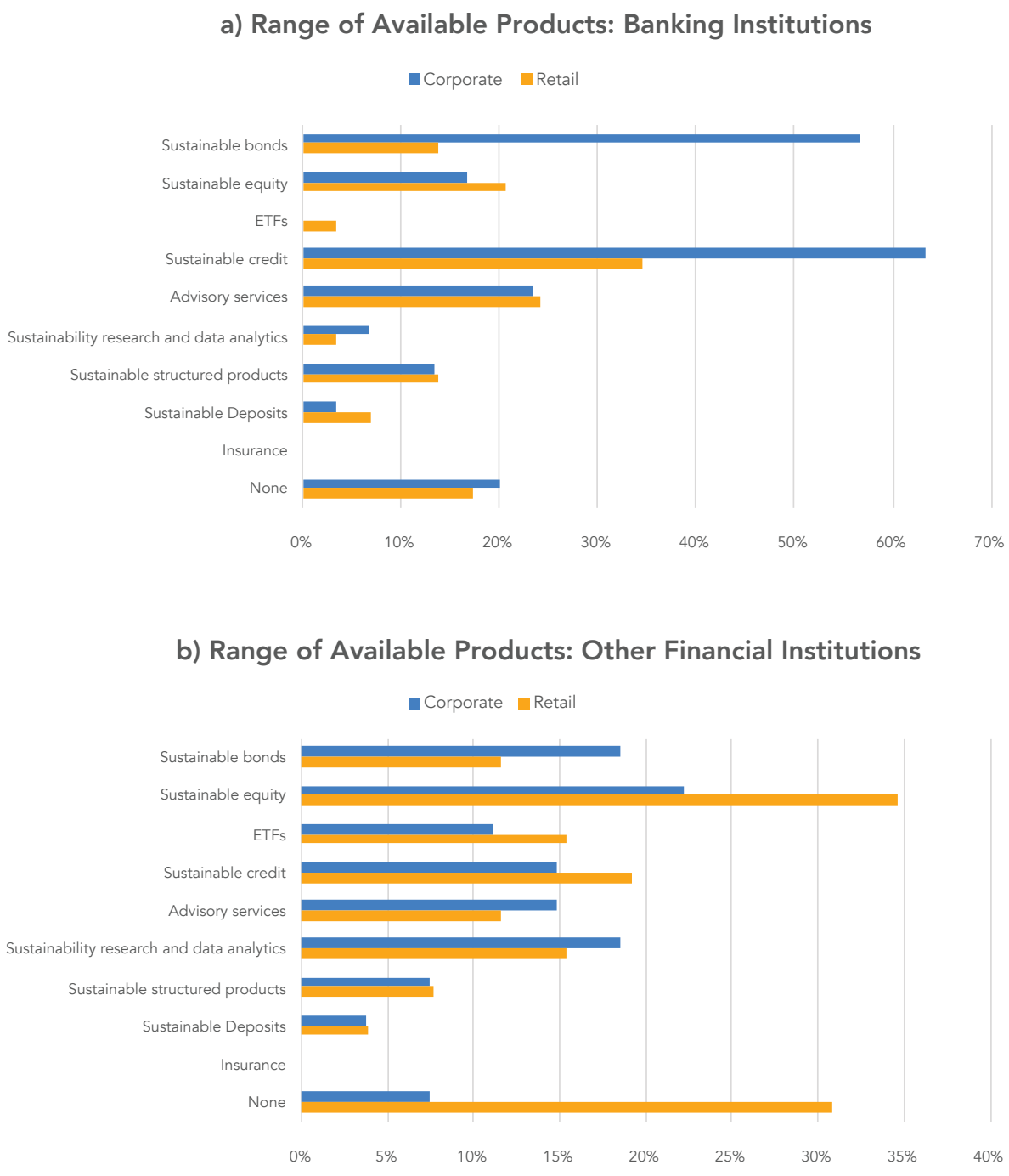
Because information on non-syndicated bank finance is limited, the World Bank conducted a survey among a select set of financial market participants in the ASEAN-5 economies. The survey sheds light on the diversity of products available in the marketplace to retail and corporate clients, among other topics. Financial institutions in Indonesia, Malaysia, the Philippines, and Thailand participated in the survey. A total of 64 financial institutions provided answers to questions about sustainable financial product offerings for retail clients, while a total of 74 financial institutions responded to the same question for corporate clients. In Indonesia, Malaysia, and Thailand, banking institutions represented about half of the respondents. However, in the Philippines, banking institutions represented the majority. The other half of the respondents included insurance companies, investment banks, and pension and mutual funds, among a few other capital market financial institutions. Please see Chapter 2 and Appendix III for a more in-depth description of the survey instrument, the sample of surveyed financial institutions, and a comprehensive analysis of the survey results.

Overall, capital market products were the most frequently cited products offered to clients by both banking and non-banking financial institutions (Figure 1.17).[42] Sustainable bonds were the most commonly offered product for corporate clients, followed by sustainable credit products in the case of banks, and sustainable equity in the case of non-banking financial institutions. For retail clients, sustainable loans, credit lines, or other credit products were the most often cited product range among banking institutions. Among non-banking financial institutions, in contrast to corporate offerings, there was a prevalence of sustainable equity products rather than sustainable bonds.

Beyond capital markets and credit, advisory services, research, and data analytics are offered to corporate clients, especially by non-banking financial institutions. But this was less so for retail clients. Insurance was notably absent from the offerings among surveyed financial institutions. As shown in Figure 1.17, 31 percent of the financial institutions stated that they offered no sustainable product or service to their corporate or retail clients. There are, however, variations across the four ASEAN economies. Financial institutions in Indonesia reported offering at least two to more than four (in a few instances) different financial products or services to their corporate and retail customers. In contrast, those in the Philippines and Thailand reported a more limited offering, which typically included a single sustainable financial product; and these countries also had a larger share of respondents with no sustainable financial product offering.

42 An assessment based on publicly available documents in 2018 by the WWF across 32 banking institutions in the ASEAN-5 economies revealed that, at that time, banks in the region offered a very limited range of financial products integrating ESG considerations (WWF, 2019).

FIGURE 1.17
Survey Evidence on the Range of Products Available to Customers



Note: This figure shows survey evidence on the range of products offered to corporate and retails clients by financial institutions in Indonesia, Malaysia, the Philippines, and Thailand. Source: Authors' calculations based on a World Bank survey on sustainable financial markets.

1.3 Conclusion

Despite rapid growth over the past few years, debt and equity markets for sustainability remain relatively small for the ASEAN-5 economies. These markets are shallow when compared to more developed markets and when compared to conventional debt markets. Importantly, sustainable financial markets in the ASEAN-5 do not yet have the scale required to meet the countries' funding needs for their various sustainability objectives, from the SDG goals to the net-zero aspirations. In fact, the analysis in this chapter provides systematic evidence pointing toward a sizeable financing gap. In financing sustainability, countries are still at the stage of trying to grow from "millions to billions." While this growth would indicate progress, it is far from the much-needed escalation from "billions to trillions."

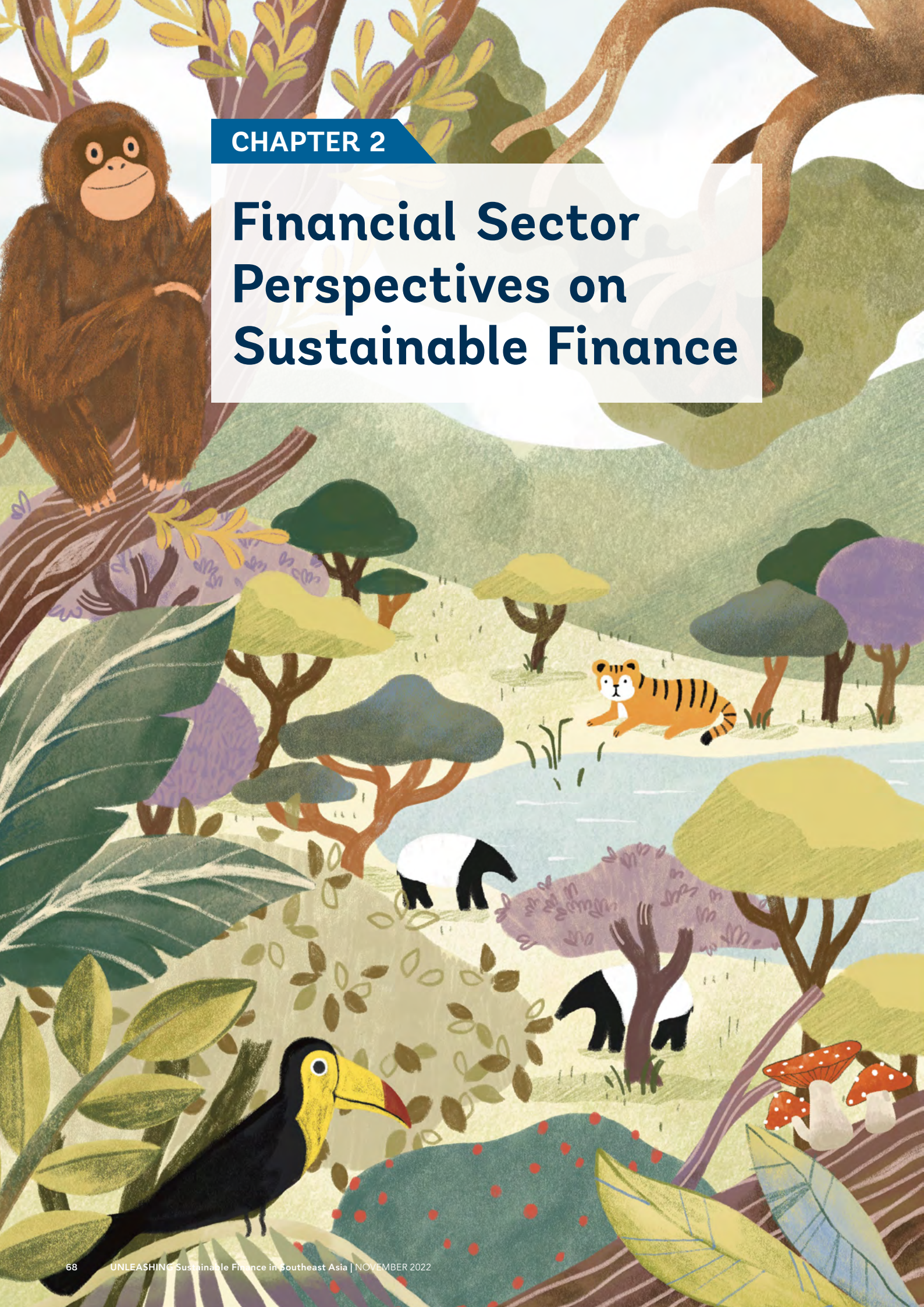
In fact, sustainable financial markets have reached a very small, select set of firms in ASEAN-5 economies. Debt markets have financed only 27 non-financial corporations through green bonds or syndicated loans and 6 firms used sustainability markets during 2017-2021 (with a total amount raised of US$8.96 billion during this timeframe). These firms tend to be listed firms and, although they are not among the largest ones active in debt markets, they tend to have an investment grade. Although the volume of financing is a fraction of that in sustainable debt markets, private equity markets have funded 52 unique non-financial corporations with projects in climate and/or clean technologies between 2017 and 2021. Although this reach is still limited, it is greater than that of the sustainable debt markets analyzed in this chapter. Private equity markets have financed typically small (less than 15 employees) and young firms, though past the start-up stage. Unfortunately, lack of data on other forms of debt financing (especially from banks) constrains an assessment of the usage of sustainable financing for firms in between these two extremes, which are typically SMEs relying on bank financing. A survey across financial institutions in Indonesia, Malaysia, Thailand, and the Philippines indicated that financial institutions, including banks, offer a limited range of sustainable financial products to their clients, with insurance notably absent from the offerings. However, a more in-depth assessment of bank financing for sustainability is left for future research.

Yet, some bright spots emerge when the ASEAN-5 are compared to countries with similar levels of economic development and similar structural characteristics. Indonesia has had sizeable sovereign sustainable issuances, significantly deeper than in peer countries, driving market development and establishing it as the largest sustainable debt market within the ASEAN-5 economies. Corporate sustainable debt markets in Malaysia and the Philippines are significantly more developed than sovereign markets, and they are also deeper than in structurally similar countries. The depth of sustainable debt markets in Thailand is comparable to peer countries, with corporations being the main issuers in green markets and the government in sustainability markets. However, sustainable debt in Vietnam is relatively under-developed in absolute terms and also when contrasted with peer countries.

As discussed later in this report, financing climate change adaptation and mitigation is challenging, with significant constraints from both the demand and supply side, as well as institutional barriers inside and outside of the financial system. There are a wide range of actions that public authorities, especially financial sector policymakers (such as central banks, supervisors, and regulators), could take to mitigate existing constraints to market development and enhance the role of the financial sector in supporting the transition toward a more sustainable economy. Before turning to a systematic assessment of the overall state of development of the enabling environment for sustainable finance in the ASEAN-5 economies, the next chapter of this report takes a step back and explores the key challenges and opportunities for greater sustainable financial development from the perspective of financial market investors and lenders.

CHAPTER 2

Financial Sector Perspectives on Sustainable Finance



Key Messages

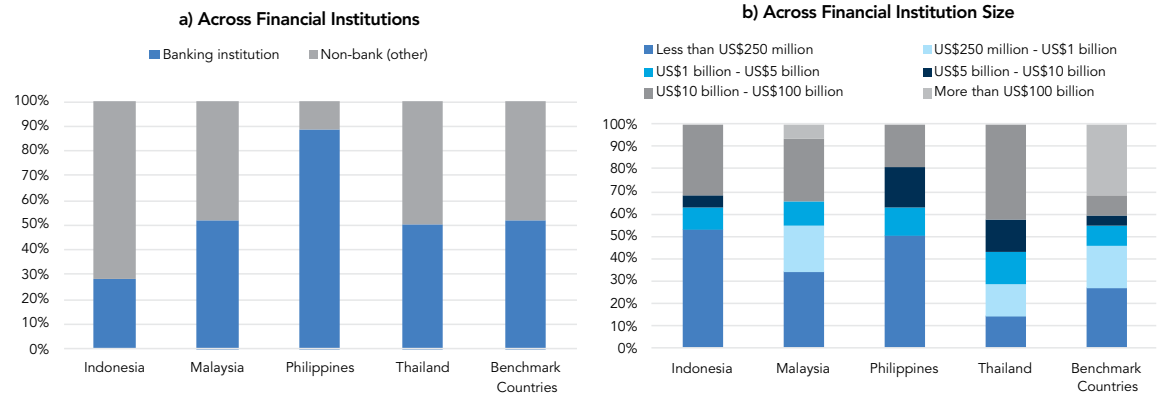
- A survey among financial market participants, including from banking institutions, in Indonesia, Malaysia, the Philippines, Thailand, and a select set of comparator countries shows relatively high adoption of sustainability considerations in investment decision processes.
- The survey results highlight the importance of "incentives from the top" through a top-down approach towards sustainability, whereby motivation for change from top management is perceived to be just as critical as incentives from laws and regulations enacted by policy makers.
- Less than a quarter of the surveyed financial institutions in the ASEAN-5 fully integrate sustainability considerations into investment decisions or measure how investment strategies influence clients' actions toward more sustainable behavior. The most common approach is screening, especially negative screening. Nevertheless, a strategy that fully integrates sustainability elements into investment decisions is believed to have the largest impact on firms' actions towards more sustainable behavior.
- Risk-return-sustainability tradeoffs are prominent considerations of financial institutions when deciding to embed sustainability practices into investment strategies. Financial performance is a key driver of sustainable investments, often prioritized over sustainability considerations.
- Three key interrelated challenges in sustainable investing emerge:
  (i) deficiencies in the information environment as the core challenge;
  (ii) lack of capabilities, including the shortage of expertise to assess sustainability aspects in potential investments;
  (iii) lack of identifiable and/or eligible assets that match investment objectives.
- The development of sustainable finance data infrastructures emerges as a policy priority for financial institutions. Other highlighted policies focus on tackling the perceived lack of investment opportunities, the need for improvements in the enabling environment (including financial infrastructure), support for new financial instruments, and programs to de-risk sustainable investments.

2.1 Introduction

As shown in Chapter 1, there is marked variation in the extent of sustainable financial market development across the ASEAN-5 economies. To shed light on the main drivers and constraints behind the market's development, the World Bank conducted a supply-side survey among financial market participants.[1] The survey was circulated during the period of January 2022 to March 2022. A total of 100 responses were received, comprising respondents from four countries of interest including Malaysia (31 percent of the total respondents), Indonesia (21 percent), the Philippines (17 percent), and Thailand (8 percent), while the rest of the respondents (totaling 23 percent) were from "frontier" countries, such as the EU, China (with respondents from mainland China, Taiwan, and Hong Kong), Australia, the United States, and Singapore. The sample of respondents was roughly split between banking institutions and non-banking institutions respondents, with 53 percent from the banking sector. In the Philippines, however, almost all respondents were from banking institutions. Non-banking institutions comprised insurance companies, asset management companies, and pension funds. Regarding the size of their financial institutions, the composition was broadly similar across the surveyed ASEAN-5 economies. Overall, most of the respondents from the surveyed economies were from small and medium-sized financial institutions, with only a few from larger ones (Figure 2.1)[2]

The survey results provide novel insights notably absent from available data sources, especially insights regarding banking institution engagement with sustainable finance. Moreover, the sample size for the surveyed ASEAN-5 economies also compares favorably when contrasted with other surveys conducted recently by think tanks, consulting firms, and other private sector entities—these other surveys typically had smaller samples for the ASEAN-5 and rarely reported the results for these countries individually. The rest of this chapter presents the main findings that emerged from the survey results. The complete set of survey responses are reported in Appendix III.

FIGURE 2.1
Profile of Surveyed Respondents



Note: This Figure presents the responses to Questions 1 and 3 of the survey. Additional information is presented in Appendix III.

1 The set of questions was designed based on a review of the literature on sustainable finance. The survey did not require respondents to disclose their names or affiliation, but provided the option to do so. Respondents were also allowed to skip questions. The order of response options was randomized across respondents. Most of the multiple-choice questions had a free-text option, though it was rarely used by respondents. The survey was distributed online to financial regulators, relevant financial professional associations, and participants of relevant webinars on sustainable finance organized by the World Bank for the countries reviewed in this report (such as the SEEDS webinars).

2 This distribution of respondents is qualitatively similar to a global survey of investment professionals back in 2016, conducted by Amel-Zadeh and Serafeim (2018). They report that 35 percent of their respondents had assets under management below US$1 billion in 2015, whereas 15 percent reported having more than US$100 billion. Krueger et al. (2020) conducted a global survey of 439 institutions during 2017-2018: 19 percent of the respondents had less than US$1 billion in assets under management, 32 percent had assets between US$1 billion and US$20 billion, and 11 percent had assets of more than US$100 billion.

2.2 Financial Market Participants' Response to Sustainable Finance

The ASEAN-5 financial market participants have broadly adopted sustainability considerations in their investment strategies. Nearly 85 percent of World Bank surveyed financial market respondents reported that sustainability is integrated into their institutions' investment processes and decisions. This result quantitatively mirrors survey findings by ANZ and Finance Asia, who reported that 87 percent of respondents integrate sustainability issues into their strategies.[3] The aggregate survey results of high sustainability integration into the investment decisions of financial institutions masks significant variation across the ASEAN-5 economies. For instance, 90 percent of financial institutions in Indonesia and 82 percent in Malaysia reported integrating sustainability into investment decisions, compared to only 58 percent in the Philippines. Despite high sustainability integration among the ASEAN-5, only 33-50 percent of the respondents in Indonesia, Malaysia, the Philippines, and Thailand indicated that there is a clear reference to sustainability in their institutions' long-term strategies. In frontier countries, reference to sustainability in long-term strategies jumps to 76 percent. Such contrasting percentages suggests lagging efforts from financial institutions in ASEAN-5 economies vis-à-vis those in more developed markets.

Financial risks-rewards and compliance with laws and regulations emerged as the key drivers of sustainable investments (Figure 2.2). Specifically, 70 percent of financial institutions indicated that, among their top-5 most important drivers of sustainable investments, ESG information is material to investment returns, to mitigate tail risks, or to reduce overall portfolio risks. A mandate from top management was also featured among the top-5 drivers for 60 percent of the financial institutions overall (73 percent in the Philippines and 75 percent in Thailand). Compliance with laws and regulations also has a significant influence on the relatively high degree of adoption of sustainability aspects by financial institutions. Approximately two-thirds (66 percent) of the financial market participants indicated that one of the top-5 most important drivers of sustainable investments were imposed laws and regulations that require their consideration of ESG risk factors. This share was higher among banking institutions (75 percent) and for respondents from the Philippines (93 percent). Consistent with this result highlighting the importance of policies in driving the engagement of financial institutions in sustainable finance, the majority of respondents (65 percent) indicated that engaging with regulators and policy makers was a strategic approach toward sustainable finance. These results are broadly consistent with a survey conducted by Blackrock in early 2020 of 425 investors in 27 countries (Blackrock, 2020).[4] Blackrock's survey indicated that risk-return considerations, mandate from board and management, and moral and ethical considerations were the top three drivers for adoption of sustainable investing among investors in Asia and the Pacific.

Financial institutions in the ASEAN-5 indicated that financial returns are often prioritized over sustainability considerations.[5] A majority of the financial institutions (80 percent) admitted to prioritizing financial returns over ESG considerations, although they did so to varying degrees. This result was systematically observed across countries and types of institutions (Figure 2.3). At one end of the distribution, about 20 percent prioritized financial performance over any and all ESG considerations. At the other end, about 19 percent prioritized ESG considerations over financial performance—that is, investments that have negative impacts on the environment and society are avoided, even if this means sacrificing financial returns. Such prioritization included ESG considerations not directly captured in ESG investment targets. The share of financial institutions prioritizing ESG considerations over financial returns is slightly higher in frontier countries (27 percent). This estimate for frontier economies is consistent with the results of an HSBC survey conducted in 2020 across more than 2,000 issuers and investors around the world—with 325 investors from Asia (HSBC, 2020).[6] The HSBC's survey found that, on average, 29 percent prioritized ESG considerations even if it

3 ANZ and Finance Asia received 110 responses to their online survey conducted during April-May 2021. The respondents were issuers and investors active in capital markets in the Asia and the Pacific region.

4 There were 51 respondents for Asia and the Pacific, including: Australia, Hong Kong, Indonesia, Japan, Philippines, Singapore, South Korea and Thailand. Hence, the sample size for the ASEAN-5 economies is smaller than that of the World Bank survey.

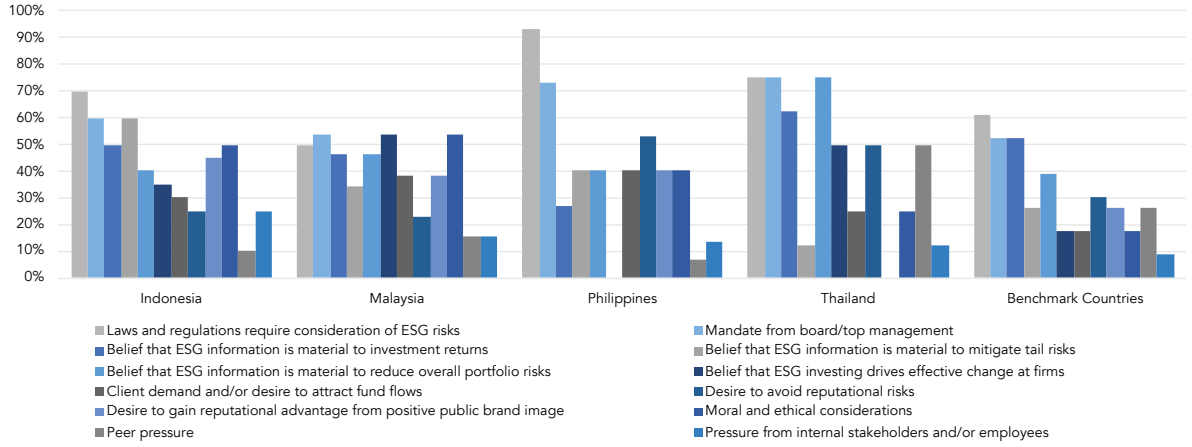
5 Various studies have provided evidence that there is a positive impact associated with sustainable investments that goes beyond the pricing of these instruments themselves. For example, Flammer (2021) and Tang and Zhang (2020) found that stock prices respond positively to the announcement of a green bond issuance.

6 The sample size of investors in the HSBC survey for the ASEAN-5 economies is comparable to the World Bank survey. The HSBC survey had 19 respondents from Indonesia, 23 respondents from Malaysia, and 19 respondents from Thailand. However, the HSBC report does not present the results for individual ASEAN-5 economies in their assessment.

sometimes required sacrificing returns (this percentage was 27 percent for the respondents from Asia, on average). Yet, the results of the HSBC survey also show that the top driver of ESG investing was the belief that incorporating ESG factors into investment decisions could improve returns or reduce risk—roughly half of the respondents made this statement.

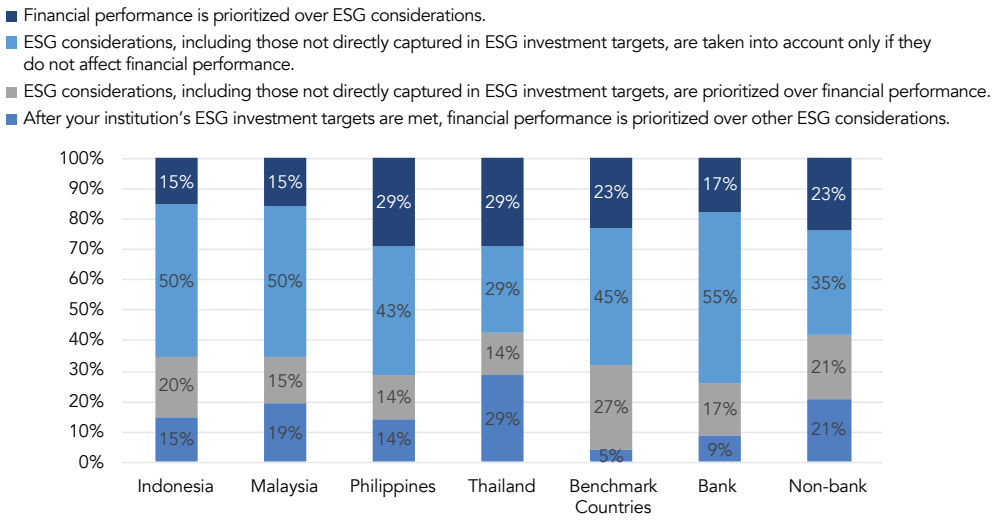
While one-fifth of the financial institutions explicitly prioritized financial returns and another fifth prioritized ESG considerations, about half of them (46 percent) fell in between these two extremes. Specifically, these financial institutions stated that ESG considerations, including those not directly captured in ESG investment targets, are taken into account only if they do not affect financial performance—that is, investments that have positive impacts on the environment and society are selected as long as they do not involve sacrificing financial returns. These results are quantitatively similar to those reported in the HSBC survey mentioned above—on average, 42 percent of global investors stated that they chose ESG-friendly investments as long as returns were not sacrificed (on average, 38 percent of investors from Asia made the same statement). The remaining respondents (15 percent) of the World Bank survey indicated that after ESG investment targets are met, financial performance is prioritized over other ESG considerations.

FIGURE 2.2
Drivers of Sustainable Investments



Note: This Figure presents the responses to Question 20 of the survey. Additional information is presented in Appendix III.

FIGURE 2.3
Tradeoffs between Financial Return and Sustainability



Note: This Figure presents the responses to Question 21 of the survey. Additional information is presented in Appendix III.

The importance of financial returns for financial institutions has motivated various empirical studies that investigate the relationship between ESG investing and financial performance. A review of the empirical literature in Whelan et. al (2021) indicates that ESG investing does not necessarily involve sacrificing financial returns, and may even offer better returns. However, there is significant variation in the observed patterns across the reviewed studies. The authors show that a positive relation was found in roughly 60 percent of the reviewed studies that focused on operational metrics (such as return on equity, return on assets, or stock prices). In comparison, 13 percent of the studies found no impact, 21 percent found mixed results, and only 8 percent had evidence of a negative relationship.[7] These empirical results should foster greater confidence in pursuing a more sustainability-focused investment strategy for both firms and investors alike.

From a risk perspective, financial institutions were cognizant of the risk of stranded assets, especially in the coal and oil sectors. A large share of the financial institutions (79 percent) believed that investments related to the coal sector have a high or very high risk of becoming "stranded" assets. That is, they as investors would be unable to recover their investment costs when holding these assets. A majority of them also reported the same concerns for conventional and unconventional oil sectors (63 and 71 percent of respondents, respectively) and the fossil-fuel electricity sector (64 percent of respondents).[8] These risks were perceived as less severe for investments in natural gas, iron, and steel sectors. This risk perception is particularly relevant to the ASEAN-5 economies, as they have a significant reliance on fossil fuel for power generation, especially coal power. As countries transition towards cleaner energy resources, investments in fossil fuel capacity, either under construction or planned, are at risk of being stranded. For example, the Philippines has planned investments in coal assets, worth US$21 billion, which are at risk of being stranded in the future (Ahmed and Logarta, 2017). While not explicitly included in the survey questionnaire, countries such as Indonesia could also be exposed to the risk of investments becoming stranded assets as a result of land use and agriculture due to increased scrutiny over deforestation activities and tightened regulations (Orbitas, 2021).

Screening approaches, through which financial institutions focus on either exclusions or inclusions of certain assets in investment portfolios, were the most often cited strategies of how sustainability is currently integrated into investment processes and decisions. This was especially true for exclusionary or negative screening. Exclusionary screening was widely adopted among financial institutions from frontier countries (81 percent) and more generally from banks (59 percent). In Indonesia, Malaysia, the Philippines, and Thailand, the practice was less commonly observed, although it was still the most often cited strategy, with 30-38 percent of the respondents confirming adoption.[9] Positive screening was adopted by 43 percent of the financial institutions in frontier countries. Similarly, 50 percent of the respondents in Thailand reported adopting positive screening. In contrast, 30 percent or less of respondents in the three other surveyed ASEAN-5 economies reported positive screening adoption. One notable exception to the low positive screening pattern in the ASEAN-5 was observed among financial institutions from Indonesia, where 40 percent of the surveyed respondents stated that their institutions currently have an impact investing approach. That is, they invest in companies that contribute to measurable positive outcomes regarding sustainability. Another notable exception is in Malaysia, where 32 percent of the respondents took an active (direct or indirect) engagement with investees through constructive dialogue and/or exercise of their voting rights on sustainable issuances.

Despite their frequent use, financial institutions' screening approaches make less of an impact on firms' actions compared to having a strategy that is based on full integration of sustainability considerations. A total of 67 percent of the surveyed market participants indicated that a full integration approach would have a very strong or a strong impact in changing the actions of investees toward more sustainable behavior. In comparison, only 42 percent believed that a negative screening approach would have a strong or very strong impact on investee firms' behavior, while 51 percent stated so for a positive screening approach. Yet, full integration of sustainability into investment processes and decisions, which incorporate management of risks, is still relatively rare among the ASEAN-5—only observed among 10 percent of the respondents in Indonesia, 18 percent in Malaysia, and 17 percent in the Philippines. This contrasts with the relatively high adoption of full integration approaches in the frontier countries (52 percent of the respondents). In addition, only 27 percent of the market participants indicated that financial institutions measure how their investment strategies trigger changes in clients' actions (toward more sustainable behavior) and in their environmental and social impacts.[10]

7 The authors examined more than 1,000 (published and unpublished) research articles from 2015 to 2020.

8 Qualitatively similar results were observed in Krueger, Sautner, and Starks (2020), based on a survey of 439 global capital market participants conducted in 2017-2018. They find that stranded asset risks are largest among coal producers and unconventional oil producers (e.g. tar sands or fracking). Iron and steel producers had half of the probabilities of being perceived as being at risk of becoming stranded assets.

9 Results from the Blackrock survey indicate that 58 percent of investors in the Asia and the Pacific region use or would use an exclusionary approach to sustainable investing.

10 However, surveyed market participants have more closely monitored and reported the impact of their own activities. Almost 90 percent of the respondents stated that their institution measures and reports their impact on societal goals associated with its business activities and/or has targets in place to reduce the negative environmental and social impacts associated with its business activities, beyond direct impacts from its own operations.

2.3 Challenges in Sustainable Finance Adoption

Deficiencies in the information environment constitute the core challenge for sustainable investments faced by financial institutions, especially for those in the ASEAN-5 economies.[11] About 88 percent of the financial institutions cited at least one challenge related to the information environment—with these shares reaching 90 percent, 92 percent, 71 percent, and 88 percent in Indonesia, Malaysia, the Philippines, and Thailand, respectively (Figure 2.4). Specific challenges, cited by financial institutions from the ASEAN-5 economies, included the complexity of sustainability metrics, the lack of comparability across firms with sustainable projects, and the costs of gathering and processing information. For example, poor quality and/or lack of research and/or reporting standards was mentioned by 30-40 percent of the financial institutions in Indonesia and Malaysia (similar to percentages observed in frontier countries), while about 20 percent of those in the Philippines and 13 percent of respondents in Thailand mentioned these issues. About 20 percent of respondents in Indonesia cited excessive information on sustainability as a top challenge for sustainable investments, whereas only 7 percent of the whole sample cited this challenge.

Our findings for the ASEAN-5 economies are similar to the results from other surveys of financial institutions across larger samples of countries. For example, Amel-Zadeh and Serafeim (2018) report qualitatively similar results based on a 2016 survey conducted among more than 4,500 global market participants. This 2016 survey found that the top-3 main factors limiting investors' ability to use ESG information in investment decisions were lack of comparability across firms (45 percent), lack of standards in reporting ESG information (43 percent), and the cost of gathering and analyzing ESG information (41 percent).[12] More recent surveys indicate that these concerns persist globally. The aforementioned HSBC survey conducted among global market participants portrayed a similar figure with investors' most common complaints related to various aspects of ESG data. For example, about half of global respondents cited lack of comparability as one of the key challenges in the information environment for sustainable finance. Similarly, the Blackrock survey indicated that the main challenge to sustainable investing relates to quality and availability of data. About 53 percent of global respondents (45 percent of those from Asia) cited the poor quality or availability of ESG data and analytics as the biggest barrier to deeper or broader implementation of sustainable investing. Moreover, 55 percent of the respondents from Asia and the Pacific mentioned the need for standard ESG measurement and methodologies.

The perceptions of deficiencies in the information environment in the ASEAN-5 are particularly relevant because some of these economies have recently issued taxonomies and/or guidelines for sustainable investments.[13] Taxonomies are a classification tool that offers a uniform and harmonized way of determining sustainable economic activities that substantially contribute to the achievement of international and national sustainability goals, while causing no harm to environmental or social objectives. They can perform a variety of functions that increase transparency in sustainable financial markets, such as supporting financial actors in making informed decisions on sustainability friendly investments and facilitating reliable and comparable disclosures relating to sustainability risks and opportunities (World Bank, 2021). According to the World Bank survey, the use of a taxonomy for sustainable investments was particularly high among the financial institutions from the ASEAN-5 economies—48 percent in Indonesia and Malaysia and 59 percent in the Philippines reported use of a taxonomy—in comparison to 38 percent in frontier countries. Moreover, consistent with widespread adoption of taxonomies among these three ASEAN-5 economies, only 23 percent of respondents mentioned the lack of definition of what constitutes a sustainable asset as a top challenge. Thailand emerged as a notable exception—13 percent of the surveyed financial institutions in Thailand reported the use of a taxonomy and 88 percent identified the lack of definition of what constitutes a sustainable asset as a top challenge.

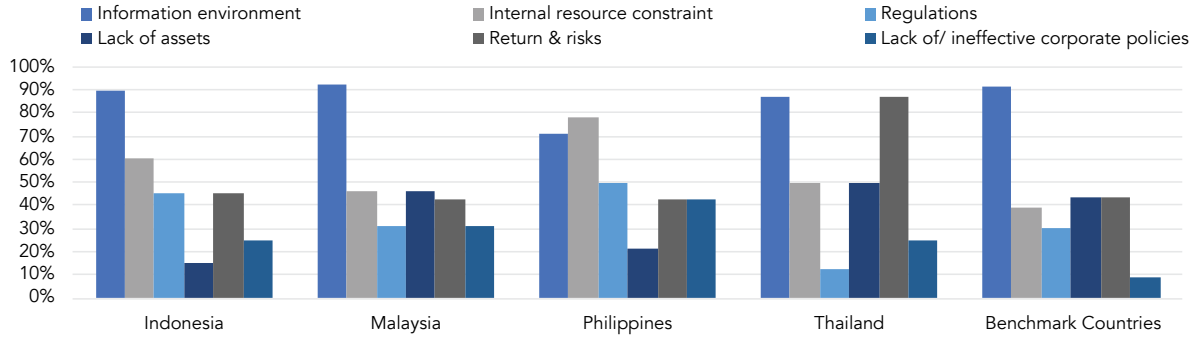
11 A discussion of financial market failures and frictions affecting sustainable investments is presented in Chapter 4.

12 The reliability of ESG scores has been put to the test by the emerging economic literature on this topic. For example, Berg et al. (2021) and Gibson et al. (2019) document large disagreement across major ESG rating providers in their evaluations of firms' ESG quality. Tang et al. (2020) show that MSCI gave higher ESG scores to firms connected to it through institutional ownership than to other firms. It is therefore not surprising that 26 percent of global investment professionals surveyed by Amel-Zadeh and Serafeim (2018) indicate concerns with ESG rating reliability, though 82 percent use ESG data in the investment processes.

13 Taxonomies remain relatively rare in the rest of the world. China, the European Union, and Singapore are exceptions as they were among the early issuers of taxonomies. In addition, in November 2021, the ASEAN Taxonomy Board (ATB) released the ASEAN Taxonomy for Sustainable Finance (ASEAN Taxonomy).

Financial institutions tend to rely heavily on internal analysis and research on sustainability, drawing from third-party certifications and borrowers' own reports for their investment decisions. Overall, 69 percent of the financial institutions indicated that either they would not invest without their own in-house research on sustainability, or they considered such in-house research capabilities to be of critical importance. Among the ASEAN-5, this reliance on internal analytics was true for 86 percent of the financial institutions in the Philippines, 78 percent in Malaysia, 63 percent in Thailand, and 50 percent in Indonesia. In addition, 66 percent of the financial institutions stated that they rely on in-house scoring systems on sustainability risks. Around 64 percent indicated that they rely on third-party certifications on sustainability as well as borrower/issuer company reports on sustainability. Similar percentages are systematically observed across all of the surveyed countries. Overall, these results are consistent with those found in the ANZ's survey mentioned above, which indicated that about 51 percent of the respondents in Asia and the Pacific have their own in-house ESG research capability.

FIGURE 2.4
Challenges Associated with Sustainable Investments



Note: This Figure presents the responses to Question 22 of the survey. Additional information is presented in Appendix III.

Since financial institutions depend, to a large extent, on their in-house capabilities and resources, internal resource constraints amplify challenges associated with gaps in climate-related information. One such constraint is the shortage of expertise to assess sustainability aspects in potential investments. A large share of the financial institutions identified internal resource constraints, including the shortage of expertise, as a top-5 challenge for sustainable investments—79 percent of the respondents in the Philippines, 60 percent in Indonesia, 50 percent in Thailand, and 46 percent in Malaysia. These percentages are higher than the 39 percent observed for frontier countries (Figure 2.4). Internal resource constraint was also more frequently cited among banking institutions (66 percent) than non-banking institutions (41 percent).

The lack of investment opportunities—arguably a private sector challenge—is as one of the top-5 challenges underlying sustainable investments. On average, about 35 percent of the financial institutions cited the lack of identifiable and/or eligible assets that match investment objectives as a top-5 challenge. This perception was held by an even larger portion of respondents in Thailand (50 percent of the respondents), Malaysia (46 percent), frontier countries (43 percent), and banking institutions across the entire sample (40 percent).

These results can be partly explained by a lack of capabilities in the private sector, such as the limited availability of technical expertise and knowledge of sustainable management practices to generate a pipeline of sustainable projects. For example, half of financial institutions perceived that opportunities for investments in climate action (including in projects related to reductions in greenhouse gas emissions) are limited, very limited, or non-existent. This perception was strong in Indonesia (59 percent) and the Philippines (69 percent). Financial market participants also identified limited investment opportunities in projects addressing social inequalities (51 percent), as well as those addressing environmental sustainability, including biodiversity (about 50 percent in Malaysia and 47 percent in Indonesia, in contrast with 37 percent in frontier countries). Consistent with the results for Indonesia, Box 7 provides evidence that the country's perceived lack of investment opportunities is particularly marked in certain segments.

Financial institutions, however, perceived that there is a significant range of investment opportunities in affordable and clean energy and/or energy efficiency. This perception was held by almost 50 percent of the financial market participants across the entire sample and around 68 percent in

frontier countries.[14] Within the ASEAN-5 economies, this perception was higher among financial institutions in Thailand (63 percent) and Malaysia (50 percent) than in Indonesia (39 percent) or the Philippines (29 percent). The results are consistent with the greater availability of sustainable assets (such as green bonds) in the energy sector than in other sectors among the ASEAN-5 economies, as highlighted in Chapter 1. In Indonesia, financial institutions believed the greatest investment opportunities were in sustainable transport and sustainable land use (47 percent), whereas in the Philippines, respondents cited opportunities related to food security and sustainable food systems (43 percent).

14 The WWF survey across banks in the region in 2019 revealed that the green financial products offered by banks focused on renewable energy and green buildings, with very limited offerings for other sectors.

BOX 7

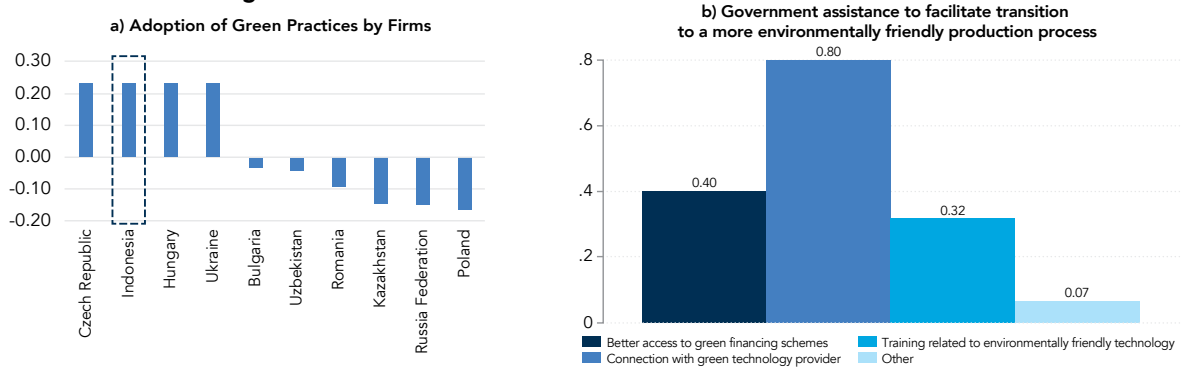
Capacity Constraints in the Private Sector in Indonesia

The Green Manufacturing Survey, a survey conducted across firms in Indonesia in 2022, yields similar perceptions of capacity constraints for firms, pointing to the lack of readiness of the private sector to go green (CCDR Indonesia, 2022). The survey shows that Indonesian manufacturing firms (particularly larger firms and those with FDI presence) have greener practices than comparable firms in Eastern European countries. However, Indonesian firms with a green strategy, dedicated energy personnel, and emission monitoring systems face significant constraints in financing climate adaptation projects. Such projects are often not perceived as bankable due to uncertain cash flow projections, lower profit margins, and lack of track records for similar green projects.

The survey results revealed that lack of awareness and local knowledge of green and sustainable projects, along with the applicable financing instruments, constituted a significant barrier to the development of sustainable finance in Indonesia. About 58 percent of firms reported that energy efficiency is not the current priority; 43 percent claimed that they do not have sufficient information on equipment for energy saving; and 33 percent reported that financial conditions were not conducive to adopt energy efficiency measures. Skill shortage is another binding constraint, with 13 percent of the firms reporting it as a barrier to adopting energy efficiency measures.

The most common self-reported constraints for firms and their demand for government support were related to information and technical capabilities. Skills and access to finance (through a green financing scheme) were the two most cited interventions for adopting greener production processes. To support their decarbonization efforts, firms listed the following three priority areas: (i) training and capacity building related to environmentally-friendly technology (80 percent of surveyed firms); (ii) better access to green financing schemes (40 percent); and (iii) connection to green technology providers (32 percent).

FIGURE B7.1
Demand-side Challenges in Indonesia



Source: World Bank's CCDR Indonesia, 2022

2.4 The Need for Policy Support

The World Bank survey asked respondents to indicate the most useful policy levers to foster the development of sustainable financial markets and influence firm behavior towards greater sustainability. Consistent with the responses identifying informational constraints as the core challenge for sustainable investments, a large majority of the financial institutions (68 percent) prioritized the development of necessary sustainable finance data infrastructures, such as monitoring, reporting, and verification (MRV) mechanisms, disclosure and reporting standards, taxonomy, and an accreditation system for rating agencies (Figure 2.5). Additionally, 34 percent advocated for more policy actions to increase awareness as well as capacity building programs. About 21 percent of the financial institutions noted the importance of support for greater participation in international networks, so as to encourage knowledge sharing and collaboration, while fostering the adoption of international best practices. The results for Indonesia, Malaysia, Thailand, and the Philippines were qualitatively similar to that of frontier countries. There was also no marked difference between banking and non-banking institutions.

Among the ASEAN-5, the need to develop MRV mechanisms to track the impact of sustainable investments was the most cited policy to improve the information environment. Between 30 and 40 percent of the financial institutions in Indonesia, Malaysia, and the Philippines identified it as one of the top-5 most useful policy incentives. This response was noteworthy, as about half of the financial institutions indicated that they currently adopt the sustainability-related disclosure and reporting requirements from their financial supervisors and have sustainable reporting in place.[15] A third of the financial institutions also indicated that they have adopted, or will be adopting, the Task Force on Climate-Related Financial Disclosures (TCFD) standards, which was more prevalent amongst bank respondents (54 percent) compared to non-bank respondents (17 percent). This may reflect the active role of banking regulators and supervisors in advocating for TCFD adoption. These results are consistent with the results of the 2021 Sustainable Banking and Financing Network (SBFN) for Indonesia, Philippines, Thailand, and Vietnam, which indicated a strong commitment from financial regulators and/or stock exchanges to adopt the TCFD recommendations for listed companies.

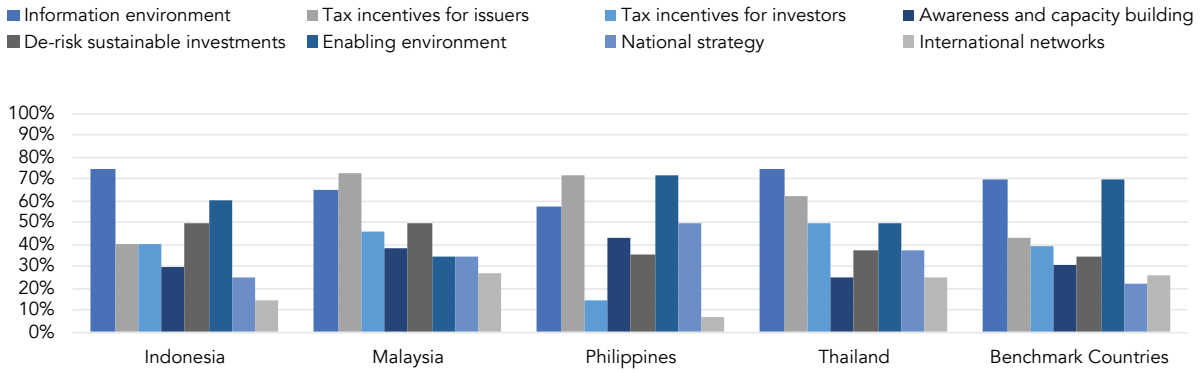
A large share of financial institutions (66 percent) indicated that some form of subsidies and tax-related policies are needed to tackle both demand-side and supply-side challenges. Some of the policies would benefit investors themselves—for example 23 percent indicated the need for tax incentives for investors and 18 percent cited the reduction in double taxations for costs associated with accreditation/certification for sustainability verification purposes. The call for such policies is consistent with investor emphasis on financial performance for their investments. The other set of specific taxation or subsidy policies focused on tackling the challenges for the private sector and incentivizing greater investment opportunities. For example, 43 percent of the financial institutions indicated the need for subsidies or tax incentives supporting sustainable projects (57 percent in the Philippines), 26 percent indicated the need for tax incentives for corporate action toward sustainability (46 percent in Malaysia), and 16 percent mentioned tax incentives for using sustainable financial assets for borrowers/issuers.

Financial institutions also indicated the need for policies to mitigate some of the inefficiencies in the marketplace. Specifically, they cited the need for policies supporting improvements in the enabling environment for sustainable finance, including financial infrastructure, policies to foster the development of new financial instruments, and programs to de-risk sustainable investments. For example, 43 percent of the financial market participants indicated, among their top-5 policy priorities, programs de-risking sustainable investments through the development of blended finance mechanisms, including the use of partial credit guarantees, and the use of enforcement measures to mitigate greenwashing risks. About 22 percent (but only 8 percent in Malaysia) indicated the need to promote market enabling conditions, such as financial regulation. About 22 percent of the financial institutions thought that more sovereign bond issuances to develop a reference benchmark would feature among their top-5 most useful policies—the share of respondents was particularly high in Thailand and among frontier countries at 38 percent and 35 percent, respectively.

15 This suggests an improvement over the results of the WWF assessment conducted in 2018, which revealed that assessed banks in the ASEAN-5 were not disclosing carbon-related metrics nor greenhouse gas emissions, as recommended by the TCFD.

The promotion of securitization of sustainable financial assets, for instance to foster the development of smaller projects by small and medium enterprises (SMEs), was indicated by about 15-30 percent of financial institutions from the surveyed ASEAN-5 economies.

FIGURE 2.5
Most Useful Policies to Foster Sustainable Finance



Note: This Figure presents the responses to Question 23 of the survey. Additional information is presented in Appendix III.

2.5 Conclusion

The survey results discussed in this chapter bring into context some of the main findings in Chapter 1 by highlighting important development opportunities and challenges for sustainable financial markets in Indonesia, Malaysia, Thailand, and the Philippines.[16]

A key takeaway from the survey is that incentives matter. First, the results point to the importance of "incentives from the top" through a top-down approach towards sustainability. Motivation for change from top management is perceived to be critical, and so are the incentives from laws and regulations enacted by policy makers. Despite the high integration of sustainability into investment decisions among the surveyed financial institutions, 50 percent or less of those in Indonesia, Malaysia, the Philippines, and Thailand indicated that there is a clear reference to sustainability in their institutions' long-term strategies. In fact, only a small share of the financial institutions acknowledged either having fully integrated sustainability considerations into their investment decisions or actually measuring how investment strategies trigger changes in clients' actions toward more sustainable behavior, and their associated environmental and social impacts. Interestingly, a full integration of sustainability considerations into investment decisions is believed to have the largest impact on firms' actions towards more sustainable behavior. These findings highlight the need for swift and strong actions by the top echelon of financial institutions and governments to foster sustainability in the financial sector.

Secondly, financial returns are at the forefront of financial institutions' investment strategies. In fact, financial performance is a fundamental driver of sustainable investments, often prioritized over sustainability considerations. Incentives for portfolio managers and lenders arguably drive this approach to sustainable investing. For instance, it is common among institutional investors to be evaluated and rewarded against portfolio performance, and such an emphasis on financial return would explain prioritizing performance over sustainability considerations.

16 It is important to take note of the composition of respondents to the survey. Small and medium-sized financial institutions made up the majority of surveyed market participants. The extent to which these institutions have behaved differently toward sustainable finance compared to larger financial institutions remains an open question that is left for future research.

Hence, an essential challenge to overcome in fostering financing for sustainability is the ability of both firms and investors to distinctly demonstrate financial returns on their sustainable investments.[17] This is particularly challenging in the context of climate change, as many benefits of mitigation and adaptation efforts are realized as avoided damages or public goods, rather than direct revenue streams (IPCC, 2022). Hence, when designing policies, the financial viability of projects and their profitability needs to receive careful attention.

Another highlight from the survey is that the ASEAN-5 economies face a combination of both demand- and supply-side challenges in fostering financing for sustainability. This is most clearly seen in the context of one of the main hindrances to sustainable investments—namely, deficiencies in the informational environment. Issues such as the lack of comparability of statistics across firms, the costs of gathering and processing information, and the poor quality and/or lack of research and/or reporting standards emerge as some of the major constraints faced by financial institutions, with clear impact for potential borrowers.

For financial institutions (the supply-side), constraints related to lack of internal resources and capabilities contribute to increased uncertainty and heightened greenwashing risks. Consistent with this interpretation, financial institutions cited screening, especially negative screening, as the most common approach to incorporate sustainability considerations into investment decision processes. Screening is a relatively simple strategy to adopt as it requires little analytical assessment. For instance, it is straightforward to screen out sectors with a negative impact on climate and the environment or to focus on "best-in-class" sectors regarding a positive impact. Hence, its widespread adoption in the ASEAN-5 might reflect limited capabilities and/or resources of financial institutions, and more broadly deficiencies in the information environment.

The results also indicate that some of the challenges stem from the private sector (the demand side), specifically the limited range of investment opportunities perceived among surveyed market participants. The analysis in Chapter 1 supports this assessment. Research shows, at least in certain debt and equity markets, that there is limited range of available sustainable assets. However, it is also possible that investment opportunities do in fact exist, but due to deficiencies in the information environment, investors are not able to effectively identify these opportunities. Thus, further analysis is warranted to determine whether key binding constraints are on the demand-side (related to lack of sustainable assets) or on the supply-side (related to lack of capabilities and resources). The answers will likely entail a combination of these factors.

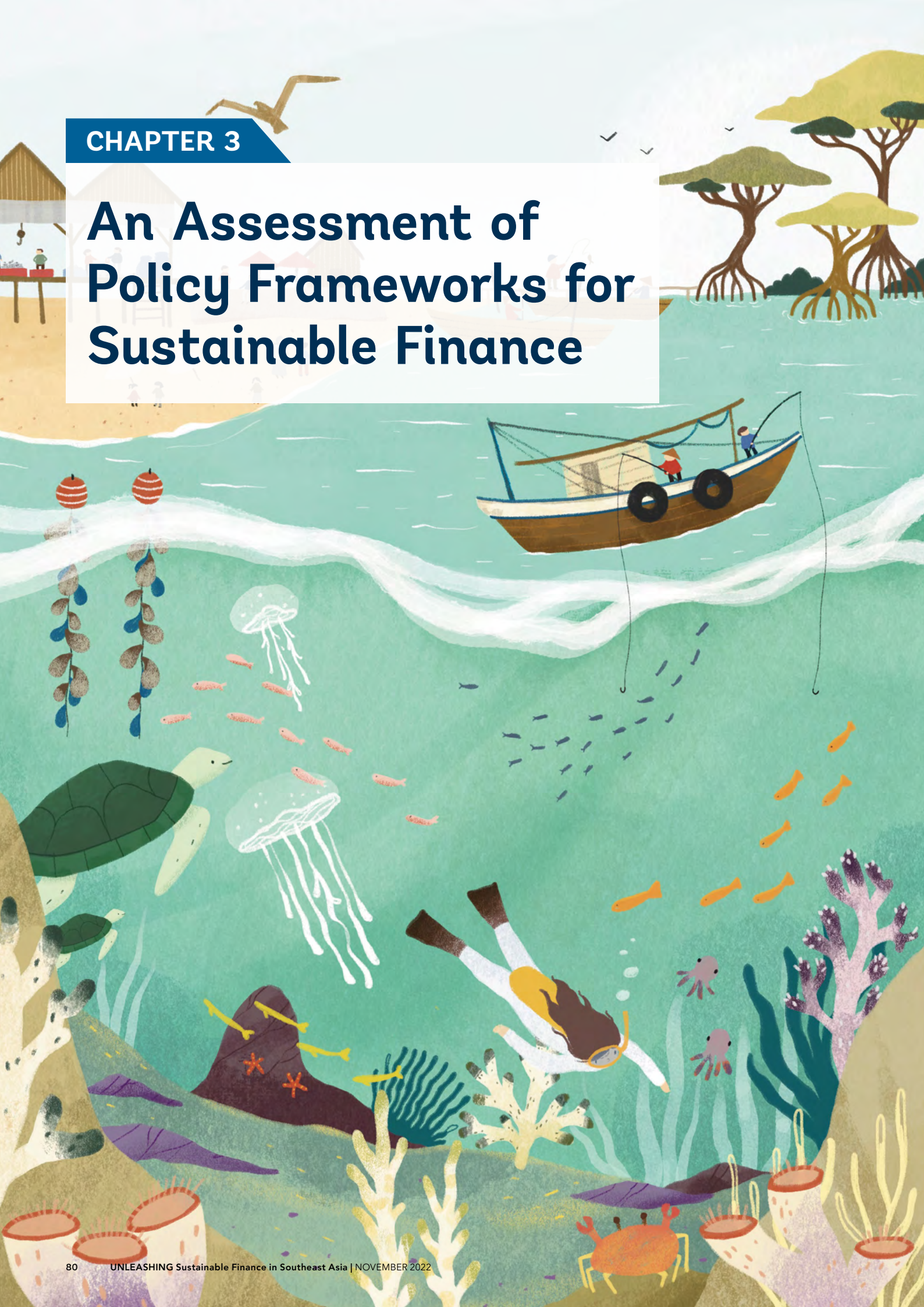
While such diagnostics are crucial in designing policies to address the challenges hindering the development of sustainable financial markets, the survey results also point toward certain policy directions that would mitigate some of the existing barriers in the marketplace. For example, prioritizing public and private sector efforts towards the development of necessary sustainable finance information and data infrastructures, and closing critical data gaps, would benefit all stakeholders. Another example is the importance of building capabilities across a wide range of stakeholders, especially because financial markets for sustainability are still at relatively incipient stages of development among the ASEAN-5 economies.

Lastly, the findings highlight that there could be sizeable distributional effects from greater adoption of sustainability considerations in investment decision processes. For example, the results of the extensive adoption of negative screening and widespread perceptions of stranded asset risks may *de facto* exclude some sectors and/or segments from critical financing sources. This in turn could create sizeable economic inefficiencies, especially so in countries in which high GHG-emitting sectors represent a large share of the economic activity. The transition toward low emissions and greater economic sustainability will likely be a lengthy one. That is, the journey will be a marathon, not a sprint. Policy makers need to carefully support those who would be the most affected during the transition. These issues are further discussed in Chapters 3 and 4.

17 Relatedly, there is still ongoing debate about whether there is a "greenium" for sustainable finance and the implications for borrowers and investors—Chapter 1 briefly discussed the evidence for the ASEAN-5.

CHAPTER 3

An Assessment of Policy Frameworks for Sustainable Finance



Key Messages

- Policy frameworks supporting sustainable financing are at different stages of advancement across the ASEAN-5, with many of the enabling policies still at an early stage of implementation. Indonesia and Malaysia often lead the ASEAN-5, yet they trail the most advanced comparator countries (China, Japan, Republic of Korea, Singapore, and the European Union), dubbed the frontier.
- The quantitative assessment of enabling policy frameworks is conducted along five pillars: taxonomies, information disclosures, incentive policies, international collaboration, and green central banking. In addition, a sixth pillar, products and markets, summarizes the assessment in Chapter 1.
- *Taxonomies.* While some of the ASEAN-5 have their own taxonomies, and all five countries have benefited from the ASEAN sustainable finance taxonomy introduced in 2021, there is still room for further development when comparing the scope of these taxonomies with that of the frontier.
- *Information Disclosures.* ASEAN-5 economies still face a sizable information gap. While some of the essential building blocks for an effective informational environment to support sustainable finance are in place, many of the policies are yet to be implemented. Moreover, disclosure frameworks have limited coverage of the private sector and do not provide adequate guidance on access and usage of data.
- *Incentive Policies.* ASEAN-5 economies have introduced a range of incentive policies for sustainable finance, each with their own sectoral focus depending on country contexts. Malaysia and Indonesia have a relatively greater set of green and sustainable finance incentive policies in place.
- *International Collaboration.* Indonesia, Malaysia, and the Philippines score the highest in this pillar through active collaboration with a number of international and market-based sustainable finance platforms.
- *Green Central Banking.* Risk assessment, management, and analysis are the most common forms of green central banking initiatives that the ASEAN-5 have undertaken, though most of the activities are pending implementation. Compared to the frontier, ASEAN-5 economies have considered a narrower range of policy options on average. However, the debate over the extent of "green central banking" remains wide open and active in policy circles around the world. The Special Focus provides a more in-depth discussion of this topic.
- Overall, the enabling policy environment matters for sustainable financial development. For instance, the ASEAN-5 economies with relatively more developed sustainable financial markets, also tend to have more developed supporting policy frameworks, especially those related to the information environment.

3.1 An Introduction to the Assessment Framework

Chapter 1 highlighted the substantial growth of sustainable financial markets across the ASEAN-5 economies, yet showed that the state of development is uneven. Chapter 2 analyzed results from a survey of financial institutions providing some evidence of the drivers and challenges investors and lenders face when engaging in sustainable investments. Chapter 3 complements the analysis from the previous two chapters by providing an assessment of policy frameworks supporting the development of sustainable financial markets.

The quantitative assessment of enabling policy frameworks for sustainable finance is conducted along five pillars: (i) taxonomies, (ii) climate and environmental information disclosures, (iii) incentive policies, (iv) international collaboration, and (v) green central banking. In addition, a sixth pillar, (vi) products and markets, summarizes the assessment in Chapter 1. The assessment framework draws from multiple national and international frameworks and roadmaps for sustainable finance. For example, the G20 Sustainable Finance Working Group (SFWG) provided a set of high-level principles in the Sustainable Finance Roadmap, launched in 2021, for scaling up sustainable finance, including principles for development of sustainable finance taxonomies, recommendations for international coordination, and improving sustainability reporting and disclosure.[1] Similarly, the Network for Greening the Financial System (NGFS) workstream on "Scaling up Green Finance" published the *Dashboard on scaling up green finance*.[2] The Dashboard presents a set of ideal indicators to track the greening of national financial systems, grouped into six categories that are well aligned with the pillars of the framework described in this chapter. For instance, the Dashboard category on capital mobilization is akin to our "products and markets" pillar, focusing on the flow of capital for the climate-related economy; the category on regulation closely aligns to the green central banking pillar; the reporting category focuses on transparency in environmental and sustainability information reporting, proxied by the Taskforce on Climate-related Financial Disclosures (TCFD) principles, thereby closely relating to the disclosure pillar; the global initiatives category maps the adoption of commitments and voluntary principles, akin to the international cooperation pillar.[3]

Taxonomies. The first pillar focuses on standards to classify sustainable activities and, in some cases, standards to classify non-sustainable activities. It builds on the principle that enhancing market transparency and increasing the understanding of economic, environmental, and social risks and opportunities are crucial to inform investment processes and facilitate the efficient allocation of capital in the transition to a more sustainable, low-carbon, and climate-resilient economy. For instance, in the absence of formally agreed-upon definitions, market actors tend to introduce their own. The result is a lack of comparability, reliability, accountability, and higher transaction costs. According to the 2021 G20 SFWG Synthesis Report, a taxonomy in the context of sustainable finance refers to definitions that provide a categorization of specific sustainable investments or economic activities within it.[4] Taxonomies may allow policy makers to set some policy priorities by providing some guidance on where sustainable investments may be needed the most.

A taxonomy offers a uniform, harmonized, and often centralized way of identifying sustainable activities. By reducing uncertainty and creating some security to investors regarding "greenwashing" risks, taxonomies can mitigate the degree of information asymmetries among market participants. They also reduce fragmentation resulting from market-based initiatives. Box 1 shows that taxonomies can indeed have an important impact on market development by prompting firms to increase their issuances of green bonds relative to conventional bonds, thereby highlighting the importance of greater transparency in sustainable financial markets (Appendix II provides a more in-depth discussion on this topic). Once adopted, taxonomies often involve a third-party verification process to ensure compliance with the standards set within the taxonomy, which might increase the transaction costs for borrowers.

1 This assessment was also informed by the World Bank Guidance Note on Climate-related and Environmental Risks and Opportunities in FSAPs. Specifically, the assessment framework in this report is aligned with the key dimensions of policy actions highlighted in that report related to the development of green financial markets (pages 46-47).

2 Dashboard on scaling up green finance, "Scaling up Green Finance" workstream of the NGFS, March 2021.

3 Note on the dashboard on scaling up green finance and data gaps, e "Scaling up Green Finance" workstream of the NGFS, March 2021.

4 SYNTHESIS report, G20 Sustainable Finance Working Group, 7 October 2021.

BOX 8

The Role of Taxonomies in Fostering Sustainable Debt Issuances

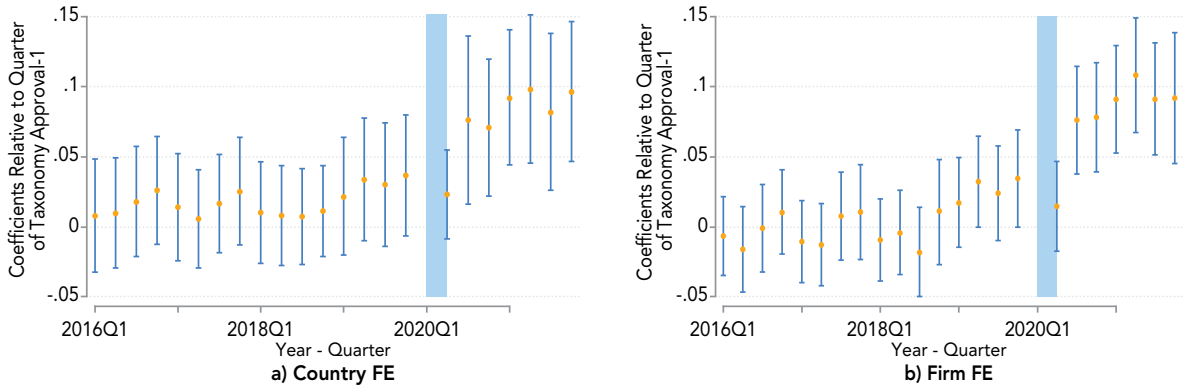
What constitutes sustainable investments? One obstacle to scaling up sustainable finance is the lack of clarity and transparency in definitions attempting to address this question. In the absence of formally agreed-upon definitions, market participants tend to adopt their own. The result is a lack of comparability, reliability, accountability, and arguably higher transaction costs. For instance, a green taxonomy offers a uniform, harmonized way of identifying environmentally-sustainable activities.[5] More broadly, taxonomies also reduce fragmentation resulting from market-based initiatives and national practices which lack coherency. By addressing the need for clarity and transparency, a taxonomy provides guidance to the financial market participants, establishing an understanding of what investments qualify as "sustainable".

Hence, the underlying hypothesis is that the adoption of taxonomies prompts firms to increase their issuance of green relative to conventional bonds. The adoption of a taxonomy is expected to foster the scaling up of debt markets for climate mitigation, adaptation, and other environmental goals by reducing uncertainty and providing investors some security regarding greenwashing risks—thus mitigating the degree of information asymmetries among market participants.

To shed light on this issue, Didier and Brutomeso (2022), in background work for this report, analyzed whether the adoption of the EU Taxonomy Regulation prompted firms in the Euro area to increase their issuance of green relative to conventional bonds, thus fostering the development of financial markets for sustainability. The regulation, published on June 22nd, 2020, was aimed at preventing greenwashing and helping investors make greener choices.[6]

The results show that the issuance of green debt relative to conventional debt increased in the aftermath of the EU taxonomy approval (Figure B5.1). After the publication of the Regulation, the propensity to issue green debt relative to conventional debt increased by about 6 percentage points for firms in the Euro area (relative to firms in non-EU countries), from a baseline probability of 4.5 percent during the quarter that the taxonomy was issued. This switch from conventional debt toward green debt financing took place both at the aggregate level (country fixed effects (FE) estimations) as well as within firms (firm FE estimations). Thus, the evidence highlights an economically sizeable impact of the implemented taxonomies for financial market development.

FIGURE B8.1
Estimated Probability of Green to Conventional Debt Issuance



Note: This figure shows the estimated probability of issuing green debt relative to conventional debt, conditional on firms issuing debt, between 2016 and 2021. The probabilities are shown relative to the estimated probability at the quarter in which the EU Taxonomy Regulation was implemented, the area marked in grey in the graph. Confidence intervals at the 95 percent significance level are also reported. Source: Authors' calculations based on SDC data.

5 A green taxonomy is a classification system to identify environmentally sustainable economic activities that substantially contribute to the achievement of international and national climate or environmental goals, while causing no harm to environmental or social objectives (World Bank, 2021b).

6 Appendix II provides more details of the adopted methodology for the analysis.

In addition to taxonomies, principle-based approaches are also recognized as tools to align investments with sustainability goals. While these approaches can adapt to evolving development frameworks and achieve more tailored goals, there is a risk of proliferation of standards. If these principle-based approaches are developed in silos, they could lead to higher transaction costs, lack of transparency, market segmentation, and increase greenwashing risks. Thus, working towards comparability, interoperability, and consistency in setting standards helps minimize costs and risks.

Information disclosures. The second pillar is focused on market transparency, looking at corporate reporting and disclosures of environmental, social, and governance (ESG) factors. Enhanced disclosures and reporting standards are the cornerstone of market development. They not only improve market transparency, but also support the decision-making processes of financial market participants, the private sector, and policy makers (including central banks, regulators, and supervisors). Access to information is crucial to raise risk awareness and foster risk pricing, develop risk management practices (including pricing of risks), support greater market discipline and transparency, foster investments, ensure that funds raised are actually used for sustainable projects, monitor impact and outcomes, and course correct when needed. It is worth pointing out that measuring performance is certainly a contentious issue. In fact, a growing number of jurisdictions have started to implement mandatory disclosures for sustainability. There is currently a debate in the literature regarding the measurement of ESG performance—such as those provided by rating agencies—as there is significant disagreement across different assessments (Berg, Kolbel, and Rigobon, *forthcoming*). To address this issue, the International Sustainability Standards Board (ISSB) was created during the COP26 to develop a comprehensive global baseline of sustainability-related disclosure standards. The ISSB is currently planning on issuing standards for capital markets by the end of 2022. Some regulators may delay further work on this front until the release of this global baseline. Overall, the inclusion of disclosure frameworks as one of the assessment pillars thus reflects its important role in promoting sustainable finance by enhancing transparency, reducing uncertainty, and mitigating greenwashing risks.

Incentive Policies. The third pillar analyzed relates to policy incentives to foster capital flows toward sustainable activities. These policies can play a critical role by recognizing and acting upon market failures and financial frictions that hinder market development, especially those specific to sustainable finance. Specifically, informational market failures can increase uncertainty, perceptions of risk, and most importantly, can lead to under-investments in greener and more sustainable projects by both firms and investors. Another relevant market failure relates to externalities and the public good nature of certain sustainable investments, especially green ones, that leads to mispricing of benefits, costs, and risks. For example, investments in green projects can bring social benefits that are not internalized and captured by those making these investments. Furthermore, some sustainable projects are not commercially feasible—e.g., because of their high-risk profile and/or large scale, they are not attractive to private lenders. Policy interventions can and must play a critical role by recognizing and acting upon these market failures and financial frictions that affect sustainable financial market development. Three broad types of policy measures have been adopted to tackle these financial frictions: targeted (fiscal) incentives, non-targeted incentives (e.g., supporting the enabling environment), and prudential incentives. Incentive policies can also be important in the early stages of sustainable financial market development as they can signal policy commitment from governments in fostering market development, thereby enhancing confidence and trust among market participants.

International collaboration or coordination. The fourth pillar of the policy framework assessment analyzes international collaboration, as participation in sustainable finance international networks, through platforms like the NGFS, IPSF, and G20, can be leveraged to support countries' efforts to foster sustainable financial markets. Specifically, participation in these networks can help enhance knowledge sharing and dissemination of best practices, increase awareness across a wide range of stakeholders, signal policy commitment, and help build capacity across participating stakeholders. These benefits can be particularly important for developing countries, helping them leapfrog through market development with faster learning facilitated by the experience of other countries. Participation in international forums can also enhance policy coordination. In some instances, these forums can even jumpstart policy action towards sustainable financial development by rallying stakeholders towards common goals. In addition, cross-border collaboration can facilitate jurisdiction-level coordination to foster market development, generate greater understanding of differences in institutional frameworks across countries, and minimize risks. This is particularly important when firms, including financial institutions, operate across multiple jurisdictions. Sharing lessons

and best practices can help countries move from blueprints to large-scale action, creating a thriving financial landscape for sustainability.

Green central banking. Central banks are in a key position to support the development of sustainable financial markets due to their regulatory and supervisory roles over money, credit, and the financial system. The primary mandate of central banks usually relates to price stability, employment, and/or financial stability, and they have developed a wide array of tools to achieve these policy goals. Central banks could embrace a climate-related policy agenda given the impact climate change and environmental risks have on price and financial stability, and thus on output. Furthermore, central banks often have a strong institutional standing among policy makers in many developing countries, and thus can lead the agenda to foster sustainable finance. Nonetheless, there are cautionary arguments against central banks undertaking a role in explicitly supporting sustainable finance. For instance, the adoption of the green agenda by the central banks could undermine their ability to maintain price stability. A more in-depth assessment of this pillar is presented in the Special Focus.

Lastly, the pillar on products and markets summarizes the evidence discussed in Chapter 1. In doing so, the assessment framework in this chapter helps us put into perspective the extent to which policy frameworks have supported financial market development. It sheds light on the extent to which policies have either supported or discouraged market development. It also highlights possible challenges and barriers for further market development. In future work, this pillar could be taken one step further to provide an assessment of the availability of innovative financial products in the marketplace. Well-functioning sustainable financial markets should make available to borrowers a suit of financial products and services at affordable prices, covering not only financing instruments but also risk-mitigating tools and advisory services, among others.

3.2 Data Sources and Processing of Data

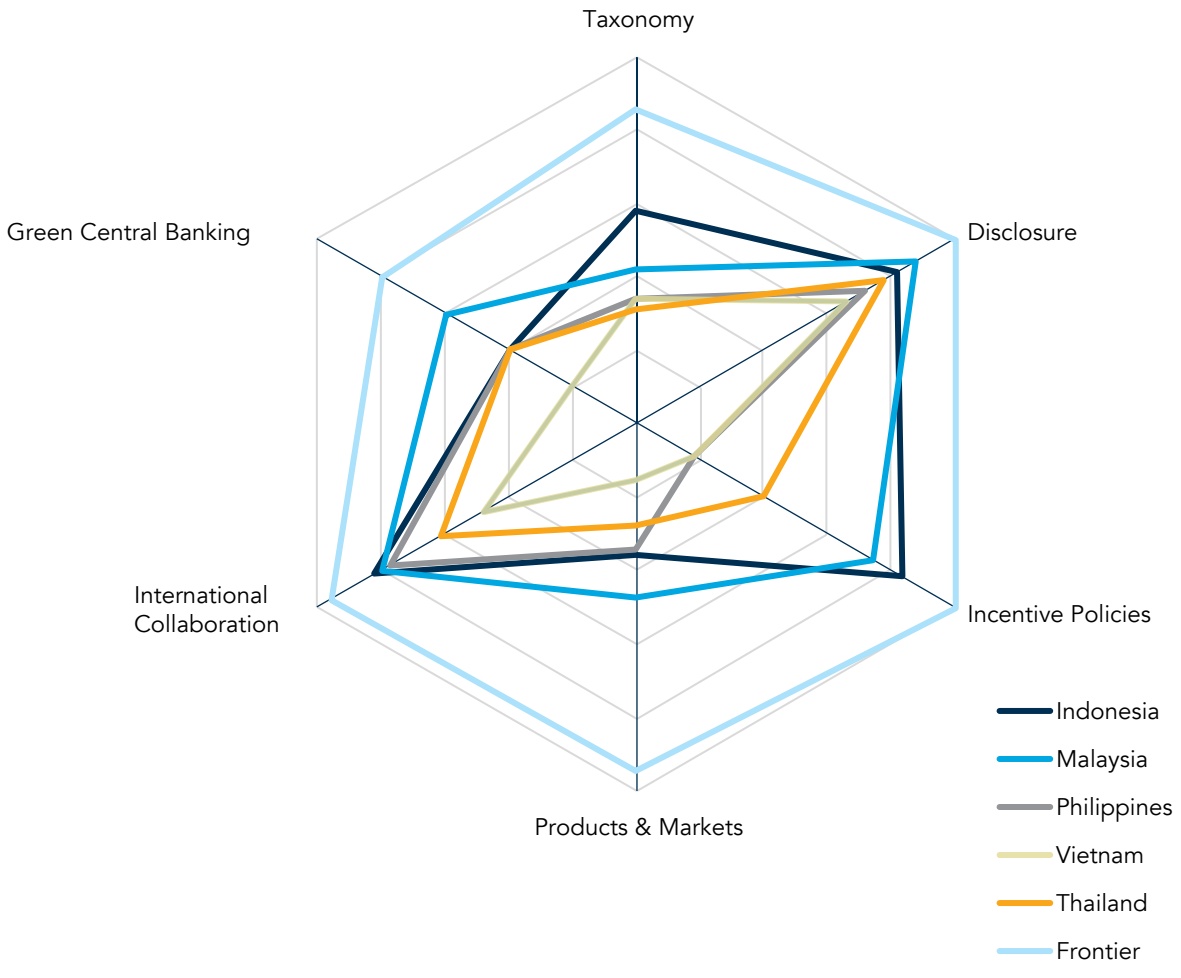
The main objective of the assessment framework in this chapter is to collect and compare information about the state of development of countries' policy frameworks. This assessment was based on publicly-available information (which was complemented with a set of interviews with central banks in the region). The assessment of the enabling policy environment is based on a quantitative-based framework using a binary system—0 for no action and 1 if actions were identified. In addition, it takes into account the different stages of policy/market development and distinguishes between implemented actions versus actions under development, or actions yet to be implemented. The quantitative analysis encompasses 76 indicators across the six core pillars of the framework. The indicators were selected based on data availability and cross-country comparability. A detailed description of the indicators used in this assessment under each of the six pillars is discussed further in Section 3.3 and in Appendix IV. The data reflect the stance of policy frameworks as of April 2022. To a large extent, the information was collected from publicly available sources, including information released by governments and companies, along with press releases issued by the media, and reports published by research institutions and international organizations. The sample of countries covered were the five ASEAN-5 and a set of benchmark countries—namely, China, Japan, Republic of Korea, Singapore, and the European Union. The best performer among this set of benchmark countries is referred to as the "frontier" in this chapter. This set of benchmark countries reflects an *ex-ante* perception of having relatively more developed sustainable financial markets and/or supporting policy frameworks.

3.3 Overall Assessment Results

The quantitative assessment of policy frameworks reveals significant variation in the extent of development across the ASEAN-5 economies in all pillars (Figure 3.1). Indonesia and Malaysia tend to have more developed policy instances for the development of sustainable financial markets, aligned with international best practices, across most of the pillars evaluated. They stand out from the other three ASEAN-5 economies in the taxonomy pillar. Vietnam tends to have less developed policy frameworks than the other countries in the group. The results also show a close relation between the development of policy frameworks and the degree of sustainable financial market development—captured in the "Products and Markets" pillar. The ASEAN-5 economies with relatively more developed sustainable financial markets—especially Malaysia—also tend to have more developed enabling policy frameworks.

Frontier countries often have more developed policy frameworks than the ASEAN-5, especially when best practices are taken into account. The assessment, however, reveals a bigger quantitative gap in the products and markets pillar than in policy frameworks suggesting that other factors may also be at play.

FIGURE 3.1
Assessment of Policy Frameworks for Sustainable Finance in the ASEAN-5



Source: Authors' calculations based on CBI, Pitchbook, WDI, and local sources.

3.4 Detailed Assessment across Pillars

3.4.1 Taxonomy

This pillar considers both taxonomies and principles-based approaches, recognizing their important roles in aligning investments with the various sustainability goals. The assessment for this pillar is based on both general and content-based indicators to reflect on the adopted approaches and focus on the sustainability factors that have been considered in the developed standards, such as climate mitigation and adaptation, along with social, biodiversity, and transition elements. The general indicators examine whether a country has developed a national taxonomy, and if not, whether the country is planning to establish one as per written strategic documents, such as a national development report. Indicators also examine whether a country has a principle-based approach to identify sustainable assets, or whether the country has adopted, or is planning to adopt, a regional taxonomy or an internationally recognized taxonomy. There are also indicators capturing whether the national taxonomy is aligned with a regional taxonomy or with internationally recognized taxonomies by using a unified language and methodology; and whether the taxonomy could be used as guideline for the development of other policies related to sustainable finance, such as action plans and development strategies. In terms of the content-based indicators, the compulsory nature of the taxonomy is also considered an element of the assessment. In this regard, some jurisdictions have taken steps to gradually move from voluntary to mandatory adoption in order to support sustainable activities in the context of transitioning toward a greener and low-carbon economy. The assessment examines whether a country has a national transition taxonomy or whether transition factors are involved in the sustainable taxonomy. If the country does not have a taxonomy, it assesses whether transition-related principles have been issued. In addition, this pillar assesses the sustainable objectives defined in the taxonomy, and examines whether it supports major international sustainability policy goals, such as the Paris Agreement and the SDGs.

Overall Assessment

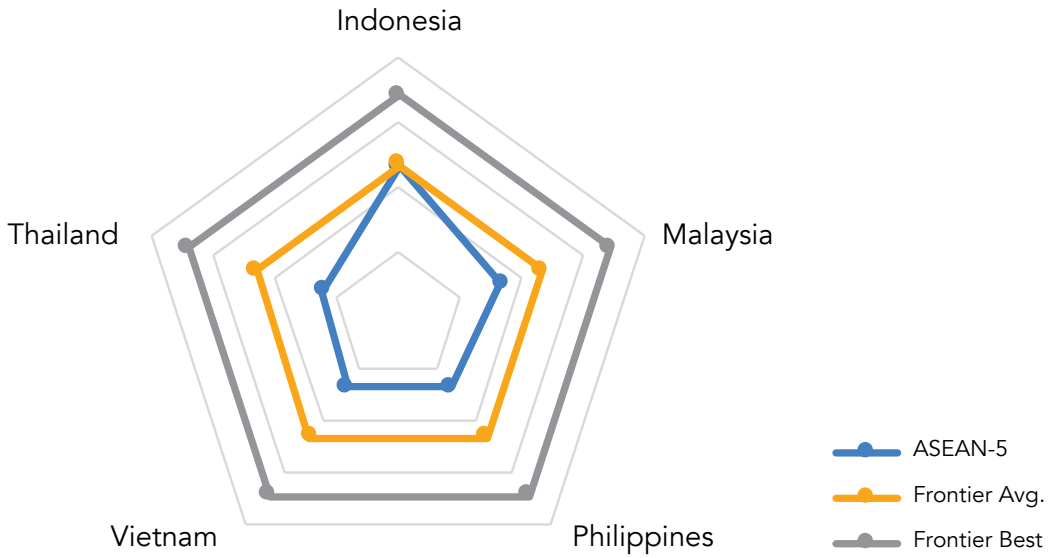
The in-depth evaluation of taxonomies reveals that, while all five countries have benefited from the ASEAN sustainable finance taxonomy introduced in 2021, there is still scope for further development (Figure 3.2). Among the five Southeast Asian countries covered in this assessment, only Indonesia has developed and issued a national taxonomy with a detailed classification for certain activities. In April 2021, Malaysia issued the Climate Change and Principle-based Taxonomy (CCPT), which is a principles-based approach, but lacks a detailed industry classification and technical thresholds. Malaysia's Sustainable and Responsible Investment (SRI) Taxonomy, currently under consultation, will be the national taxonomy for the capital market. The Philippines has indicated, in its Sustainable Finance Roadmap, that the country plans to develop its national taxonomy. Thailand is also developing a taxonomy for sustainable finance, and a third-party analysis reveals that Vietnam also has its national taxonomy under development.

Currently, the existing taxonomies and principles-based approaches within the ASEAN-5 tend to draw lessons from the ASEAN taxonomy or the EU taxonomy. Anecdotal evidence indicates that some market participants have already issued sustainable finance products in accordance with domestic- or internationally-recognized taxonomies. For instance, the Indonesian taxonomy adopts a dynamic classification and recognizes its limitations in environmental aspects coverage by allowing the users to apply internationally accepted and voluntary standards as supplements. The CCPT introduced by Malaysia's central bank in April 2021, adopts a nurturing approach and encourages alignment with other classification systems that both helps avoid disruptive exclusions and improves the data, report, and verification qualities. Malaysia's proposed capital markets taxonomy—the SRI Taxonomy—covers a broader scope by incorporating transition and social components.[7]

7 Securities Commission Malaysia. Public Consultation Paper – Principles-based Sustainable and Responsible Investment Taxonomy for the Malaysian Capital Market (2021).

Taxonomies and principle-based approaches in frontier countries tend to be more developed than those in the ASEAN-5. Indonesia currently only has detailed classifications for palm oil plantation and mining, while Malaysia's CCPT divides economic activities into three major categories, but does not address specific thresholds for the concerned sectors. In addition, the environmental objectives in Indonesia's taxonomy and in Malaysia's principles-based approach are more similar to the initial environmental objectives of the EU taxonomy, focusing more on climate change adaptation and mitigation, while other aspects such as circular economy, pollution control, and biodiversity are not yet covered in depth. The established national taxonomies analyzed have focused not only on pure green activities, but also included transition activities in their definitions. In terms of social and transition factors, the social taxonomy is only published or under development in China, the EU, and Malaysia, while other countries have mentioned social factors in cases studies or in principles.

FIGURE 3.2
Taxonomy Pillar



Source: Authors' calculations based on local sources.

Individual Country Assessments[8]

Indonesia. Indonesia released its national green taxonomy in 2022, based on the Indonesia Standard Industrial Classification (KBLI). It is similar to the ASEAN taxonomy in that it categorizes economic activities into green, yellow, and red through four principles, including the responsible investment principle, the sustainable business strategy and practice principle, the social and environmental risk management principle, and the governance principle (Figure 3.3).[9] Indonesia's taxonomy is voluntary; it recognizes its limitations by encouraging the use of other complementary internationally recognized taxonomy. Nonetheless, the taxonomy serves as a tool and helps the government formulate its fiscal policy and development planning, as well as plan and monitor the implementation of Indonesia's commitments to mitigate climate change and promote sustainable development.[10]

8 The results of the assessment presented in this draft for individual countries are not exhaustive. They do not list whether each country has met each of the 125 indicators in the assessment framework. Instead, the report gives some relevant facts about each country in each pillar. Appendix IV provides more details about the set of indicators considered in each pillar.

9 Indonesia Financial Services Authority (OJK) and Integrated Financial Services Sector Policy Group (GKKT). Indonesia Green Taxonomy Edition 1.0.

10 Sustainable Finance Indonesia – The Future of Finance. Sustainable Finance Roadmap Phase II (2021-2025).

FIGURE 3.3
Indonesia's Taxonomy

	Green *(do no significant harm apply minimum safeguard, provide positive Impact to the Environment and align with the environmental objective of the taxonomy).*	*Business activities that protect, restore, and improve the quality of environmental protection and management, as well as climate change mitigation and adaptation, and comply with the governance standards by government, and apply best practices at both the national and international level.*
	Yellow *(do no significant harm).*	*Determination of business benefits for environmental protection and management must still be conducted through measurement and support of other best practices.*
	Red *(Harmful activities).*	*The business activities do not meet the yellow and/or green criteria/threshold.*

Source: Indonesia Green Taxonomy Edition 1.0.

Malaysia. Malaysia released its principles-based approach for financial markets taxonomy in 2021, which considers the state of its own economic development and the early stage of adoption of climate risk management practices within the country, while allowing better alignment with international classification standards. It serves as guidance for policy formulation, prioritization, and allocation of funds. The CCPT has five principles and classifies economic activities into three main categories—climate supporting, transitioning, and watch list—though it does not provide specific thresholds for the sectors concerned (Figure 3.4).[11] Similar to Indonesia's taxonomy, the CCPT covers not only green activities, but also some transition activities, with the remediation of transition as one of its principles.

In addition, the taxonomy also contains a selection of use cases with a specific classification of economic activities in the form of examples, where some cases take social responsibility, health, and transparency into considerations. Malaysia has also published a proposed capital markets taxonomy (SRI Taxonomy issued by the Securities Commission Malaysia) that is currently in its consultation phase, which has four major categories–environment, transition, social, and sustainability—but also does not provide specific thresholds for the concerned sectors. There will, however, be broader components about the environmental objectives in the SRI compared to the CCPT, like biodiversity ecosystem and circular economy.

FIGURE 3.4
Malaysia's CCPT Taxonomy

Classification		Economic Activity (Transaction Level)		Overall Business	
		GP1 Climate Change Mitigation	GP2 Climate Change Adaptation	GP3 No Significant Harm to the Environment	GP4 Remedial Efforts to Promote Transition
Climate Supporting	C1	GP1 or GP2 or both		✓	
Transitioning	C2	GP1 or GP2 or both		✗	✓
	C3	✗		✗	✓
Watchlist	C4	GP1 or GP2 or both		✗	✗
	C5	✗		✗	✗

Source: Climate Change and Principle-based Taxonomy.

11 Central Bank of Malaysia. Climate Change and Principle-based Taxonomy (2021).

Philippines. The Philippines does not have a national taxonomy for sustainable finance, but its Securities and Exchange Commission has issued Guidelines for Green, Social, and Sustainable Bond Issuance based on the ASEAN Bond Standard.[12] The country has declared that improving sustainable finance and creating a principles-based taxonomy are essential for its national strategic plans to develop sustainable finance. Some work has already been accomplished which shows representative sectors and corresponding environmental objectives will be patterned after the EU's green taxonomy. However, the Philippines own green taxonomy, as planned in the Philippines Sustainable Finance roadmap, is envisioned to be principles-based and aligned with the ASEAN Taxonomy.

Thailand. Thailand is developing a taxonomy for sustainable finance, and the country's current green, social, sustainability bonds and sustainability-linked bonds are compliant with the ASEAN, International Capital Market Association (ICMA), Loan Market Association (LMA) and the Climate Bonds Standards (CBS).[13,14] The need for a national taxonomy or standard has been recognized by market players. For example, the Securities & Exchange Commission (SEC) issued the Guidelines on Issuance and Offer for Sale of Green Bond, Social Bond and Sustainability Bond, requiring the issuer to comply with internationally-recognized standards and submit compliance certificates for its securities offering issuance. Nevertheless, Thailand established the Sustainable Financing Framework in July 2020, outlining six eligible categories of green projects and seven categories of social projects that can be financed with government loans or expenditures, with the ambition to support its sustainable commitments.[15] The framework aligns with the principles and standards issued by the ICMA, ASEAN and LMA.[16] These principles would be used to determine the financing and/or refinancing of expenditures directly related to certain expenditure categories, including clean transportation, renewable energy, energy efficiency, and some social categories, including employment generation, access to essential services, and food security. The framework also includes a negative list for activities to be excluded from its eligible categories.

Vietnam. Vietnam does not have a national sustainable taxonomy. In 2012, the Decision on Approving the National Strategy on Green Growth was approved by Vietnam's Prime Minister, which listed issuing standards on specific economic sectors, and green/eco-labeled products as some of the implementation solutions to move towards a low-carbon economy. An update has been published—the Green Growth Strategy 2021-2030—and the government is currently preparing its Action Plan for implementation. A third-party analysis reveals that the country's Ministry of Natural Resources and Environment, the State Bank, and the Ministry of Finance are currently developing a taxonomy, which is expected to be aligned with the EU Taxonomy. The government has publicly stated that it prioritizes green and sustainable finance development, particularly the development of a green bond market. Consistently, in January 2022, the Government issued a decree providing a legal framework for green finance covering: (i) green bonds issued by sovereign, subnational, and corporate entities, (ii) green credit/banking, and (iii) green public spending.[17] The State Bank of Vietnam introduced the Green Project Catalogue in April 2017 and has prioritized green projects/sectors into six categories. However, further sectorial definitions and product-level classifications could be developed.

3.4.2 Information Disclosures

This pillar assesses the landscape for sustainability-related disclosures. The regulations, either voluntary or mandatory, considered in this section cover at least one aspect of the environment, social, governance, and economic factors related to sustainable development. In other words, in addition to the general sustainability reporting with broader thematic focuses (such as those championed by the Global Reporting Initiative (GRI)),

12 Guidelines for Green, Social and Sustainable Bond Issuance.

13 Green, Social, Sustainability Bond & Sustainability-linked Bond, The Thai Bond Market Association.

14 Working Group on Sustainable Finance (WG-SF) – GBRW consulting and the IFC. Sustainable Finance Initiatives for Thailand.

15 The Sustainable Financing Framework reflects in its list of eligible social projects the challenges brought on by the pandemic crisis.

16 The Green Bond Principles ("GBP") and the Sustainability Bond Guidelines ("SBG"), issued by the International Capital Market Association (ICMA) in June 2018, and the Social Bond Principles ("SBP"), issued by ICMA in June 2020, the ASEAN Green Bond Standards ("GBS"), the ASEAN Social Bond Standards ("SBS"), and the ASEAN Sustainability Bond Standards ("SUS"), issued by the ASEAN Capital Markets Forum (ACMF) in October 2018, and the Green Loan Principles ("GLP") issued by the Loan Market Association (LMA) in May 2020.

17 Decree 8/2022 on Elaboration of Select Articles of the Law on Environmental Protection.

disclosures on individual thematic areas are also being considered in this section, such as environmental disclosure, climate (TCFD-aligned) disclosure, and Corporate Social Responsibilities. This pillar primarily examines mandatory disclosure regulations. This pillar selects indicators mainly to review regulatory actions in mandating sustainability disclosure requirements, informing future policy designs, and identifying the interconnections between regulatory incentives and market practices. The focus on mandatory disclosures does not indicate that voluntary disclosures are less effective. In fact, voluntary disclosures may be an adequate first step for some jurisdictions, especially when there are concerns about the costs of adoption. Instead, the focus on mandatory disclosures reflects best international practices relating to disclosure frameworks.

Overall Assessment

There have been clear efforts from regulators across all ASEAN-5 economies towards enhancing sustainability-related disclosure frameworks (Figure 3.5). The ASEAN-5 economies started factoring sustainability elements into corporate reporting in mid-2010 and have updated the national requirements as international sustainability reporting has evolved. In fact, regulators have proactively updated mandatory disclosure requirements, providing greater clarity about the scope and granularity of information to be disclosed. Regulators have also reinforced their commitments to enhance sustainability-related disclosures and have actively engaged with leading international initiatives on this agenda. For instance, of all the sustainability topics, climate-related disclosure has been actively promoted and mainstreamed in the region, as shown by increasing endorsement from regulators of the TCFD recommendations. Yet, so far, only Malaysia announced its official plans for mandatory TCFD-aligned climate disclosures among financial institutions, which is to begin in 2024 and continue onwards.

To date, all ASEAN-5 economies have mandatory sustainability reporting requirements in place targeting listed companies. Furthermore, Indonesia and Vietnam have explicitly extended the mandatory requirements to a wider set of stakeholders, such as financial institutions, public companies, and bond issuers.[18] Indonesia, the Philippines, and Malaysia have legally binding disclosure requirements in the form of national laws or acts.[19]

The structures and key components of national sustainability disclosure frameworks share common traits among the ASEAN-5 economies. All five countries have specified the required content, the timing of the report publication, and reporting channels. They also provide supplementary guidance that can be used as references in their disclosers. All countries, apart from Malaysia, have provided a reporting template as part of their respective guidelines. Regarding monitoring and evaluation of sustainability reporting, only Indonesia requires disclosers to monitor and provide feedback on issues in the previous year's report. Malaysia and Vietnam expressly require disclosers to undergo verification and assurance procedures before publishing a sustainability report.

While some of the essential building blocks for an effective informational environment to support sustainable finance are in place, many of these policies are at an early stage of implementation. There is significant variation in the scope of disclosure requirement application as well as the extent to which they are implemented and enforced across countries.[20] Importantly, a key missing aspect in national disclosure frameworks among the ASEAN-5 is a clear indication on the access and usage of data. How different stakeholders should optimize the published sustainability reports, and the extent to which they should do so, remains unclear. The value of sustainability reporting only manifests itself when it contributes to the decision-makings of regulators, investors, and other stakeholders.

The frontier countries are at various levels of development of sustainability-related disclosure frameworks. The top performers are China and the EU, though each has different strengths in their disclosure system. The EU leads the way on sustainability disclosure from the regulatory actions and market performance perspective. China has built a wholesome sustainability

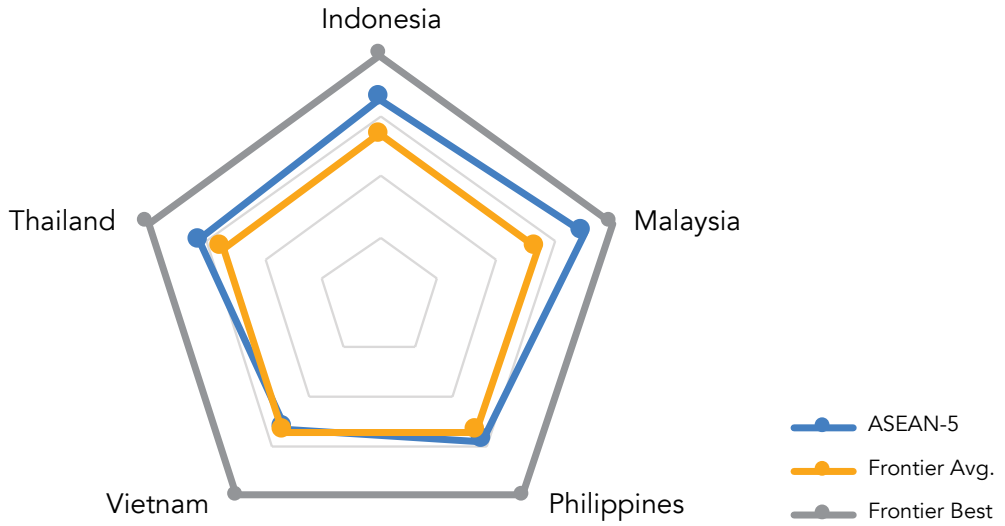
18 Indonesia Rule No.51/POJK.03/2017 mandated financial services institutions, issuers, and public-listed companies to develop and submit SF action plans and/or publish sustainability reports. Indonesia Number 60/POJK.04/2017 requires annual reports from green bond issuers. Vietnam Circular No.155/2015/TT-BTC asks public companies to produce an annual report disclosing their environmental and social impact and objectives regarding corporate sustainability.

19 Although none of the national laws on disclosure encompasses all elements of sustainability, i.e. social, environmental, and economic. *Indonesia Law No.40 Article 74* on company CSR disclosure; *Malaysia Environmental Quality Act amended in 2012* on environmental disclosure; *The Philippines Corporate Social Responsibility Act* 2011.

20 Some market participants in the ASEAN-5 economies have not only followed national requirements, but also voluntarily adopted international frameworks.

disclosure regime, with detailed reporting content, timelines, processes, and a dedicated specialist system to document the submitted reports. The ASEAN-5 economies, especially Indonesia, are keeping up with China and the EU on the design of disclosure policy requirements. However, the frontier countries have shown more deliberate actions to promote mandatory climate/TCFD-compliant disclosure than the ASEAN-5 economies.

FIGURE 3.5
Disclosure Pillar



Source: Authors' calculations based on local sources.

Individual Country Assessments

Indonesia. The regulatory efforts on promoting sustainability reporting started several years ago in Indonesia. In 2017, the financial regulator, OJK, mandated financial institutions, issuers in capital markets, and publicly-listed companies to publish sustainability reports through regulation No. 51/POJK.03/2017.[21] The regulation mandated financial institutions, issuers, and publicly listed companies to develop sustainable finance action plans and publish them in their annual sustainability report. The implementation of these mandatory sustainability disclosures, however, has occurred through a phased approach, with different sizes and types of entities implementing disclosures over various timelines. For instance, all listed companies were required to release sustainability reporting starting in 2020, while other types of financial institutions, such as insurance companies, were not required to publish sustainability reporting until 2025.[22] This regulation also highlights companies' internal monitoring and evaluation process—for instance, it asks disclosers to respond to issues identified in the previous year's report. No similar requirement exists in the other ASEAN-5 economies nor among frontier countries. TCFD-aligned climate disclosures have received limited attention thus far and adoption of such TCFD recommendations is not planned by Indonesian regulators and policymakers. On the private sector side, 10 organizations have officially stated their support for the TCFD recommendations.

Malaysia. Policymakers in Malaysia have demonstrated their determination on enhancing sustainability disclosure through a series of regulatory actions. National regulations on sustainability reporting date back to 2006, when Bursa Malaysia (the stock exchange) introduced a corporate social responsibility (CSR) framework to guide listed companies in developing their CSR strategies. The stock exchange launched the country's first ESG index in 2014 that complied with global ESG frameworks such as CDP and GRI. In 2015, Bursa Malaysia amended its listing rules to require listed companies to include narrative statements on the management of material economic, environmental, and

21 Indonesia Sustainability Series: Obligation to Submit Sustainability Report in 2021.

22 Indonesia OJK No.51. https://www.ifc.org/wps/wcm/connect/bab66a7c-9dc2-412f-81f6-f83f94d79660/Indonesia+OJK+Sustainable+Finance+Regulation_English.pdf?MOD=AJPERES&CVID=lVXU.Oy

social risks and opportunities. The listing requirements concerning sustainability disclosure were further updated in 2018, complemented by a Reporting Guide and a set of six detailed toolkits. Compared to other countries (frontier countries included), Malaysia has the most comprehensive guidance enabling listed companies to disclose more effectively.

The ongoing mandatory sustainability reporting regime in Malaysia—the *listing requirements for public companies*—is unique in its components that underscore the quality assurance of the reporting. First, this provision highlights the importance of internal quality control of the reporting entities, asking for verification and assurance procedures to be taken by companies before publication. Second, the regulator has played an active role in ensuring the effectiveness of the reporting mechanism. Bursa Malaysia conducts an annual review and makes recommendations on sustainability reports to assure compliance and quality. This reporting requirement has resulted in high corporate disclosure rates among listed companies. According to KPMG's 2020 Survey of Sustainability Reporting, the rate of listed company sustainability reporting in Malaysia reached 99 percent, outperforming most countries in Asia and the world. In addition, Malaysia is the only country within the ASEAN-5 that has officially declared its plan to make TCFD-aligned disclosures mandatory. Bank Negara Malaysia has set expectations for financial institutions to fully comply with TCFD disclosures by 2024.

Philippines. The SEC institutionalized CSR disclosures as part of annual reports through the Corporate Social Responsibility Act, which was enacted in 2013. In 2019, SEC issued the regulation Memorandum Circular No.4, which requires listed companies to publish sustainability reports on a "comply or explain" basis for the first three years, allowing businesses to adjust to the new disclosure requirements. More than 90 percent of listed companies have begun submitting sustainability reports as of the end of 2021.[23] However, the disclosure framework does not include a MRV process. In addition, the Philippines has not supported TCFD-aligned disclosures and financial regulators have not announced plans to do so. Unlike stock exchanges in the other ASEAN-5 economies, the Philippines Stock Exchange is the only exchange not supporting the TCFD recommendations.

Thailand. Thailand has developed policy provisions and guidelines to promote sustainability reporting. The Thai government expanded the Corporate Governance Code in 2017 to integrate the long-term sustainable value creation as part of corporate board responsibilities. The Code also raises the expectations of "appropriate" sustainability reporting from companies. In 2020, the Stock Exchange of Thailand (SET) delineated mandatory ESG disclosure requirements for the listed companies to include information about social and environmental impact.[24] One unique feature of the current disclosure framework in Thailand is that all reports are to be uploaded in the SET Information Disclosure System, which is monitored and reviewed by SET.[25] Similar application of such an online platform to collect and review sustainability reports exists in China. In Thailand, there is a narrow scope for targeted sustainability disclosures—mandatory disclosures only apply to the listed companies. Moreover, Thai financial regulators have not revealed any plans for endorsement of the TCFD recommendations.

Vietnam. The policy infrastructure for sustainability reporting in Vietnam has been developed in partnership with international organizations, such as the International Finance Corporation (IFC). The State Securities Commission of Vietnam (SSC) issued the Sustainability Reporting Handbook for Vietnamese Companies in 2013, encouraging companies to start sustainability disclosures on a "report or explain" basis.[26] Two years later, the Ministry of Finance's Circular No.155/2015/TT-BTC mandated public companies to report on their environmental and social impacts and objectives. This provision specifically asked for assurance and verification processes before companies published their reports, an incentive to ensure better disclosure quality. Supplementary guidance—the Environmental and Social Disclosure Guide—was provided by the SSC and the IFC in 2016. The disclosure provisions in Vietnam are based on the GRI reporting standards. In addition, the Ho Chi Minh Stock Exchange launched the GRI standards in Vietnamese to support local businesses in strengthening their sustainability reporting. On climate disclosure, only four Vietnamese companies have officially stated their support for the TCFD recommendations, and there is no official report from policymakers.

23 Mandatory ESG Disclosure is the Right Move for the Philippines. October 2021.

24 SET Updates Annual Report Filing Forms, 2020.

25 Form 56-1 One Report, 2020.

26 The Sustainability Reporting Handbook for Vietnamese Companies. 2013.

3.4.3 Incentive Policies

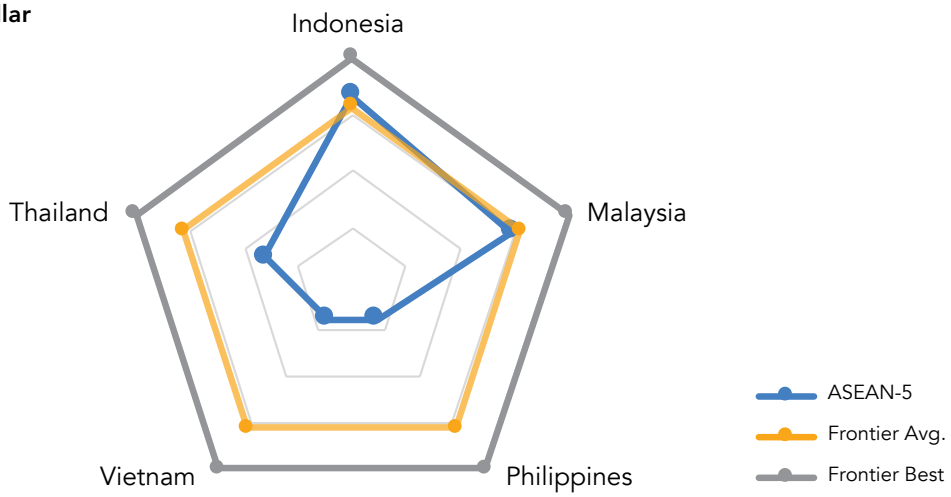
The analytical framework for incentive policies supporting both investors and firms is based on qualitative information. Indicators used for this pillar include general indicators and content-based indicators. The former focuses on country-level metrics and evaluates the extent of awareness, perceptions, and attitudes toward incentive policies for sustainable finance from a macro perspective. These general indicators also evaluate the degree to which policy incentives have been implemented. From a micro perspective, content-based indicators are focused on the type of adopted policies, including transparency, credit enhancements, direct support mechanisms, lending facilities for green finance, and internationalization of green financial markets. This pillar does not intend to examine the quality of incentive policies or their effectiveness, nor does it give an endorsement for their adoption. In fact, if incentive policies are not properly designed to tackle specific frictions and market failures, they can have distortionary effects, potentially creating more harm than actual benefit. That is, this pillar does not intend to suggest that "more incentives are unequivocally better". Moreover, this pillar does not comment about whether policy incentives for sustainability could be dwarfed by non-green and non-sustainable incentives, such as those that encourage carbon emissions (e.g., fossil fuel subsidies). Instead, this pillar provides an assessment on the extent to which incentive policies have been adopted as a signaling of the government's commitment to support sustainable finance.

Overall Assessment

The use of incentive policies for both firms and investors is widespread among the ASEAN-5 economies, especially in Indonesia and Malaysia. Each of the five ASEAN economies has introduced a range of incentive policies for sustainable finance with their own sectoral focus depending on country context (Figure 3.6). Malaysia and Indonesia have a relatively greater range of green and sustainable finance incentive policies. In contrast, the Philippines, Thailand, and Vietnam have fewer fiscal incentives and no incentives for issuers of sustainable financial products. It is also important to note that deficiencies in the enabling environment supporting financial systems more broadly in the ASEAN-5 arguably constrains the range of policy incentives. These issues are further discussed in Chapter 4.

Incentive policies are widely implemented among frontier countries, except for the Republic of Korea. In fact, a few governments have established a specialized organization/department or mechanism dedicated to support sustainable finance. The ministry of finance, ministry of environment, or a working group consisting of several ministries, typically lead these efforts in developing policy incentives. In addition, frontier countries have implemented a number of supporting schemes, such as the Sustainable Bond Grant Scheme (SBGS) and the Green Finance Action Plan by the Monetary Authority of Singapore, or provide strategic guidance, such as China's *Guidance on Establishing Green Financial System* which also included a range of high-level incentive and supporting mechanisms.

FIGURE 3.6
Incentive Policies Pillar

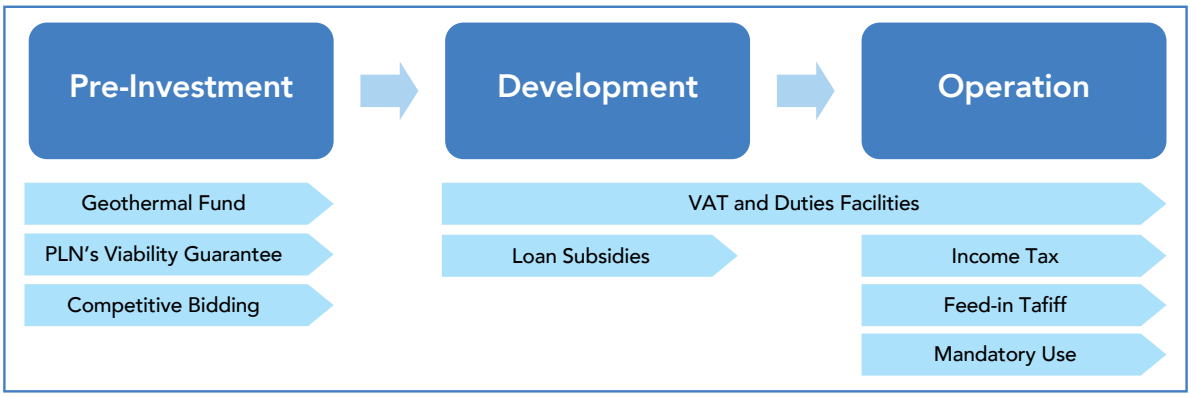


Source: Authors' calculations based on local sources.

Individual Country Assessments

Indonesia. Indonesia scored highest among the ASEAN-5 economies in this pillar, indicating that it has a wider range of policies in place to support sustainable finance. OJK issued a Sustainable Finance Roadmap in 2014 that provided a forward-looking agenda covering targeted and non-targeted fiscal and non-fiscal policy incentives as well as regulatory support. In 2017, OJK released the Sustainable Finance Umbrella Policy indicating the creation of additional incentives and providing for administrative penalties. The country currently has a mix of specific tax-related incentives, country-level incentives policies, and prudential green policies in place that combine financial sector policies with policies to support the development of sustainable projects. For example, Figure 3.7 illustrates the range of incentive policies for green projects in Indonesia, including loan subsidies. Regarding carbon tax policy, Indonesia Law No. 7 (2021) introduced a carbon tax, which will be applicable on carbon emissions that have a negative impact on the environment. This tax is expected to be implemented in 2022.[27] Moreover, Indonesia allows the recognition of foreign law (e.g., English Law) for locally-issued green bonds which aims at fostering the participation of offshore issuers and investors in domestic capital markets.

FIGURE 3.7
Investment Incentives for Green Projects in Indonesia



Source: Investment Incentives for Renewable Energy: Case study of Indonesia.

Malaysia. The country has a relatively comprehensive set of strategies and policies for sustainable finance. Its government showed global leadership by establishing the Green SRI Sukuk Grant Scheme—one of the first global examples of an incentive to support green sukuk issuance.[28] The country has also implemented policies, such as tax-exemption and tax-deduction, for sustainable investments. In addition, Malaysia has provided subsidies for the initial issuance costs in capital markets in the form of a tax-exempt grant for both foreign and domestic issuers, regardless of currency of debt issuance, provided it is issued in local markets in Malaysia. In September 2021, the prime minister announced that Malaysia is considering carbon tax adoption. The Budget 2022 announcement in October 2021 also mentioned the establishment of a Low Carbon Transition Fund for SMEs by the central bank, which was subsequently rolled out in February 2022.[29]

Philippines. There are very few incentives policies currently in place in the Philippines, and carbon taxes have not been publicly discussed. There is a tax and other fiscal incentives for issuers and investors in sustainable bond markets to encourage market development.

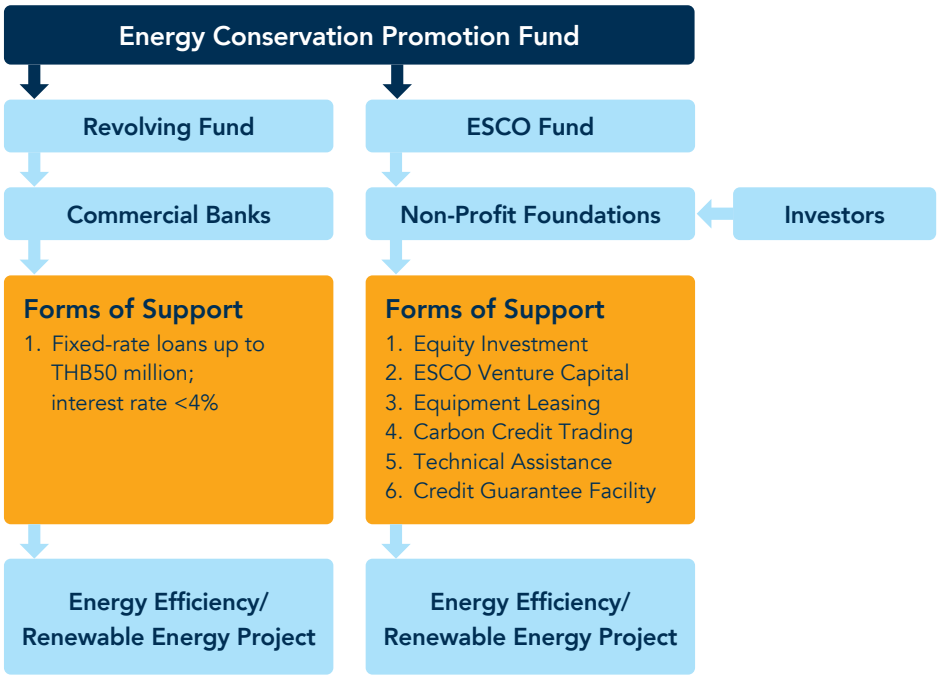
Thailand. The Thailand Board of Investment offers tax and non-tax incentives to domestic and international investors to invest in sustainable transport in Thailand, including rail development. The Thai bond market association has reduced registration fees for green bond issuances. Thailand has not considered carbon taxation. Thailand has also established several funds for

27 Indonesia: Carbon tax, corporate tax measures enacted, KPMG United States.
28 The Malaysian Sustainable Finance Initiative (MSFI), SRI Sukuk and Bond Grant Scheme.
29 Malaysian 2021-2025 plan, a fixed charge will be imposed on carbon content.

supporting renewable energy and green infrastructure. Among these funds, the Energy Conservation (ENCON) Fund is an important financial mechanism provided by the government to facilitate renewable energy and energy efficiency development in Thailand (Figure 3.8).

Vietnam. Vietnam has a limited set of incentive policies for sustainable finance. For example, the State Bank of Vietnam (SBV) issued Directive No.03 on promoting green credit growth.[30] Vietnam has also introduced a subsidized interest rate policy (1-3 percent lower than market rates) for green investments. In addition, Vietnam provides financial incentives for renewable energy sectors. The government has not considered carbon taxation.

FIGURE 3.8
Thailand's ENCON Fund



Source: Adapted from Asia-Pacific Economic Cooperation.

3.4.4 International Cooperation

The analytical framework for international collaboration has two sets of indicators, namely, general indicators and participation indicators in international platforms and initiatives. The general indicators focus on various cross-border cooperation engagements at the national level, including bilateral engagements and collaboration with regional and multilateral organizations, with the goal of promoting sustainable finance. The participation indicators are grouped into: (i) inter-governmental engagement capturing participation in international forums; and (ii) private sector engagement, capturing their sustainable platforms and initiatives, such as the Sustainable Banking and Finance Network (SBFN), Global Green Finance Leadership Program (GFLP), and SSE, among others.

Overall Assessment

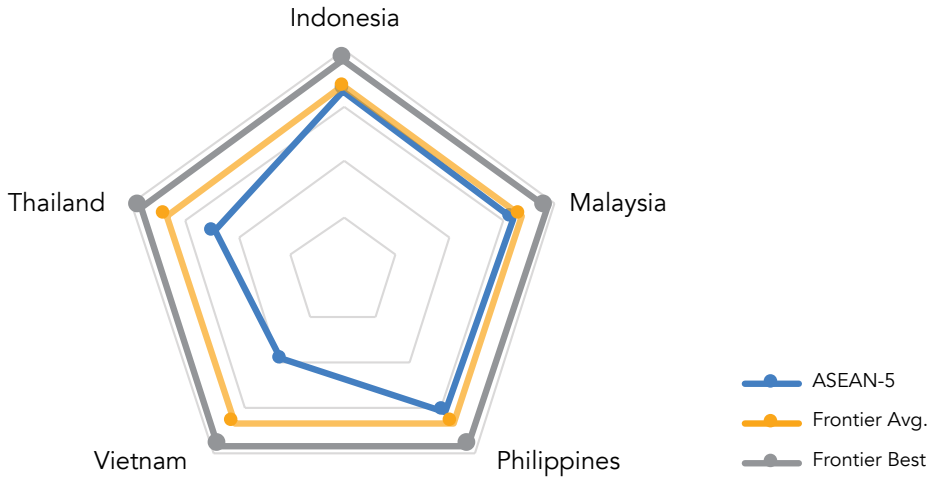
Indonesia and Malaysia score the highest among the ASEAN-5 in the international cooperation pillar, although their scores are only on par with the average across the set of comparator countries and are noticeably below the frontier (Figure 3.9). The two countries have had active engagement in a number

30 The State Bank of Vietnam, Directive on promotion of green credit growth and management of environmental and social risks in credit extension.

of international and market-based sustainable finance platforms, and have also collaborated with multilateral development banks and international organizations to promote sustainable finance. In contrast, Vietnam and Thailand have had less engagement, both in terms of general participation in sustainable finance platforms and participation in intergovernmental and market platforms and initiatives.

Beyond Indonesia's co-chair of the Coalition of Finance Ministers for Climate Actions, there is limited evidence that the ASEAN-5 have taken a leading role at the global level through international networks, particularly when compared to the frontier. The frontier takes a more active role in driving discussions and setting the policy agenda. For example, both China and the EU are founding members of the International Platform for Sustainable Finance (IPSF) and the NGFS; and China has been co-chairing the G20 Green/ Sustainable Finance Study/Working Group since 2016. Both economies are leading by example in many other areas, including, but not limited to, the development and comparison of their green and sustainable finance taxonomies, i.e., the Common Ground Taxonomy. However, Indonesia and Malaysia, in particular, do play a more prominent role in regional forums.

FIGURE 3.9
International Cooperation Pillar



Source: Authors' calculations based on local sources.

Individual Country Assessments

Indonesia. Indonesia has had active participation in international forums and platforms within the sustainable finance space. The country is one of the front-runners in supporting sustainable finance development in Southeast Asia. At the national level, Indonesia has supported the SFWG under its G20 Presidency in 2022. OJK is a member of the Sustainable Banking and Finance Network (SBFN), the International Platform for Sustainable Finance (IPSF), and the ASEAN Catalytic Green Finance Facility (ACGF). OJK has also joined with the Worldwide Fund for Nature (WWF), and eight major Indonesian banks launched the Indonesian Sustainable Finance Initiative (ISFI). The Ministry of Finance is a member of the Climate Action Finance Ministers' Alliance. At the corporate level, Indonesia's financial institutions are participating in major inter-institutional sustainable finance-related platforms/initiatives.

Malaysia. Malaysia has also actively engaged in international cooperation platforms and initiatives. At the national level, its central bank is a formal member of the NGFS, and the Ministry of Finance is a member of the Coalition of Finance Ministers for Climate Action. Financial institutions in Malaysia have also been actively participating in a number of sustainable finance platforms, including the Global Green Finance Leadership Program (GFLP), an international capacity building platform launched by Beijing Institute of Finance and Sustainability. Among the countries assessed in this chapter, Malaysia has the highest number of signatories to the Principals for Responsible Investment (PRI). In an effort to participate in international discussions on sustainable finance, Bank Negara Malaysia released the Green Classification Act discussion paper in 2019. Aligning its national development goals with the Paris

Agreement, Malaysia serves as co-chair of the ASEAN Capital Markets Forum (ACMF) Sustainable Finance Working Group and has played an important role in advancing the development of sustainable finance in the region.

Philippines. The Philippines has shown some evidence of inter-governmental cooperation, but their private sector has demonstrated participation performance similar to Malaysia and Indonesia. At the national level, the Philippines has participated in the Sustainable Banking and Finance Network (SBFN). The Department of Finance has joined The Coalition of Finance Ministers for Climate Action. For international conferences, the Philippines hosted the Manila International Sustainability Summit in 2019, and the Bankers Association of the Philippines organized the second National Dialogue Forum in collaboration with the WWF of the Philippines, the Association of Development Finance Institutions in Asia and the Pacific (ADFIAP), and the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP). At the corporate level, the Philippine private sector has been involved in eleven of the sixteen categories of international organizations, platforms, or initiatives considered in this assessment, including the SBFN, the International Capital Market Association (ICMA), the NGFS, and the United Nations Environment Programme – Finance Initiative (UNEP FI) Principles for Responsible Banking (PRB).

Thailand. Thailand has only recently started engaging in international forums and generally has displayed a lower level of engagement than some of the other ASEAN-5 economies. At the country level, the government has joined platforms such as the G20, the SBFN, and the NGFS. Market players in the country have also participated in the GFLP and the PRI.

Vietnam. Vietnam is in a similar position as Thailand, standing behind some of the more active ASEAN-5 economies. With regard to intergovernmental platforms, Vietnam only has presence in the SBFN. At the corporate level, Vietnam has entities participating in the GFLP, and three Vietnamese financial institutions signed the PRI. There is no available evidence indicating that Vietnam has held any major sustainable finance-related conference, initiative, nor established sustainable finance platforms. The Global Green Growth Institute has cooperated with Vietnam on sustainable finance development research.

3.4.5 Green Central Banking

This assessment of green central banking practices in the ASEAN-5 economies evaluates whether authorities have undertaken, or plan to undertake, policy tools in: credit operations, collateral policies, reporting and disclosure, risk assessments, asset purchases, and foreign reserve management.[31] These indicators lay out the scope of modern central banking activities and examine whether these tools have been used to foster sustainable finance. Consistently, the Network for Greening the Financial System (2021) points out that adjustments could be considered across the main operational functions carried out by central banks for the purposes of implementing monetary policy. It should be emphasized that the extent to which "green central banking" practices should be implemented remains a wide-open debate in policy circles around the world. This section provides a brief assessment of this pillar. A more in-depth discussion is provided in the Special Focus.

Overall Assessment

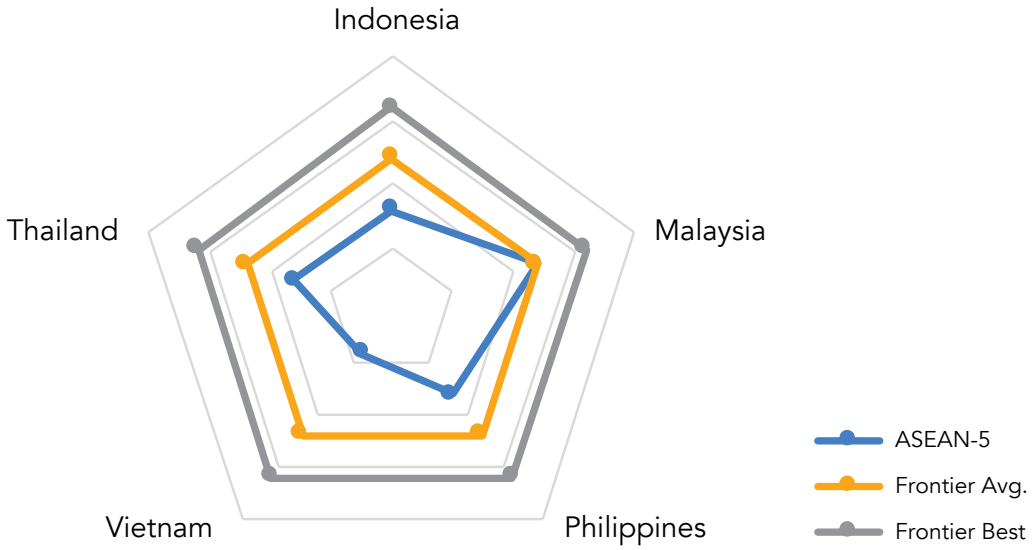
Risk assessment, management, and analysis are the most common forms of green central banking initiatives seen among the ASEAN-5, with all five central banks engaging in some of these activities (Figure 3.10). Malaysia and the Philippines have also initiated climate-related reporting and disclosures, while Thailand has engaged in prudential requirements. Vietnam has implemented risk assessments. However, most of the policy initiatives in the region are still in their development phase, pending implementation. No central banks in the ASEAN-5 economies engaged in green bond purchases, but Malaysia is contemplating green foreign reserve management, a novel policy development in the EAP region. Allowing central banks to adopt a greater set of objectives to support sustainable finance could potentially undermine their ability to achieve price stability; however, relatively

31 Different from the indicators in the disclosure pillar, the reporting and disclosure indicators for the green central banking pillar focus solely on indicators that central banks could design as requirements for financial institutions.

low inflation rates in the ASEAN-5 suggest that central banks in the region could adopt such an agenda without undermining their primary mandate.

Compared to the frontier countries, the ASEAN-5 economies have considered less green central banking policy options on average, and have implemented a smaller fraction of the policy options. In the frontier countries, green central banking initiatives consist primarily of credit operations, reporting and disclosures, and risk assessment, while collateral or prudential requirements have also been explored by certain jurisdictions. Overall, policy options that promote sustainable objectives without infringing upon central banks' core mandates are typically discussed more frequently and implemented more often by monetary authorities around the world. As one gets to the core monetary policy tools (e.g., policy rates and asset purchases), the argument against green central banking tends to prevail, with a lower range of actions being undertaken.

FIGURE 3.10
Green Central Banking Pillar



Source: Authors' calculations based on local sources.

3.4.6 Products and Markets

The analytical framework for markets consists of two sets of indicators: indicators capturing the depth of sustainable financial markets (value of debt and equity financing scaled by GDP) and indicators capturing access to sustainable finance (number of companies that raised capital through sustainable debt and equity markets). These indicators provide a summary of the analysis conducted in Chapter 1, thus the following analysis is subject to the same limitations.

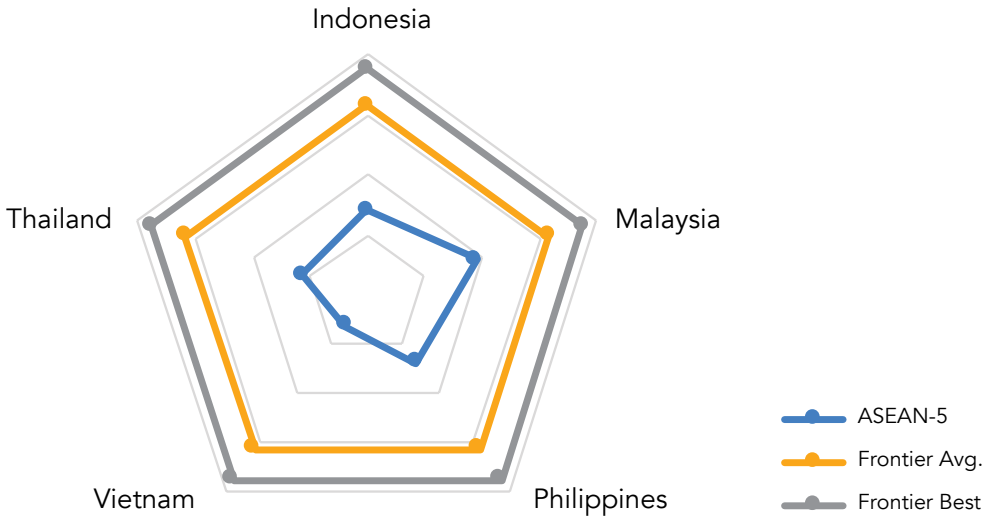
Overall Assessments

Reflecting the results in Chapter 1, the assessment framework in this chapter shows that sustainable financial market development in the ASEAN-5 lags behind the more developed economies of the frontier (Figure 3.11). The results also highlight marked differences in the extent of development of sustainable finance among the ASEAN-5—with sustainable markets in Malaysia, Indonesia, and the Philippines being more developed than those in Thailand and Vietnam.

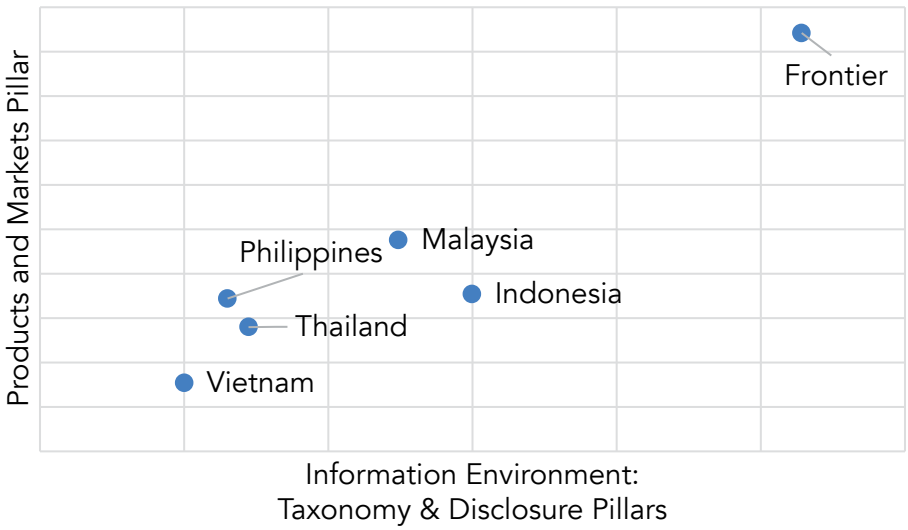
Importantly, while there is significant heterogeneity across the ASEAN regarding both the development and implementation of the enabling environment and the state of development of sustainable financial markets, a pattern emerges. As shown in Figure 3.11B, ASEAN-5 economies with relatively more developed markets—especially Malaysia—tend to perform better in supporting policy frameworks, especially those related to the information environment.

FIGURE 3.11
Products and Markets Pillar

A. Across the ASEAN-5



B. Correlation across Pillars



Source: Authors' calculations based on local sources, CBI, and WDI.

3.5 Limitations of the Assessment

Availability of country information. Although the research team has made substantial efforts to get the needed data and information for this assessment, there still is a possibility that the heterogeneity among the ASEAN-5 economies is partially caused by the availability of country-level information—possibly due to language barriers, lack of a thorough understanding of the local financial market, and regulatory frameworks. For example, the analyses for China and the EU may have yielded higher scores because information on the sustainable development agenda in the two economies is the easiest to access.

Availability of information also restricted the assessment of the products and markets pillar. A thorough assessment of the range of available products in the marketplace was particularly challenging. The research team decided not to include this particular assessment due to lack of comparability across countries in the range of information obtained. Stylized Fact 10 in Chapter 1 sheds some light on this dimension.

Limitations of the scoring method. In most cases, the assessment framework uses a binary system (0 for no action and 1 for actions identified) to represent conditions that are met or not met. The assessment also incorporated situations in which countries considered developing, or were planning to implement, a policy, by creating separate indicators to capture such developments. The assessment framework thus gives some weight to the planning stages, distinguishing those from situations in which the policies have already been introduced and implemented. However, due to data availability, as countries may not publicize information on on-going policy developments, these ongoing, or yet to be completed, policy developments may not be fully covered and scored in the assessment in this chapter.

Limitations of the assessment framework. The pillars of the assessment framework are believed to have broadly supported the development of sustainable finance in many countries, but it is not a "golden rule" for all countries, as each country is in a different stage of development in terms of both its overall economy and financial market. In particular, green central banking deserves more careful consideration of a country's context and stage of development. What's more, this section is a contemporary analysis and the key pillars supporting the sustainable market may change over time in the future and may not be applicable to all countries and regions.

Implementation and enforcement of regulations. It is important to highlight that this chapter's scoring methodology does not consistently reflect the extent to which the specific policies have been fully implemented and/or are being enforced. For instance, the framework does not capture the extent to which the regulatory approach is "voluntary", "comply or explain", or "mandatory." Differences in the approach across countries are explained in the text when the information is available.

3.6 Conclusion

This chapter provided an in-depth assessment of policy frameworks in the ASEAN-5 economies in a comparative setting against a set of frontier countries. The results shed light on some of the underlying factors behind the uneven development of sustainable finance among the ASEAN-5 economies. The results reveal marked differences across the ASEAN-5 economies in almost all pillars, with Indonesia and Malaysia often having more developed policy frameworks than Vietnam. **The key takeaway is that the enabling policy environment matters.** Countries with relatively more developed sustainable financial markets tend to have more developed policy frameworks. For instance, among the ASEAN-5, Malaysia has relatively deeper sustainable financial markets, and enabling policy frameworks. Vietnam trails behind in both the enabling environment and sustainable financial market development.

CHAPTER 4

Conclusions and Policy Implications

Key Messages

- Although sustainable financial markets in the ASEAN-5 economies have developed rapidly in recent years, they remain small, with limited reach and concentrated in the energy sector. The potential for further sustainable development in ASEAN-5 financial markets is largely untapped.

- Fostering sustainable financial market development will require a deliberate and holistic approach to catalyze private investments. Policy interventions can and must play a critical role by mitigating market inefficiencies that can lead to under-investments in sustainability, by both firms and investors alike.

- Sustainability in financial systems entails addressing two interrelated challenges: (i) management of climate and environmental risks to the financial sector; and (ii) capital mobilization for sustainable investments. While this report has focused on the latter, policy makers need to consider the recommendations in this report in light of this broader and more complex policy landscape.

- Policy makers in the ASEAN-5 economies must "REACT" to mobilize private capital towards sustainability. The five REACT policy priorities are:

  (i) ***R**eadiness*: A key policy priority focuses on mitigating the investment challenges for creditors and investors.

  (ii) ***E**nabling environment*: Policy makers need to foster a supportive enabling environment to broaden financial market development.

  (iii) ***A**nalytics*: Policy makers must continue to improve the informational environment and close critical data gaps by focusing on effective policy implementation.

  (iv) ***C**apabilities*: Capacity building efforts should be an integral part of the agenda to foster sustainable finance.

  (v) ***T**ransition*: While fostering sustainable finance, policy makers should pay close attention to ensure a "just transition."

4.1 Introduction

Although previous chapters have shown that sustainable financial markets in the ASEAN-5 economies have developed rapidly in recent years, they remain tiny overall with limited reach and concentrated in the energy sector. It is evident that financial markets are far from fulfilling the funding needed to achieve their various sustainability goals—ranging from the SDG targets to net-zero aspirations of the ASEAN-5. Countries are still at the stage of trying to grow from "millions to billions, then onwards to trillions." Thus, developing financial markets for sustainability must remain at the forefront of the policy agenda. The agenda of the G20 Sustainable Finance Working Group, under Indonesia's Presidency in 2022, indeed emphasizes the lack of access to sustainable finance as a key challenge to be tackled by policy makers.

The landscape for sustainable finance is marked by financial frictions and market failures that can lead to under-investments, by both firms and investors alike. For example, one such market failure relates to externalities and the public good nature of green investments that leads to mispricing of benefits, costs, and risks. These externalities are not necessarily negative—for example, investments in green projects can bring social benefits that are not internalized by those making these investments. For instance, consider the beneficial effects that more energy efficient transportation has on lowering pollution at the city level and the associated potential benefits to the health of its citizens. Analogously, costs may also not be internalized. For example, when environmental costs are not internalized, there may be over-investments in non-environmental-friendly sectors, such as those that cause environmental damages.

There are also barriers to market development related to inefficiencies in the enabling environment. Many of these barriers relate to deficiencies in the informational environment. For instance, the G20 SFWG notes a lack of clarity on standards or definitions of sustainable assets, a lack of transparency or disclosures of environmental information, a lack of awareness on environmental risk and investment opportunities for green projects, and a lack of capacity to prepare and invest in green projects, among others. Informational market failures can increase uncertainty, perceptions of risk, and can also lead to under-investments in greener and more sustainable projects. Setting standards reduces uncertainty and provides security to firms and investors regarding greenwashing risks, thereby mitigating the degree of information asymmetries among market participants. Indeed, the evidence in Chapter 3 shows a sizeable positive impact on sustainable financial market development when markets implement taxonomies. Such an impact was specifically noticeable in the adoption of the EU Taxonomy Regulation, which prompted firms in the Eurozone area to increase their issuance of green bonds relative to conventional bonds. This switching effect was found only in firms affected by the new regulation, and not in firms in other jurisdictions. Importantly, the ASEAN-5 economies face a challenging informational environment, marked by information asymmetries and other informational frictions—most notably a sizeable data gap. The empirical evidence presented in this report highlights informational frictions as one of the most binding constraints for scaling up sustainable financial markets in the region.

Furthermore, this report's assessments indicate that the relatively shallow sustainable financial markets in the ASEAN-5 economies reflect challenges originating in both the demand (i.e., borrower) and supply (i.e., investor) sides. Regarding the demand for capital, the results in Chapter 2 indicated a lack of identifiable/eligible assets that match sustainable investment needs. In fact, investors perceive a lack of attractive opportunities in projects particularly prone to the externalities discussed above. Specifically, a significant number of financial institutions stated that there are limited, or very limited, investment opportunities in projects related to environmental sustainability (including biodiversity), disaster prevention and economic resilience, and climate action (including greenhouse gas emissions). Among financial market participants, the survey results show that a large share of them (from both banking and non-banking financial institutions) mentioned the complexity of sustainability metrics, the lack of comparability across firms, poor quality and/or lack of research, and the costs of gathering and processing information as pressing challenges to sustainable investing. Although costly, market participants have attempted to overcome this deficiency in market infrastructure by using third-party certification—for example, more than 89 percent of global green bond issuances have used some form of external validation. In sum, the underdevelopment of sustainable finance reflects both lack of capital toward sustainability and lack of investment opportunities, indicating both demand and supply challenges.

Overall, tackling these challenges will require a deliberate and holistic approach to catalyze private capital, while incentivizing companies to invest in sustainable projects. Importantly, regulations matter. Policy interventions can and must play a critical role by recognizing and acting upon the market failures and financial frictions discussed above, especially the challenges and barriers that are specific to sustainable finance. That is, policy makers can spearhead change, creating a better enabling environment for sustainable finance and pushing economies toward greater sustainability. Moreover, as suggested by the results in Chapter 2, a top-down approach is important. Policy makers can provide assurances to those in the sustainable finance space, affirming that there is unity and commitment to a common agenda. In doing so, policy makers can clearly signal and commit to the direction of future policies to the largest extent possible, thereby enhancing transparency and providing crucial information for those investing in sustainable projects.

Policy makers in the ASEAN-5 economies must "REACT" to mobilize private capital towards sustainability. This report proposes a new framework for policy action, namely, the five REACT policy priorities, as follows:

i. ***R**eadiness:* A key policy priority focuses on mitigating the investment challenges for creditors and investors.
ii. ***E**nabling environment:* Policy makers need to foster a supportive enabling environment to broaden financial market development.
iii. ***A**nalytics:* Policy makers must continue to improve the informational environment and close critical data gaps by focusing on effective policy implementation.
iv. ***C**apabilities:* Capacity building efforts should be an integral part of the agenda to foster sustainable finance.
v. ***T**ransition:* While fostering sustainable finance, policy makers should pay close attention to ensure a "just transition."

As shown in the conceptual framework presented in Chapter 1 (Figure 1.3), it is important to emphasize that supporting sustainability in financial systems entails addressing two interrelated challenges: (i) *risks*—the management of climate and environmental risks to the financial sector; and (ii) *opportunities*—capital mobilization for sustainable investments. For instance, policy makers should recognize that adjustments to supervisory practices and frameworks to mitigate the potential impact of climate-related risks on financial stability can provide further incentives for financial institutions to reallocate their portfolios toward more sustainable investments. These interconnections are not directly addressed in this report. While the report has focused on the *opportunities*, policy makers need to consider the recommendations in this report in light of this broader and more complex policy landscape.[1] Furthermore, the recommendations discussed in this chapter focus on addressing the supply-side challenges of mobilizing private capital to sustainability. Admittedly, the agenda on the demand-side is crucial to ensure a successful journey toward greater global sustainability, particularly when considering the challenges of scaling sustainable projects and fostering firms' investments in innovation and technology adoption toward greater sustainability. However, an in-depth assessment of the demand-side challenges lies beyond the scope of this report.

4.2 Fostering Readiness

A key policy priority to catalyze private capital for sustainability focuses on mitigating the investment challenges for creditors and investors (the supply-side) more broadly. One such challenge lies with the relatively high level of real and/or perceived riskiness of sustainable investments. The investments needed for the transition toward more sustainable economies are socially desirable, but many may not be commercially viable due largely to project riskiness. There are inherent risks associated with the development of new, unproved technologies, in addition to the risks associated with the scalability of technologies and/or projects themselves, among a myriad of other risks. In many instances, informational frictions and lack of analytics amplify these

1 This is not to say that the challenges of managing risks are any less important. In fact, the assessment in Chapter 3 touched on the need for environmental disclosure of both risks and opportunities, and the pillar of green central banking also discussed the role of regulators on managing climate risks. Climate-related risks can cause shocks to the financial sector, which in turn can affect its role in intermediating capital for sustainable investments.

risks—we will discuss this topic in Section 4.4. Hence, an important set of policies should aim at de-risking sustainable investments, especially in new technologies. Supporting policies to render these projects attractive for private capital range from grants to concessional and blended financing. Policies can also support better risk diversification across investors—for example, securitization to crowd-in a more diverse and larger set of investors (including institutional investors) and partial credit guarantees (PCGs).

Pricing efficiency is an important component underlying the riskiness of investments. The process by which prices in fixed income markets adjust to new information and move towards their equilibrium value is more efficient when market participants agree on certain instruments that can serve as references for pricing other securities (Wooldridge, 2021). Sovereign issuances tend to have this benchmark status in traditional bond markets—they are typically perceived to be the most creditworthy of borrowers and markets are often liquid given their large issuance volumes.

A similar reasoning can be applied to sustainable debt markets, whereby sustainable sovereign issuances could foster efficient pricing in sustainable debt markets. For example, sovereign issuances can help set pricing benchmarks, generating a reference yield curve for the pricing of private issuers in the sustainable capital market. They also provide nascent sustainable debt markets with the scale and liquidity needed to encourage trading and facilitate price discovery. Furthermore, sovereign issuances can signal government commitment to sustainability, promote market transparency (including setting standards and best practices), and foster investor capabilities to invest in these thematic issuances—encouraging a local market that motivates private sector issuances.

Some of the ASEAN-5 economies could in fact benefit from more sovereign sustainable issuances in capital markets. The evidence in Chapter 1 shows that some of the countries with the most developed sustainable financial markets—such as France, Germany, the Netherlands, and Sweden—have developed with significant participation of governments as issuers. More research, however, is needed on this issue as some countries have sizeable sustainable debt markets with little participation of the government—e.g., Norway, Finland.

Policy makers can also be instrumental in addressing the lack of sustainable assets for investments. While this is arguably hampered by the lack of projects, there could also be barriers for firms to raise capital from financial intermediaries for their sustainable investments. For example, firms can face difficulties in identifying eligible expenditures needed for thematic issuances, the scale of projects may be too small for capital market issuances, or the transaction cost of issuances too high, among other obstacles. Financial sector policies can mitigate some of these challenges—for example, subsidizing the relatively higher costs associated with sustainable financing (e.g., associated with compliance and third-party verification). But in deciding these policies, governments need to carefully consider local circumstances, priorities, and the main binding constraints currently in the marketplace.

4.3 Developing the Enabling Environment

The statistical benchmarking assessment discussed in Chapter 1 shows that not only are sustainable corporate debt markets in some of the ASEAN-5 economies underperforming comparator countries in terms of market depth, in some cases, they also have underdeveloped conventional debt markets. For these countries, the challenges of developing sustainable financial markets are thus even greater as they are constrained by factors that hinder greater depth, efficiency, and the general reach of capital markets. In fact, the results in Chapter 1 show that countries with deeper conventional debt markets and a larger institutional investor base tend to have more developed sustainable debt markets, even after taking into account differences in countries' income levels and other structural characteristics, such as country size. Hence, a policy priority for these countries is to develop local financial market infrastructures for deeper and more accessible financial systems. To varying degrees across the ASEAN-5, financial infrastructures must be enhanced by improving information systems, insolvency frameworks, and consumer protection, to name a few.

4.4 Enhancing Analytics for Sustainable Investments

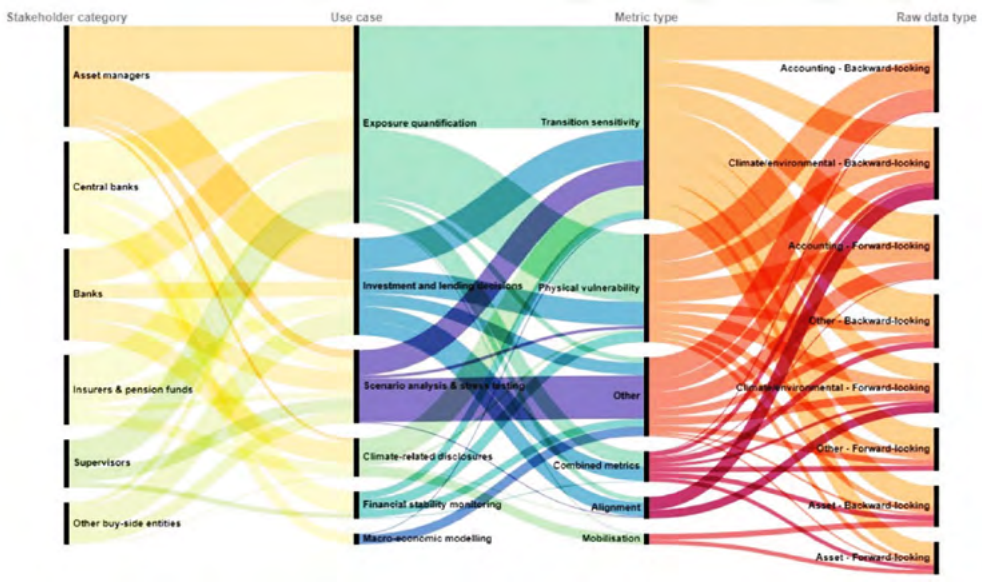
Mitigating information frictions and, more generally, improving the information environment for sustainable investments, including closing critical data gaps, should be among the top priorities in the policy makers' agenda to foster sustainable finance. Some of the essential building blocks for a well-developed informational environment to support sustainable finance are in place, or are under development, among the ASEAN-5. For example, the ASEAN Taxonomy for Sustainable Finance has been issued and some national taxonomies are also being drafted. Enhanced financial disclosure requirements on climate-related information are being adopted in most of the five countries, and a broader financial regulatory framework for greening the financial system is in advanced stages of discussion. In other words, the state of "standard setting" frameworks are relatively advanced, and some of the ASEAN-5 economies have the opportunity to emerge as global leaders on this front. Consistent with this interpretation, Chapter 2 provides some evidence that lack of definitions describing what constitutes sustainable assets was a top challenge for sustainable investments for a relatively small percentage of financial institutions in Indonesia, Malaysia, and the Philippines.

Despite these advances in the adoption of standard setting and information disclosure frameworks, many of these policies are often at an early stage of implementation. For instance, the assessment in Chapter 3 reveals significant variation in the scope and degree to which disclosure requirements are enforced. Mandatory reporting requirements in the Philippines and Thailand only apply to listed companies, while in Indonesia, Malaysia, and Vietnam, financial institutions, public companies, and bond issuers can also be subject to mandatory disclosure requirements. These firms typically account for a small fraction of legal entities. Hence, one notable data gap relates to disclosures associated with bank financing for sustainability, which leads to an important information gap for private firms, especially micro, small, and medium enterprises (MSMEs). The crucial next step for most of the ASEAN-5 is to push forward with an effective implementation of taxonomies and disclosure standards, with the ultimate goal of wider implementation across the private sector at large.

Availability and access to climate-related data thus remain a crucial challenge, not only among the ASEAN-5, but around the world. Efforts are being made through multiple platforms, including the G20, to help firms in developing countries, and MSMEs in particular, improve disclosure while reducing costs. Access to data supports the decision-making processes of financial institutions and other market participants, the private sector, and policy makers (including central banks, regulators, and supervisors). It is also crucial to raise risk awareness, develop risk management practices (including the pricing of climate-related transition and physical risks), support greater market discipline and transparency, foster investments, monitor impact and outcomes, and course correct when needed. Moreover, the consideration of these newer risks is important for macroeconomic policy, financial stability practices, including micro- and macro-prudential supervision.

While aggregated disclosures are certainly informative and useful, as they reveal broad patterns and trends to market participants, there is a clear need to go beyond aggregate data. Though needs are varied, stakeholders share commonalties in their need for disaggregated, granular, standardized and comparable, consistent, accurate, and timely climate-related data (Figure 4.1). The G20 Data Gap Initiative calls all countries to address data gaps related to climate change, among other things, by fostering the regular collection and dissemination of such statistics. High-quality, granular data must not only be collected, but also made accessible to a wide set of stakeholders, including not only policy makers and financial market participants, but also the private sector and civil society at large. An important issue to consider moving forward is how to foster information sharing, without overwhelming market participants, including both firms and financial institutions. This is particularly important when climate-related information gathering and processing is costly and capabilities are limited. Should information on sustainability (on its various aspects, including climate, nature, and social aspects) be integrated into credit information systems? If so, how? What are the tradeoffs for firms and financial institutions? This is particularly important for debt financing, an area where deficiencies exist in many of the ASEAN-5 economies, affecting the development of their financial systems and arguably impacting sustainable financial market development as well.

FIGURE 4.1
Raw Climate-related Data and Use Cases across Stakeholders



Source: NGFS (2021).

4.5 Building Stakeholder Capabilities

There are significant capability gaps across governments and policy makers, financial institutions, and firms. For financial institutions, Chapter 2 shows that more than half of surveyed financial institutions in Indonesia, Malaysia, Thailand, and the Philippines indicated that internal resource constraints, including shortage of expertise, feature among their most important challenges for sustainable investments. Between 30 and 40 percent of the financial institutions highlighted awareness and capacity building programs in the financial sector and the real economy, to enhance familiarity and stimulate market development, as a key policy priority. Results from Indonesia's survey of firms indicated that a significant barrier for the development of sustainable finance in Indonesia is the lack of awareness and local knowledge of green and sustainable projects and the applicable financing instruments. And the most commonly cited demand for government support was related to information and technical capabilities.

Capacity building efforts should be an integral part of the agenda to foster sustainable finance. The lack of capabilities across a wide range of stakeholders in sustainable finance, including financial intermediaries, intensify the challenges brought about by the lack of well-established standards and the information gap. For instance, implementation challenges associated with financial sector policies for sustainability will certainly emerge along the way, partly due to the lack of capabilities in the financial sector. Moreover, gaps in availability and access to climate-related information make the need for well-developed "sustainable finance literacy" imperative for informed decision-making processes. Policy makers should engage in a broad-based effort to foster learning and knowledge sharing of best practices among financial intermediaries regarding the relatively new concepts and tools that may be required to incorporate sustainability into investment strategies.

In addition, efforts should go beyond capacity building efforts for financial institutions themselves, they should reach policy makers and the private sector at large. For policy makers, knowledge sharing on best practices can help countries leapfrog through market development with faster learning facilitated by the experience of other countries. For private sector firms, sustainable finance literacy can enhance firms' capacity to access and benefit from the use of these

financing sources. Overall, enhancing the capabilities of financial intermediaries, policy makers, and the private sector at large can accelerate widespread adoption and the mainstreaming of sustainability in finance.

International engagements like participation in global forums and networks can be leveraged to support raising awareness and building capacity in the ASEAN-5 economies, as well as fostering global collaboration. Interestingly, capital market participants in Malaysia indicated that one of the top policy tools to foster sustainable financial markets is participation in international networks to encourage knowledge sharing and collaboration, along with the adoption of international best practices. Perhaps this perception reflects Malaysia's active engagement in some of the global networks.[2]

Connectivity goes beyond policy circles. Financial market participants should consider engaging with the global community on sustainable financial markets, leveraging these connections to foster local sustainable financial markets. While stock exchanges from the ASEAN-5 have embarked on some global initiatives, such as the SSE initiative, there is significant scope for further engagement. Overall, however, not much evidence has been found indicating that the ASEAN-5 authorities have taken a leadership role in driving the agenda of some of these international platforms. In contrast, frontier countries assessed in Chapter 3, like China, the EU, and Singapore, are leading many of these initiatives.

Furthermore, the challenges of scaling up sustainable capital would be more easily tackled with "commitment from the top." One set of relevant findings in Chapter 2 relates to the effectiveness of a top-down approach to sustainability, where change can come from the top, including top managers at financial institutions and policy makers. For instance, financial institutions indicated that compliance with laws and regulations have a significant influence on their adoption of sustainability aspects into investment decisions. This puts a premium on swift and strong actions by governments and the top echelon of financial institutions in fostering sustainable finance. Actively supporting the timely implementation of the various policy levers mentioned above would thus signal to market participants a strong commitment from policy makers in fostering finance for sustainability. Also important is the alignment of financial sector policies, regulations, and incentives with national environmental and climate goals. Clear long-term strategic directions, such as those typically outlined in roadmaps, can provide the strategic framework to ensure such alignment. Policy makers can use their convening power to raise awareness and rally a broad range of stakeholders around these common goals, gathering their support and strengthening their commitment.

4.6 Ensuring Financial Inclusion for a Just Transition

While fostering sustainable finance, policy makers should pay close attention to ensure a "just transition," in which inclusion (in its various forms) and equality are supported alongside environmental and economic objectives. The distributional impacts of developing financial markets for sustainability can be substantial. Reinforcing the policy priority on "analytics," improved access to information would be particularly helpful in identifying, monitoring, and providing support to those who face a greater risk of being left behind or may be negatively impacted by the transition toward greater sustainability.

The distributional impacts of new financial markets can be substantial. At the country level, an ingrained income bias in ESG sovereign ratings may incentivize capital flows toward high-income countries and away from countries where funding is needed most (Gratcheva et al., 2021). That is, more developed countries tend to have stronger institutions, more equality, and more prosperity. Hence, their sovereign bonds issuances, for example, tend to receive better ESG scores, especially regarding social and governance issues. As a result, more developed countries tend to have better ESG scores, thereby setting potentially perverse investment incentives that drive

2 For example, Malaysia maintains good cooperation with international sustainable finance platforms, including but not limited to the NGFS, IPSF, SBFN and other regional platforms, and its financial firms have actively participated in capacity building platforms like the GFLP. Indonesia has also actively engaged in global forum to strengthen its commitment to the sustainability agenda.

capital away from lower-income toward higher-income countries. This relationship has implications for investment flows that tend to broadly depend on sovereign ESG scores. The findings in Chapter 1 show that there is indeed a high correlation between the size of sustainable debt markets and economic and financial development. This issue certainly deserves further attention and is left for future research.

Distributional effects can also trickle down all the way to firms and households. Although capital markets constitute a key source of sustainable finance to the corporate sector, Chapter 1 in this report shows that sustainable equity and debt markets in the ASEAN-5 are highly concentrated and, even in the more developed markets, they have financed a very small set of firms. Only 83 non-financial corporations in the ASEAN-5 have tapped sustainable debt and equity markets during 2017-2021. The large, fixed entry costs to raise capital through public issuances of bonds and equity effectively impose an entry barrier for smaller companies.[3] In addition, the bulk of the proceeds from the capital raising activity among the ASEAN-5 has been allocated toward the energy sector. This could be partially explained by a high priority for transition in the energy sector to create conditions for other sectors to achieve net zero. While similar trends are seen at the global level, funds are allocated to a wider range of sectors, especially in more developed economies. Overall, the bulk of private firms are at a higher risk of being excluded from current sustainable financial markets. This highlights the need to foster sustainable finance for both mitigation and adaptation to climate change through a wide range of financial intermediaries, including banking institutions. This will support greater access to sustainable financing for those unable to access capital market financing. To ensure widespread access, especially among SMEs, scalability is a crucial factor in this policy agenda.

Another consideration is the potential for distributional impacts of reforms to increase the sustainability of financial systems. Specifically, policy makers should closely monitor the potential negative distributional impact of new regulatory and supervisory frameworks for sustainability on underserved segments, especially those segments that face greater risks of exclusion from current sustainable financial markets. For example, the additional levers of policy associated with greening financial institutions may negatively impact financing to some underserved segments, such as MSMEs, precisely because of their opacity. These reforms typically entail additional disclosure requirements, including on climate-related (and nature-related) risk exposures. Financial institutions may thus retreat from financing those unable to adequately collect this information. For firms, the need for this additional layer of reporting would mean greater transaction costs to obtain financing from regulated financial institutions. These issues can be particularly challenging when firms' capabilities and financial literacy are already in need of strengthening.

Policy makers should also pay close attention to those that may be negatively impacted by the transition toward greater sustainability—e.g., high CO2-emitting firms, such as those in the coal and oil sectors. As discussed in Chapter 2, the extensive adoption of negative screening and the widespread perceptions of stranded asset risks may de facto exclude these firms from critical financing sources.[4] For example, the share of financial institutions who perceived firms operating in the coal segment to be investments with high, or very high, risk of becoming stranded assets surpassed 70 percent—a much higher percentage than those found in the iron and steel industries. Constrained access to finance, in turn, could create sizeable economic inefficiencies, especially in countries in which high GHG-emitting sectors represent a large share of the economic activity. Financing for high CO2-emitting firms that seek to transition to greener, low-carbon activities—dubbed transition finance—is thus important for a smooth transformation toward more sustainable practices. The crucial question is how to support access to sustainable finance for these firms, while mitigating investor risks related to stranded assets and green washing. Moreover, this discussion increases in complexity when energy security is considered. These issues deserve further attention, especially because transition finance remains an incipient segment in capital markets, not only among the ASEAN-5 economies, but globally. Moreover, the transition toward low emissions and greater economic sustainability will likely be a lengthy one. That is, the journey will be a marathon, not a sprint.

Overall, policy makers need to support those who would be the most affected during the transition, especially those segments that face greater risks of exclusion from current sustainable financial markets, such as high-emitting firms as well as smaller firms that lack access to capital markets. These are important issues that deserve more research as financial sector policies for sustainability become implemented more widely.

3 Larger companies are more prone to issue bonds in capital markets. See, for example, Didier, Levine, and Schmukler (2015), Davis, Maslar, and Roseman (2017), and Duffee and Hördahl (2019).

4 It is important to note that carbon-intensive sectors tend to have high debt-to-asset ratios—e.g., coal-fired power companies in most countries have an 85 percent or higher leverage ratio. For these companies, it is not only about access to debt markets, but rather access to a wider range of financial instruments, such as equity or debt-to-equity swaps for more efficient low-carbon transition.

Special Focus

Green Central Banking in the ASEAN-5

Central banks are in a key position to support the development of sustainable financial markets due to their regulatory and supervisory roles over money, credit, and the financial system. The section presents the main arguments for and against central banks taking on a "green mandate" (or "sustainability" mandate more broadly), and analyzes relevant case studies of green central banking in some of the most important and relevant developing and emerging markets for the core set of ASEAN-5 economies. These case studies showcase a diverse range of elements, from transparency and reporting initiatives to analysis of financial risks associated with climate change and adaption.

The Case for Green Central Banking

The primary mandate of central banks usually relates to price stability, financial stability, and/or employment. Central banks have developed a wide array of tools, policy instruments, and intermediate targets to achieve these specific policy goals. Why and how should central banks embrace the green agenda and assume a key role in fostering the greening of financial markets?

Macroeconomic Risk. First and foremost, climate change and related environmental risks could have a direct impact on price stability and output. These risks are conceptually economic shocks, i.e., unpredictable events that produce a significant change within an economy.[5] These risks can manifest themselves through both supply and demand via many channels. Examples of supply-side shocks include inflation caused by shortages of commodities, such as food and energy, or damage to capital stock and infrastructure due to extreme weather events, among others. Examples of demand-side shocks include reduction of household wealth and private consumption, or negative impact on business investment caused by uncertainty and financial losses following a climate disaster. Climate-related risks can also disrupt trade and global supply chains.

Financial Stability. Climate change and environmental damages could also have a significant impact on financial stability. Indeed, while there are "uncertainties about future vulnerability, exposure, and responses of interlinked human and natural systems are large," the broad consensus is that climate change will undoubtedly have a considerable impact on the very functioning of our economies, and implicitly on the financial systems as well.[6]

Climate- and environmentally-related financial risks originate mainly from two types of sources (Figure SF 1). *Physical risks* derive from natural disasters and gradual permanent shifts of the climate that can lead to economic costs and financial losses. These risks directly affect banks, potentially increasing credit, operational, market, liquidity, operational, and reputational risks, threatening the profitability and solvency of banks and the overall stability of the financial system. They can either be gradual in nature, such as rising temperatures and sea levels, or abrupt, as in the case of extreme weather events, such as wildfires and storms. *Transition risks* are related to adjustment costs during the transition towards a greener, carbon-neutral economy. These risks could be related to climate policies, technological change, or shifts in investor and consumer sentiment

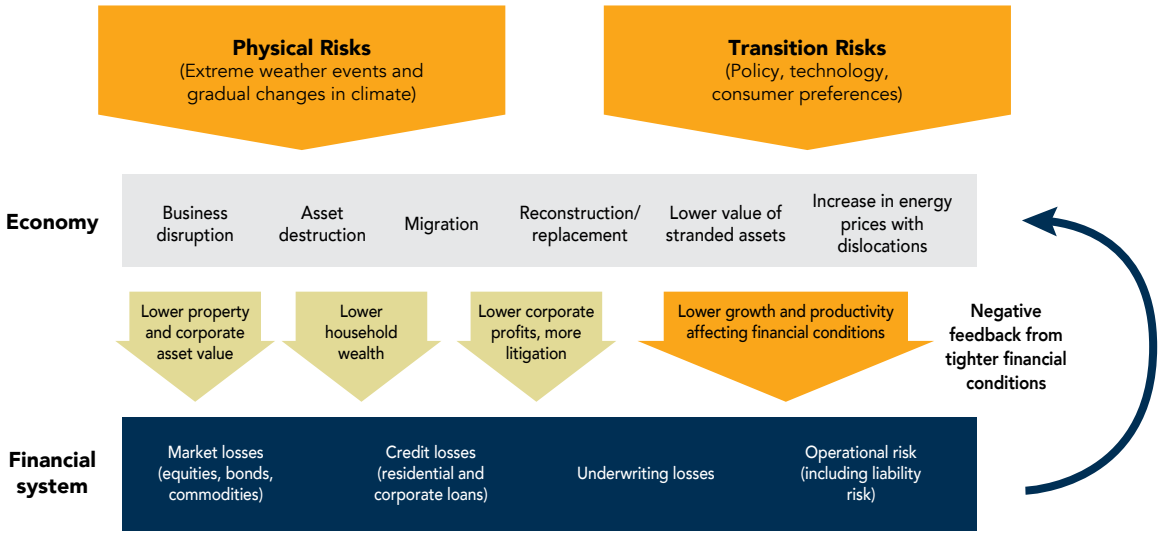
5 Climate change: Macroeconomic impact and implications for monetary policy.

6 See IPCC (2014).

with respect to climate change and the preservation of the environment. As for physical risks, transition risks could be mild if the economy transforms smoothly over time. Yet, if intervention and adaptation are delayed, changes in policy and taxation might be abrupt, leading to significant adjustment costs for companies and households. Financial assets may become stranded, increasing the chance that borrowers are unlikely to repay their debt obligations with negative repercussions for lenders.

Credibility. In many developing countries, central banks have a strong institutional standing within the policy frameworks. In addition, many central banks and financial regulators are among the most sophisticated actors on the policy front in many EMDEs in terms of technical expertise. Therefore, relative to other actors and developed countries, central banks have a bigger role to play in correcting the market failures identified earlier. Accordingly, they could use their credibility and clout to incorporate sustainability in their mandate and to foster adoption in the financial sector.

FIGURE SF 1
Macro-financial Impacts of Climate-related Risks



Source: IMF (2019).

The case for green central banking may be persuasive from many points of view; however, there are cautionary arguments against central banks taking a lead role in addressing climate-related financial risks, due to concerns related to central banks' policy mandate and effectiveness, as well as policy coordination with other authorities.[7]

***First*, by adopting "green" targets, central banks may be undermined in the pursuit of their traditional objectives: control of inflation and financial stability.**[8] In other words, this is the "mission creep" argument, defined as "the illegitimate attempt to dilute the focus on price stability by including new objectives best followed by different policy actors."[9] Simandan and Paun (2021) argue that central banks do not have the capability and mandate to regulate the industries that harm the environment and cannot use monetary or macroprudential policies to affect those industries. Moreover, there is the potential for politicization of central banking should central banks get involved in the green (and/or sustainability) agenda. Given the difficulty in defining "green" when assessing economic activities, interventions would likely be required, which could impact central banks' reputation for independence.

***Second*, climate change may be perceived as a long-term phenomenon, with three key features of GHG emissions potentially hindering policy responses:** (i) the benefits of cheap energy that are enjoyed in the present vs. the costs of global warming that will be borne in the future; (ii) the benefits are local whereas the costs are global; (iii) the most efficient ways to limit GHG emissions place a disproportionate burden on

7 See for example Buiter (2021).
8 It may also undermine central bank independence. See for example Dincer and Eichengreen (2014).
9 See for example Simandan and Paun (2021).

developing countries, but at the same time, developed countries do not want to compensate the developing ones for reducing GHG emissions.

***Third*, climate change externalities should ideally be addressed through targeted fiscal and regulatory measures**; a green mandate for central banks is not part of this combination. Specifically, Pigouvian taxes, or tradable quotas, would create the right incentives for reducing GHG emissions. In addition, rules and regulations targeting energy use and emissions can complement green taxes and quotas, and public spending can support research and development in the green technologies that we will need.

The different menu of options discussed in the next section, and the extent to which they are adopted by monetary authorities, are likely driven by a delicate balance between the arguments for and against green central banking laid out in this section. For instance, monetary authorities often discuss and implement options that promote green objectives when such options do not infringe upon central banks' core mandate or generate too much political controversy. As one gets to the core monetary policy tools, such as policy rates and asset purchases, the argument against green central banking prevails more often, and one starts to see less implementation of existing tools or even the envisioning of new ones.

Definition and Scope of Green Central Banking

This section lays out the scope of green central banking, i.e., the interaction between the toolkit of a modern central bank and climate change considerations, by examining the menu of options central banks can use to factor climate-related risks into their operational framework. The Network for Greening the Financial System (2021) points out that adjustments could be considered across the main operational functions that central banks carry out for the purposes of implementing monetary policy. Specifically, the NGFS highlighted three policy fields: credit operations, collateral policies, and asset purchases. In addition, various central banks and global standard setters have begun exploring the reporting and disclosure of climate change-related risks for financial institutions and the measurement and assessment of such risks, including through stress testing. Finally, BIS (2019) discusses the possibility of factoring green elements into the management of foreign reserves. We briefly examine each of these aspects of green central banking.

Credit operations. Access to, and interest rate on, lending facilities is an important policy tool for the central bank to provide liquidity to the financial system and maintain financial stability. The NGFS envisioned several ways in which credit operations can be adjusted to climate-related risks: (i) Adjust interest rate to reflect counterparties' climate-related lending (i.e., lending related to adaptation or mitigation), (ii) Adjust interest rate to reflect the composition (i.e., carbon intensity) of pledged collateral, and (iii) adjust counterparties' eligibility for access to lending facilities based on disclosure of climate-related information or on its carbon-intensive/low-carbon/green investments.

Collateral policies. Collateral policies define the range of assets that can be pledged to secure central bank credit operations as well as the risk control measures that apply to them. The NGFS proposed a variety of ways to adjust these policies to climate-related risks: (i) adjust haircuts to better account for climate-related risks, (ii) exclude otherwise eligible collateral assets based on their climate risk profile or analysis of carbon performance, (iii) accept sustainable collateral to incentivize financial institutions to support environmentally-friendly activities, and (iv) align collateral pools with a climate-related objective at an aggregate level.

Reporting and disclosure. Central banks and financial regulatory authorities have been increasingly paying attention to requirements for financial institutions to report data and other information relevant for assessing applicable climate-related risks and disclosing them to market participants. Increasing the quantity and quality of climate relevant information is a critical step in enabling governments and market participants to better understand their exposures to climate-related risks. Depending on specific responsibilities within their respective jurisdictions, central banks could design reporting and disclosure requirements for financial institutions.

Risk assessment. Data and information on climate-related risks allows authorities and financial institutions to conduct risk assessments to understand the implications of such risks on the financial sector, and to better inform risk management decisions. Depending on capacity, such assessment could take on many different forms, from empirical analysis of risk exposures to model-driven stress testing. One such

example is a physical risk stress test of the Philippines banking sector's capital adequacy and asset quality in response to climate-related natural disaster shocks (e.g., typhoon) in the context of the joint Financial Sector Assessment Program (FSAP) conducted by the IMF and the World Bank.

Asset purchases. As part of unconventional monetary policy developed during the Global Financial Crisis and used extensively during the beginning of the COVID-19 crisis, central banks purchase assets to influence the entire yield curve instead of merely the short-term policy rate. The NGFS noted that asset purchases could (i) be skewed towards according to climate-related risks and/or criteria applied at the issuer or asset level, and (ii) exclude some assets or issuers from purchases if they fail to meet climate-related criteria. In practice, however, green quantitative easing (QE) is seen as more controversial than other measures due to legal and operational hurdles.

Foreign Reserve management. Central banks accumulate foreign currency reserves to assure markets that national authorities can meet external financial obligations and to maintain confidence in the domestic economy/currency in times of stress. BIS (2019) pointed out that: central bank reserve managers are considering how to incorporate environmental sustainability objectives into their portfolios; sustainability as a reserve management objective needs to be balanced against liquidity, safety, and return; and green bonds' safety and return support their incorporation into reserve portfolios, but their accessibility and liquidity currently pose some constraints.

Green Central Banking Practices in East Asia

This section takes stock of green central banking practices in selected economies within the EAP region. The assessment captures whether authorities in a given economy have undertaken, or plan to undertake, any of the six green central banking policy options discussed above, while attempting to distinguish between announcement of intention and actual implementation. ASEAN-5 economies, which are the focus of this report, and economies in the frontier group (China, Hong Kong, Korea, Japan, Mongolia, and Singapore) are compared and contrasted. The desk research was validated through interviews with central banks in the region.

Frontier Economies

Green central banking initiatives in frontier economies consist primarily of credit operations and reporting and disclosures (Figure SF 2), while risk assessment, management and analysis, and collateral or prudential requirements are also explored by certain economies. Monetary authorities in China, Japan, Singapore, and Mongolia have undertaken, or are contemplating, credit-related actions in recent years. Climate-related reporting and disclosures are also popular with authorities in China, Japan, Hong Kong, Korea, and Mongolia. Risk assessment, management, and analysis (Japan, Singapore, and Hong Kong) and collateral/prudential requirements (China and Mongolia) are also used by authorities from the frontier group, although less so than credit operations or reporting and disclosure. No monetary authority from this group has undertaken, or plans to undertake, green bond purchase. The Hong Kong Monetary Authority (HKMA) is the only monetary authority undertaking green foreign reserve management. Out of the 16 green central banking initiatives considered, 7 have been implemented, while 9 are proposed and/or are currently in the process of implementation.

FIGURE SF 2
Current Green Central Banking Initiatives in Frontier Economies

	China	Japan	Singapore	Hong Kong, SAR, China	Rep. of Korea	Mongolia
Green Central Bank Options:						
Credit (interest rate or access to lending)	✓	✓	✓			✓
Climate change-related reporting and disclosure	✓	✓		✓	✓	✓
Risk assessment (including stress testing), management and analysis		✓	✓	✓		✓
Collateral requirements/prudential requirements	✓					✓
Bond purchase						
Green foreign reserve management				✓		

Note: Blue = implemented. Light blue = proposed. Source: Authors' calculations based on local sources.

China. In 2016, the People's Bank of China (PBOC) and six other ministries and commissions jointly issued the Guidelines for Establishing the Green Financial System, adding a more comprehensive framework to the existing mandate for green finance in China. The guidelines include the establishment of a mandatory environmental information disclosure system for listed companies rolled-out in three gradual steps: require disclosure for major emission companies (2017); require semi-mandatory disclosure for all listed companies (2018); and expand mandatory requirements to all listed companies (2020). All steps have been carried out as scheduled. In addition, the PBOC has introduced a variety of credit incentives and macro-prudential measures related to green finance. For instance, the PBOC encourages the use of a re-financing facility to provide short-term liquidity to banks to support small enterprises, agriculture firms, as well as green projects. Furthermore, green bond and green credit loans were written into the Macro-prudential Assessment (MPA) system in 2016 and 2017 respectively. In 2018, the PBOC included qualified green loans and green bonds as eligible collaterals.

Japan. In 2021, the Bank of Japan (BOJ) released its Strategy on Climate Change and decided to implement a range of measures, including: (i) introducing a new fund-provisioning measure, through which it provides funds to financial institutions against investment or loans they make to address climate change based on their own decisions; and (ii) working in collaboration with the Financial Services Agency on pilot exercises in scenario analysis targeting large financial institutions by using common scenarios. In addition, the BOJ will require financial institutions to disclose a certain level of information, including information based on the TCFD recommendations. In January 2022, the BOJ made the first auction in its new green loans scheme, providing zero-interest financing to lenders supporting action to address climate change.

Singapore. The Monetary Authority of Singapore's (MAS') green finance action plan, released in 2020, includes: (i) guidelines on climate and environmental risk management for banks, insurers, and asset managers to assess, monitor, mitigate and disclose related risks and conduct stress tests under different climate scenarios; and (ii) reduction of borrowing costs of green and sustainable bonds and loans and promotion of sustainable lending frameworks that provide simplified processes and standardized criteria for borrowers. The guidelines mentioned above were issued in late 2020, and its sustainable bond grant scheme was launched in early 2021 and will continue well into 2023.

Korea. In 2017, the government of Korea amended the enforcement regulation of the Act on Support of Environmental Technology and Industry to provide the legal ground for the enVinance system, which, among other things, promotes the disclosure of climate change and environmental information of corporations from both mandatory and voluntary sources. In December 2021, Korea announced the "K-Taxonomy Guideline" which provides guidance on the types of economic activities that are considered green activities.[10] The Korea Financial Supervisory Services introduced guidelines on the management of climate risks in the financial sector, and authorities plan to conduct a climate stress test in the financial sector in 2022.[11]

Hong Kong SAR, China. In 2019, the Hong Kong Monetary Authority (HKMA) introduced a number of measures to support and promote HK's green financial development, including consideration for a disclosure framework on the HKMA Exchange Fund's (Hong Kong's Foreign Reserve fund) Green and ESG investing efforts and development of a common framework to assess the "Greenness Baseline" of individual banks. ESG-related factors have been weaved into the investment process for the Exchange Fund as of late 2021. Moreover, the HKMA will continue to work towards achieving mandatory TCFD-based disclosures in the banking sector by 2025 in support of the Glasgow declaration.

Mongolia. As part of its green transition journey, Mongolia adopted the National Green Development Policy in 2014 and the Sustainable Development Vision in 2016. The 2018 National Sustainable Finance Roadmap of Mongolia, prepared with the assistance of IFC, proposes an action plan consisting of 11 different areas under three pillars (Environment & Social (E&S) risk management, green finance flows, and enabling environment). Credit incentives and different prudential requirements for green finance flows are included in the area on green finance policies and initiatives under the pillar on green finance flows. Guidance on monitoring reporting and disclosure and stress testing guidelines are included in the area on market standards under the pillar on E&S risk management. The Bank of Mongolia (BOM), the Financial Regulatory Commission (FRC), and the Mongolia Sustainable Finance Association (MSFA) have also conducted extensive stakeholder consultations regarding the implementation of the Sustainable Finance Road Map and Sustainable Finance Action Plan, with the action plans split into six separate sub-groups and an implementation horizon of up to five years.

10 http://www.businesskorea.co.kr/news/articleView.html?idxno=85298

11 https://www.fsc.go.kr/eng/pr010101/77019

BOX SF

Green Central Banking in the European Union

In December 2019, the European Union announced an ambitious and transformative initiative–namely, the European Green Deal–a growth strategy with the aim to make Europe the "first climate-neutral continent."[12] Sustainable finance is an integral part of the European Green Deal, through which the European Green Deal Investment Plan aims to mobilize at least €1 billion of sustainable investments over the 2020-2030 period, as well as develop a new Sustainable Finance Strategy, comprising the following six sets of actions: [13,14]

- Extending the existing sustainable finance toolbox to facilitate access to transition finance;
- Improving the inclusiveness of small and medium-sized enterprises (SMEs), and consumers, by giving them the right tools and incentives to access transition finance;
- Enhancing the resilience of the economic and financial system to sustainability risks;
- Increasing the contribution of the financial sector to sustainability;
- Ensuring the integrity of the EU financial system and monitoring its orderly transition to sustainability;
- Developing sustainable finance initiatives and standards, and supporting EU partner countries.

The European Central Bank (ECB) has recognized climate change's potential to impact price stability through extreme weather events, along with the wide range of uncertainties associated with the transition to a low-carbon economy. Moreover, the ECB has affirmed its commitment to incorporating the impact of climate change into its monetary policy framework and has announced an action plan to tackle climate change, which consists of three milestones, each containing several initiatives (Figure SFB 1).[15]

While the central banks from the Eurozone are falling under ECB's purview and are aligned with the ECB's sustainable finance initiatives, in newer EU countries outside the Eurozone, there is significant heterogeneity when it comes to sustainable finance initiatives (Table SFB 1). For instance, within Central and Eastern Europe (CEE) countries, such as the Czech Republic, Hungary, and Poland, it is the Hungarian National Bank that has incorporated environmental issues most proactively in its policy objectives, actions, and frameworks. Moreover, the Czech National Bank included climate-related risks in its 2019/2020 annual stability report. Last, but not least, the Polish Financial Supervision Authority has run scenarios related to the threat of floods and droughts in its stress tests for the insurance sector.

12 https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en
13 https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/overview-sustainable-finance_en
14 https://ec.europa.eu/commission/presscorner/detail/en/ip_21_3405
15 https://www.ecb.europa.eu/ecb/climate/roadmap/html/index.en.html

TABLE SFB 1
ECB vs. CEE-3 central bank green measures

	ECB	Czech National Bank	Hungarian National Bank	Polish Financial Supervision Authority
Policy measures:				
Risk assessment	✓	✓	✓	✓
Aiming at own green portfolio	✓		✓	
Green bonds as collateral	✓		✓	
Reduced collateral requirements			✓	
Reduced capital requirements			✓	
Preferential asset purchases				

Source: Scope Ratings and central bank websites (2021).

FIGURE SFB 1
ECB's Climate Change Action Plan

First **milestone**: Paving the way with reliable data	Second **milestone**: Knowledge is the driving force	Third **milestone**: Action based on reliable data and best knowledge
• Gathering data needed for climate change risk analyses	• Gathering its own exposure to climate risks	• Including climate risks into ECB's collateral framework
• Adapting its models and make them fit for climate change	• Checking firms' and banks' exposures to climate risks	• Make ECB's asset purchases greener
	• Making disclosure of climate risks a priority	
	• Reviewing how credit ratings reflect climate risks	

Source: ECB.

ASEAN-5 Economies

Risk assessment, management, and analysis are the most common forms of green central banking initiatives seen in ASEAN-5 economies (Figure SF 3), with all five central banks engaging in some activities in this area. Malaysia and the Philippines also initiated climate-related reporting and disclosures, while Thailand engaged in collateral/prudential requirements. Notably, Malaysia is contemplating green foreign reserve management, a novel policy development in the EAP region. No central banks in the ASEAN-5 economies engaged in green bond purchases. Out of the 10 green central banking initiatives considered, only three have been implemented, while seven are proposed and pending implementation. Compared to the frontier group, ASEAN-5 economies have on average considered fewer green central banking policy options, and an even smaller fraction of the policy options considered are actually implemented.

FIGURE SF 3
Current Green Central Banking Initiatives in the ASEAN-5

Green Central Bank Options:	Malaysia	Thailand	Indonesia	Vietnam	Philippines
Credit (interest rate or access to lending)					
Climate change-related reporting and disclosures	✓				✓
Risk assessment (including stress testing), management and analysis	✓	✓	✓	✓	✓
Collateral requirements/prudential requirements		✓	✓		
Bond purchase					
Green foreign reserve management	✓				

Note: Blue = implemented. Light blue = proposed. Source: Authors' calculations based on local sources.

Malaysia. The Bank Negara Malaysia (BNM) is pushing for greater climate disclosure by financial institutions along the lines of related TCFD recommendations and a draft Application Guide was issued for public consultation in March 2022. BNM also issued a draft guide for consultation on Climate Risk Assessment and Scenario Analysis at the end of December 2021.[16] In addition, in supporting the NGFS Glasgow Declaration for COP26, BNM pledged a total of six initiatives, two of which include (i) further strengthening internal frameworks for integrating sustainability factors in its investment operations and reserves management, and (ii) advancing preparations for industry-wide climate change stress tests, for implementation in 2024. Moreover, in August 2021, BNM issued the Climate Change and Principle-based Taxonomy (CCPT) Guidance Document, which is closely aligned with the ASEAN green taxonomy.[17] The CCPT Guidance Document builds on the initial 2019 discussion paper and incorporates feedback from key stakeholders, including financial institutions, asset management companies, rating agencies, and non-governmental organizations. The implementation of the green taxonomy rests with the Joint Committee on Climate Change (JC3), which consists of senior representatives of BNM, the Securities Commission (SC), Bursa Malaysia and commercial banks, insurers, and institutional investors, and focuses on four key priorities: risk management, governance and disclosure, product and innovation, and engagement and capacity building. In addition, Islamic financial institutions are part of the Value-based Intermediation Community of Practitioners (VBI COP) and have adopted the Value-based Intermediation Financing and Investment Impact Assessment Framework (VBIAF) to incorporate ESG risk assessments into their risk management systems.[18] Six sectoral guides for palm oil, renewable energy, energy efficiency, oil & gas, manufacturing, and construction & infrastructure have been developed, and additional guides on the mining and quarrying, agriculture,

16 https://www.bnm.gov.my/documents/20124/938039/ED_Climate_Risk.pdf
17 https://www.bnm.gov.my/-/climate-change-principle-based-taxonomy
18 https://www.bnm.gov.my/-/value-based-intermediation-financing-and-investment-impact-assessment-framework-guidance-document

transportation and storage, and waste management sectors are being developed.

Thailand. In its strategic document entitled "Sustainable Finance Initiatives for Thailand," the Bank of Thailand (BOT) laid out key strategic initiatives in greening the financial sector.[19] These initiatives include: prudential policies, such as guarantees; subordinated debt or equity investments to incentivize financial flows towards sustainable development by changing risk/return profiles; and improvements to the quality and depth of sustainable finance data. Currently, the BOT is exploring most of these initiatives, and aims to implement at least some of them in the next few of years. Moreover, the BOT is also developing a local green taxonomy that meets international standards and aims to release an initial version later in 2022/2023. Last, but not least, the BOT has initiated a Sustainable Finance Working Group, together with other financial sector regulators, that will collaborate with other stakeholders in advancing Thailand's sustainable finance agenda.

Indonesia. The Indonesian Financial Service Authority (OJK) issued a sustainable finance roadmap in 2017 and has monitored the implementation of the proposed sustainable finance principles by major banks (BUKU III and IV) as evidenced by its monitoring assessment on banks' sustainability reports between 2019 and 2020. The roadmap discusses, among other things, prudential incentives for green financial flows in the near-term (achieved in 2016), and strengthening of risk management and corporate governance in environmental and social aspects of financial institutions' practices in the medium term (to be completed by 2024). But detailed guidelines on climate-related disclosures are still lacking. In 2019, Bank Indonesia issued a regulation which provides incentives for green buildings by relaxing the loan-to-value ratio for green properties.[20] This regulation enables a 5 percent increase in the maximum loan-to-value for green development to 90 percent, thus lowering the down payment paid by borrowers.

Vietnam. In 2018, the State Bank of Vietnam approved the program on green bank development along with an action plan to realize Vietnam's sustainable development goals by 2030. To enforce the incorporation of ESG risks into lending decisions, the regulator has set two targets by 2025—the setting up of an E&S management system in all financial institutions, and integrating environmental and social risk assessment into credit risk assessment.

Philippines. Under the joint IMF-World Bank Financial Sector Assessment Program (FSAP) completed in 2020, the Philippines conducted a novel climate-related stress test assessing the impact of severe typhoons on bank capital. The stress test revealed that the destruction of physical capital from typhoons' wind would reduce bank capital ratio by only one percentage point, even in the once-in-500-year event in the future. However, the joint shock with pandemic intensifies the effects of climate change for extremely intense typhoons. For events that occur once in 500 years, the difference between current and future scenarios with the pandemic rises to 4.5 percentage points. Moreover, under World Bank technical assistance, the central bank (BSP) is developing a set of supervisory guidelines on stress testing, governance, risk management, and disclosure of climate-related risks. A circular on environmental and social risk management framework was issued in late 2021 as part of the implementation process for the country's sustainable finance framework and more guidelines are expected to follow as part of FSAP recommendations. The BSP is also exploring the use of regulatory incentives to promote sustainable financing among banking institutions.[21]

19 https://www.bot.or.th/Thai/SustainableBanking/Documents/Sustainable_Finance_Initiatives_for_Thailand.pdf

20 Loan-to-value caps limit the amount of financing extended to customers of commercia banks to specific levels based on the value of the asset being purchased or the borrower's earnings

21 https://www.bis.org/review/r220225g.htm

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