

Fostering transition finance in sustainable bond markets

Asian Development Bank

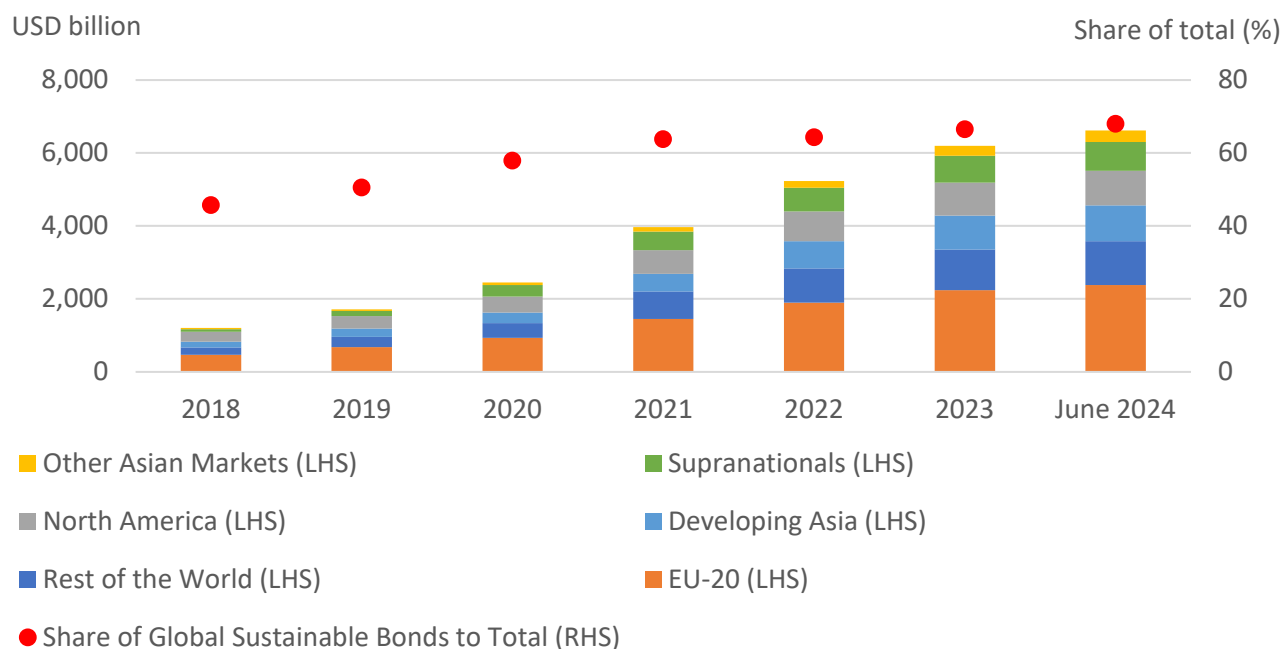
Shu Tian

Rapid expansion of sustainable bond market worldwide

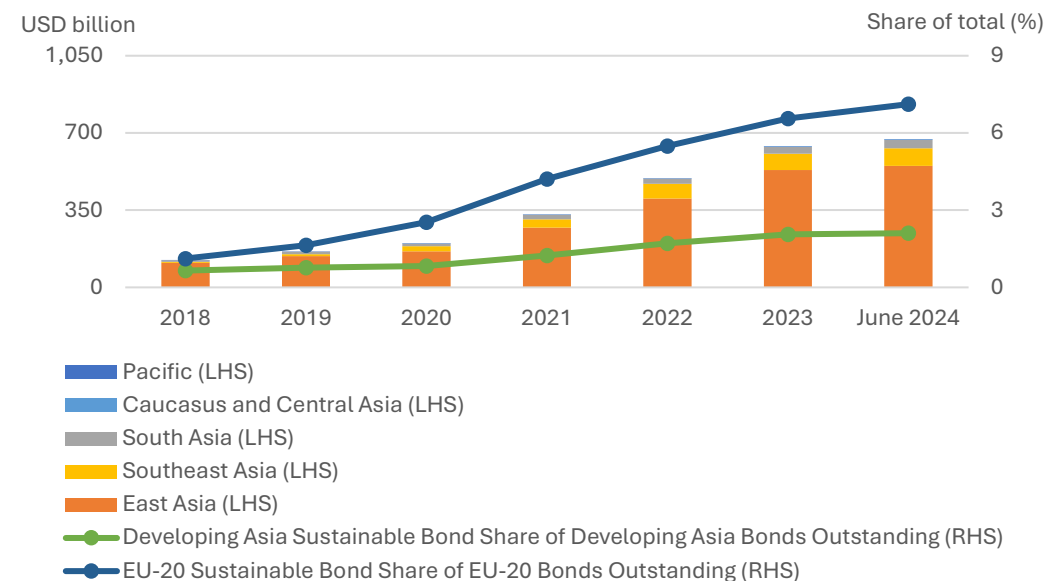
- Global sustainable debt finance saw rapid growth to USD6.6 trillion by June 2024, a 5.5-fold expansion from USD1.2 trillion in 2018.
- Capital markets play an increasingly important role, with the share of bonds to total sustainable debt finance rising to 68.0% in June 2024 from 45.7% in 2018.

- Developing Asia sustainable bond market growing from USD122.8 billion by end of 2018 to USD670.6 billion by June 2024, accounts for 14.9% of the global sustainable bond total.
- Despite rapid expansion, sustainable bond market in the region only accounted for 2.1% of its general bond market, much lower than the corresponding share of 7.1% in EU-20.





Global Sustainable Bonds and Loans Outstanding



Sustainable Bonds Outstanding in Developing Asia by Regional Sub-Group



Drivers of sustainable finance: Push and Pull factors

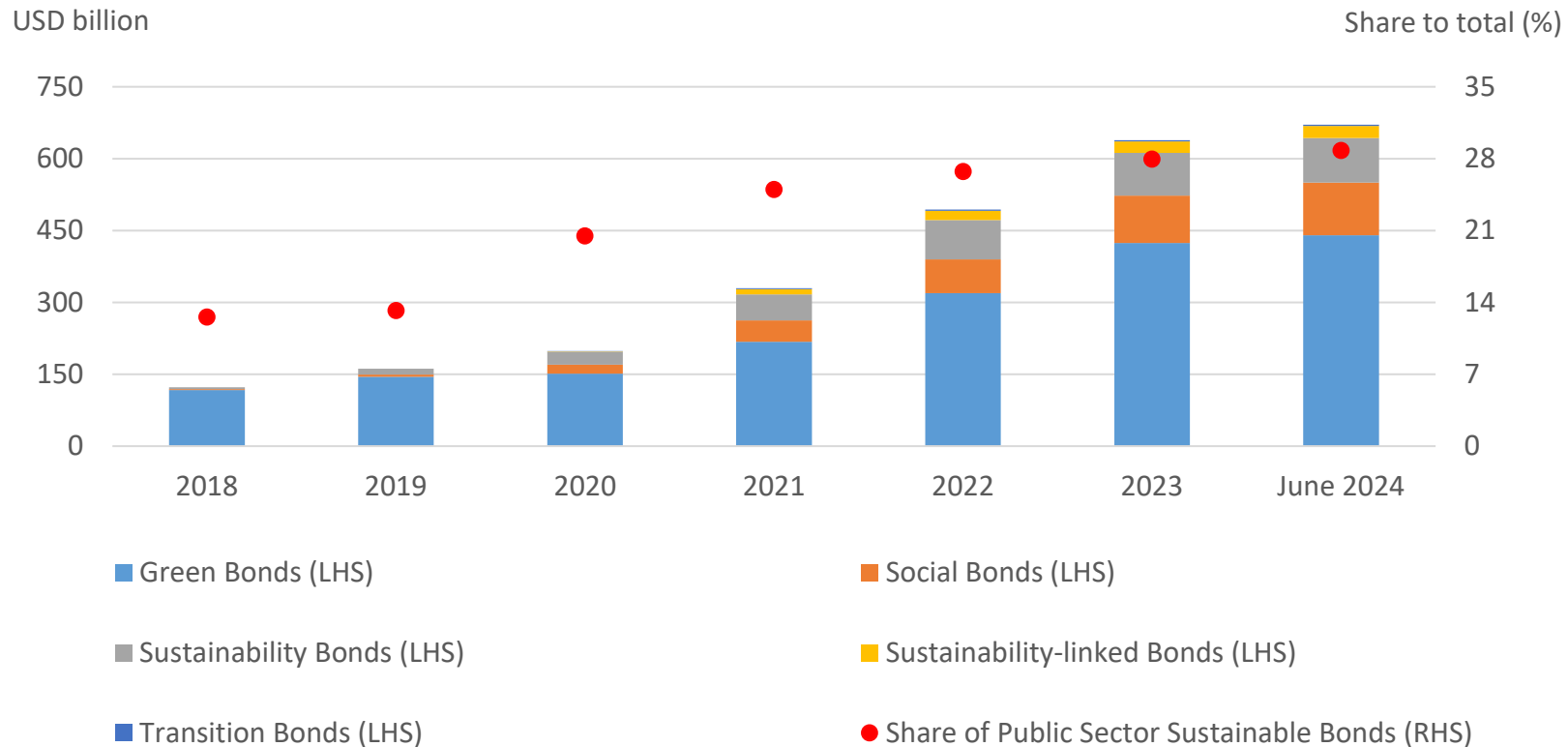
| | Pull factors | Push factors |
|-------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| |  |  |
| | Leveraging (upside) opportunities | Managing (downside) risks |
| Financial Drivers  | <ul style="list-style-type: none"> - Profitability - Capital market development - Public financial and policy incentives | <ul style="list-style-type: none"> - Climate-related physical, transition and litigation risks - Policy and regulatory initiatives |
|  Non-financial drivers | <ul style="list-style-type: none"> - Ethical preferences (“Doing well by doing good”) - Brand and reputation enhancement | <ul style="list-style-type: none"> - Public opinion, change in social norm - Corporate culture and engagement in key international initiatives - Key stakeholder demand |

Source: ADB (2024)

Sustainable bond market largely focuses on green finance

*Developing Asia sustainable bond market are dominated by **green bonds** (65.7%).*

Product and sector profile of Sustainable Bonds Outstanding in Developing Asia



Carbon assets are facing negative investor recognition

- Transition risk and climate awareness are driving investors away from carbon assets towards green assets
 - After the Paris Agreement, US banks reduced their proportion of lending to industries most exposed to transition risk. Additionally, banks that have signed the Net-Zero Banking Alliance have significantly reduced their exposures compared to non-signatories by cutting lending to the riskiest industries (Jung et al. 2024)
 - A global perception-based survey of 439 institutional investors finds that most survey respondents ascribe climate risks as being consequential to their asset holdings and firm returns (Krueger et al. 2020)
 - Assets of funds with an environmental, social and governance (ESG) mandate have grown by 170% since 2015 (ECB 2020)
 - Climate awareness prompt investors to invest in more ESG-focused mutual funds and away from carbon-intensive ones (Marshall et al. 2021)
 - Inflows into these funds are 47% larger in climate disaster months than in other months, and the difference between green and non-green fund inflows increases by 40% in climate disaster months (due to salience effect)
 - A one standard deviation increase in awareness about climate change is associated with 0.81% more carbon divestment by institutional investors in 23 countries around the world after 2015 (Choi et al. 2021)
- Investors are willing to pay extra or accept lower yields in exchange for green impacts
 - Average “greenium” of -1 to -9 basis points on secondary markets for both corporate and municipal bonds (MacAskill et al. 2021)
 - Investors in the European equity market tend to accept lower returns, ceteris paribus, to hold greener and more transparent assets when the shift of the economy towards low-carbon becomes more credible (e.g. after the Paris Agreement, the first Global Climate Strike and announcement of the EU Green Deal) (Alessi et al. 2021)

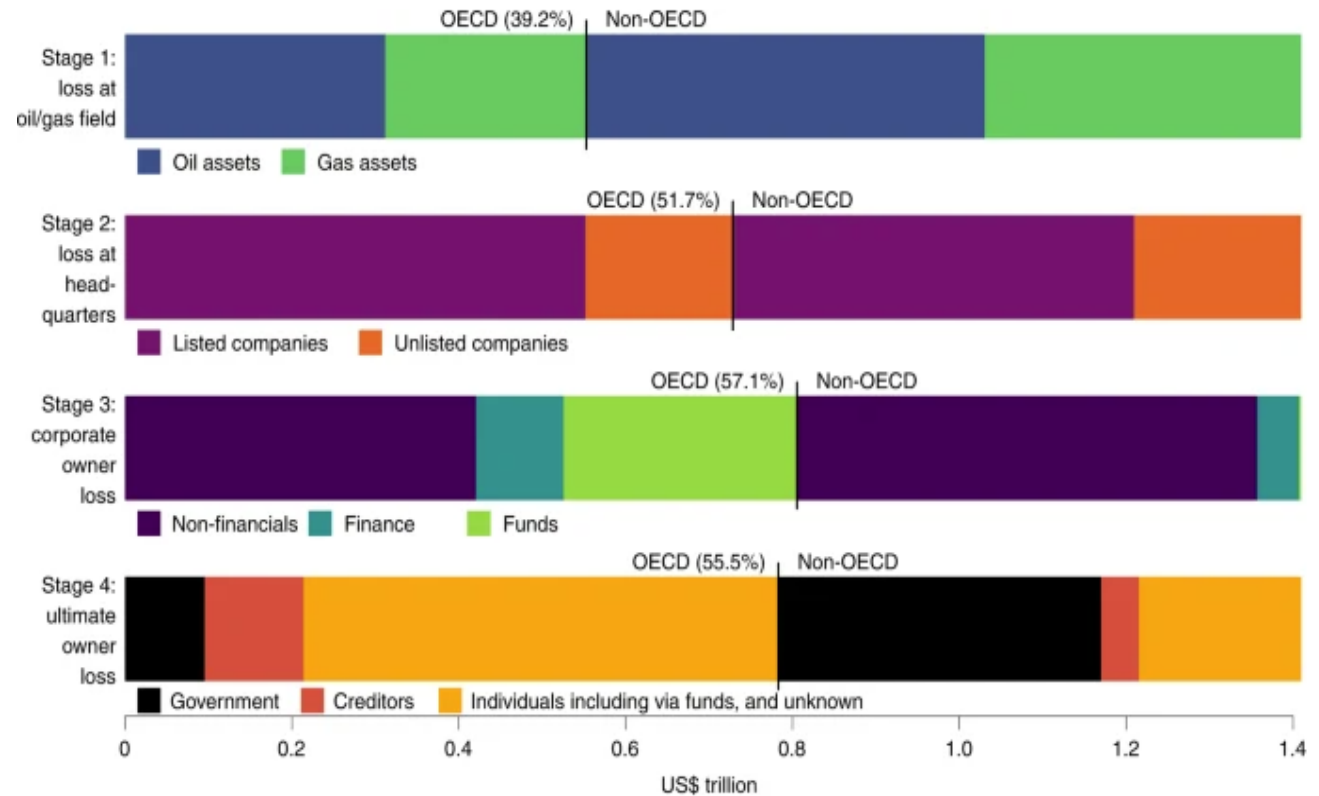
Carbon assets are facing higher risk premium and financing constraints

- Carbon assets facing higher risk premium (i.e. higher costs of capital) and financing constraints
 - Investors command a ‘carbon risk premium’ on US equities and globally on stocks with higher levels and growth rates of carbon emissions based on 14,400 firms across 77 countries (Bolton and Kacperczyk 2021, 2023)
 - A one-standard-deviation increase in cross-sectional scope 1 emissions associated with a 1.1% increase in annualized stock returns (Bolton and Kacperczyk 2023)
 - Big carbon emitting European companies paying higher interest rates on their bond issuances, with a 40 basis points borrowing cost difference between high vs low-emitting firms since 2020 (De Nederlandsche Bank 2024)
 - Loan risk premium related to CO2 emission intensity in syndicated loans after the Paris Agreement (BIS 2021)
 - Carbon risk premium since 2016 of about 3-4 basis points (ie a 0.03-0.04% loan rate premium).
 - For high emitters (90th percentile in the sample), the premium increases to 7 basis points
 - Highly polluting firms command higher average returns as they are more exposed to environmental regulation risk (Hsu et al. 2023)
 - A long-short portfolio constructed from firms with high versus low emission intensity within an industry generates an average annualized excess return of 4.42%, which remains significant after controlling for risk factors
 - Carbon risk reflected in out-of-the-money put option price (Ilhan et al. 2021): The cost of option protection against downside tail risks is larger for firms in the S&P 500 with more carbon-intense business models.
 - A one-standard-deviation increase in a firm’s log industry carbon intensity increases the implied volatility slope, which captures protection against downside tail risk, by 10% of the variable’s standard deviation
 - For carbon-intense firms, the cost of protection against downside tail risk is magnified at times when the public’s attention to climate change spikes, and it decreased after the election of climate change skeptic President Trump.

Transition finance is essential during the net-zero transition

- Transition finance helps address asset stranding and carbon lock-in, two risk factors related to carbon assets (OECD, 2023)
 - Asset stranding** occurs when assets suffer from unanticipated or premature write-downs, devaluation, or conversion to liability (Lloyd’s 2017). Stranded assets are risks for asset owners but may pose systemic risk and threaten financial stability
 - Some large energy public listed companies may face stranded assets of more than 80% of their equity (von Dulong 2023).
 - “Global stranded assets as present value of future lost profits in the upstream oil and gas sector exceed US\$1 trillion under plausible changes in expectations about the effects of climate policy” (Semieniuk et al. 2022)
 - Most of the market risk falls on private investors, overwhelmingly in OECD countries, including substantial exposure through pension funds and financial markets (see figure) (Semieniuk et al. 2022)
 - Carbon lock-in** occurs when fossil fuel assets (existing or new) continue to be used, despite the possibility of substituting them with low-emission alternatives, delaying the transition to near-zero

Ownership chain of stranded assets by OECD/non-OECD geography and major institutional categories

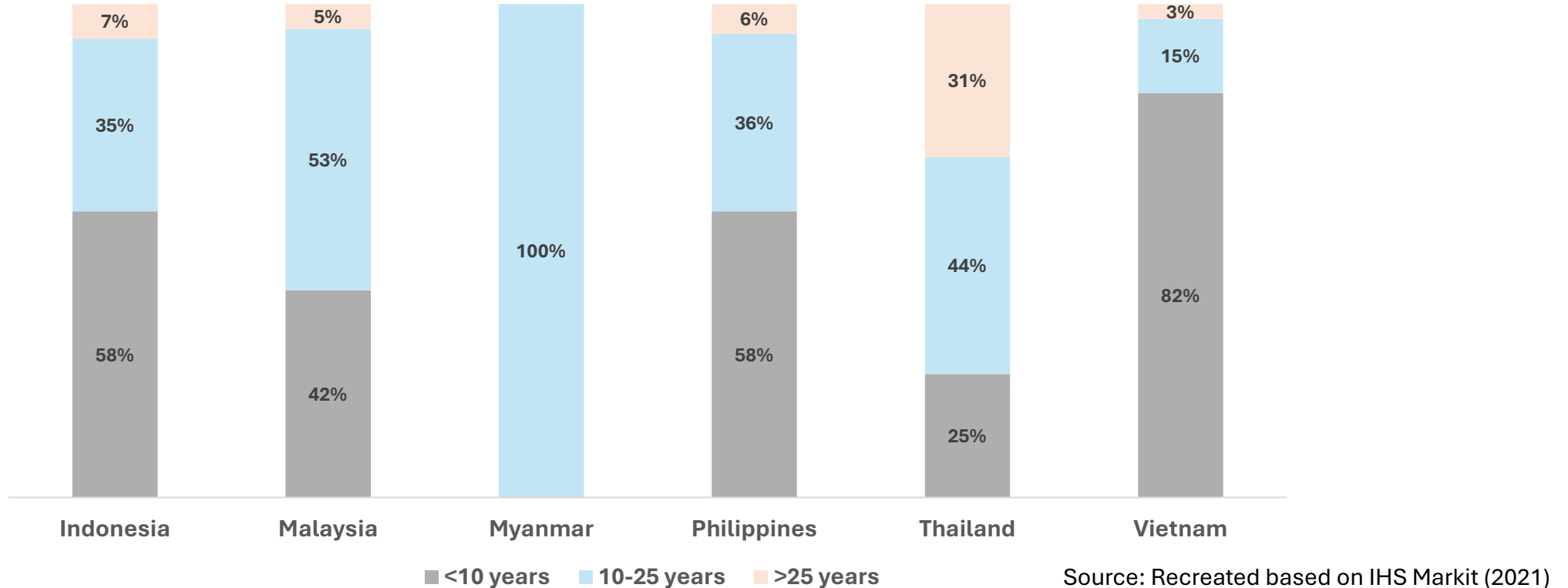


Each bar represents \$1.4 trillion in losses from medium expectations realignment at successive ownership stages, divided into OECD and non-OECD losses, and within each geography into major institutional categories.

Source: Semieniuk et al. (2022)

Transition finance will help address carbon lock in and phase out fossil fuel plants

Southeast Asia: Age profile of operating coal fleets



- For example, Southeast Asia still excessively reliant on coal, with relatively younger coal operating fleets which need to be phased out
 - Vietnam has the highest share of young coal operating fleets among large power markets in Southeast Asia, making up 82% of total coal capacity, followed by Indonesia and Malaysia (S&P Global, 2021)
- Necessitate funding mechanisms to phase out coal while scaling up renewables in the region

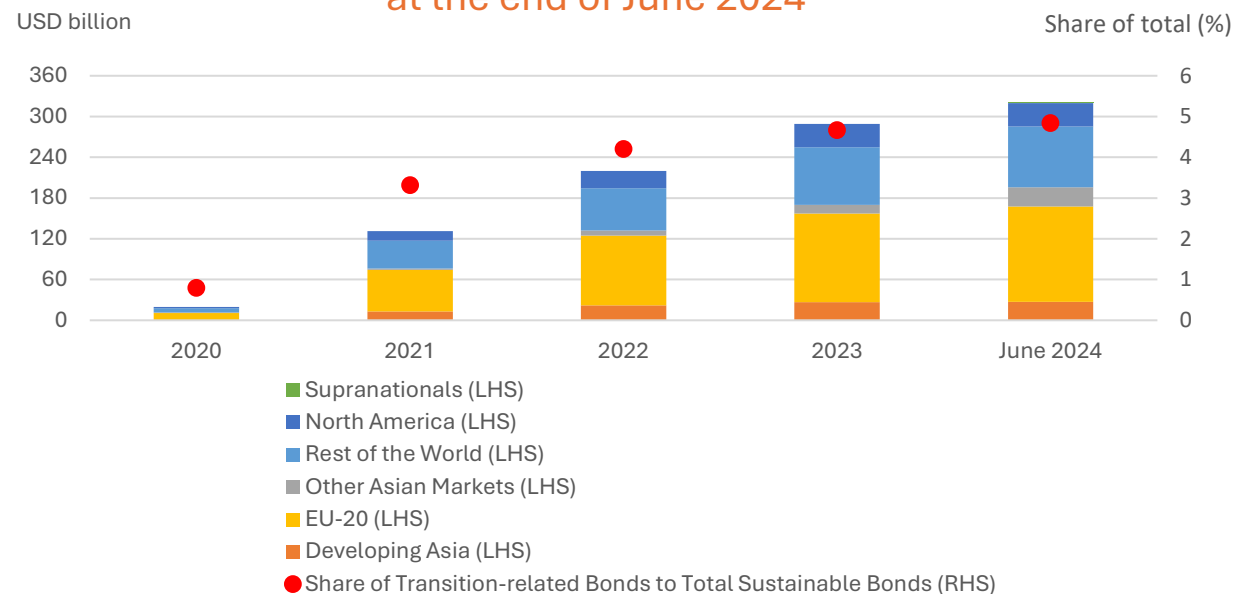
Bond Instruments for Transition are yet to take off

ICMA (2024) identifies three different overlapping definitions in general use currently for bonds that support transition.

- **Transition-themed green and sustainability bonds:** use-of-proceeds bonds to finance projects that will make a meaningful contribution to an issuer’s GHG emissions reduction strategy
 - Bonds facilitating hard-to-abate transition finance represent only 2% of the total outstanding for green and sustainability bonds
 - 44% of the total \$71bn issuance of hard-to-abate transition finance comes from fossil fuel industry
- **Labelled “climate transition” bonds:** Refer to green or sustainability bonds marketed with an additional climate-transition label
 - Japan at forefront of developing labelled transition bonds both in corporate and sovereign sector
 - Represent less than 0.4% of outstanding sustainable bond market
- **Sustainability-Linked bonds (SLB):** Contrary to use-of-proceeds bonds, SLBs are focused on issuer-level sustainability targets benchmarked by Key Performance Indicators (KPIs)
 - SLB issuance from hard-to-abate and fossil fuel sector issuers reached USD48 billion, representing 20% of the total SLB market of which 12% for companies from hard-to-abate sectors and 8% for fossil fuel companies.
 - *Transition-linked bonds are sustainability-linked bonds, where one or more of the KPIs are monitoring greenhouse gas emissions reduction metrics.*

- *Transition related bonds in global markets is steadily gaining interest, rising to USD320.1 billion by June 2024 from USD19.4 billion in 2020.*
- *This represents a 16.5-fold expansion, compared to the 5.5-fold expansion in global sustainable bonds outstanding.*
- *However, the share of transition-related bonds remains paltry at 4.8% of the global sustainable bonds outstanding in June.*

Transition related Bonds Outstanding in Global Markets at the end of June 2024



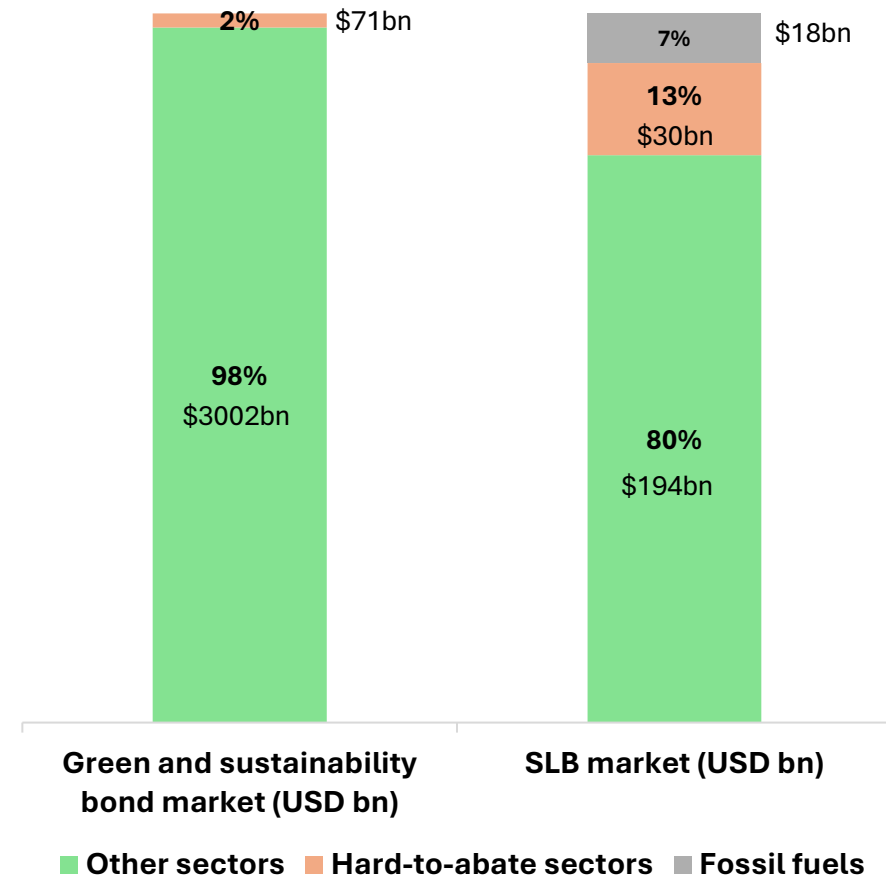
Transition related sustainable bonds: some facts

- *Transition-related bonds outstanding in Developing Asia is only 4% of total sustainable bond markets versus 8% in EU-20*
- *The size-weighted average tenor of Developing Asia's transition bonds are much lower at 3.3 years compared with EU-20's 6.1 years. similar with DA's sustainable bonds average tenor of 3.9 years.*
- *Developing Asia's and EU-20's transition bonds are mostly in local currency, with the LCY share at 75.3% versus EU-20's 86.0%, respectively. This is higher than DA's 69.8% LCY financing in sustainable bond markets.*
- *Transition-related bonds in both DA and EU-20 have only been issued by the private sector, suggesting space for governments to help promote this type of bond.*

Transition related Bonds Outstanding in Developing Asia and EU-20 at the end of June 2024

| | Developing Asia | EU=20 |
|------------------------------------------------------------------|-----------------|--------|
| Transition-related bonds outstanding (USD billion) | 27.25 | 140.36 |
| Share of transition-related bonds to total sustainable bonds (%) | 4.06 | 8.36 |
| Transition-related bonds LCY share (%) | 75.34 | 86.03 |
| Size-weighted average tenor (Years) | 3.25 | 6.07 |

Evolution of transition-related sustainable bonds



Source: Recreated based on International Capital Markets Association (2024)

Difficult for companies in fossil fuel and hard to abate industries to raise transition finance because of lack of consensus on acceptable and credible technologies and trajectories, and “greenwashing” fears for issuers and investors alike.

Impediments to Mobilising Transition Finance

According to EY (2024):

- Lack of credible and interoperable transition taxonomies
 - They serve as a guide to investors and financiers who seek to channel capital into activities which support transition
- Lack of transition planning by financial institutions
 - Regulators have a role in facilitating sound transition planning and can propose supervisory guidelines for banks, insurers, and asset managers
- Lack of economic viability of coal phaseout projects
 - Early retirement of coal plants means a loss of revenue for plant owners and their financiers
- Lack of demonstration projects that show successful decarbonization is achievable in most of the high-emitting sectors
 - Concrete examples are needed to counter the perception of high costs and risks
 - These could include transition project in coal-fired power generation, steel, cement, and petrochemicals

Financial sector regulation to support climate finance

Monetary and Banking Regulations to integrate climate risks

- **Requiring climate integration in lending and investment**
- **Climate stress tests**
- **Climate considerations for collateral**

Sustainable Financial Market Development for a climate-oriented market ecosystem

- **Green and transition taxonomies and roadmaps**
- **Sovereign issuance of sustainable bonds**
- **Sustainable bond standards and principles**
- **Capacity building for external sustainable bond verification, certification, and rating**

Climate standards and disclosure to enable transparency and integrity

- **Reporting standards (TCFD, ISSB)**
- **Measures to support market integrity for climate investments**

Policy Coordination for Improved Sequencing : Enhance market efficiency by matching supply-side (issuer) sustainable finance standards with demand side-side (investor) expectations

- Corporate climate disclosure requirements paired with investor stewardship codes and fund climate reporting to build end-user demand for such data.
- Green and transition finance taxonomy implementation paired with national green bond and sustainable financial product standards to match high-quality supply with demand.

Source: Mortimer and Tian (2024)

Role of Global Initiatives and Multilateral Organisations

- Strong cooperation on a voluntary basis at global level among different segments of private players to mobilise climate finance
 - Glasgow Financial Alliance for Net-Zero (GFANZ), Net-Zero Banking Alliance (NZBA), Network of Central Banks and Financial Supervisors for Greening the Financial System (NGFS), Principles for Responsible Investment (PRI)
- Multilateral Development Banks (MDBs) can blend in private sector finance by de-risking and improving the risk-return profile for the private sector to invest in climate transition, particularly in emerging economies
- MDBs offer more than just financing
 - Provide technical assistance at the project design stage to increase the pipeline of investable transition projects
 - facilitate the development of sustainable financial markets and an enabling climate finance ecosystem in emerging markets

Sustainable bond market profile: DA vs EU

Public sector sustainable bonds account for 28.8% of the sustainable bond market, a stark contrast compared with 64.7% in general bond market.

Compared to EU-20 markets, Developing Asia's sustainable bonds see more shorter tenor and foreign currency financing.

Maturity and Currency Profiles of Sustainable Bonds Outstanding at the end of June 2024

