Scaling Up Green Investment in the Global South: Strengthening Domestic Financial Resource Mobilisation and Attracting Patient International Capital

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Abbreviations and acronyms

A$	Australian dollar
ABF	Asian Bond Fund
ABMI	Asian Bond Markets Initiative
ADB	Asian Development Bank
AFD	Agence Française de Développement
AfDB	African Development Bank
AFIS	Africa Financial Summit
AIIB	Asian Infrastructure Investment Bank
ALCB Fund	African Local Currency Bond Fund
AML	Anti Money Laundering
ASEAN	Association of Southeast Asian Nations
ATMs	Automated teller machine
AUM	Assets under management
BIS	Bank for International Settlements
BoP	Balance of payments
BPM6	Balance of Payments and International Investment Position Manual Sixth Edition
BRD	Banque Rwandaise de Développement / Development Bank of Rwanda
CEB	Council of Europe Development Bank
CPF	Central Provident Fund
DAC	Development Assistance Committee
DBG	Development Bank of Ghana
DBN	Development Bank of Nigeria
DEG	Deutsche Investitions- und Entwicklungsgesellschaft
DFIs	Development finance institutions
DLT	Distributed ledger technology
EAC	East Africa Community
EADB	East African Development Bank
EBRD	European Bank for Reconstruction and Development
EIB	European Investment Bank
EMDEs	Emerging markets and developing economies
EMEAP	Executives' Meeting of East Asia Pacific Central Banks

F2C2	Finance Facility against Climate Change
G20	Group of Twenty
GDP	Gross domestic product
GSB	Government Savings Bank
HKMA	Hong Kong Monetary Authority
HPAEs	High Performing Asian Economies
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IDB	Inter-American Development Bank
IEG	G20 Independent Expert Group on Strengthening Multilateral Development Banks
IFC	International Finance Corporation
IFFIm	International Finance Facility for Immunisation
IMF	International Monetary Fund
IsDB	Islamic Development Bank
J-CAP	Joint Capital Market Program
KfW	Kreditanstalt für Wiederaufbau
KIPPRA	Kenya Institute for Public Policy Research and Analysis
KPI	Key performance indicators
Ksh	Kenyan Shilling
KYC	Know Your Customer
LIC	Low-income country
MDBs	Multilateral development banks
MENA	Middle East and North Africa
MIGA	Multilateral Investment Guarantee Agency
MSMEs	Micro, small and medium sized enterprises
MYR	Malaysian ringgit
NDB	New Development Bank
NDBs	National development banks
ODA	Official development assistance
OECD	Organisation for Economic Co-operation and Development
PHP	Philippine peso
PSW	Private Sector Window
SDGs	Sustainable Development Goals

SGS	Singapore Government Securities
SLB	Sustainability linked bond
THB	Thai baht
UNCTAD	United Nations Conference on Trade and Development
US	United Sates of America
WBG	World Bank Group
WEO	World Economic Outlook

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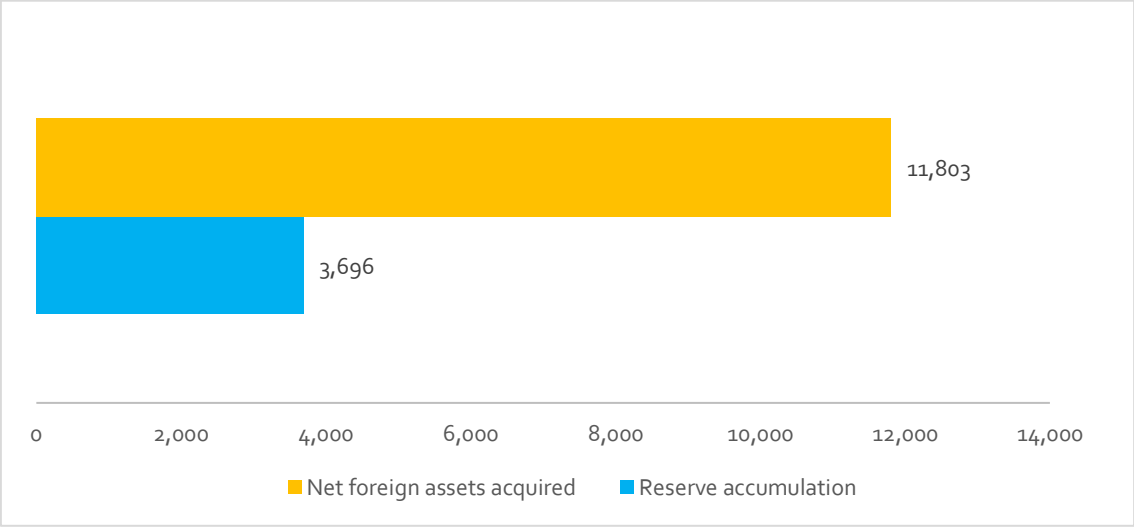
Executive summary

There is an urgent need to scale up green investment in the Global South. The annual funding shortfall in developing countries grew from $2.5 trillion before the pandemic to around $4 trillion. Yet, developing countries' access to international sources of capital is more challenging than ever. It becomes increasingly clear that the Agenda 2030 and the Paris climate goals cannot be met without strengthening domestic financial resource mobilisation and finding better ways of attracting patient international capital.

Channelling more domestic savings into domestic investment holds substantial potential for improved outcomes. Large amounts of developing country savings are currently invested – often at low or negative returns – in financial centres in advanced countries. These capital exports are often channelled back to developing countries in the form of high-yielding, short-term debt or portfolio investment, which increase financial vulnerabilities.

Between 2004 and 2023, the foreign asset and reserve acquisitions of emerging markets and developing economies (EMDEs) other than China were $15.5 trillion: Net foreign assets acquired by residents increased by $11.8 trillion while reserve asset holdings increased by $3.7 trillion (Figure E1). These are domestic savings invested abroad – largely in hard-currency assets – instead of the local economy. In other words, while capital should be flowing from advanced countries, where it is abundant, to developing economies, where investment needs are much larger, a lot of capital is flowing in the other direction – it is flowing 'uphill'. Even in countries that are net capital importers (including most countries in Sub-Sahara Africa), significant amounts of domestic savings are invested abroad in safe, hard-currency assets, instead of the local economy.

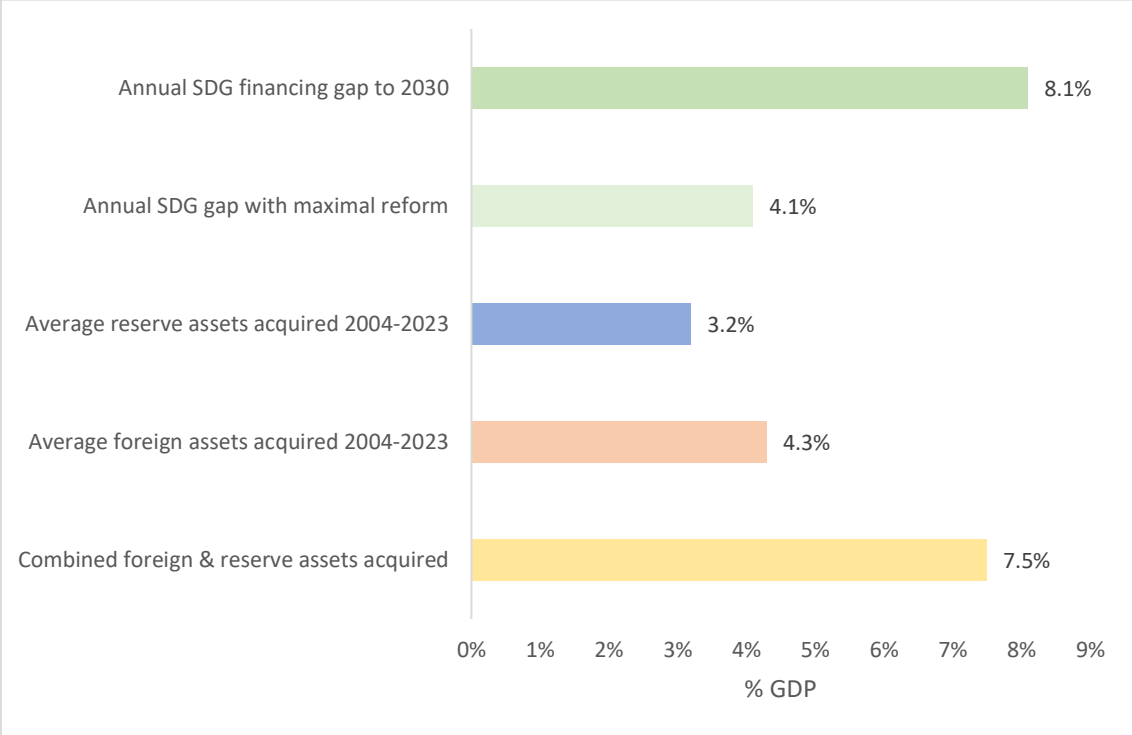
Figure E1: Net foreign assets and reserve assets acquired by EMDE excl. China (billion US dollar), cumulative 2004-2023



Source: Compiled by authors based on own calculations with data from IMF BPM6.

Excluding offshore financial centres, 82 EMDEs acquired foreign and reserve assets greater than 3% of GDP a year – capital that could have been in part invested domestically. 28 EMDEs acquired foreign and reserve assets greater than 7.5% of GDP a year. In some countries, average annual foreign and reserve asset acquisitions over the last two decades come close to the amount of annual funding required to meet the SDGs. For instance, the International Monetary Fund (IMF) estimates that Cambodia faces an annual financing gap of 8.1% of GDP to meet SDG goals in five core areas by 2030. This compares to average annual foreign assets acquired of 4.3% and average reserve assets acquired of 3.2% – a total 7.5% (Figure E2).

Figure E2: Comparing the SDG financing gap and net foreign asset acquisitions – the case of Cambodia



Source: Compiled by authors based on own calculations with data from Benedek et al. (2021) and IMF BPM6.

Efforts need to be undertaken to channel more domestic savings into domestic investment. There are various reasons why developing countries export capital, including a desire to build up foreign exchange reserves to build buffers and cushion against shocks, domestic instability, illicit flows, and a lack of long-term investment opportunities at home due to underdeveloped capital markets. A major problem for most developing countries is that they face a shortage of safe, investable assets. The inability to issue safe assets imposes a major constraint on the resilience of local capital markets to external shocks.

National development banks (NDBs) in developing countries can assume a key role in mobilising domestic savings and channelling them into domestic investment. NDBs have specific comparative advantages over internationally operating counterparts, including

their ability to provide local currency finance, a deep understanding of the local political economy, and their proximity to local markets and embeddedness in the national context. This proximity often allows them to more readily develop and scale domestic pipelines of projects and target projects with high sustainable development impact and reach beneficiaries at the local and municipal level.

To fully harness their potential, NDBs need stronger, more coherent mandates that are aligned with the sustainable development and climate goals to deliver transformative action. Moreover, many NDBs need to strengthen their capacities across corporate governance, financial management, credit risk, monitoring, auditing, credit recovery, knowledge and best practice dissemination.

This role of NDBs can be enhanced with support from multilateral development banks (MDBs) and the development finance institutions (DFIs) of advanced countries. MDBs and international DFIs have experience in delivering technical assistance projects and capacity building for banking and financial management. In addition to supporting strong governance structures, they can help NDBs to boost expertise in financing green infrastructure and projects. They can also support developing country governments in establishing a new green investment bank from scratch.

MDBs and international DFIs can support NDBs to improve their ability to raise funding in local capital markets. For NDBs to assume a catalytic role in financing the green transition and effectively leverage the capital provided by their shareholders, they need to be able to obtain refinancing at competitive rates. However, they face a serious obstacle: The funding cost of financial institutions in developing countries are constrained by a sovereign ceiling effect which has a direct impact on their cost of capital. Since NDBs are usually fully government-owned, their credit risk cannot be better than that of the government. This impedes the part NDBs could assume in financing and accelerating the green transition.

MDBs and international DFIs can significantly strengthen NDBs by providing equity capital. An equity injection would not only strengthen the NDB's capital base and therefore boost their lending capacity. A capital injection by MDBs and international DFIs would also reassure capital markets regarding high standards of governance of the NDB, which may translate into cheaper refinancing conditions in capital markets. The multiplier effect of providing equity would be much larger than of extending a loan. An alternative that would allow the government to retain full ownership of the NDB would be that the MDB/DFI could offer callable capital in exchange for seat(s) on the NDB's board. This should lift the NDB's rating, compared to a situation without MDB/DFI involvement. This would be analogous to the treatment of callable capital at MDBs.

MDBs/DFIs can also provide guarantees that support NDBs in issuing local currency debt. The International Development Association's recent first-loss guarantee for a local-currency sustainability-linked bond issued by the Development Bank of Rwanda – helping it in diversifying its funding base away from a reliance on international DFI funding and contributing to Rwanda's local capital market development – is an excellent example that should be replicated elsewhere and at scale.

Box E1: Examples of support for national and regional development banks

Examples exist of MDBs and DFIs providing equity to national and regional development banks or providing support through co-finance and technical assistance. The Development Bank of Nigeria (DBN) – which is modelled on Germany's KfW – was established in 2015 with equity participation from the European Investment Bank (EIB) and the African Development Bank (AfDB) and debt capital from KfW, the World Bank and the Agence Française de Développement. More recently, KfW, the World Bank Group, the AfDB and the EIB supported the establishment of the Development Bank of Ghana in 2022. The AfDB, the Netherlands Development Company (FMO) – and until recently the German Investment and Development Company (DEG) – are shareholders of the East African Development Bank, along with commercial investors and the four member countries of the East African Community (Kenya, Uganda, Tanzania and Rwanda).

Such partnership models between MDBs/DFIs and NDBs offer many advantages. They dovetail the development goals of the MDBs and DFIs with the need to build capacity and expertise at the national and sub-national level. Through targeted, long-term financing and technical support from MDBs and DFIs, NDBs can become major vehicles to leverage private capital and channel domestic savings into sustainable development.

To strengthen local capital markets and alleviate foreign exchange risk for developing country governments, MDBs and international DFIs should, where possible, issue more local currency debt to raise capital for local currency lending. By doing so, they eliminate exchange risk, provide safe, investable assets for both local and international investors, and support local market development. Where this is not possible, MDBs should lend in local currency nonetheless and retain the currency risk. Since MDBs have a large regional or global lending portfolio, they can pool currency risk across countries.

Digital technologies provide an opportunity for developing countries to develop new, innovative fundraising approaches and reinvent how capital market infrastructure and instruments are built to serve the specific financing needs in these markets, as well as the needs of the local investor base. Two of the largest problems for non-government local currency bond markets in EMDEs is creating an investor base and secondary market. If new debt issuances do not bring in new investors, the applicable interest rate will be a function of local market conditions. Fintech solutions have demonstrated a capacity to facilitate domestic resource mobilisation for sustainable investments and at the same time improve the implementation of infrastructure projects throughout the entire life cycle by facilitating processes and enhancing transparency. For instance, the Government of Kenya has raised money for infrastructure projects by issuing retail bonds that could be bought by small-scale individual investors on their mobile phone. Such approaches have the added benefit of not only unlocking more local currency capital, they also help to diversify the investor base with local investors. This also helps to shift accountability and interest payments from often being a relationship between the government (for government securities) and foreign creditors to also becoming a relationship between the government and the national population.

Tokenised local-currency SDG or sustainability-linked bonds issued by NDBs could target retail investors and remittances. The tokenisation of bonds and shares can enable citizens in EMDEs to become investors with smaller amounts of savings, while digital aggregation of these micro-investments helps to raise additional sustainable investment capital. One way to address this is through tokenising NDB bonds and offering them on distributed ledger systems directly to retail investors in EMDEs. Further, it is possible to link these systems to money transfer service providers to channel remittances into these bonds. This is comparable to the use of diaspora bonds. DFIs and MDBs can act as anchor investors and support new digital approaches for the tokenisation of bonds and the aggregation of micro-investments, sending a signal to other private investors about the viability and credibility of the instruments, ultimately crowding in new investors.

It is imperative that we find better ways of directing domestic savings into domestic investments across EMDEs. Creating safe, local-currency assets that attract domestic savings is one critical element. With the support of MDBs and international DFIs, and by using innovative digital approaches, NDBs can be powerful vehicles to overcome investment barriers and leverage private domestic and international finance for development by borrowing from capital markets. A strengthening of NDBs can accelerate and scale up green investment in EMDEs.

Through the use of equity, callable capital, subordinate debt, or guarantees, NDBs can leverage the resources supplied by MDBs and international DFIs. With these funds, NDBs can act as local partners and investors in low-carbon climate resilient projects, and are well placed to generate, monitor and audit significantly expanded project pipelines. Furthermore, it will be important to strengthening the global financial safety net to reduce the need for EMDE central banks to hold large amounts of foreign exchange reserves – which tend to be invested in low-yielding sovereign bonds of the major advanced countries.

Efforts to mobilise international private capital need to continue, and accelerating the MDB reform agenda is the safest bet. MDBs have an unmatched ability to leverage public resources. They can borrow cheaply against their equity in international capital markets to lend out greater volumes of finance. In addition to balance sheet optimisation, general shareholder capital increases and the provision of hybrid capital will enable MDBs to mobilise more private capital from international capital markets. Moreover, MDBs should enhance their share of local currency financing. MDBs should themselves issue more local currency debt in EMDEs, contributing to the development of local currency bond markets and removing foreign exchange risk. For their international currency lending, MDBs should hedge exchange risk themselves or offer hedging solutions to their client governments.

To complement MDB financing, we propose the establishment of a Finance Facility against Climate Change (F2C2) that would raise $1 trillion to finance climate action in poor countries. The facility would mobilise funding with a substantial grant element through the issuance of green bonds earmarked for emission reduction programmes in poor countries. The F2C2 bonds would be backed by rich nations' future commitments of official development assistance, which cover the green bonds' debt service obligations. This would allow the necessary frontloading of climate spending in poor countries, while minimising the short-term impact on donor countries' stressed budgets.

1. Introduction

There is an urgent need to scale up climate and other sustainable investment in the Global South. Yet, developing countries' access to international sources of capital is more challenging than ever. It becomes increasingly clear that the Agenda 2030 and the Paris climate goals cannot be met without strengthening domestic financial resource mobilisation and finding better ways of attracting patient international capital.

Channelling more domestic savings into domestic investment holds substantial potential for improved outcomes. As we show in this report, trillions of developing country savings are currently invested – often at low or negative returns – in financial centres in advanced countries. These capital exports are often channelled back to developing countries in the form of high-yielding, short-term debt, which increases financial vulnerabilities. Over the last two decades, the foreign asset and reserve acquisitions of developing economies other than China amounted to $15.5 trillion. This is money that could in part be invested domestically to foster climate action and enable progress in achieving the Sustainable Development Goals (SDGs).

This report calls for a much larger role of public development banks at the national and international level in developing sustainable project pipelines and in financing these. It puts forward proposals how multinational development banks (MDBs) and international development finance institutions (DFIs) can support national development banks (NDBs) and empower them to play a much more prominent role in mobilising domestic capital and channelling it into sustainable investments. It also highlights the potential of digital approaches to build capital market infrastructures and develop debt instruments that better meet the specific needs of developing economies and broaden the investor base.

The report is structured as follows. Section 2 will discuss the limits of blended finance and project-based de-risking. Section 3 analyses patterns of international capital flows and discusses why trillions of savings from emerging and developing economies (EMDEs) are invested abroad, rather than domestically. Section 4 will then discuss the urgent need for strengthening domestic financial resource mobilisation and consider what can be done to better mobilise domestic savings for domestic investment. In particular, it will look into the potential of developing local currency bond markets for long-term finance, harnessing the potential of national development banks, and leveraging digital solutions. Section 5 will then turn to mobilising international patient capital, with a focus on the role of MDBs, a proposal for a new Financing Facility Against Climate Change, and a discussion of the potential of diaspora bonds. Section 6 concludes and highlights key recommendations from this report.

2. Billions to trillions? The limits of blended finance and project-based de-risking

"Billions to trillions" encapsulates the fiction that a little bit of public finance could bring forth a multitude of transformative private sector development projects in low- and middle-income countries. Evidence that the idea is as reality-based as a Shrek movie continues to mount, and yet so too do calls to 'leverage the private sector,' especially around project finance for climate mitigation. It is time to fund approaches that might actually work."

– Charles Kenny (2022)

UNCTAD (2023) estimates that the annual SDG investment gap in developing countries is now about $4 trillion per year until 2023, with more than half of the gap, or $2.2 trillion, relating to the energy transition alone. According to the G20 Independent Expert Group, EMDEs (excluding China) require an additional $3 trillion (10% of their GDP) by 2030 in key areas that would transition them onto a path of low-carbon, equitable, resilient, and rapid economic growth (IEG 2023a). Some of this spending is supposed to come from a re-orientation of existing spending, and some through incremental spending financed by a mix of domestic ($2 trillion) and external resources ($1 trillion) depending on country circumstances.

Over the last decades, significant efforts have been undertaken to mobilise more international private capital to close the SDG and climate funding gaps. However, the volumes of international private climate finance (and SDG finance) flowing into EMDEs are disappointingly low. While private actors provided around half of total global climate finance (averaging 49% or $625 billion in 2021/2022), most of this private finance was concentrated in the United States, Western Europe, and other developed economies (Buchner et al. 2023, 19). 91% of total global private climate finance ($571 billion) was channelled domestically; merely $15 billion or 28% of total international private finance flew to EMDEs (Buchner et al. 2023, 19). This raises the question if and how private capital, be it domestic or international, can be better mobilised.

2.1 Mobilising international private capital through blended finance: A brilliant idea attracting criticism

To scale up financing for the SDGs, MDBs have advanced the "billions to trillions" agenda to "unlock, leverage, and catalyze private flows and domestic resources" (AfDB et al. 2015, 2). This pithy agenda is simple, inspiring and directly connects limited funding levels for official development assistance (ODA) (billions) with the amounts required for investment in climate action and the SDGs (trillions).[1] The idea is to use ODA to leverage and crowd in private capital for investment in sustainable development and climate action. If only a

[1] International aid from official donors stood at $223.7 billion in 2023 (OECD 2024). The UN's Financing for Sustainable Development Report 2024 estimates the SDG financing and investment gap for developing countries to range between $2.5 trillion and $4 trillion annually (United Nations, Inter-agency Task Force on Financing for Development 2024).

fraction of the assets that global banks, institutional investors, and asset managers have under management – $401 trillion in 2022 (FSB 2023) – could be mobilised, the SDG and climate financing gaps could be filled quickly.

The key mechanisms for the mobilisation of this private capital is "blended finance" – the "strategic use of development finance for the mobilisation of additional finance towards sustainable development in developing countries" (OECD 2017, 4), with 'additional finance' referring mostly to commercial finance. Blended finance is essentially about de-risking investments that private investors would not be willing to pursue on their own and structuring them such that private capital can take a larger role in financing these projects. Kapoor (2019, 6) describes blending as "the modern version of good old-fashioned subsidy". Blended finance instruments and mechanisms comprise equity instruments, debt instruments, mezzanine instruments such as first loss capital, guarantees and insurance, outcome-based financing such as development impact bonds and performance-based grants, collective investment vehicles/structured funds, syndicated loans, and hedging solutions (Habbel et al. 2021).

While the idea of using relatively small amounts of public money to mobile vast amounts of private capital for development and climate action is attractive, it has not been without criticism, and the track record is nowhere near the trillions. A fundamental problem of initiatives aimed at leveraging private investment by "de-risking" is that the risk itself does not disappear, but that it is merely shifted to public balance sheets (Mazzucato et al. 2018). Financial de-risking approaches – or fiscal derisking of private investment as described by Gabor (2021) – may hence socialise investors' risks (and potential losses) while safeguarding their profits. Moreover, attracting private capital to fund public infrastructure will further advance the privatisation of public goods across EMDEs (Arun 2023). There are potentially serious tensions between the interests of private investors seeking returns and the needs of people and local communities for inclusive and affordable infrastructure services. Although attractive risk-adjusted returns are crucial for attracting private investors, infrastructure projects ultimately need to deliver for the people in pursuit of the achievement of the SDGs. The bankability or investability of projects in public sectors (health, education, water) relies on user fees that restrict universal access (Gabor 2021). As will be discussed in Section 2.3, there are questions to what extent economic infrastructure including transport, utilities, and renewable energy as well as social infrastructure such as schools and healthcare facilities can meet minimum return expectations of institutional investors.

Critics of blended finance have also voiced concerns about financial stability risks associated with "the escorting of international capital by multilateral development agencies into frontier and emerging market settings" (Carroll and Jarvis 2014, 540). In particular, concerns have been raised around the complexity and a lack of accountability and transparency of blended finance (Mawdsley 2018, 194) and regarding growing risks of related financial innovation and an over-financialisation in developing economies (Akyuz 2017) that may contribute to debt crises. Financial stability risks may also arise from the fact that both DFIs and private financiers usually provide finance only in international currency, which leaves borrowers with foreigners exchange risk. UNCTAD (2019: viii) criticises that "the focus of the development finance agenda on complex – and mostly non-transparent – new financial instruments and on securitized finance, does not

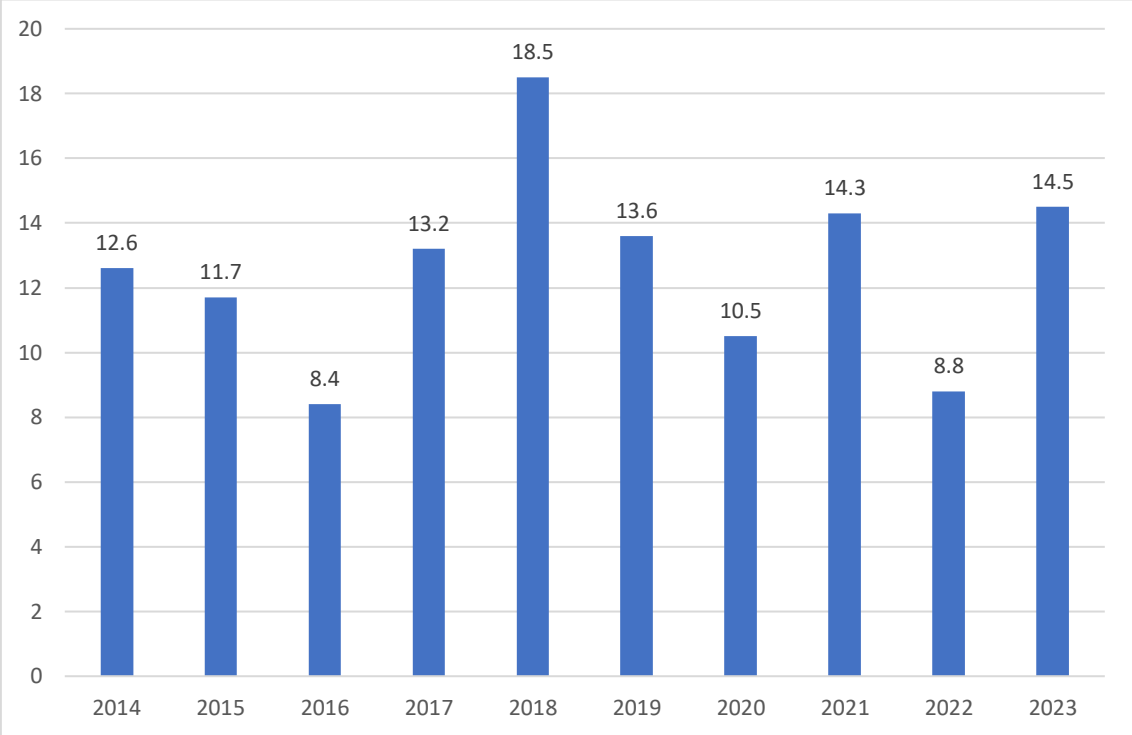
bode well for its ability to deliver reliable financing at the required scale to where it is most needed."

Kapoor (2019) highlights that blending as a concept is not new and that DFIs have always used (implicit) subsidies to crowd in private investment. He cautions that expectations of what blending can deliver have been overblown and points to the risk that soft money may end up funding profitable projects that would have been taken up by private investors even without public subsidies. Moreover, Kapoor (2019) warns that soft money windows can also distort incentives, making unsubsidised projects less attractive, and thwarting potential investments because investors are expecting excessive public subsidy. Furthermore, he points out that "even blending cannot turn a fundamentally unviable project into a profitable one" and that "top down pressure to disburse soft money will simply distort the market for everyone" (Kapoor 2019, 6).

2.2 The lacklustre track record of blended finance

Beyond these criticisms, the perhaps most powerful point of critique is that blended finance has simply not delivered in mobilising private capital at scale. Over the last decade, the total deal volume reached only $126 billion, which corresponds to an average of $12.6 billion annually (Figure 1). Tadas (2023) notes that private sector investment in infrastructure is lower than it was a decade ago and that nominal headline growth was due to growth in concessionary and DFI funding.

Figure 1: Aggregate annual deal volume, total blended finance market (billion US dollar)



Source: Compiled by authors with data from Convergence (2023, 2024).

Not only are the volume and number of blended finance deals low, the leverage rate (i.e. the ratio of concessional capital to all commercial capital) tends to be low, too. Attridge and Engen (2019) estimate that each dollar invested by MDB and DFI mobilises on average only $0.75 of private finance for developing countries, and only $0.37 for low-income countries (LICs). According to the G20 Independent Expert Group on Strengthening Multilateral Development Banks, MDBs mobilise 0.6 dollars in private capital for each dollar they lend on their own account (IEG 2023a). According to the Blended Finance Taskforce, the mobilisation ratio is even lower for climate: MDBs mobilise on average less than 30 cents of private capital for every public dollar spent on climate (van Marwijk Kooij et al. 2023). Moreover, most blended finance deals happen in middle-income countries rather than LICs (Attridge and Engen 2019). Also, most concessional finance is directed towards relatively low-risk investments, raising questions regarding the additionality of blended finance.

The largest issue for blended finance is operational. It is the lack of scalability due to absence of a pipeline of suitable projects. This can be illustrated by the challenges encountered by the International Development Association's (IDA) and its Private Sector Window (PSW). The IDA is the World Bank's concessional lending arm. Its PSW provides financial resources to projects generated by other arms of the World Bank, in particular the International Finance Corporation (IFC) and the Multilateral Investment Guarantee Agency (MIGA), with the goal of attracting private capital.[2] The PSW is funded via the same replenishment rounds as the IDA, being earmarked $2.5 billion on three separate occasions. However, for the first two rounds, only $2.947 billion out of $5 billion allocated had been committed. In the most recent round, the excess was not carried over, such that the programme's current allocation is $2.95 billion + $2.5 billion = $5.45 billion. As of 30 June 2024, the IDA PSW had made commitments of $4.7 billion. However, commitments do not equal money spent. Only $2.1 billion has been utilised, i.e. 38.5% of the budgeted funds have been utilised, most of which are the face value of outstanding guarantees and notional derivatives (IDA 2024).

A review of IDA's PSW underscores three points. Firstly, due to a lack of suitable projects, it has taken eight years to commit $5 billion of IDA funding. Secondly, projects typically take considerable time to ramp up, causing a significant lag between commitment and spending. Third, although the small number of projects that got financed through PSW had a good mobilisation ratio, at least when including funds mobilised from IFC, MIGA, and other DFIs,[3] the low utilisation rate of PSW means that IDA's blending has not been very effective. As Kenny (2022) puts it, "the fact that IDA's private sector financing can't find targets to throw cheap money at also demonstrates once again that there simply aren't a lot of private sector clients and investment projects that meet the criteria of being large enough, sponsored by firms with high accounting standards, and needing more than none but less than a lot of subsidy to be successful."

[2] The World Bank Group is responsible for approximately half of climate finance reported by MDBs (AfDB, et al., 2022).

[3] According to the World Bank (2024a), since inception up until June 2023, $3.9 billion of PSW approvals have mobilised $20.3 billion of additional capital in eligible markets from IFC, MIGA, and other third-party investors, including DFIs and purely commercial private sources, resulting in a mobilisation ratio of 5.2.

2.3 A hurdle too high?

A fundamental problem for the mobilisation of international private capital is that the return expectations of international private investors often don not match with the returns yielded by investment opportunities in EMDEs. This is a particular challenge for SDG- and climate-related investments, many of which will not generate high financial returns or any cash flows at all. Moreover, SDG- and climate-related investments that generate pecuniary returns will often do so in local currency, which creates exchange rate risk for international investors.

Arun (2023) points to a mismatch between the priorities and constraints of international institutional investors and the types of projects that are to be financed:

> *"Examining the decision-making priorities of institutional investors reveals the limits of the rhetoric surrounding the mobilization of private investment: the institutional investors expected to drive global capital expenditure are ultimately concerned with how green projects like renewable energy fit into their overall portfolios. Their preferences and constraints are an important but rarely acknowledged obstacle to market-led decarbonization. These constraints – seen at the portfolio rather than at the project level – amount to a systemic barrier to mobilizing private finance for development. As a result, institutional investors are structurally unequipped to finance the world's immense green infrastructure needs."*

Potential projects need to yield a minimum acceptable rate of return – commonly referred to as the "hurdle rate" – to be deemed investable. Fund managers' renumeration usually depends on beating the hurdle rate, creating an incentive to turn down projects whose returns are expected to be lower. Hurdle rates have remained largely unchanged over time. Hurdle rates of infrastructure funds have been hovering around 8% across regions and sectors over the last two decades (Global Infrastructure Hub 2022, EDHECinfra 2023). The Global Infrastructure Hub (2022, 68) highlights that "[h]igh hurdle rates of infrastructure funds constrain fund managers from investing in infrastructure assets." EDHECinfra (2023) points out that "with an 8% hurdle, equity investments like renewable energy projects are virtually impossible." This has led to a situation where "[t]he amount of private capital available for infrastructure has more than quadrupled over the last 10 years", while a "[l]imited availability of projects and high hurdle rates have led to a significant accumulation of dry powder" (Global Infrastructure Hub 2022, 60).

As expressed by Arun (2023), "[i]f institutional investors remain ill-suited to holding crucial investments on their own balance sheets, then governments must take it upon themselves to do the job." Kenny (2022) and Kapoor (2019) call for more financing through public development banks and public spending on public projects. The vast majority of developing country spending on health, education and infrastructure is public, and therefore this is also where the largest pipeline of projects exists. Instead of trying to lure international capital for blended finance solutions and incentivise public private partnerships that often end up costing more to the public (e.g. Eurodad 2018, 2022), there is a strong case to mobilise private capital through a tried-and-tested method of leveraging private sector finance for development – the issuance of bonds by public development banks. Well-governed public development banks, backed by government guarantees and mandated to support public investment in a just transition, could absorb

institutional investor demand for liquid assets while accelerating the pace of decarbonisation. Public development banks should be empowered issue more debt, creating the safe assets that institutional investors are hunting for.

3. Wrong direction! Why too much capital is flowing uphill

Large amounts of investment in climate action – both adaptation and mitigation – are needed in the Global South. The Independent High-Level Expert Group on Climate Finance estimates total annual investment needs of $2-2.8 trillion for EMDEs other than China by 2030, out of which $1 trillion per year needs to be mobilised in external finance (Songwe et al. 2022).[4] To put this into perspective, this contrasts with a total annual average volume of global climate finance of $1.27 trillion in 2021/2022 – including domestic climate finance in the US, Canada, China, Japan, and Western Europe (Buchner et al. 2023).[5] $1.07 trillion or 84% of tracked climate finance was raised and spent domestically, while $203 billion was channelled internationally to fund projects across borders (Buchner et al. 2023). International climate flows – both public and private – to developing countries are a far cry from the amounts called for by the Independent High-Level Expert Group on Climate Finance.

Moreover, as has been highlighted by the G20 Independent Expert Group on Strengthening Multilateral Development Banks, the private capital mobilised in EMDEs has led to significant liabilities and debt service (IEG 2024). As put by Summers and Singh (2024):

> "Despite the bold rhetoric, 2023 was a disaster in terms of support for the developing world. […] rising interest rates and bond and loan repayments meant that nearly $200 billion flowed out of developing countries to private creditors in 2023, completely dwarfing the increased financing from the international financial institutions. "Billions to trillions," the catchphrase for the World Bank's plan to mobilize private-sector money for development, has become "millions in, billions out.""[6]

Indeed, as we will show in the following analysis, the situation is even worse. Not only do we have too little international climate finance flowing into EMDEs, a lot more capital is also flowing into the "wrong" direction. Not only do we see high debt service payments from EMDEs (Zucker-Marques et al. 2024), we also see significant amounts of EMDEs savings being invested abroad. At least part of these capital exports could be channelled into domestic investment, including climate investment.

Section 3.1 will provide an analysis of patterns of international capital flows. This will be followed by a discussion of the causes of high net foreign asset acquisition in Section 3.2.

[4] Investment/spending needs for climate action include the following spending categories: transforming energy systems, coping with loss and damage, investing in adaptation and resilience, investing in natural capital, and mitigating methane emissions from fossil fuel and waste (cf. Songwe et al. 2022).

[5] The Climate Policy Initiative estimates the annual global climate finance needs through 2030 between $8.1 and $9 trillion (Buchner et al. 2023).

[6] According to the G20 Independent Expert Group on Strengthening Multilateral Development Banks, in 2023, the private sector collected $68 billion more in interest and principal repayments than it lent to the EMDEs excluding China, while international financial institutions and assistance agencies extracted another $40 billion; in contrast, net concessional assistance from international financial institutions was only $2 billion (IEG 2024).

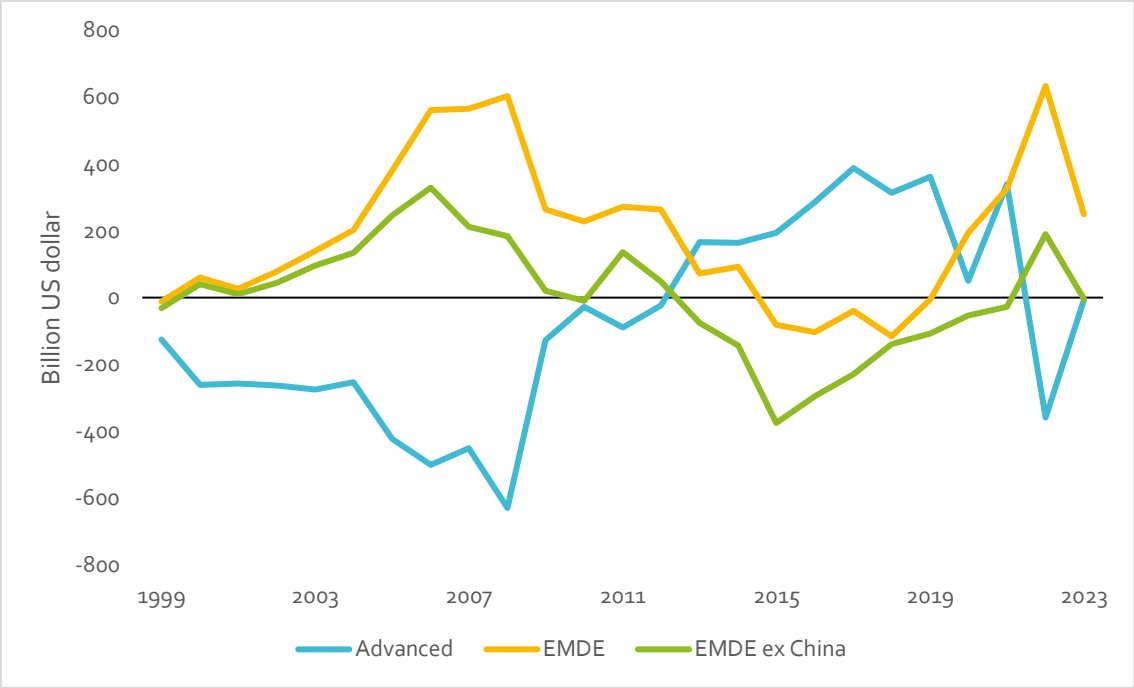
3.1 Patterns of international capital flows

According to neoclassical economic theory, financial capital should, in net terms, flow from affluent countries, which have more physical capital per worker and therefore lower returns to capital, to poorer countries, which have relatively less capital and greater unexploited investment opportunities. However, the opposite appears to be true: instead of "flowing downhill" as predicted by neoclassical theory, capital tends to "flow uphill" from poorer to richer countries. This situation has become known as the Lucas paradox, named after Robert Lucas (1990) who famously posed the question: "Why doesn't capital flow from rich to poor countries?" Despite the stark rise in financial globalisation since the 1970s (and especially the 1990s), this situation hasn't changed over recent decades. In fact, the volumes of capital flowing uphill have increased over time – with ups and downs in-between – as more EMDEs (most notably in developing Asia and the Middle East) have been running current-account surpluses (thus exporting capital), while many richer countries (most notably the US and the UK) run large current-account deficits (thus importing capital).

In this section we provide an overview of international capital flows between countries, building on balance of payments (BoP) data as recorded by the International Monetary Fund (IMF).[7] The first key concept of the BoP is the current account balance. The largest contributor to the current account is the trade balance, which is the difference between exports and imports of goods and services. By definition, a current account surplus (positive balance) implies a net export of capital from that country, as it acquires foreign financial assets in payment. In this report we use the phrase net capital exports and current account surplus interchangeably. Figure 2 shows the current account balance of advanced economies and EMDEs. Over the 25-year period 1999-2023, EMDEs had net capital exports of $4,854 billion. EMDEs excluding China – by far the EMDE with the largest current account surplus – had net capital exports of $194 billion. This includes a deficit of $638 billion related to India. Therefore, net capital exports of EMDEs excluding China and India were $832 million. These sums were higher up until 2013, at which point EMDEs excluding China entered a period of deficit that lasted until 2021. 2020-2022 saw an increase in aggregate current account balances of EMDEs due to Covid and changes in commodity prices (Ganelli et al. 2022).

[7] The primary data source are submissions under the IMF sixth edition of the Balance of Payments and International Investment Position (BPM6). This data has been merged with data from the IMF World Economic Outlook (WEO) for periods prior to 2005.

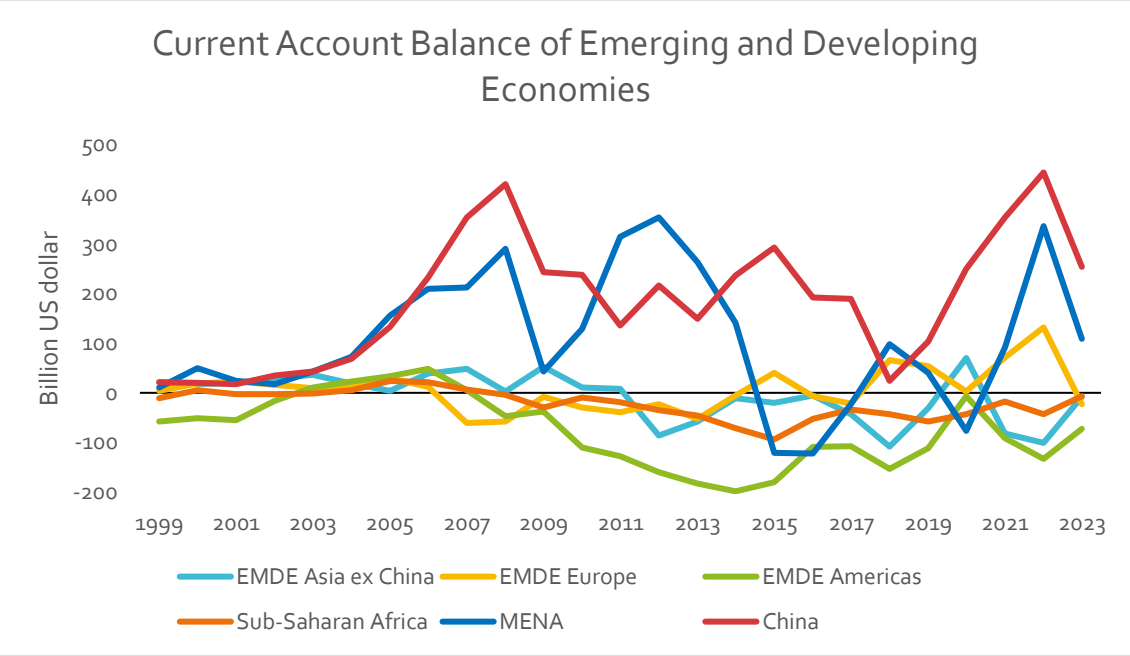
Figure 2: Current account balance comparing IMF Advanced economies to EMDEs (billion US dollar), 1999-2023



Source: Compiled by authors based on data from IMF World Economic Outlook and IMF BPM6.

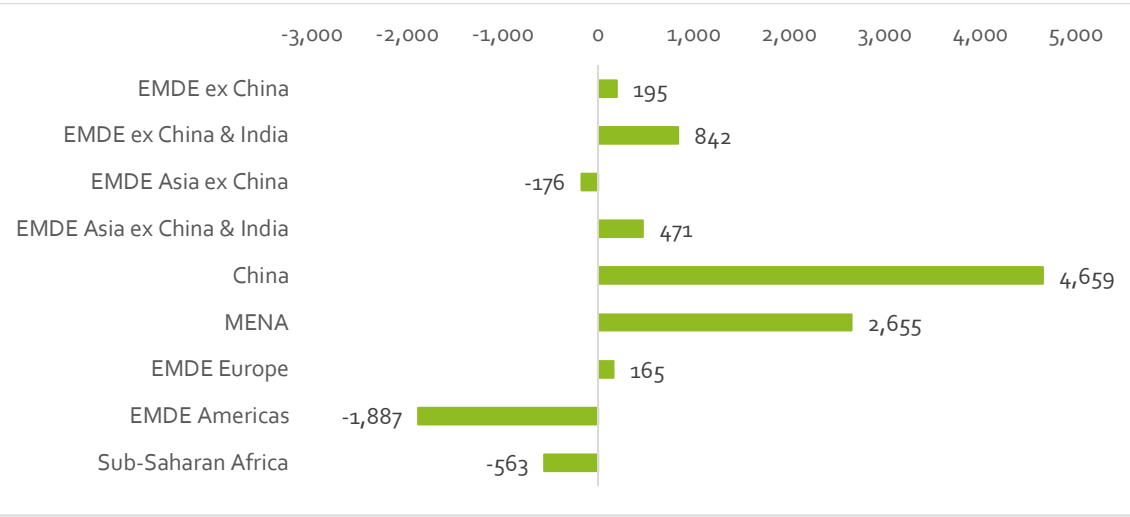
Figure 3 shows the current account balances of EMDEs by region for the period 1999 to 2023, and Figure 4 shows the net current account balances accumulated over this period. The two largest areas of surplus are China ($4.6 trillion), which we show for reference, and the Middle East and North Africa region ($2.6 trillion). EMDE Asia excluding China had a minor cumulative deficit of $176 billion. Adjusting for a current account deficit of $638 billion related to India, EMDE Asia excluding China and India is in surplus by $462 billion. The two regions with the largest net capital imports were EMDE Americas with $1.9 trillion and Sub-Saharan Africa, which recorded $560 billion of net capital imports over this timeframe. EMDE Europe recorded net capital exports of $165 billion. It should be noted, however, that even countries that record a current account deficit and are hence net capital importers will often see sizable capital outflows. Indeed, gross capital outflows, which are not visible when looking at aggregate current account data, are often very large. To better understand patterns of international capital in- and outflows, it is therefore necessary to look at the components of the BoP.

Figure 3: Current account balances of EMDE by region (billion US dollar), 1999-2023



Source: Compiled by authors based on data from IMF World Economic Outlook and IMF BPM6.

Figure 4: Net current account balances by region (billion US dollar), 1999-2023



Source: Compiled by authors based on data from IMF World Economic Outlook and IMF BPM6.

Countries provide granular information on international capital flows as part of BoP survey data published by the IMF. This includes changes in financial claims by residents on non-resident entities and vice versa. We define 'net foreign assets acquired' as the asset components of the 'direct', 'portfolio' and 'other investment' accounts of the IMF's BoP data. These asset categories reflect flows in debt, equity and other claims of resident

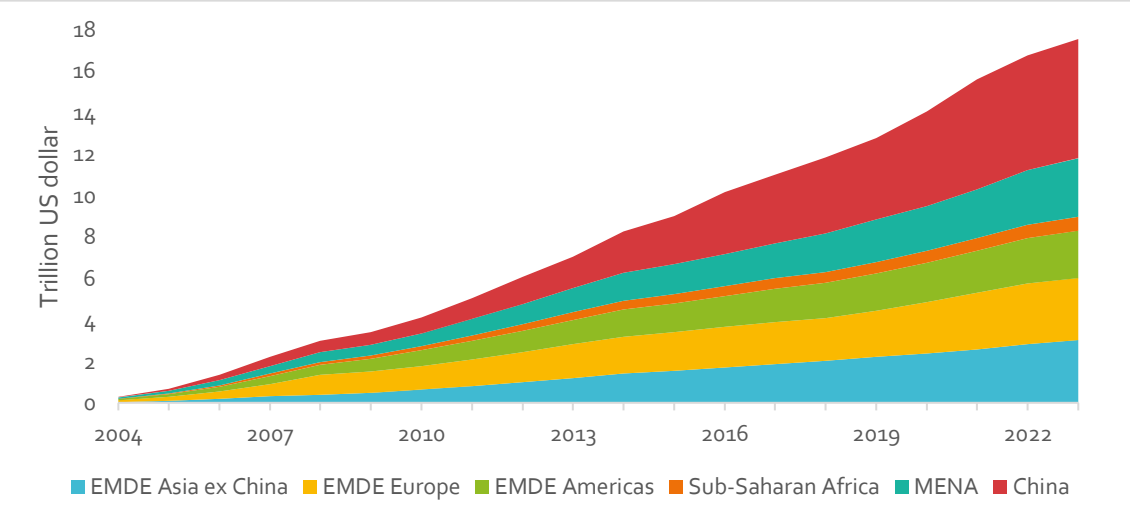
individuals and organisations on foreign entities. This figure could also be referred to as net foreign assets acquired by residents. We define 'net foreign liabilities incurred' as the liability components of the 'direct', 'portfolio' and 'other investment' accounts of the IMF's BoP data. These reflect flows in debt, equity and other claims held by foreign entities on domestic residents and organisations. They could also be referred to as net domestic assets acquired by non-residents.

A nuance to this categorisation is that it is possible for countries to have negative net foreign assets acquired and negative net foreign liabilities incurred over a given period. For example, in the Bahamas and Lebanon, the financial claims by domestic residents on foreign entities declined between 2004 and 2023, i.e. the foreign assets held by these countries' residents was reduced on a flow basis.

Figures 5 and 6 show cumulative net foreign assets acquired by EMDEs excluding China and different regions, and foreign reserve accumulation, respectively. Reserve accumulation is the net change in financial assets available to central authorities as reported in the balance of payments.[8] Between 2004-2023, the foreign asset and reserve acquisitions of EMDEs other than China were $15.5 trillion (Figure 7): Net foreign assets acquired by residents increased by $11.8 trillion while reserve asset holdings increased by $3.7 trillion. These amounts exclude countries on the BIS 2011 list of offshore financial centres (Pogliani and Wooldridge 2022).

If we consider these figures as a proxy EMDE capacity for increased domestic investment, it may be appropriate to adjust this 20-year total by inflation. Adjusting these dollar figures by US CPI, the real adjusted figure exceeds $20 trillion.[9]

Figure 5: EMDE cumulative net foreign assets acquired by region (billion US dollar), 2004-2023

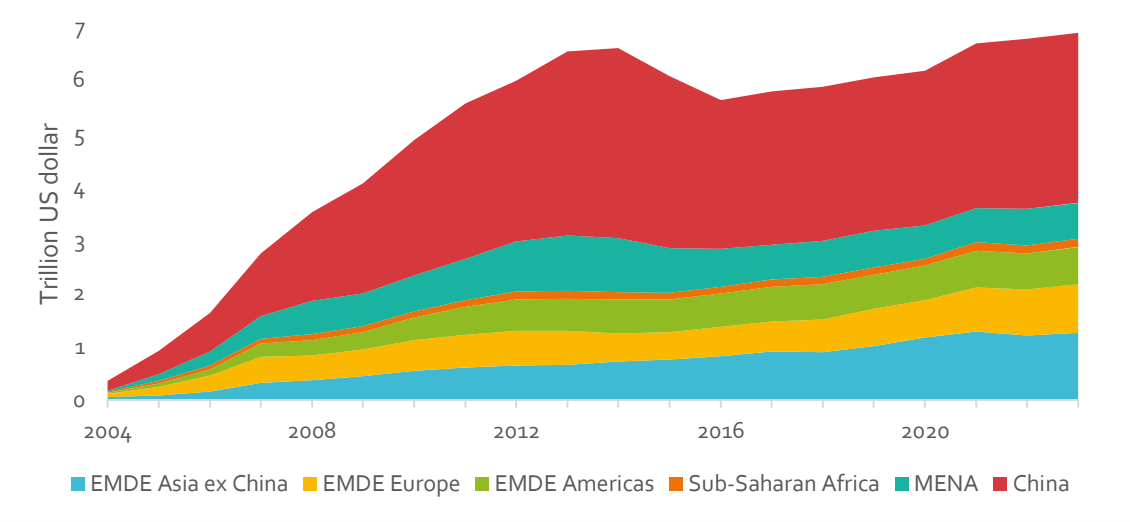


Source: Compiled by authors based on data from IMF BPM6.

[8] The balance of payments reflects movements of value. Therefore, it would not include valuation changes that did not involve a payment.

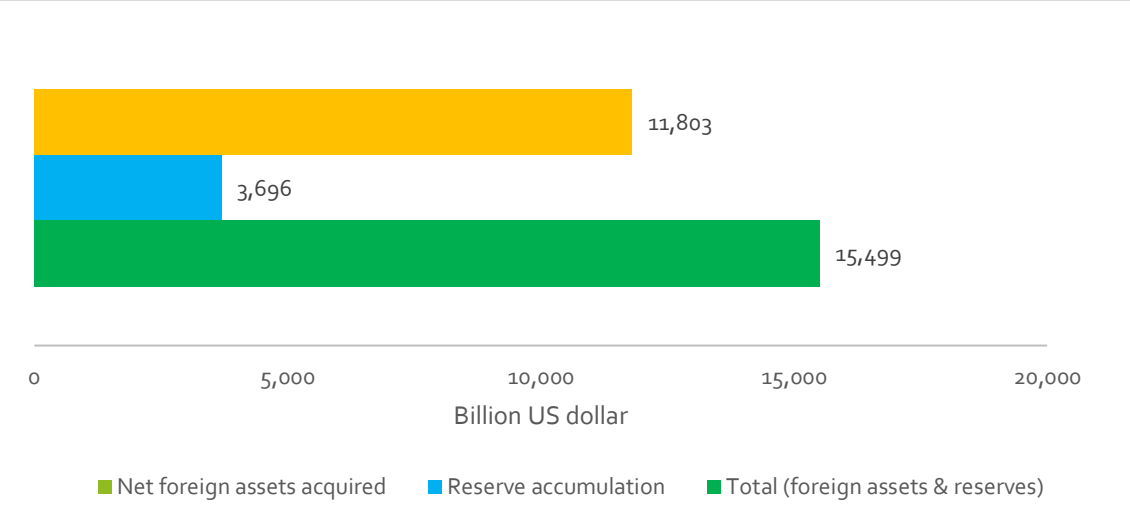
[9] All other numbers in this section have not been adjusted for inflation.

Figure 6: EMDE cumulative reserve accumulation by region (billion US dollar), 2004-2023



Source: Compiled by authors based on data from IMF BPM6.

Figure 7: Net foreign assets and reserve assets acquired by EMDE excl. China (billion US dollar), cumulative 2004-2023

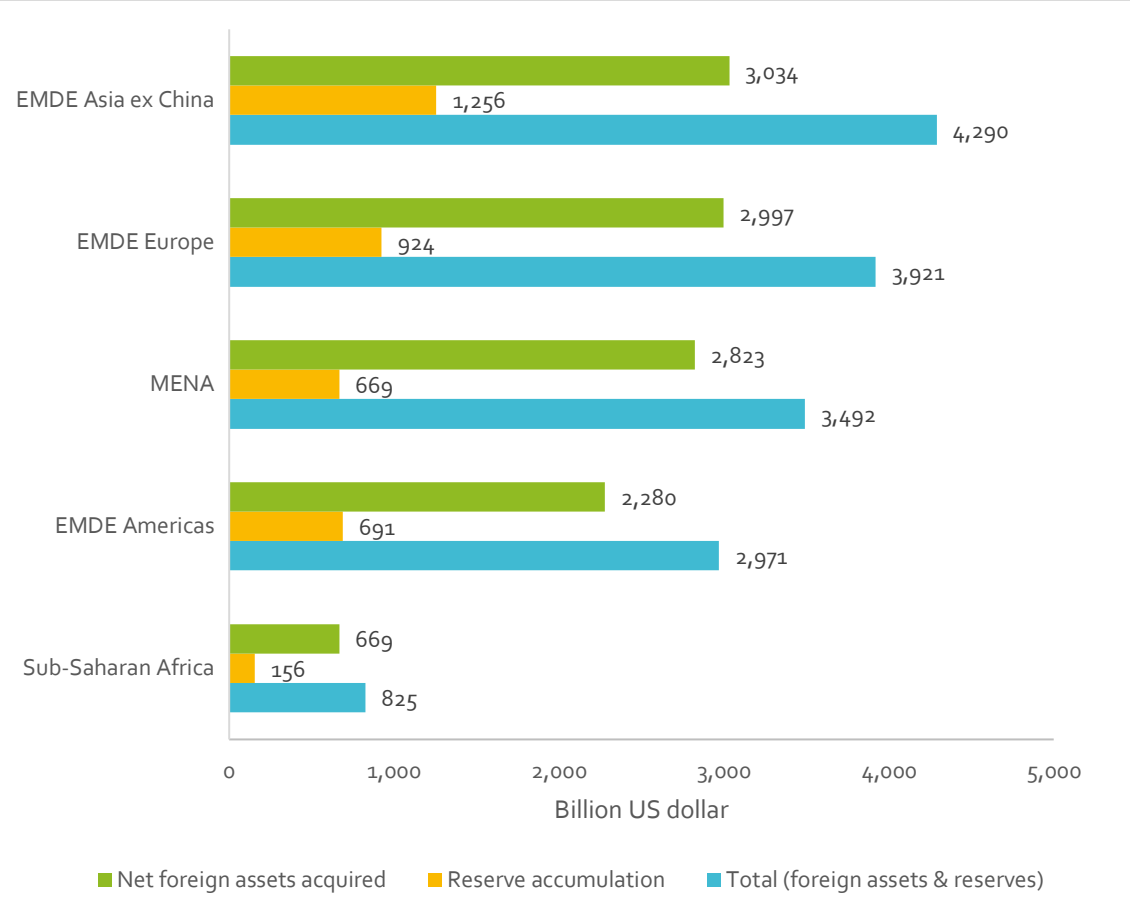


Source: Compiled by authors based on own calculations with data from IMF BPM6.

Figure 8 provides a regional breakdown of net foreign assets and reserves acquired by EMDEs. With $3 trillion, EMDE Asia excluding China is the region with the largest build-up of foreign assets. Both EMDE Europe, and Middle East and North Africa are close behind at $3 trillion and $2.9 trillion respectively. The next highest regional acquirer of foreign assets is EMDE Americas with $2.3 trillion, and Sub-Saharan Africa on $0.9 trillion.

In terms of reserves, emerging and developing Asia excluding China had the highest build-up with $1,25 billion, followed by emerging and developing Europe with $924 billion, emerging and developing Americas with $691 billion, Middle East and North Africa with $669 billion and Sub-Saharan Africa with $156 billion.

Figure 8: Net foreign assets and reserves acquired by EMDE region (billion US dollar), cumulative 2004-2023



Source: Compiled by authors based on data from IMF BPM6.

Figures A1 to A6 in the annex provide country specific detail on cumulative net foreign assets and reserves acquired, and the total of the two categories (in billion USD) for the period 2004-2023. Figure A1 displays the EMDEs with the largest absolute amounts of the net foreign assets acquired. The ten countries with the largest net foreign asset acquisitions over the period 2004-2023 are the Russian Federation with $1,732 billion, Saudi Arabia with $1,167 billion, India with $1,008 billion, Kuwait with $863 billion, Brazil with $558 billion, Mexico with $490 billion, Malaysia with $481 billion, Qatar with $443 billion, Chile with $334 billion and Thailand with $332 billion. These ten countries account for 63% of the total net foreign assets acquired by EMDEs excluding China over this period.

Figures A2 to A6 show the data for cumulative net foreign assets and reserves acquired (in billion USD) for the period 2004-2023 for other countries ordered by geographical regions. While the absolute amounts are smaller – as one would expect for smaller economies – for many of these countries, the build-up of foreign assets is relatively large given the size of their economy.

Figures A7.1 to A7.5 show the arithmetic average annual foreign and reserve assets acquired as share of GDP over the period 2004-2023.[10] Excluding offshore financial centres, 82 EMDEs acquired foreign and reserve assets greater than 3% of GDP a year – capital that could have been in part invested domestically. 28 EMDEs acquired foreign and reserve assets greater than 7.5% of GDP a year.

In some countries, the capital that is used to make foreign and reserve asset acquisitions could fund a large part of domestic financing gap to meet climate targets or the SDGs. For instance, the IMF estimates that Cambodia faces an annual financing gap of 8.1% of GDP between 2021 and 2030 to meet SDG goals in five core areas (Benedek et al. 2021).[11] This compares to average annual foreign assets acquired of 4.3% and average reserve assets acquired of 3.2% over the period 2004-2023 – a total of 7.5% of GDP (Figure 9). Thus, the average annual foreign asset acquisitions correspond to more than half of the annual financing gap and would suffice to close it in the IMF's reforms scenario. Average annual foreign asset and reserve acquisitions would close 92% of the total gap in the non-reform scenario, and exceed the SDG finance needs in the reform scenario.

It needs to be highlighted though that the volume of foreign asset and reserve acquisitions would not in all cases fill a large part of the SDG financing gap. The other three countries for which the IMF estimated the SDG financing gap – Nigeria, Pakistan and Rwanda – had much larger financing gaps and/or smaller acquisitions of foreign and reserve assets. This highlights that redirecting capital currently going overseas could help filling the domestic investments gaps for the SDGs and climate action in some countries but not in others.

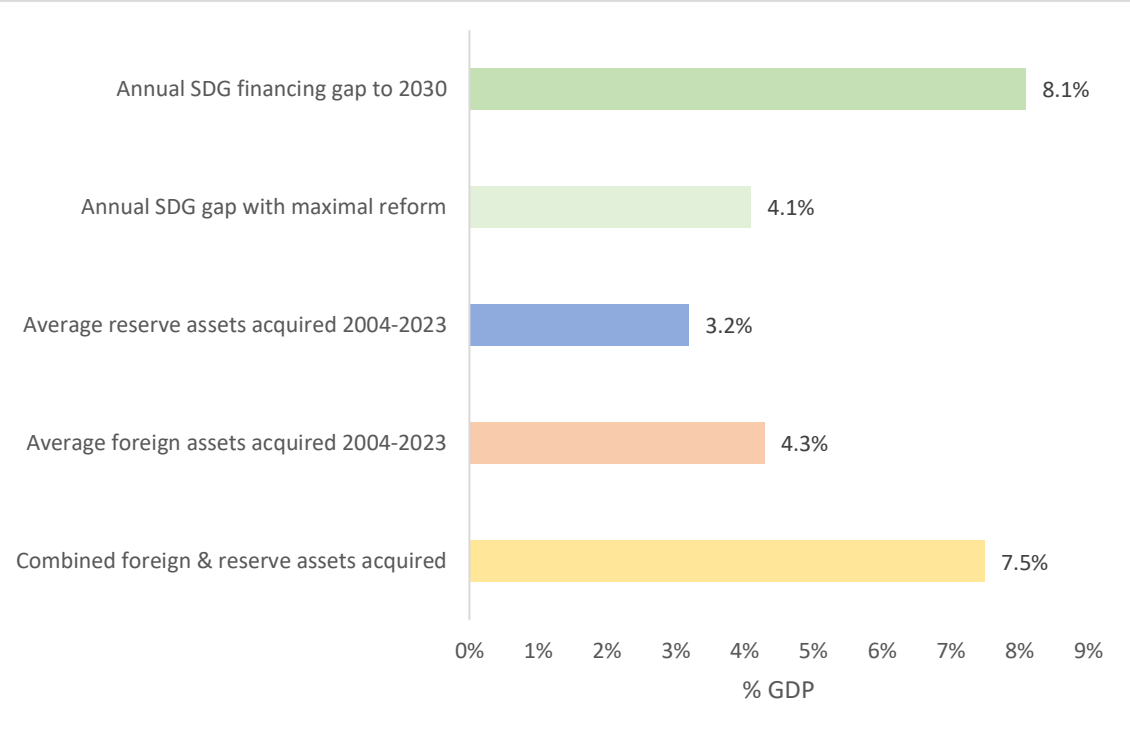
Figures A8.1 to A8.5 show foreign assets and reserve assets acquired as share of gross savings over the period 2004-2023. Gross savings is defined as GDP minus final consumption expenses. Note that for several countries, consumption expenses exceed GDP. We leave out countries with negative gross savings. As shown in Figures A8.1 to A8.5, 95 EMDEs acquired foreign and reserve assets greater than 7.5% of gross savings a year.

Overall, the analysis confirms that significant amounts of EMDE capital is currently being used to acquire overseas assets. Using EMDE capital to finance climate investments domestically has the potential to be an optimal sustainable financing framework, less subject to exogenous push factors.

[10] This data is sourced from the IMF BP06 and the World Bank. Values are calculated on an annual basis and then averaged. Averages may be based on less than the entire period 2004-2023 depending on data availability. For these charts we have excluded countries on the BIS 2011 list of offshore financial centres (Pogliani and Wooldridge 2022).

[11] Benedek et al. (2021) assess how Covid-19 has impacted the ability of four countries to achieve the SDG by 2030. Using a dynamic economic model, they estimate the funding required to meet SDGs across five key development areas (education, health, roads, electricity, and water and sanitation) in four countries (Cambodia, Nigeria, Pakistan, Rwanda). These include an estimate of public and private financing needed as a percentage of GDP, and also a lower estimate that assumes comprehensive reforms including higher taxes, better management of state-owned enterprises, improved management of public infrastructure investment and higher private investment.

Figure 9: Comparing the SDG financing gap and net foreign asset acquisitions – the case of Cambodia



Source: Compiled by authors based on own calculations with data from Benedek et al. (2021) and IMF BPM6.

3.2 Causes of high net foreign asset acquisition

The problem of capital outflows is not a new phenomenon. Kindleberger (1987) points to a long history of capital outflows, with numerous historical episodes of capital flight including cases in France in the seventeenth and eighteenth centuries. More recently, we have seen large-scale capital outflows from developing countries at the same time as these countries built up foreign debt. For instance, Varman-Schneider (1991, 1-2) highlights that "[w]hile the external debt of developing countries reached peak levels in the late 1970s and early 1980s, significant amounts of capital flowed out of these countries as private residents in developing countries were building up foreign assets. In some cases, even after external flows tapered down, residents continued to export capital abroad."

Boyce (1992) describes the situation where developing country residents accumulate substantial external assets via capital flight at the same time when their governments incur large external debts as the "revolving door syndrome". Boyce and Ndikumana (2001, 27) provide estimates of capital flight from 25 low-income sub-Saharan African countries for the period 1970 to 1996 and compare those with the external debt of these countries; they come to the conclusion that "sub-Saharan Africa thus appears to be a net creditor vis-à-vis the rest of the world." Updated analysis with data for 33 sub-Saharan African countries for the period 1970 to 2004 by Boyce and Ndikumana (2011) confirms the previous finding that Sub-Saharan Africa appears to be a net creditor to the rest of the world.

These capital outflows are a serious problem. Hermes et al. (2004, 207) point out that "in most developing countries which are riddled with heavy debt burdens, foreign exchange shortages, transient and chronic poverty, capital flight amounts to substantial portion of the very resources which are essential for financing economic growth and reversing the perverse economic trends."

There are several reasons why countries may experience large capital outflows. As pointed out by Chang et al. (1997), it is difficult to rigorously distinguish ordinary international portfolio diversification from capital flight.[12] In general, an international diversification of investment portfolios makes eminent sense. The build-up of foreign asset positions may also be driven by structural factors such as demographic change (e.g. Taylor and Williamson 1994, Brooks 2003, Schön and Stähler 2020). Moreover, capital may flow out simply because the returns on assets are higher abroad compared to assets held domestically.

However, capital outflows can be also triggered by macroeconomic instability including high inflation and exchange rate overvaluation (Cuddington 1987). If residents and domestic investors lack confidence in the country's macroeconomic and financial stability, those that can afford it will be inclined to convert their domestic assets into foreign assets.

Gertler and Rogoff (1990) put forward contractual imperfections, such as poor enforcement or moral hazard, as a driver of capital outflows. Political instability and uncertainty over public policies have also been identified as major drivers of capital outflows (e.g. Alesina and Tabellini 1989, Bhattacharya 1999, Le and Zak 2006, Tornell and Velasco 1992). As Hermes et al. (2004) point out, "residents may decide to hold their assets abroad based on lack of confidence in the domestic political situation, perceived high levels of corruption, and the consequences of these factors for the future value of the assets".

A major problem are illicit flows. The United Nations Conference on Trade and Development (UNCTAD) estimates that illicit capital flight from Africa – including tax and commercial practices like mis-invoicing of trade shipments and criminal activities such as illegal markets, corruption or theft – amounted to $836 billion between 2000 to 2015 (UNCTAD 2020). This compares to Africa's total external debt stock of $770 billion in 2018. UNCTAD asserts that ending illicit capital flight from Africa could almost cut in half the continent's annual SDG financing gap. Ndikumana and Boyce (2022) document large-scale illicit financial outflows from three African countries (from Angola, Côte d'Ivoire, and South Africa) in recent decades and point to a complex network of transnational actors and enablers involved in and facilitating capital flight and the accumulation of private wealth in offshore jurisdictions.

Nosrati et al. (2024) relate capital flight from developing countries to the institutional architecture of the global financial system. Their empirical analysis suggests that structural adjustment programmes by the International Monetary Fund (IMF) amplify financial outflows from developing countries.

A very important factor, which is also related to architecture of the global financial system, is the need for countries to build of foreign exchange reserves. The liberalisation of

[12] Chang and Cumby (1991) highlight that systemic underreporting of trade figures in both directions complicates the estimation of the magnitude of capital flight.

international capital flows has increased risks of sudden capital flights, as seen during the emerging market crises of the 1990s, the Global Financial Crisis of 2007-2008, and the Covid-19 crisis. Due to large gaps in the global financial safety net (Volz 2016, Gallagher et al. 2021), developing countries are forced to build of foreign exchange reserves to self-insure against crisis. The large accumulation of foreign exchange reserves was evident from the analysis in Section 3.1. Holding foreign exchange reserves (which typically generate low returns) is very costly as it binds resources that could otherwise be used to foster development locally. It is no coincidence that net capital flows reversed at the turn of the millennium (Prasad et al. 2007, IMF 2004), as EMDEs battered from financial crises started to build up large trade and current account surpluses – reducing their dependency on foreign lending and the risk of sudden capital outflows – and invest these abroad, especially in safe dollar assets (Bernanke et al. 2011).

Like central banks, institutional and retail investors are equally attracted to holding safe assets. As pointed out by Gorton (2017, 547), "[s]afe assets play a critical role in an(y) economy." Safe assets provide nonpecuniary returns (the so-called convenience yield) in the form of liquidity and safety (Gorton 2017). They are characterised by a high credit worthiness (or asset quality) and an ability to retain their long-term value. However, a fundamental problem facing most EMDEs is a shortage or outright lack of safe financial assets in their domestic economy (Caballero and Krishnamurthy 2008). Of course, financial regulation in most countries allows banks to assign a zero-risk weight to sovereign domestic exposures denominated and funded in domestic currency, regardless of their inherent risk. This tends to make domestic sovereign bonds attractive to domestic banks. However, the lack of relatively safe, long-term investment opportunities at home due to underdeveloped capital markets constitutes a major problem that compels domestic investors to invest in safe assets abroad, even if the actual returns are low or even negative.

To reduce capital outflows motivated by a flight into safe assets, it is first and foremost important to achieve macroeconomic stability and safeguard property rights in the local economy. Beyond this, however, it will be important to foster the development of local capital markets and work towards the development of relatively safe financial assets that will motivate domestic financial savings. The following sections will discuss how this can be achieved.

4. Strengthening domestic financial resource mobilisation

Since the mobilisation of international private capital has so far had only limited success while developing countries continue to experience significant capital outflows, efforts to mobilise domestic resources need to be intensified. This is all the more true given the bleak outlook for international development and climate finance.

But this is not just about fixing a financing gap for SDG and climate action. Strengthening domestic savings and domestic financial resource mobilisation is critical for economic development more broadly. Except for a few resource-rich countries, no economy has successfully developed without raising domestic savings and creating a financial sector that can create credit for productive investment. Without the latter, countries will continue to suffer from one of the major problems that thwarts development: a high cost of capital. Indeed, continued dependence on foreign credit, typically denominated in foreign currencies, perpetuates the structural financing problems of developing countries. In addition to strengthening domestic revenue mobilisation and the fiscal capacities of the state, bolstering domestic financial recourse mobilisation therefore ought to be a priority.

The following section will first review the importance of domestic savings for domestic investment, including a short review of successful efforts of East Asian countries to raise domestic savings and lay the foundation for industrial development. Subsequently, Section 4.2 will consider the importance of developing local currency bond markets for long-term finance, highlighting the need for creating relatively safe domestic assets and a broadening of the investor base. This is followed by a discussion of the role that NDBs can assume in mobilising savings and capital market development in Section 4.3. Finally, Section 4.4 will explore how digital solutions can be harnessed to mobilise domestic savings and widen the investor base.

4.1 Mobilising domestic savings for domestic investment[13]

Sir Arthur Lewis (1954, 155) famously wrote: "The central problem in the theory of economic development is to understand the process by which a community which was previously saving and investing 4 or 5 percent of its national income or less, converts itself into an economy where voluntary saving is running at about 12 to 15 percent of national income or more. This is the central problem because the central fact of development is rapid capital accumulation (including knowledge and skills with capital)." For sure, it has been rightly pointed out that the process of economic development involves much more than raising the savings rate and increasing the rate of physical capital accumulation (e.g. Easterly and Levine 2001). But as Chandavarkar (1971, 48) puts it, "[a]lthough the accumulation of capital is not the prime determinant of economic growth, its role as a necessary, even if not a sufficient, condition in the economic development of the less developed countries is widely recognized."[14] As a matter of fact, except for a few resource-

[13] Inputs to this section by Nick Majendie are gratefully acknowledged.

[14] Similarly, Robinson (1965) emphasises: "if one seeks to explain the growth of the more mature countries, only about one-fourth or one-fifth of the whole is to be explained by higher capital per head and three-quarters or four-fifths by other factors. These include everything that we regard as industrial efficiency,

rich countries, no economy has successfully developed without raising domestic savings and creating a financial sector that can create credit for productive investment.[15]

The relationship between savings and growth is complex

The relationship between savings and growth is certainly complex, as illustrated by Keynes' paradox of thrift, which posits that when people save, GDP can shrink as consumption declines. The level of savings does not only depend on current income as postulated in Keynes' (1936) absolute income hypothesis, it also depends on demographics as highlighted by the Modigliani-Brumberg life cycle model, i.e. aggregate savings will be affected by the relative share of young savers and old dissavers in the population (Modigliani and Brumberg 1954, 1979; Modigliani 1986).

Macroeconomics has moved beyond the seminal yet simple model by Harrod (1939) and Domar (1946), who argued that, since investment is financed by savings, high savings rates will increase investment rates and generate economic growth, or exogenous growth models like Solow-Swan, which predicts that a higher saving rate will result in a higher steady-state capital stock and thus a higher level of output. The notion that a country needs to mechanically fill a savings gap to meet certain investment requirements to achieve a target growth rate has been debunked (Easterly 1999). While most of the theoretical literature posits some relationship between savings and growth, views differ about the direction of causation.

The empirical evidence is mixed, with a plethora of studies supporting the savings-growth causation (Park and Park 1998, Hanafi et al. 2014, Omar and Masih 2017, Ribaj and Mexhuani 2021) and growth-savings (Modigliani 1970, Carroll and Weil 1994, Musamali et al. 2022, Were and Joseph 2022, Asiedu et al. 2022). Indeed, both may be true at different stages of a single country's development. For instance, Rao (2001) argues that, in the initial stages of Singapore's development, investment drove growth and growth drove savings. Once growth had enabled saving, a 'virtuous cycle' of saving, investment, and economic growth took hold. Dhakal et al. (1992) describe a similar dynamic in Japan.[16] It seems probable that per capita incomes need to grow to a certain level for the virtuous cycle of savings and growth to take hold. After all, a household whose income is below sustenance level may not be able to save.

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both on the side of management and of workers. […] But though the greater part of growth seems to derive from things other than actual capital investment, I think we might be wrong to assume that it can be harvested without the capital investment. Very often it is the construction of a new plant which permits the embodiment of the research into new techniques of production, the better factory layout, the labour-saving equipment, the scale appropriate to new methods of production, and without the capital investment the other four-fifths would have been missing."

[15] It is important to underscore that while banks can create money by extending credit (extending both sides of their balance sheet), to do so, they need to be solvent and have access to liquid reserves (McLeay et al. 2014, Rendahl and Freund 2019).

[16] In an analysis of countries in Sub-Saharan Africa, Asiedu et al. (2022) find that per capita income was a significant determinant of domestic savings. Were and Joseph (2022) find evidence of the same relationship in Tanzania, and Ackah and Lambon-Quayefio (2023) find the same in Ghana, while finding no evidence that domestic savings was a determinant of income. Similarly, Musamali et al. (2022) find that domestic private saving in Kenya is primarily influenced by the income growth rate.

So, what matters for initiating and sustaining the virtuous cycle of growth and savings? The answer may lie in the distinction between domestic and foreign savings. Neoclassical theory predicts that domestic and foreign saving are perfectly substitutable for financing domestic investment. Empirical studies, however, suggest that this is not the case (Feldstein and Horioka 1980, Lucas 1990). While investment can be financed by foreign savings, running large and persistent current account deficits is generally unsustainable and therefore relying solely on foreign savings may be risky (Cavallo et al. 2016). Moreover, domestic savings enable local banks, which are better able to assess and monitor projects, to attract foreign capital to developing countries through co-financing. This may be particularly beneficial for development where capital investment involves technology transfers in countries that are far from the technological frontier (Aghion et.al. 2006, 2016). Further empirical evidence by Krieckhaus (2002), Dobrinksy (2005), Katircioglu and Naraliyeva (2006), Aizenman et al. (2007), and Ganioğlu and Yalçın (2015) supports the positive impact of domestic savings on growth.

Aghion et al. (2016) find a statistically significant and positive relationship between average historical savings rates and average growth in per worker income and productivity. Importantly, the benefit is detected in improvements in total factor productivity growth among less developed countries. It does not find an effect among wealthy countries or in faster growth in capital stock. Their analysis suggests that domestic capital is important in enabling domestic entrepreneurs to engage in projects that move countries closer to the technological frontier – but once at the technological frontier this ceases to be important.

Insights from history: Savings and investment in East Asia's "miracle" economies

The development trajectories of the "East Asian miracle" economies provide interesting insights. The World Bank's (1993) influential *East Asian Miracle* report argues that high levels of domestic savings in the high-performing Asian economies (HPAEs; Japan, Hong Kong, the Republic of Korea, Singapore, Taiwan, Indonesia, Malaysia, and Thailand) sustained high investment rates.[17] HPAEs increased savings rates primarily by controlling inflation and ensuring that real interest rates on deposits were mostly positive, by safeguarding the security of banks through relatively strong prudential regulation and supervision, and by widening financial inclusion, for example through postal savings systems (Scher and Yoshino 2004), lowering transaction costs and increasing the safety of savings while making substantial resources available to the government.

The World Bank (1993, 88) highlights that "[e]ffective and secure financial systems helped to increase the level of financial savings (accumulation) and channel it to high-productivity investments (allocation)." Likewise, Park and Park (1998) and Roy and Sen (1991) stress that it is not only savings, but the allocation of savings that matter. The HPAEs encouraged investment in several ways: first, by creating infrastructure that was complementary to private investment; second, through tax policies favouring investment, and keeping prices of imported capital goods low by avoiding high tariffs; and third, most HPAE governments

[17] Young (1994) and Krugman (1994) argue that the high savings and investment rates of East Asian countries were actually the primary drivers of fast economic growth, rather than higher total factor productivity growth of these countries relative to others.

held deposit and lending rates below market-clearing levels through "financial repression" (World Bank 1993).[18]

While the term financial repression has a negative connotation, the combination of encouraging savings, and keeping real deposit and lending rates low did apparently deliver strong development outcomes in HPAEs. Indeed, in contrast to what critics of financial repression argue (McKinnon 1973, Shaw 1973), there is little empirical evidence that aggregate savings in developing countries respond much to increases in real interest rates – the interest-rate elasticity of savings appears close to zero. Some studies find support for the hypothesis that the saving rate and its sensitivity to the interest rate are a rising function of income (Ogaki et al. 1996). At the same time, negative real deposits rates are likely to cause a substitution of saving from monetary to real assets as well as into foreign currency assets (Mavrotas and Kelly 2001). Thus, to mobilise domestic financial savings deposited in organised money markets, it apparently matters more that financial assets are considered safe than that real returns are high.

Box 1: East Asian experiences

HPAEs increased savings and investment in several ways. In large part, successes can be attributed to "getting the basics right". Three fundamental policy areas provided the basis for high and rising savings rates.

Controlling inflation: By limiting excessive price rises, the HPAEs avoided volatility of real interest rates on deposits, ensuring that rates were largely positive and, generally, higher than in other developing economies (World Bank 1993, Quibria 2002). There is a tension here between keeping rates high enough to encourage saving while pursuing policies of financial repression.

Ensuring the security of banks: Japan, Hong Kong, and Singapore began strengthening prudential regulations during the 1970s, Malaysia, Taiwan, and Thailand in the 1980s and Indonesia in the 1990s. Prudential regulation took many forms, including capital adequacy requirements, collateral requirements, lending restrictions, direct supervision of loan portfolios, prudential behaviours of government banks and regulating nonbank financial institutions. Moreover, most East Asian governments (with the exceptions of Hong Kong, Singapore, and Indonesia) have protected banks from competition by restricting entry by new domestic competitors and foreign banks (Stiglitz and Uy 1996). Despite strong prudential regulation, financial crises have occurred, at which point governments intervened to prevent bank failures (World Bank 1993).

Widening financial inclusion: In Japan, Korea, Malaysia, Singapore, and Taiwan, government-run postal savings systems encouraged saving among low-income and rural savers by lowering transaction costs and increasing the safety of savings, substantially increasing the resources available to government to invest (Stiglitz and Uy, 1996; World Bank, 1993). The mobilisation of these savings is also important. One example is Japan's Fiscal Investment Loan Programme through which the national government directed the

[18] Singh (1998) argues that raising the propensities to save and invest can be regarded as a way of enhancing an economy's long-term international competitiveness, complementing more traditional industrial policies.

accumulated savings of small investors for the development of economic, industrial, and social infrastructure (Wright 2002).

HPAEs also used more interventionist mechanisms to increase savings: all countries maintained high public savings rates (Stiglitz and Uy 1996), particularly Singapore and Taiwan (World Bank 1993); Singapore and Malaysia compelled high private savings rates through mandatory contributions to provident funds (Sullivan 1991, McKinnon 1996);[19] Japan, Korea and Taiwan imposed controls and high interest rates on loans for consumer items and levied stiff taxes on luxury goods. Although forcing consumers to save implies welfare costs, these costs appear to have been outweighed by substantial economic benefits resulting from the positive impact on investment and growth (World Bank 1993).

Many HPAEs – Japan, Korea, Malaysia, Thailand, and Taiwan – had extended periods of mild financial repression, keeping lending rates low to encourage investment. So how did these economies prevent artificially low rates from discouraging saving? Increasing real interest rates from negative to mildly positive and avoiding unstable fluctuations encourages saving. However, savings are relatively inelastic with respect to marginal changes in positive real interest rates, allowing these economies to moderately repress interest rates on deposits and pass these lower rates onto borrowers, resulting from a transfer of income from households to firms (World Bank 1993).

Countries need to develop their financial infrastructure to enhance financial savings

Countries must develop their financial infrastructure to enhance financial savings. Mavrotas and Kelly (2001) highlight the nexus between saving mobilisation and financial sector development. They point out that what is often missing is "an appropriate financial sector, which provides incentives for individuals to save, and acts as an efficient intermediary to convert these savings into credit for borrowers" (Mavrotas and Kelly 2001, 33). They maintain that well-designed financial institutions are critical for enhancing the mobilisation of savings in developing countries, including also poorer parts of society that often are deprived of the opportunity of formal savings at positive real interest rate.[20] Goldberg (2014, 1) points out that financial institutions and policymakers can increase investment and improve welfare by broadening the availability of low-cost savings products and matching their design to the needs and constraints of poor people. Box 2 provides an example from Thailand, where the publicly owned Government Savings Bank

[19] Sullivan (1991, 133-135) explains that "Singapore's much-vaunted savings rate – and much of the funding for development, particularly public housing – resulted in large measure from mandatory contributions to the Central Provident Fund, as well as voluntary deposits in the Post Office Savings Bank. The Central Provident Fund was set up in 1955 as a compulsory national social security savings plan to ensure the financial security of all workers either retired or no longer able to work. Both worker and employer contributed to the employee's account with the fund. … The contributions were tax-exempt and subject to maximum limits based on a salary ceiling. …at the individual level, Central Provident Fund savings promoted personal and familial self-reliance and financial protection, an economic attitude constantly encouraged by government leaders. Collectively, the Central Provident Fund savings assured the government of an enormous, relatively cheap "piggy bank" for funding public-sector development; the savings also served as a mechanism for curtailing private consumption, thereby limiting inflation."

[20] Mavrotas and Kelly (2001, 35-36) point out: "It is a commonly held fallacy that individuals in developing countries do not save; in fact it has been found that even in the poorest rural areas saving is rife, albeit frequently this does not occur in a monetised fashion in the mainstream financial system."

has been seeking to encourage savings at the grassroots level whilst supporting the development of the social bond market.

Box 2: Thailand's Government Savings Bank

The Government Savings Bank (GSB) is a legal entity under the supervision of the Thai Ministry of Finance. According to GSB's statement of direction, the bank will focus on (i) adding value to Thai communities and the grassroots economy, and (ii) promoting savings among the population, both of which will be supported by an efficient information system that will allow GBS to carry out its operations efficiently.

On 24 June 2022, GSB issued a THB 10 billion ($295 million) social bond with a maturity of three years, becoming Thailand's first state-owned financial institution to do so under the ASEAN Social Bond Standards. GSB will use the proceeds to support its social agenda, aimed at eradicating extreme poverty and reducing inequality. In particular, the proceeds will be used to support government policies such as providing low-interest loans to grassroots customers to improve their living conditions and address informal debt; developing occupational capabilities, especially among the unemployed and vulnerable groups impacted by Covid-19; and supporting entrepreneurs and communities through loans and other remedial measures targeting small and medium-sized businesses affected by the pandemic.

The issuance of the social bond occurred during market volatility and a possible global interest rate increase due to unanticipated inflation. Consequently, GSB decided to issue a social bond with a shorter tenor of three years, targeting only local institutional investors and high-net-worth investors. Despite market volatility, GSB was the first specialised financial institution to issue a social bond with a face value of THB 10 billion, the highest amount for a social bond ever issued in Thailand. While Thai investors have a strong preference for smaller ticket sizes, the credit quality and issuer profile can increase investor demand.

As a state-owned financial institution, GSB plans to continue issuing social bonds to local investors, including retail investors, with varying maturities to meet investment demand and contribute to the development of the domestic sustainable bond market. GSB acknowledged that the assistance of development partners, such as the ADB, contributed to an increase in investor demand. GSB and ADB have worked closely together to develop a social finance framework that conforms to international and regional social bond standards. This transaction demonstrates that development partners can play a significant role in accelerating market development by providing hand-holding assistance to interested entities that wish to issue sustainable bonds.

Source: Adapted from Puongsophol et al. (2022).

In many countries, there is a large untapped savings potential, especially in rural areas, that could be utilised through more efficient financial intermediation services.[21] Besides

[21] As pointed out by Mavrotas and Kelly (2001, 33), "the numerous small savers that exist, even in the poorest sectors of the least developed economies, have been overlooked as a source of internal funds. The

encouraging formal savings, it will be important to also broaden pension coverage to the informal sector. For instance, merely 15% of Africans have pension coverage, much below the global average of 54% (AFIS 2022).[22] Bridging the gap between informal and formal savings and broadening participation in pension schemes by creating an enabling environment for innovation in the financial sector and through customer-centric product development could make these resources available for productive investment.[23]

Ndung'u (2022) maintains that the growth of fintech has the potential to widen financial inclusion in Sub-Saharan Africa. One example of such an initiative is Kenya's government-issued M-Akiba bond, which was sold exclusively by mobile phone (cf. Box 11 in Section 4.4). The low minimum investment of less than $30 was designed to encourage retail participation in the local currency bond market, offering savers a low-risk, high-yield product while enabling domestic financing of key infrastructure projects (Dafe et al. 2018). As will be discussed later, take up of the M-Akiba was low due to a lack of awareness about the product, which was exacerbated by logistical issues with the mobile money networks and an impending general election. Nevertheless, the potential similar initiatives to widen financial inclusion is clear. Section 4.4 will further explore the potential of fintech to strengthen domestic financial savings and resource mobilisation.

4.2 Developing local currency bond markets for long-term finance

For most EMDEs, borrowing in foreign currency – primarily the US dollar and a few other international currencies – comes with a lower interest rate than if they raise finance in their own local currency. However, EMDEs borrowing in currencies preferred by international investors means that EMDEs are taking on the associated foreign exchange risk. Moreover, a dependence on foreign currency finance and the associated macrofinancial risks are perpetuating the structural problems that result in a high cost of capital facing most EMDEs.

The reliance on foreign currency borrowing to finance domestic investment has been associated with two major problems: currency mismatches and maturity mismatches (Goldstein and Turner 2004). Financing long-term projects that yield returns in domestic currency with short-term foreign-currency credit creates financial vulnerabilities that can

difficulty is that it is far easier for governments to accept donor funds than to mobilise the savings of its population, even though the latter method may, in total, provide more credit for fixed capital formation than the former method."

[22] Efforts to offer voluntary pension contributions for people in the informal sector using digital services already exist in some places. For instance, in Kenya, the Retirement Benefits Authority launched a micro pension plan (the "Mbao pension plan") enabling informal sector workers to save for retirement through mobile money (KIPPRA 2023). Similar micro-pension products have been introduced in Nigeria and other African countries.

[23] The World Bank (2024b) recently pointed to a "substantial potential to boost savings" in Rwanda, a low-income country with a gross domestic savings rate of merely 10.5% of GDP in 2021, one of the lowest among sub-Saharan African countries. According to the World Bank (2024b, 13), the current "[r]eliance on foreign financing and aid creates a vulnerability for the economy. In the context of depleting generosity of donors, external finance poses a challenge to the sustainability of growth. It is therefore an important policy goal for Rwanda to seek to increase domestic savings (household, firms, and government) as part of its objective to move to a middle-income country."

contribute to financial crises. Periods of financial stress in EMDEs are often exacerbated through a negative feedback loop in which the local currency value of foreign borrowing increases exponentially. Declines in confidence of the economy lead to a depreciation in the currency, which increases debt service costs and drives further reductions in confidence.

The currency crisis literature has highlighted the importance of developing local currency bond markets to overcome problems of "original sin" and avoid financial vulnerabilities associated with currency mismatches (Burger and Warnock 2006, 2007; Burger et al. 2012). Original sin describes the problem that most EMDEs in the past were unable to borrow in domestic currency, be it from abroad or long term, even domestically (Eichengreen and Hausmann 1999; Eichengreen et al. 2005a, 2005b, 2007). The sovereign debt crisis that many EMDEs are currently facing underscores the problems with foreign currency finance. Although several developments contributed to the debt crisis, the depreciations of EMDE currencies during the Covid-19 crisis and since the start of monetary tightening in the United States and other major advanced economies since March 2022 has been a major contributor.

The development of local currency bond markets has been a focal point of development ever since the emerging market crises of the late 1990s and early 2000s. Progress has been made in many countries in building local currency bond markets (Burger et al. 2012, Berensmann et al. 2015, Dafe et al. 2018, Silva et al. 2020, Doornik et al. 2024). In East Asia, concerted efforts have been made at the national and regional level after the Asian financial crisis of 1997-1998 to develop local currency bond markets to reduce the double-mismatch problems in financing and enhance financial intermediation within the region (Box 3). These efforts have contributed to a significant growth of local currency bond markets in the region not only in nominal terms but also as share of GDP (Figure 10).

Box 3: Initiatives to develop local currency bonds in East Asia

Asian Bond Markets Initiative (ABMI): The ABMI was launched in December 2002 by the finance ministries and the central banks of the ASEAN+3 group – comprising the ten member states of the Association of Southeast Asian Nations (ASEAN),[24] China, Japan and the Republic of Korea – to develop local currency bond markets and promote regional financial cooperation and integration with the aim of strengthening financial stability and reduce the region's vulnerability to the sudden reversal of capital flows. Specifically, the ABMI seeks to develop efficient and liquid bond markets in Asia, enable a better utilisation of Asian savings for Asian investments and avoid the currency and maturity mismatches in financing that exacerbated the Asian financial crisis. Several working groups and task forces were created under ABMI to deepen work on the identification of problems and impediments and develop solutions and possible implementations; the work has been

[24] The ten ASEAN members are Brunei Darussalam, Burma, Cambodia, Indonesia, Laos, Malaysia, Philippines, Singapore, Thailand, and Vietnam.

supported by a secretariat hosted by the Asian Development Bank (ADB) (ASEAN+3 2023a).[25]

ABMI includes efforts to modify existing regulations to facilitate the issuance of and investment in local currency denominated bonds, the development of new securitised debt instruments, credit guarantee and investment mechanisms, foreign exchange transactions and settlement issues, and rating systems. In its initial phase from 2002-2007, the focus of ABMI was on developing the foundation and infrastructure for local currency bond markets (ADB 2017). This included efforts to generate a supply of local currency-denominated bonds by improving access to bond markets for potential issuers; develop bond market infrastructure, including settlement systems, rules, and regulations concerning transactions; and strengthen the capacity of domestic credit rating agencies.

To promote demand for local currency bonds, a website (www.AsianBondsOnline.adb.org) was established for disseminating information on market developments and guiding purchases of local currency bonds. In May 2008, the "New ABMI Road Map" was endorsed with four key goals: (1) promoting issuance of local currency-denominated bonds, (2) facilitating the demand of local currency-denominated bonds, (3) improving the regulatory framework, and (4) improving related infrastructure for bond markets. A Medium-Term Road Map 2019-2022 was endorsed in May 2019. One of the key initiatives highlighted in this Road Map was to develop the green bond market to support much-needed infrastructure investment. The latest ABMI Medium-term Road Map for 2023 to 2026 has made the promotion of sustainable finance regionally the first out of five pillars (ASEAN+3 2023b).

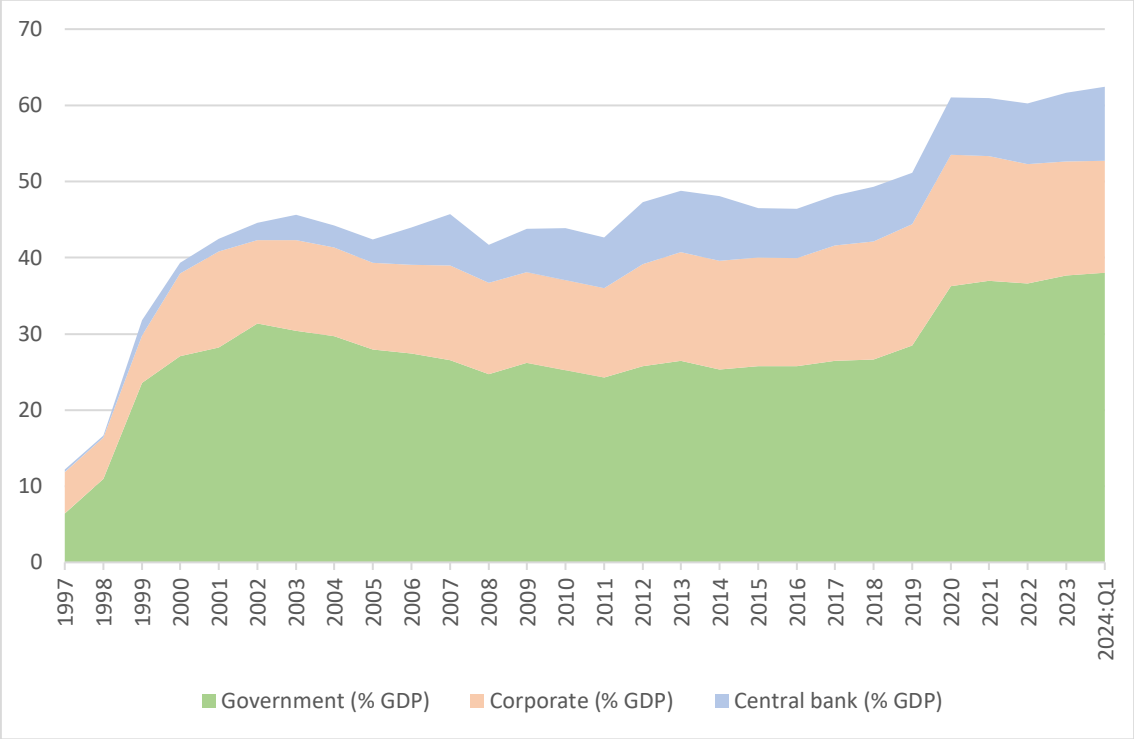
Asian Bond Funds (ABF) 1 and 2: In June 2003, the Executives' Meeting of East Asia Pacific Central Banks (EMEAP), a group comprising 11 central banks and monetary authorities in the East Asia and Pacific region,[26] launched the first phase of the Asian Bond Fund (ABF1). Designed to promote bond market development in the region, the initiative facilitates channelling the sizable official reserves held by Asian economies back into the region (Ma and Remolona 2009). Also, ABF1 provides a useful means for Asian central banks to diversify investments beyond more traditional reserve assets.

ABF2 was launched in December 2004 to invest in sovereign and quasi-sovereign local currency-denominated bonds issued in eight EMEAP markets (China, Hong Kong, Indonesia, Korea, Malaysia, Philippines, Singapore, Thailand). It comprised two components: a Pan-Asian Bond Index Fund and eight single-market funds. In a review of the ABF2, Chan et al. (2012) find that liquidity improved significantly in the eight government bond markets in which the ABF2 invested in since the fund's inception. They conclude that "the ABF2 project played an important catalytic role" in "the consolidation of issuance in a few benchmark maturities, an increase in market making activity, and the lowering of barriers to participation by non-resident investors" (Chan et al. 2012, 35). In 2021, EMEAP (2021) announced that ABF2 would promote investment in green bonds.

[25] The Japan Bank for International Cooperation, the Japanese public development bank, also contributed to the ABMI by issuances of local currency bonds and the provisions of guarantee for such bonds.

[26] The members of EMEAP are the Reserve Bank of Australia, People's Bank of China, Hong Kong Monetary Authority, Bank Indonesia, Bank of Japan, Bank of Korea, Bank Negara Malaysia, Reserve Bank of New Zealand, Bangko Sentral ng Pilipinas, Monetary Authority of Singapore, and Bank of Thailand.

Figure 10: Size of local currency bond market in ASEAN in percent of GDP



Note: Data for ASEAN include Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Philippines, Singapore, Thailand and Viet Nam. Government bonds include obligations of the central government, local governments, and state-owned entities. Corporates comprise both public and private companies and financial institutions. Bonds are defined as long-term bonds and notes, treasury bills, commercial paper, and other short-term notes.

Source: Compiled by authors with data from Asian Bonds Online (https://asianbondsonline.adb.org/data-portal/).

Other initiatives include the G8 Action Plan for Developing Local Bond Markets in Emerging Market Economies and Developing Economies (G8 2007) and the G20 Action Plan to Support the Development of Local Currency Bond Markets, which was adopted at the G20 Summit in Cannes in 2011 (G20 2011). The latter resulted, among others, in the establishment of the African Local Currency Bond (ALCB) Fund in 2012 by KfW Development Bank (Box 4). Funds like these can make an important contribution in promoting best practice and in catalysing local capital market development. In 2012, the IFC, a member of the World Bank Group, launched the Pan-African Debt Medium-Term Note Programme, a bond-issuance programme to raise funds to provide long-term, local-currency finance for African businesses, protecting them from foreign-exchange risks. The World Bank and the IFC launched a Joint Capital Market Program in 2017 to help developing countries realise the benefits of strong local capital markets (Box 5).

Box 4: Supporting the development of African capital markets – the African Local Currency Bond Fund

On behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ), KfW Development Bank established the African Local Currency Bond (ALCB) Fund in 2012 to promote corporate local currency bond markets as a viable source of funding in Africa. The ALCB Fund promotes primary corporate bond issuances in local currency by working with African issuers, investors and intermediaries to bring new deals to market.

The Fund focuses on three core areas of impact:

First, it identifies institutions with the capacity to issue local currency bonds and acts as an anchor investor for bond issuances to crowd-in local investment to sectors of developmental interest (including financial inclusion, infrastructure, agriculture, housing, education, healthcare and renewable energy). It provides technical assistance to financial service providers to lower transaction costs and encourage market development.

Second, it seeks to improve the sustainability and diversity of funding sources for issuers, reducing risks for individual institutions and the financial sector. By guaranteeing investors lending into the ALCB Fund, it encourages private funding towards long-term financing for African companies and financial institutions. It seeks to act as a catalyst that will lower financing costs, support market transparency, address risks in currency depreciation, boost financing and foster the economic resilience through the development of capital markets in partner countries, with a special focus on least-developed countries.

Third, it seeks to ensure greater economic opportunity for target beneficiaries, specifically low-income households and MSMEs by facilitating sustainable borrowing, long-term investment and financial-sector sustainability.

The ALCB Fund undertakes rigorous due diligence and generally introducing improved credit standards to the market and supports transparency through listed bonds, where possible, as well as other means of public disclosure. It promotes harmonisation of standards and appropriate legal documentation such that the bond can be marketed broadly.

In 2021, ALCB reported a 10x investment multiplier arising from their cumulative direct investment of $229 million (ALCB Fund 2022).

Box 5: The World Bank and IFC's Joint Capital Market Program

The World Bank and IFC launched the Joint Capital Market Program (J-CAP) in 2017 to help developing countries realise the benefits of strong local capital markets. The initiative – supported by Germany, Japan, Luxembourg, Norway, Switzerland, and Australia – went operational in 2018 and mobilises resources across the World Bank Group to deliver country-tailored advice and investments to create a systemic impact.

Initially focused on six priority countries and one sub-region (Bangladesh, Indonesia, Kenya, Morocco, Peru, Vietnam, and the West African Economic & Monetary Union), J-CAP has added further countries (South Africa, Colombia, Serbia, and the Philippines). J-CAP produces country-specific action plans that mobilise the World Bank's technical assistance in tandem with IFC demonstration transactions and local currency solutions. J-CAP seeks to identify opportunities to expand private sector engagement to deliver capital-markets financing and achieve results for environmental, social, and governance goals, small and medium enterprises (SMEs), infrastructure, and other priority areas. In Kenya, J-CAP advisory led to the creation of a pension fund consortium that mobilises long-term financing for infrastructure projects. In Bangladesh, regulatory reforms enabled by J-CAP led to a $50 million IFC investment in the country's first low-income housing bond. In Peru, J-CAP helped develop a green finance roadmap and taxonomy to lower national carbon footprints. J-CAP is also working in Peru and elsewhere to develop carbon-trading markets.

Under the J-CAP framework, World Bank and IFC experts work with policymakers (i) to build a supportive enabling environment for healthy capital markets through technical assistance, including by modernising market infrastructure, improving regulatory frameworks, and supervisory capacity-building; (ii) to facilitate guarantees (such as from IFC, World Bank, and MIGA) to reduce costs and attract private sector participation; and to offer local currency solutions, such as bond issuances, derivatives, and structured products.

As part of J-CAP, World Bank and IFC experts also work with investors (i) to mobilise local and global savings; to prepare for market transactions through advisory engagements; and (iii) to develop institutional investors (such as pension and mutual funds) and new instruments for investment capital, such as SME securitisation, mortgage securities, and green bonds, in markets where they may not exist or exist in only embryonic stages.

Source: Adapted from the IFC's project website for J-CAP (https://www.ifc.org/en/what-we-do/sector-expertise/financial-institutions/capital-markets/jcap).

Whereas many EMDE local currency bond markets have grown and matured, often attracting significant shares of foreign investment, Doornik et al. (2024) highlight that the investor base and size of hedging markets tend to much smaller compared with advanced markets. A small investor base and missing hedging opportunities affect the liquidity and resilience of EMDE government debt markets. Building a deeper domestic investor base and developing more mature hedging markets will help countries to better weather shocks to liquidity conditions and make markets more resilient.

Local currency bonds now represent the largest portion of outstanding bonds in EMDEs (Hofmann et al. 2020). An analysis of all government bonds issued in domestic and international markets for 25 major EMDEs from 2005 to 2021 by Onen et al. (2023, 1) shows that major EMDE governments "have enhanced their ability to borrow abroad in their own currencies, reducing their reliance on foreign currency debt", thereby making "progress toward overcoming original sin." However, as pointed out by Eichengreen et al. (2023, 3), for the vast majority of EMDEs, especially LICs, original sin continues to be a major problem.[27] They also emphasise that local currency issuance in EMDEs peaked in 2008-2011 – a time when advanced economies were in crisis and advanced-country central banks pursued ultra-expansionary monetary policy that triggered a wave of capital flows to EMDEs – and that "a nonnegligible share of that progress was reversed subsequently" (Eichengreen et al. 2023, 3).

Moreover, even those EMDE local currency bond markets that successfully grew are in part very dependent on foreign investors. As highlighted by Onen et al. (2023, 1), market and duration risk have increased in these EMDEs, and a greater exposure to foreign non-bank financial intermediaries means that they "remain subject to fluctuations in global financial conditions." Indeed, the participation of foreign investors in domestic local-currency debt markets has led to what Carstens and Shin (2019) coined "original sin redux", where the currency mismatch problem has now moved to the investors. In essence, the problem can be described as follows: "When emerging-market bonds fall in value, the effect is amplified by the associated currency depreciation, which can trigger global investors' risk limits, leading them to sell their assets. That in turn puts further downward pressure on the borrower's local currency. If the currency and bond prices both fall far enough, they can set off even more selling by investors" (Carstens and Shin 2019).[28] The large-scale withdrawal of international capital from EMDEs' bond markets in March 2020 exposed the vulnerabilities associated with a shallow domestic investor base and a heavy reliance on international portfolio investors (Beirne et al. 2021).

There clearly is a need to further develop local currency bond markets – strengthening the domestic investor base and creating secondary market are key (Hashimoto et al. 2021).[29] Just as provident funds, insurance companies, and other contractual savings

[27] A survey of local currency bond markets in EMDEs by the IMF and World Bank for the G20 shows that the total stock of EMDE debt securities doubled between 2011 and 2018 to $25.9 trillion (Silva et al. 2020). 85% of these securities were denominated in local currency, evenly split between government and non-government debt. However, these aggregate figures are skewed by region and large countries, with Asia Pacific representing 68% of local currency government debt and 87% of local currency non-governmental debt. Further, China represents over 70% of the Asia Pacific issuance. Brazil similarly dominates Latin America, representing over 60% of issuances in that region. Although liquidity is improving, spreads of 2-6 basis points (hundredths of a percent) to trade is typical, relative to advanced economy spreads of less than 1 basis point.

[28] On original sin redux, see also Hofmann et al. (2020, 2021, 2022) and Shin and von Peter (2022).

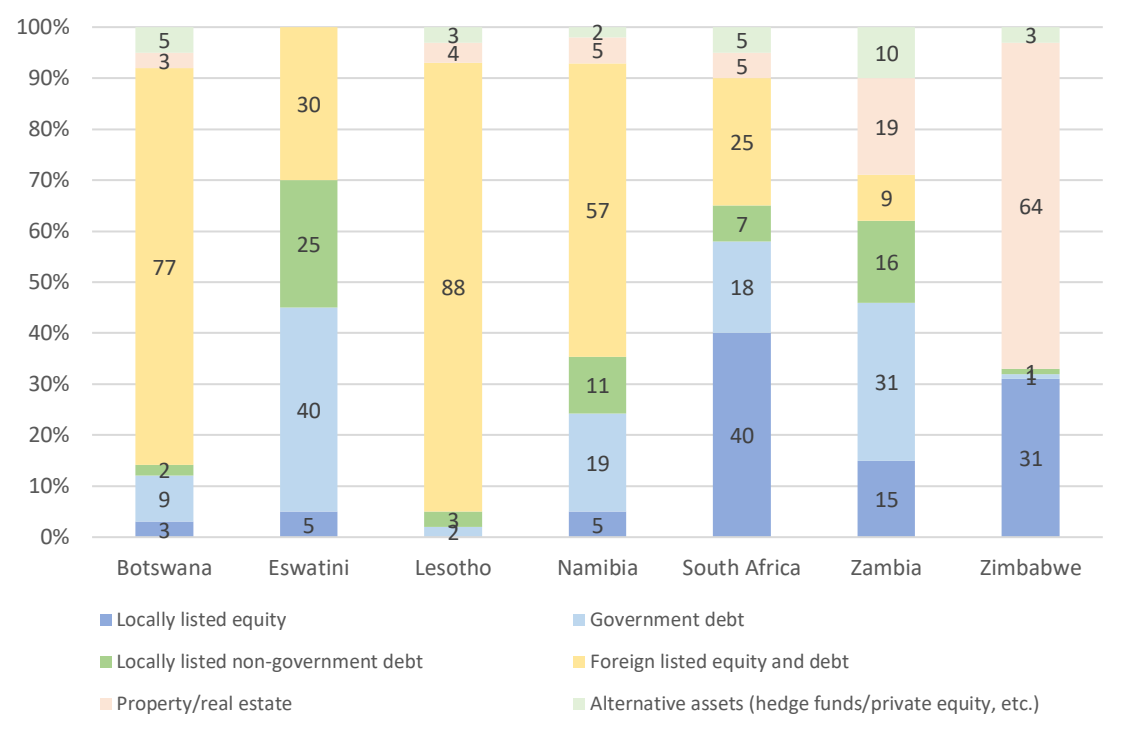
[29] Various factors have been highlighted for the development of local capital markets. Rojas-Suarez (2014) argues that four interrelated pillars must evolve together to support local capital markets: macroeconomic stability, sound banking systems, high institutional quality and an adequate supervisory and regulatory framework. These points are reiterated by Silva et al. (2020) who lay out the building blocks for local currency bond markets. These include (1) a functioning money market and yield curve that can anchor the longer-term yield curve; (2) a primary government bond market; (3) a diversified investor base; (4)

institutions have assumed important roles in expanding the investor base for bond markets in advanced economies (Fabella and Madhur 2003), attracting investment from local pension funds and insurance companies will be critical for developing the local investor base in EMDEs. As pointed out by Davis et al. (2022), these are typically the most important local institutional investors, and while in many EMDEs they may seem small with relatively low coverage, their total size is likely underestimated, and in many countries, they are growing steadily. Moreover, in many countries, there is a large untapped potential to mobilise their assets for local investment, including through local bond markets but also alternative local investments. Davis et al. (2022, 23) emphasise that "[e]xpanding the role of local institutional investors can provide benefit both for their own portfolios as well as those of international investors in their domestic market."

A recent survey among 52 pension funds in seven member countries of the Southern African Development Community by Baloyi et al. (2022) representing about $160 billion in assets under management (AUM) – about a third of all AUM of funds in the region – shows that most pension funds in the region allocate a very large share of their portfolio to foreign listed equity and debt (Figure 11). In Lesotho, pension funds allocate on average 88% of their portfolio to foreign listed equity and debt, followed by pension funds in Botswana, where this share is 77%, and Namibian pension funds with a share of 57%. The share is also very high in Eswatini with 30% and South Africa with 25%. It is more modest in Zambia with 9%. In Zimbabwe, the Pension and Provident Fund Act states that investments must be realisable in Zimbabwe (Baloyi et al. 2022), and overseas investment is zero accordingly. Overall, this survey shows that there is a large untapped potential among pension funds in many Southern African countries that could be used for domestic investment. The situation is very similar in many other EMDEs. Creating relatively safe, investable domestic assets is critical for unlocking this potential.

secondary market with multiple intermediaries; (5) financial market infrastructure e.g., for payment and settlement; and (6) reliable legal and regulatory framework.

Figure 11: Portfolio allocation between asset classes (unweighted, in percent)

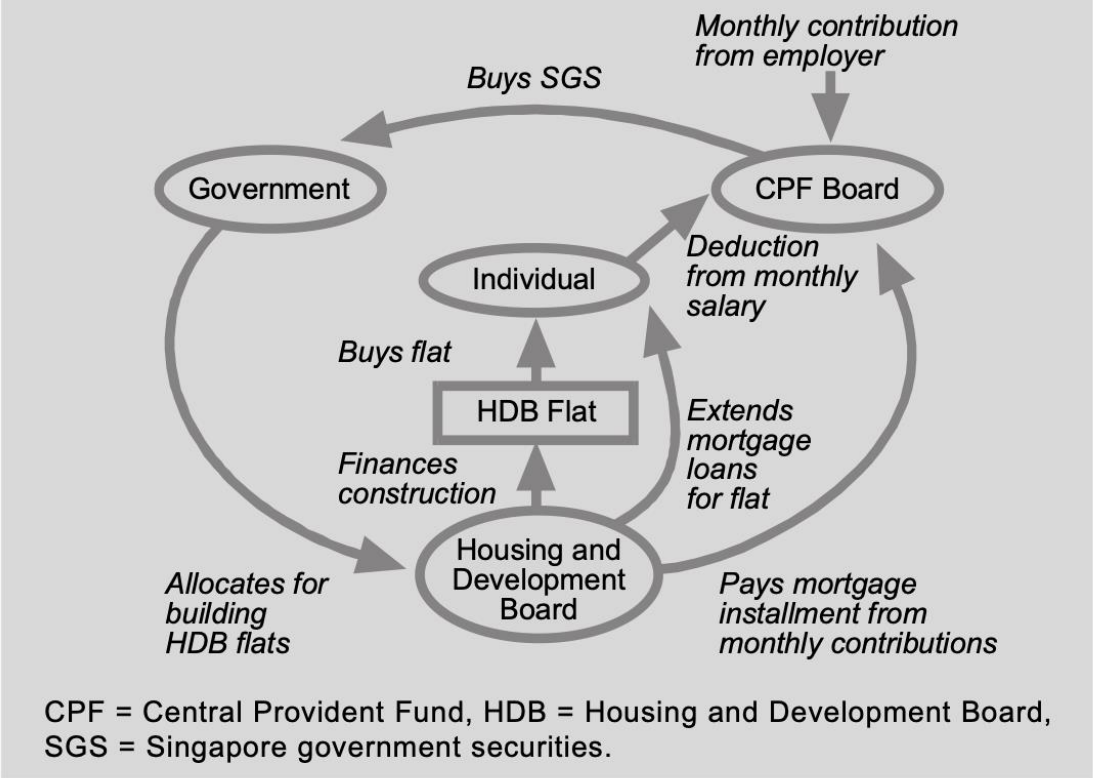


Note: The number of pension funds per country that participated in the survey is as follows – Botswana: 3, Eswatini: 2, Lesotho: 1, Namibia: 9: South Africa: 21, Zambia: 21, Zimbabwe: 5.

Compiled by authors with data from Baloyi et al. (2022).

Again, the HPAE provide important insights into the role that domestic pension funds can play in the development of local capital markets. In Singapore, the Central Provident Fund, which was established as the national funded pension scheme in 1955 under the British colonial government, played a central role in the development of the country's bond market. Wong (1993) points out that, for a long time, Central Provident Fund assets were invested almost exclusively in Singapore government bonds, making it the largest holder of Singapore government securities (Ng 1999). The backing by the Central Provident Fund "provided the state with vast resources to pursue its developmental and social goals" (Wong 1993, 1). In particular, the government has used purchases of Singapore government securities by the Central Provident Fund to fund the development of public housing projects through the Housing and Development Board, a statutory board under the Ministry of National Development responsible for the public housing in Singapore (Figure 12). This arrangement was helped by allowing Central Provident Fund savings to be withdrawn for the purchase of government flats (Ng 1999). The scheme has been a great success, with 78% of the Singaporean population live in public housing in 2024 (Lim 2024). Fabella and Madhur (2003) emphasise that the Central Provident Fund was only able to assume such an important role in the development of Singapore's bond market because it was able to build a reputation for being well managed and win contributor's confidence. In the view of Fabella and Madhur (2003), "[i]nsulation of the Central Provident Fund from political interference was the key for building that confidence."

Figure 12: Circular flow of Singapore's Central Provident Fund savings to finance the construction of Housing and Development Board flats



Source: Ng (1999, 56).

Davis et al. (2022, 27-28) praise the Employees' Provident Fund of Malaysia as a "strong example of a pension fund from the Global South that has been able to drive both development and pension member outcomes". Established in 1951, it is now ranked 14th in a list the world's largest pension and sovereign wealth funds (Thinking Ahead Institute 2023). Its total investment assets as of end-2023 was MYR 1.14 trillion, equalling 63% of Malaysia's GDP. While 97% of its assets were invested in government debt in 1960, the Employees' Provident Fund has shifted into equity, real estate and infrastructure since 2010 (Davis et al. 2022). Malaysian government securities played an important role in financing public sector development expenditure. With sound governance and effective operations, the World Bank (2020, 67) describes the Employees' Provident Fund as a "key entity in the development of the domestic capital market".

While broadening the investor base is imperative to enhance the (domestic) demand for local currency-denominated bonds, it is equally important to also foster the supply of local currency bonds. Though efforts need to be strengthened to encourage corporate local currency bond issuances, public development banks can assume an important role in issuing local currency debt and developing the market. As discussed before, there is a strong demand for safe assets, and NDBs can provide these, provided they are well managed and can build market confidence. The recent issuance of a sustainability linked bond (SLB) by the Development Bank of Rwanda – the first such issuance by a NDB –

highlights how domestic investors in smaller EMDEs are ready for non-government local currency debt (Box 6).

Box 6: Rwanda's sustainability linked bond[30]

In October 2023, the Development Bank of Rwanda (Banque Rwandaise de Développement, BRD) raised RWF 30 billion ($24 million) from domestic investors via the first SLB issued by a NDB (World Bank 2023). The 7-year bonds were issued at par with a coupon of 12.85%, 90 basis points (0.9%) above the sovereign benchmark. Three sustainability key performance indicators (KPIs) cover (1) the adoption of the BRD's Environment and Social Management System by client private financial institutions, (2) loans to women-led SMEs, and (3) affordable housing. If all KPI targets are achieved, then the loan coupon will step down by 40 basis points.

In terms of the broader framework, the World Bank provided an IDA credit to the Rwandan government in foreign currency. The RWF 10 billion from this was used by the Rwandan government to collateralise the SLB. This collateral is held at the National Bank of Rwanda, the central bank, in Rwandan government bonds of matching tenor, and at initiation earns the BRD 11.95% in interest. This results in a total debt cost of approximately 9%. The World Bank notes that this offering is a diversification of the financing mechanisms it offers to its client countries, and that under this structure it takes on no risk related to the BRD and its onward lending. The World Bank loan has a mobilisation ratio of two, with $3 of private financing arising from $1 of concessional capital placed in escrow. Two features of this framework may not be universally applicable. Firstly, the IDA credit is at a concessional rate below 2%, and secondly the National Bank of Rwanda agreed to take on all of the foreign exchange risk, on-lending funds to the BRD in Rwandan francs.

It is worth emphasising that local investors constituted all of this local currency financing. A third of the offering was taken by pension funds, a third by banks, and the rest by a mix of corporates, other private financial institutions and individuals. Further, although subsidising investors may create access to finance, it does not help with affordability. The BRD believes that it can on-lend the money to its commercial lending partners at a rate of 11%, which is extremely competitive compared to commercial financing rates in the region of 18-20%. An important component was the involvement of the World Bank in the development of the BRD's Environment and Social Management System, supporting the dissemination of skills and investment in capacity from outside the country into the Rwandan financial system via a NDB.

Following the successful first issuance, the BRD issued a second tranche of local-currency SLBs in October 2024. This second issuance was oversubscribed at 130% and closed at an issue size of RWF 33.5 billion ($24.7 million) with a seven-year maturity at a coupon/interest rate of 12.9% per annum (BRD 2024). For the second SLB, an online digital subscription and payment platform was created that facilitated a 212% increase in the value of subscriptions from individual investors.

[30] We thank Isaac Rugamba at the BRD and Fiona Stewart, Bryan Gurhy, and GianLeo Frisari at the World Bank for sharing their insights.

4.3 Harnessing the potential of national development banks

Over the last years, NDBs have received growing attention as institutions that can support structural transformation and the implementation of sustainable economic models (e.g., Sims et al. 2017, Griffith-Jones et al. 2020, Marois 2021, Marodon 2022, Griffith-Jones 2022, Finance in Common and UNDP 2022). While many NDBs already play an important role in their domestic economies, their potential to finance and accelerate a green and just transition has been mostly untapped. It is hence important to consider how to update the mandates and capabilities of existing institutions or how such banks can be established nationally or subnationally.

NDBs in developing countries can assume a central role in mobilising domestic savings and channelling them into domestic investment

NDBs in developing countries can assume a central role in mobilising domestic savings and channelling them into domestic investment. NDBs have specific comparative advantages over internationally operating counterparts, including their ability to provide local currency finance, a deep understanding of the local political economy, and their proximity to local markets and embeddedness in the national context. This proximity often allows them to more readily develop and scale domestic pipelines of projects and target projects with high sustainable development impact and reach beneficiaries at the local and municipal level (OECD 2019).

To fully harness their potential, NDBs need stronger, more coherent mandates that are aligned with the sustainable development and climate goals to deliver transformative action (Volz and Lee 2024). Moreover, many NDBs need to strengthen their capacities across corporate governance, financial management, credit risk, monitoring, auditing, credit recovery, knowledge and best practice dissemination. To be clear: there are of course also badly managed and undercapitalised NDBs that should be shut down rather than supported.

The role of NDBs can be enhanced with support from MDBs and the DFIs of advanced countries. MDBs and international DFIs have experience in delivering technical assistance projects and capacity building for banking and financial management. In addition to supporting strong governance structures, they can help NDBs to boost expertise in financing green infrastructure and projects. They can also support developing country governments in establishing a new green investment bank from scratch (Volz and Lee 2024, Marois and Volz 2024).

MDBs and international DFIs can support NDBs to strengthen their capital base and improve their ability to raise low-cost capital

MDBs and international DFIs can support NDBs to strengthen their capital base and improve their ability to raise low-cost capital. For NDBs to assume a catalytic role in financing the green transition and effectively leverage the capital provided by their shareholders, they need to be able to obtain refinancing at competitive rates. However, they face a serious obstacle: The funding cost of financial institutions in developing countries are constrained by a sovereign ceiling effect which has a direct impact on their cost of capital (Almeida et al. 2017). Since NDBs are usually fully government-owned, their credit risk cannot be better than that of the government. This impedes the part nationally owned NDBs could assume in financing and accelerating the green transition.

MDBs and international DFIs could help NDBs to build a strong standing in capital markets and obtain cheaper refinancing conditions. They could do so in different ways:

1. MDBs and international DFIs could issue highly rated debt in their own name and on-lend these funds at low cost to NDBs.
2. MDBs and DFIs could extend equity or callable capital to the NDBs in exchange for board representation.
3. MDBs and DFIs could provide subordinated debt to NDBs.
4. MDBs and DFIs could provide guarantees on sustainable debt issued by NDBs.

We discuss each of these options – and their pros and cons – in turn.

On-lending by MDBs to NDBs

On-lending of funds is the most straightforward of the four options, and it is already quite common. It is politically and operationally easy for MDBs and international DFIs to issue bonds themselves at low cost – benefiting from their high rating in international capital markets – and then on-lend with a small margin to NDBs. As highlighted by Ahlgren et al. (2023), on-lending by MDBs to NDBs has significant potential to accelerate global climate investment where it is needed most, by leveraging the institutional advantages that MDBs and NDBs each possess.

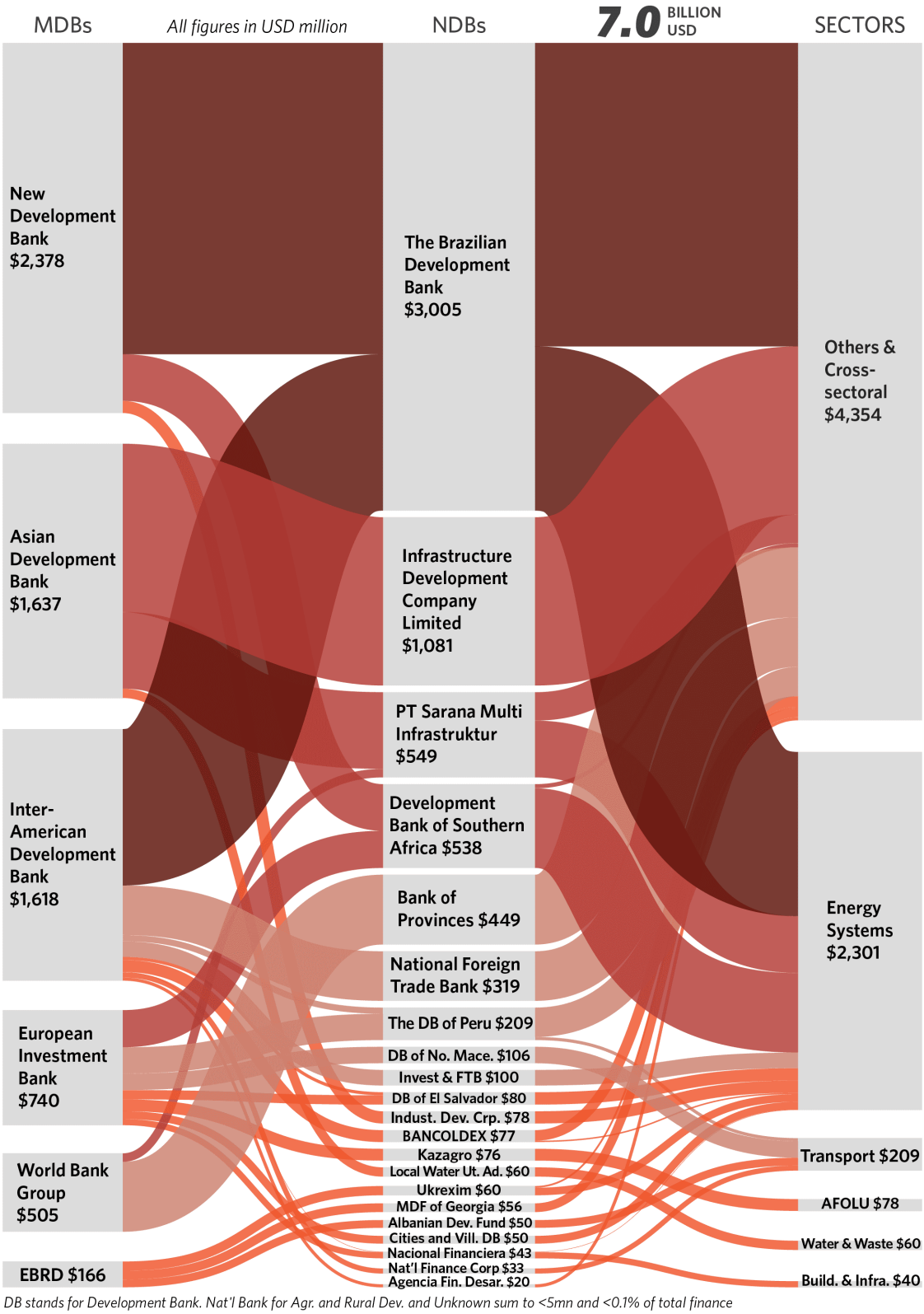
A recent web scraping exercise of project portals from MDBs' joint reporting on climate finance by the Climate Policy Initiative recorded 55 cases of on-lending from MDBs to NDBs in EMDEs with a total volume of $7 trillion during the period 2015-2022 (Ahlgren et al. 2023, Figure 13). In 52 cases, the NDB is the recipient of MDB financing, while the other three transactions are co-financing arrangements.[31] 62% of the climate-related MDB-NDB finance has no specific sectoral focus, usually supporting general green investment, recovery from natural disasters or economic distress, or infrastructure development. 33% is earmarked for energy systems. Ahlgren et al. (2023) point out that these MDB-NDB lending arrangements are implemented through different types of secondary transaction structures including direct project sub-loans, public-private partnerships or corporate credit, and that these are often supported by third parties, especially through sovereign guarantees.

While the on-lending of funds by MDBs certainly has its advantages and will allow cheaper refinancing by NDBs, it does not create the same multiplier effect as the other options, which would enhance the ability of NDBs to issue debt themselves and mobilise domestic savings. Moreover, on-lending in hard currency by MDBs/DFIs will create foreign exchange risk that either the NDB or the government will have to bear. Of course, MDBs and international DFIs could hedge the foreign exchange risk.

Alternatively, they could themselves issue local currency debt in EMDEs and on-lend the proceeds to NDBs, eliminating foreign exchange risk altogether. This could also contribute to the development of local currency bond markets. But again, there are two challenges: first, there is a risk that MDBs and international DFIs may crowd out local bond issuers, and second, it cannot be taken for granted that MDBs and international DFIs will be able to benefit from cheaper refinancing cost in local bond markets. We will return to discuss these challenges below.

[31] Ahlgren et al. (2023) state that their data is likely underrepresenting total MDB-to-NDB finance.

Figure 13: MDB-to-NDB climate-related finance flows by sector



DB stands for Development Bank. Nat'l Bank for Agr. and Rural Dev. and Unknown sum to <5mn and <0.1% of total finance

Source: Ahlgren et al. (2023, Figure 1).

Strengthening NDBs through equity injections or callable capital

A second option that could significantly strengthen NDBs is the provision of equity capital to NDBs by MDBs and international DFIs. The value of operations an NDB (like any other bank) can undertake is constrained by its level of equity capital. An equity injection would not only strengthen the NDB's capital base and therefore boost their lending capacity. A capital injection by MDBs and international DFIs would also reassure capital markets regarding high standards of governance of the NDB. As shareholders, MDBs and international DFIs would usually be able to appoint a board member who would oversee the NDB's strategy, management, and operations. Such a shareholder relationship would also formalise the sharing of best practice and can provide increased credibility. The backing by highly rated international institutions should lift the NDB's international credit ratings. Overall, the participation of an MDBs or international DFIs as an equity investor can strengthen an NDB's financial standing, transparency, governance, and social and environmental impacts.

An alternative that would allow the government to retain full ownership of the NDB would be that the MDBs and international DFIs could offer callable capital in exchange for seats on the NDB's board. Again, this should lift the NDB's rating, compared to a situation without MDB/DFI involvement. This would be analogous to the treatment of callable capital at MDBs.

The provision of equity capital is something that has been done before. Boxes 7, 8 and 9 provide successful examples of two NDBs – the Development Bank of Nigeria and the Development Bank of Ghana – and one regional development bank – the East Africa Development Bank – where MDBs and international DFIs provided support through equity and debt capital. Interviews with all three banks confirm that the support by the international partners has made a notable difference and led to a significant strengthening of their market standing. These three cases can be regarded as a model of partnership between the MDBs/international DFIs and national/regional development banks, combining equity investment and cheap debt financing, a strengthening of governance through sending board members, and technical assistance and capacity building. The benefit of these partnerships is reflected in the strong performances of the banks. They can help the banks in achieving their mandates through a sustainable development impact and fill the underlying financing gaps.

With the support of international partners, Barbados is currently in the process of establishing a new development bank, the Blue Green Bank. Using $10 million that it has received from the IMF's Resilience and Sustainability Facility as capital for the Blue Green Bank, the government of Barbados is supported by the Inter-American Development Bank (IDB), World Bank Group (WBG), Development Bank of Latin America and the Caribbean, European Investment Bank (EIB), and the Green Climate Fund (IMF 2023).

Box 7: Supporting the establishment of a new national development bank – the Development Bank of Nigeria

The Development Bank of Nigeria (DBN) was established in 2014 by the Federal Government of Nigeria in partnership with several International Finance Institutions namely the World Bank, AfDB, KfW Development Bank (upon which it was modelled), Agence Française de Développement (AFD) and the EIB, to provide medium to long term financing for the micro, small and medium sized enterprises (MSMEs). The objective of DBN is to alleviate the financing constraints faced by underserved MSMEs in Nigeria through the provision of financing and partial credit guarantees to eligible financial intermediaries on a market-conforming and fully financially sustainable basis.

The founding of DBN follows a rather checkered history of DFIs in Nigeria.[32] As pointed out by former central bank governor Lamido Sanusi (2012), Nigerian legacy DFIs – co-owned by the Central Bank of Nigeria and the Ministry of Finance (which acts on behalf of the Federal Government) – were unable to achieve their mandates owing to major challenges like political interference, poor corporate governance, low capitalisation, lack of qualified staff with relevant expertise, and poor business models. Sanusi (2012) therefore argued that Nigerian DFIs needed to be granted operational autonomy and proposed a complete overhaul of Nigerian public development banks that would lead to a transparent and strictly enforced legal compliance framework. Sanusi further advocated to bring foreign investors and equity partners on board that would be immune to domestic political interference and help develop a strong governance framework.

The DBN's shareholder structure reflects this call. The AfDB contributed $50 million or 18% of equity capital while the EIB took a $20-million or 7% equity stake in the DBN. The remaining 75% are held by the Nigerian government through its Ministry of Finance and Investment (60%) and the Nigeria Sovereign Investment Authority (15%). To strengthen governance, the DBN's board of directors consists mainly of independent directors. Furthermore, the DBN board has granted observer status to the World Bank Group whose representative can carry an independent oversight to strengthen governance.

In addition to having two AAA-rated MDBs as equity investors, DBN has received long-tenor concessional lines of credit from other AAA-rated international development

[32] To cater to its housing demands in 1956, a housing finance institution, the Nigerian Building Society, was established as a joint venture of the British Government-owned Commonwealth Development Corporation and the Federal and Eastern Governments of Nigeria. In 1973, after Nigeria's independence from Great Britain in 1960, it was renamed into Federal Mortgage Bank of Nigeria as part of Nigeria's indigenisation policy. In 1964, Nigeria established the Bank of Industry to promote industrial development. Subsequently four other public DFIs and special purpose vehicles were established. To support the agriculture sector, the Bank of Agriculture (originally known as Nigerian Agricultural Bank) was established in 1972 and the Agricultural Credit Guarantee Scheme Fund in 1977. Further, to revitalise the economy and fill the financing gap for micro, small, and medium enterprises (MSMEs) the National Economic Reconstruction Fund was established in 1988 (Phillips 1991). The Nigerian Export-Import Bank was created in 1991 with a mandate to boost cross border trade. To cater to its urban development and strengthen its education infrastructure, Nigeria established two more public development banks, the Urban Development Bank and the Education Bank in 1992 and 1993, respectively. The performance and effectiveness of these finance institutions remained a challenge due to weak governance frameworks and political interferences (Anyanwu 2004). The lack of capital support and misgovernance led to the termination of the operations of Education Bank, Urban Development Bank and National Economic Reconstruction Fund as individual entities (Adesoye and Atanda 2012).

partners including the World Bank ($480 million for 20 years at a 4% interest rate with a 5 year moratorium period with two instalments each year), AFD (130 $million for 13 years with a 3.55% interest rate with two instalments each year), KfW ($200 million for 12 years at 3.99%), and an additional loan of $450 million from the AfDB. The bank also collaborates with developing country partners like the Brazilian Banco Nacional de Desenvolvimento Econômico e Social and Small Industries Development Bank of India for capacity-building. Further, DBN has entered a capacity development and institutional strengthening partnership with the German development agency GIZ. To expand its collaboration network, it joined the Finance in Common network of public development banks in 2022.

Since the begin of its business operations in 2017 until end 2023, DBN has disbursed ₦786 billion ($480 million) in loans to 494,819 MSMEs, with 72% of the MSMEs led by women, 24.3% being youth owned enterprises, and 13.8% receiving first time access to finance (DBN 2023). DBN also provides technical assistance and capacity building to its partner financial institutions to fill the capacity gaps and support sustainable lending (DBN 2023).

DBN's has been operating profitably throughout, and it has met all its obligations, even when Nigeria was hit by multiple shocks in recent years. DBN has received a national scale long and short-term issuer ratings of AAA(NG) and A1+(NG) from GCR, an affiliate of Moody's. In 2021, Agusto & Co., a pan-African credit rating agency, upgraded DBN's rating to Aaa, highlighting the support of its shareholders and development partners.[33]

Against the backdrop of a strong financial performance, the DBN issued its first local currency bond in August 2023, raising ₦23 billion with a maturity of five years and a coupon rate of 14.4%. The bond met strong demand, being 1.3 times oversubscribed.

It should be emphasised that while equity investment by highly rated and respected international institutions should enable NDBs to obtain a stronger standing in international capital markets and obtain cheaper refinancing conditions in international markets, this may or may not be the case in national markets. Despite their AAA-rating, MDBs have in some cases issued local currency debt at a higher cost than the local government (Box 10). For instance, as part of its Pan-African Domestic Medium Term Note Programme, the IFC issued its first bond denominated in Rwandan francs in 2014, raising RWF 15 billion (about $22 million) from Rwandan pension funds, international and domestic asset managers, insurance companies, and banks (IFC 2014). While the five-year bond offering – which was the first placement by a non-resident issuer in Rwanda's

[33] "The rating takes into cognisance the support of the Bank's shareholders – the Ministry of Finance Incorporated, Nigeria Sovereign Investment Authority (NSIA), African Development Bank (AfDB) and the European Investment Bank (EIB). AfDB and EIB are both rated 'Aaa' by Standard and Poor, Moody's and Fitch Ratings. Asides from equity contribution, AfDB provides long-term borrowings, technical and business support to DBN. The rating also considers the support of other international development finance institutions such as the French Development Agency (AFD), KfW, the German Development Bank and the World Bank who provides funding and technical support in addition to strengthening governance. Furthermore, DBN's good asset quality, good capitalisation, good liquidity and experienced management team are also positive rating factors. However, constraining these is the limited operating history and weak macroeconomic fundamentals."

domestic capital markets – was oversubscribed by 2.19 times, it was priced with a yield of 12.25% per annum that was higher than for Rwandan government bonds.[34]

Box 8: Supporting the establishment of a new national development bank – the Development Bank of Ghana

The success of the DBN attracted attention in the West African region. The government of Ghana consulted its international partners KfW, EIB, World Bank, and AfDB, leading to the establishment of a new public development bank known as the Development Bank of Ghana (DBG) in 2021. DBG's mandate is similar to DBN's mandate of filling the financing gaps in the MSME sector and reducing the cost of finance. Like DBN, the board of DBG also includes representatives as observers from the World Bank and KfW who provide oversight to shield the bank from political interferences. DBG is a wholesale lender.

The Republic of Ghana received a grant over $40 million from the AfDB to capitalise the DBG as well as a €46.5 million subordinated loan from the KfW, $250 million IDA credit from the World Bank, and €170 million credit from the EIB to support the establishment of the DBG and for on-lending to Ghana's commercial banks. These funds were channelled through the 100% equity owner of DBG, the Ministry of Finance in local currency. The DBG intends to raise a second round of capital through equity participation of its AAA-rated international partners (AfDB, EIB, KfW, World Bank) and local private pension and other saving funds.

DBG's focus is to fill the financing gaps in MSMEs which are operating in the agriculture, manufacturing, and ICT sectors. In its first year of operation, the DBG worked with 12 partner financial institutions. Through €18 million of grant support by KfW and technical assistance, the DBG is developing a green taxonomy to identify green MSMEs and extend loans to them at concessional rates (DBG 2023). It has also engaged the World Bank to provide capacity building to its partner financial institutions.

Source: Compiled by the authors with information from DBG (2023).

Financial institutions tend to be biased in favour of government debt, which is also reflected in pricing, especially in shallow markets. As discussed before, financial regulation in most countries allows banks to assign a zero-risk weight to sovereign domestic exposures denominated and funded in domestic currency, regardless of their inherent risk, making these assets very attractive. Likewise, pension funds are often required to invest in government securities. Lending to government is often both lucrative and safe, reducing incentives for financial institutions to explore other avenues, including the provision of credit to MSMEs, which tends to be cumbersome and less lucrative. Also, a lack of safe, alternative financial assets means that banks are under no pressure to offer attractive real rates on deposits. At the same time, in many EMDEs there is a large and growing share of the population that has little opportunity to invest in attractive savings products. Offering genuinely safe financial assets – such as NDB debt backed by MDBs or

[34] We thank Kampeta Pitchette Sayinzoga for highlighting this example.

international DFIs – could help to entice new retail investors and broaden the investor base. As will be discussed in Section 4.4, this could be facilitated through digital solutions.

Box 9: Supporting a regional development bank – the East Africa Development Bank

The East Africa Development Bank (EADB) is a regional public development bank established in 1967 under the treaty of the then East African Cooperation between Kenya, Tanzania, and Uganda. After the breakup of the first East African Community (EAC) in 1977, the bank was re-established under its own charter in 1980. In 2008, Burundi and Rwanda joined the new EAC, and Rwanda applied and was admitted into the EADB. The EADB is a wholesale lending institution that operates through its partner financial institutions. The bank has a mandate to fund private sector enterprises including MSMEs operating in its member states.

The EADB has adopted an innovative model of equity participation with Class A and B equity holders. Class A shareholders are EAC member states – the governments of Kenya (26.17%), Tanzania (26.17%), Uganda (26.17%) and Rwanda (9.21%) – and as such permanent shareholders of the bank. Class B shareholders comprise international development financiers and commercial banks which have the flexibility to exit at any time. Class B investors include the AfDB (8.59%), FMO Netherlands Development Finance Company (2.16%), Yugoslavia Consortium (0.19%), SBIC – Africa Holdings (0.17%), NCBA Bank Kenya Ltd (previously Commercial Bank of Africa) (0.03%), Nordea Bank (0.03%), Standard Chartered Bank (0.01%), and Barclays Bank Plc. (0.01%).[35] Deutsche Investitions- und Entwicklungsgesellschaft (DEG), a subsidiary of KfW Group, recently sold its 0.57% stake in the bank. Its unique equity model has helped the EADB to build a much stronger standing in capital markets and among credit rating agencies than the ratings of the member states would allow. Moody's currently rates the EADB with investment grade (Baa3, long-term issuer rating), while the sovereign ratings for Tanzania (B1), Rwanda (B2), Uganda (B3), and Kenya (Caa1) are all speculative grade (ratings as of October 2024).

The EADB has been able to borrow from shareholders and development partners (including EIB, AfDB, KfW, NDF, Arab Bank for economic development, and OPEC Fund for International Development) at long maturities with tenors between 10 and 30 years and low rates at 2-4% for foreign currency and 5-9% for local currency loans (EADB 2022). Around three quarters of EADB's lending is currently in US dollar.

The Governing Council of EADB is composed of the ministers of finance of the member states. To strengthen its corporate governance, EADB has included a four-member advisory panel with leadership experience from bilateral and multilateral development finance agencies, private sector banks and think tanks.

The EADB has received grant support and technical assistance from shareholders like DEG to develop its business-critical environmental and social governance (ESG) function, helping it to improve the environmental and social quality of the portfolio. In 2018, EADB committed to carbon neutrality, and at COP26 in Glasgow, it was among the MDBs that committed to support of the transition to clean energy.

[35] These shares are as of 31 December 2021, as reported in the latest available annual report (EADB 2022).

Box 10: Yields on MDB's non-core local currency bonds

A key question relates to whether NDBs with an explicit backing by MDBs or international DFIs (through equity or callable capital, subordinate debt, or credit enhancement) can issue local currency bonds at lower rates than the national government. In international credit markets, MDBs can issue debt at very low yields thanks to their AAA rating that basically allows them to issue risk-free assets. One may be thus inclined to think that MDBs can also issue local currency debt at lower yields than local governments if the latter have a lower rating than the MDB and that this pricing advantage would extend to an NDB if backed by an MDB.

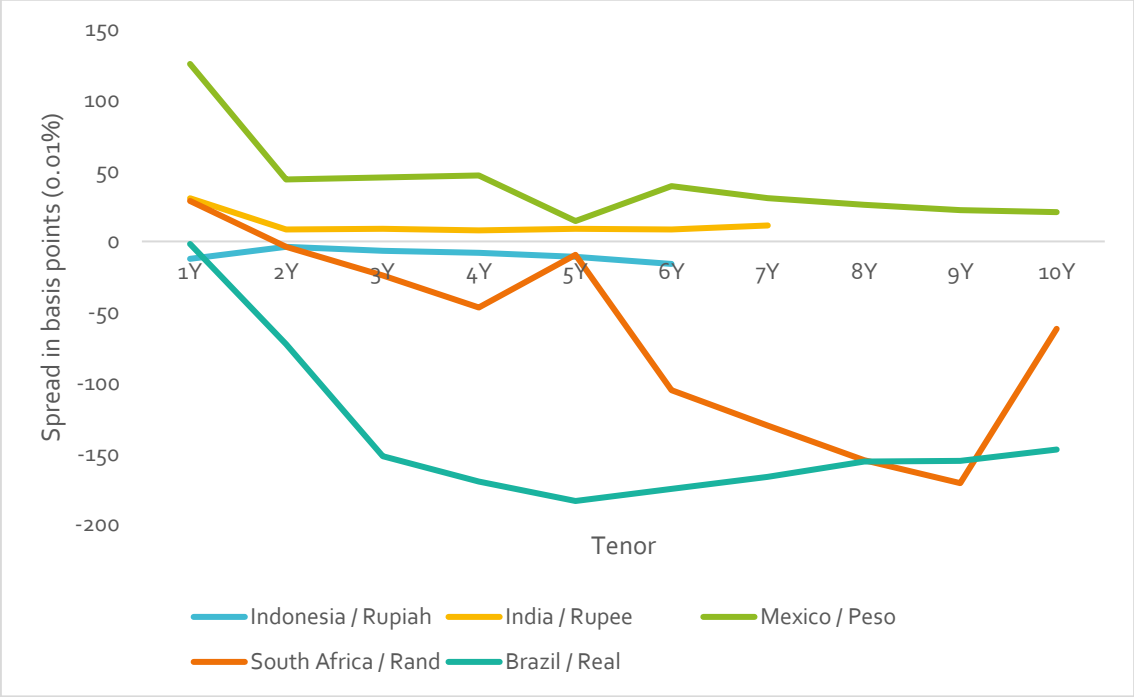
However, this is not a given. For instance, Laurent and Lehmann (2006) note that in cases where the European Bank for Reconstruction and Development (EBRD) – the MDB that has been most active in local currency bond issuances – issued predominantly to a domestic investor base, pricing tended to reflect the pricing of government issuances.

We can see this in Figure 14. In our sample, World Bank debt in three countries trade at a lower yield than comparable government debt, and at a higher yield in two countries. The key driver on the difference is the price of local currency interest rate swaps. World Bank debt as a rule trades at a higher yield than the rate of such swap benchmarks. However, the rate on interest rate swaps may be higher or lower than government bonds. Interest rate swaps pass through a clearinghouse to mitigate counterparty risks, but this is arguably another area where what happens in practice defies what should happen in theory. A domestic clearing house will suffer from financial contagion if the sovereign suffers a crisis that extends to the banking sector.

A particularly interesting financial market is India, where we can see interest rate curves for a mix of state-owned domestic development agency and MDB issuers. Figure 15 shows Indian development bank and MDB local currency bond spreads, where all of our sample of issuers trade at a higher yield than government debt at short tenors but can trade at a lower yield as the tenor increases. This may reflect how the depth and liquidity of debt markets and issues vary across the curve.

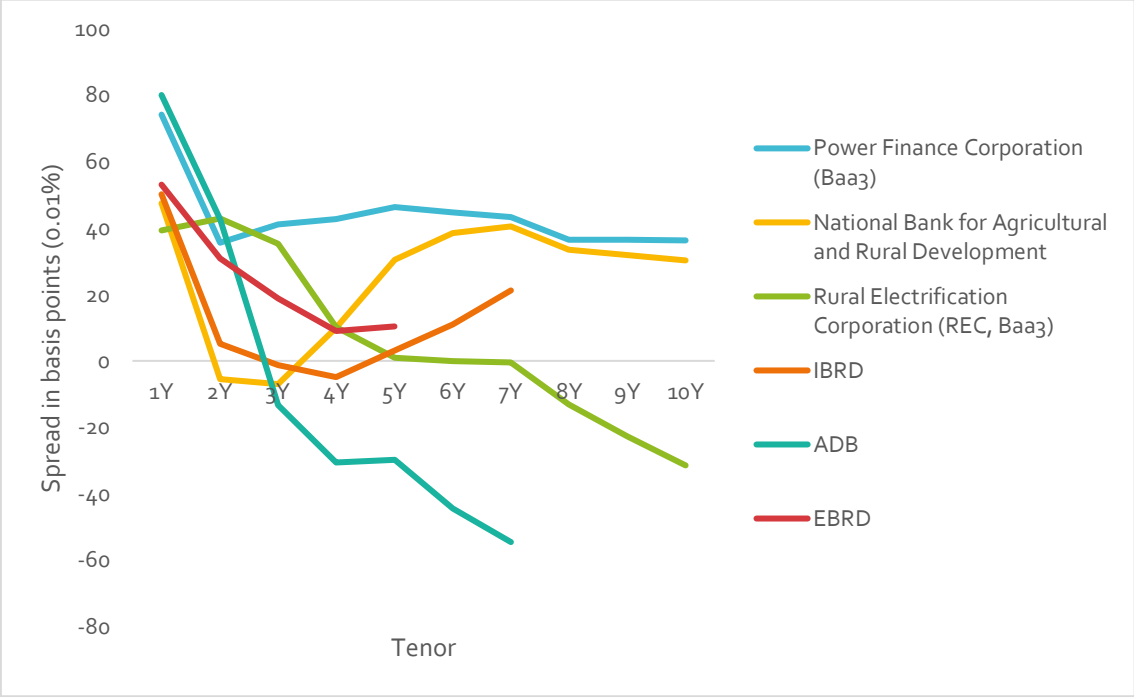
Overall, we argue that an MDB local currency guarantee alone may not be sufficient to cause NDB debt to trade at lower yields than those seen in government debt markets – potentially because the main domestic holders are banks that are subject to regulations that treat government debt preferentially – and have little inclination to invest in lower yielding options, even if those are "safer" than notionally safe domestic government debt. One solution may be to offer the guarantee in foreign currency, thereby justifying that part of the issuance to trade at the foreign interest rate. A further, perhaps more promising avenue, is to broaden the investor base, getting non-traditional investors to invest their savings in bonds. This will be explored further in Section 4.4 on digital solutions.

Figure 14: IBRD World Bank non-core currency bond curve spread versus local benchmark



Source: Compiled by authors based on data from Eikon Refinitiv, 6 September 2023. Interpolations of the curve are calculated by Eikon Refinitiv.

Figure 15: Indian Rupee currency bond curve spread versus Indian government benchmark



Source: Compiled by authors based on data from Eikon Refinitiv, 6 September 2023. Interpolations of the curve are calculated by Eikon Refinitiv.

Supporting NDBs through sustainable sub debt

A third option to support NDBs is through subordinated debt ("sub debt"). Sub debt can have a strong and positive effect on private capital mobilisation. It is debt that – in case of liquidation or bankruptcy – is repaid only after ordinary debt (senior debt) has been repaid. In the capital stack, sub debt sits between equity, the highest-risk investment, and senior debt, the least risky. Depending on the respective regulation, sub debt can be counted as additional equity (tier-II equity) on the balance of a financial institution and thereby have the same or a similar leveraging effect on the bank's balance as equity.

Sub debt can be highly attractive for financial institutions. Properly structured, it can be counted as part of the bank's capital, which usually has positive effects on the risk rating of the bank (and therefore may reduce borrowing costs). It may also enable the bank to expand its business (as sub debt addresses the bank's capital limitations) or – if applicable – allow the bank to take more risks (as it strengthens its capital base).

Another important difference between equity and sub debt is that equity investments usually mean involving the investor in the governance structure of the recipient (e.g. a seat on the board of directors), which is usually not the case for a sub debt investment.

Different terminologies exist in the literature that essentially describe the same basic mechanism of sub debt, such as "mezzanine debt/capital" or "hybrid capital". Sub debt can essentially take the form of a loan (a subordinate loan), where terms are individually negotiated between two parties, or the form of a bond (a subordinate bond). In the latter case, the financial institution issues a security (listed on a stock exchange or unlisted) that is then bought by the investor. Sub debt can also be structured as a sustainable financial product, such as a thematic use-of-proceeds instrument (e.g. a green or sustainable bond/loan), or a sustainability-linked instrument (e.g. a sustainability-linked bond), for which established market standards and guidance exists.

Experiences with sustainable/green sub debt are comparatively recent. Examples of sustainable sub debt include for example the sustainable hybrid bond issued by the AfDB in early 2024 (AfDB 2024) or the sustainable subordinate bond issued in 2023 by Banco de Bogotá, a leading Colombian financial institution that has incorporated a sustainability strategy focused on climate and social action as an important pillar of its business model (LAGreen 2023). These examples also show some potential roles that MDBs and international DFIs can play – be it as issuer, arranger and/or anchor investor, be it directly or through a fund – in promoting sustainable sub debt and unlocking additional private investment.

Supporting NDBs through credit enhancements

As a fourth option, MDBs and international DFIs could provide guarantees to NDBs. Guarantees are basically "a form of insurance to help a borrower […] obtain financing at better terms than would be possible without the guarantee" (Humphrey and Prizzon 2014, 7). Guarantees can also help borrowers build credit standing with financers and crowd in private capital.

Because of their very strong standing in credit markets, the guarantees of MDBs and international DFIs backed by highly rated sovereigns are likely to have a significant impact on the financial terms offered to a borrower, leading to lower interest rates and/or

extended maturities (Humphrey and Prizzon 2014).[36] Moreover, MDBs and international DFIs have high standards for safeguards and procedures, which will create trust in the NDBs they support through a guarantee. Humphrey and Prizzon (2014, 12) speak of a "halo effect" that such guarantees can have, "mak[ing] other (private and public) investors more comfortable committing resources – due [to their] strong technical reputation, preferred creditor status and (particularly for public sector guarantees) close relations with governments". A conventional approach to credit enhancement would be to issue partial credit guarantees or partial risks guarantees.[37] Another is the partial collateralisation and yield subsidy of the SLB issued by the Development Bank of Rwanda (Box 6). Just like the other forms of financial support discussed previously, guarantees can be linked with technical assistance and other forms of knowledge transfer.

Despite their advantages, guarantees have been underused. MDBs and international DFIs tend to favour direct lending over non-lending products such as guarantees.[38] For the major MDBs, guarantees constitute on average just slightly more than 2% of business (Hauber 2023). There are two main reasons for the little use of guarantees among MDBs and international DFIs. First, guarantees are treated the same as loans in terms of equity capital usage. In other words, a dollar of guarantee is accounted equivalent to a dollar of loan, without differentiation of risk, even though guarantees have a significantly lower call rate than loans in arrears or default (Humphrey and Prizzon 2014).[39] Second, until recently, guarantees were not counted in ODA as they do not represent a financial flow, unless they are called. Consequently, members of the Development Assistance Committee (DAC) and their DFIs missed incentives to use these instruments. However, in autumn 2023, the DAC members reached an agreement on the treatment of private sector instruments which allows them to count donor effort in guarantee issuances in ODA (DAC 2023). Still, even with these changes, grant elements of guarantees (which are calculated as grant element × guaranteed amount) are relatively low (less than 10%).

As discussed in Section 3, in many EMDEs, there is a shortage of safe, investable assets that local investors can invest in. Credit enhanced green or sustainability-linked NDB debt instruments would constitute a special type of quasi-government debt ring fenced for high priority infrastructure projects, for example in renewable energy, water management and transportation. Especially if combined with innovative distribution methods that will broaden the investor base (which will be discussed in the next section), credit enhanced

[36] The effect of a guarantee will depend on the specific context. The price effect may be negligible if rating agencies give only a small ratings uplift. But even in such a case, the guarantees may still help an NDB in establishing market access.

[37] Partial risk guarantees provide insurance against specific risks, e.g., expropriation, while partial credit guarantees are broader and might cover payment irrespective of cause.

[38] Humphrey and Prizzon (2014) point out that when the World Bank was established, it was initially expected that the provision of guarantees would constitute most of its activity. However, it took until the 1980s that it would conduct guarantee operations.

[39] It should be noted that this is due to internal rules – as international organisations MDBs are not regulated the same way as commercial banks. Landers and Aboneaaj (2022) point out that even though all MDBs treat guarantees like loans on their balance sheets, some have set-asides windows that allow them to only count policy-based guarantees on a 1:4 basis against a country's lending limit.

NDB bonds could become a major vehicle for mobilising domestic savings and financing sustainable infrastructure.

Empowering NDBs to become agents of change

Be it through the provision of equity capital, sub debt, or guarantees, the goal should be strengthening capacity of NDBs and empowering them to issue sustainability-themed local currency bonds at reasonable rates, to mobilise domestic savings from retail and wholesale investors looking for relatively safe assets, and channel these funds into pipelines of climate mitigation and adaptation projects that the NDB is itself developing.

Overall, such partnership and financing models between MDBs/international DFIs and NDBs offer many advantages. They dovetail the development goals of the MDBs and international DFIs with the need to build capacity and expertise at the national and sub-national level. Through targeted, long-term financing and technical support from MDBs and international DFIs, NDBs can become major vehicles to leverage private capital and channel domestic savings into sustainable development.

4.4 Leveraging digital solutions to mobilise domestic savings

Finance is going digital. This opens new opportunities for leveraging novel financial technologies (fintech) to help mobilising domestic savings and channelling these into sustainable investments. Fintech refers to the integration of technological innovation to enhance or automate financial services for businesses or consumers. Digital solutions can facilitate domestic resource mobilisation for sustainable investments and improve the implementation of infrastructure projects by facilitating processes and enhancing transparency. New approaches have been developed to use mobile phones, for instance, to provide investment opportunities in capital markets for people who previously had neither the means nor the expertise and access to invest in securities. Financial and monetary authorities can play a key role in supporting such innovations by developing conducive frameworks and fostering the necessary digital infrastructure while public financial institutions can pilot and scale approaches to complement conventional capital markets and mobilise financial resources for sustainable infrastructure investments.

To set the context to digital solutions for accessing retail capital, the US government's TreasuryDirect provides a good example. Established in 1986, TreasuryDirect is a website operated by the Bureau of the Fiscal Service under the United States Department of the Treasury. Via this website, any person with a US social security number and address can buy between $100 and $10 million in Treasury securities (such as Treasury bills, Treasury notes, Treasury bonds, inflation-protected securities or savings bonds) directly from the US government. No fees are charged for opening and maintaining an account, purchasing bonds, or redeeming bonds. It is for retail investors but shares the same infrastructure many banks and brokers use. As of 1Q 2024, 9.8% of Treasury securities worth more than $2 trillion were held by US households (Yardeni Research 2024).

Domestic investors are an important source of funding for governments, yet TreasuryDirect used to be a relatively rare example of financial instrument sales directly to individual investors. In recent years, however, several governments piloted the use of innovative technologies to raise domestic funds. In 2017, the Government of Kenya was the first to pioneer a bond issue via mobile money (Box 11). While the Kenyan issuance

stayed below its potential, it provides an innovative template and important lessons to build on. In 2020, the Bank of Thailand launched a new government bond infrastructure based on distributed ledger technology (DLT) to offer government savings bonds (Box 12). In 2022, the Singaporean government issued green infrastructure bonds that could be purchased in small amounts via smartphone, online, or at ATMs (Box 13). In 2021, the Bank for International Settlements (BIS) Innovation Hub Hong Kong Centre and the Hong Kong Monetary Authority (HKMA) piloted a technology stack to concept-test a government-issued digital asset for the retail market (BIS 2021). This led to the issuance of the world's first government-issued tokenised green bond in February 2023 (Box 14). In November 2023, the Philippines issued one-year tokenised government bonds to institutional investors using a DLT registry owned by the Bureau of the Treasury (Box 15).

Box 11: Kenya's M-Akiba bond – a missed opportunity

The Kenyan government was the first to pioneer a bond issue via mobile money in 2017. The government hoped that issuing bonds via mobile money – which had been pioneered in Kenya through the launch of M-PESA in 2007 – would provide them with access to low-cost capital, while also giving low-income Kenyans an additional means for saving. Launched in 2017, M-Akiba (M-Savings, in Swahili) required a two-step process: first, the individual needed to register their mobile money account, and then they had to purchase the bond. The minimum purchase amount was KSh 3,000 ($30) – much lower than the minimum investment amount for a conventional bond (KSh 50,000 / $490) before M-Akiba. The bond earned 10% interest annually, with disbursements made every six months directly into the individual's mobile money account. In a similar project called Treasury Mobile Direct, the Central Bank of Kenya enabled users to buy treasury bills and bonds on their phone.

Although there was a lot of excitement and interest when the M-Akiba bond was piloted, purchase rates proved to be low. During the pilot in March 2017, 102,632 people registered their mobile money accounts and the government raised their target of KSh 150 million ahead of schedule. When the full launch took place three months later, a total of 303,534 people registered, yet the government raised KSh 247 million ($2.47 million) against a target of KSh 1 billion ($10 million) (24.7%). While registration rates were successful during both the pilot and full release, only 4% (11,697) of people who registered went on to actually purchase the bond.

A post issuance survey among 500 people who bought the bond and 500 people who had registered but not bought by FSD Africa (2018) identified seven reasons why the M-Akiba bonds did not meet the expectations:

1. Poor timing: In the two years between the soft launch and product launch, deposit regulations changed, forcing banks to increase interest rates paid on savings from 0% to 7%, thereby diminishing the advantages of the bond. Furthermore, the bond launch coincided with national elections, so media advertising about the product was swamped by election coverage.

2. Poor understanding of product: Those who registered but did not ultimately purchase the bond were less likely to know the interest rate, tenor, closing date, or other details about the product. That said, understanding was also poor among those who eventually bought the product: less than 2% knew to call the Nairobi Securities Exchange if they needed their money.

3. Confusing purchase process: While registration was simple, the second stage of the process was confusing and gave no clear, immediate instruction for how to complete the purchase. Moreover, screenshot displays were sometimes misleading and/or confusing, so individuals may not have realised their purchase was not complete after registration.

4. Lack of prompts/reminders: Over 60% of individuals interviewed did not receive a single reminder message after registering; and 70% of those who registered but didn't purchase did not know when the investment round was closing.

5. Agents focused on registration: When agents visited offices, markets, and groups, there was a marked uptake in registrations. However, the agents did not encourage people to actually invest after registering. In addition, it was difficult for customers to get help from agents when they had follow-up questions after registration.

6. Weak customer care practices: The only helpline available to customers, many of whom did not fully understand the product, was a landline, which was difficult to access and confusing, given the mobile nature of the product. Furthermore, when fraudulent messages circulated about the product, there was no easily accessible customer service available to refute them.

7. Concerns about minimum investment: Some customers felt the KSh 3,000 minimum investment would be better allocated to savings groups or trading opportunities that could provide quick returns or access to credit. However, it is not clear that a higher minimum investment would have more success, since 78% of those who purchased the product invested less than KSh 6,000.

Source: Adapted from FSD Africa (2018).

Box 12: The Bank of Thailand's DLT bond platform

In June 2020, the Bank of Thailand launched a new government bond infrastructure based on DLT. The Thai DLT bond platform aimed to increase the efficiency of registering, selling and distributing savings bonds. The launch involved the Bank of Thailand, the Public Debt Management Office, the Thailand Securities Depository, the Thai Bond Market Association and four domestic banks acting as selling agents. Key benefits included a dramatic reduction in the operational complexity of distributing savings bonds, monitoring and management of bond issues in real time, and the reduction in the time it takes for individual investors to receive their bonds from 15 days previously to two days.

The first offering saw THB 50 billion ($1.6 billion) issued to investors, in denominations as small as THB 1 ($3c). Through such small-ticket savings bonds – referred to as 1-baht savings bonds – the government sought to encourage low-income earners to save money in risk-free assets (Chantanusornsiri 2020). Over the next year, the issuance of ten series of government savings bonds, worth 160 billion baht, were supported by the DLT bond platform. It is noteworthy that this system was implemented in a way that complemented other traditional channels of bond distribution. In 2021, the project was awarded the IDC Future Enterprise Award: Best in Future of Digital Innovation (BOT 2021). This effort has made Thailand a leader in the application of distributed ledgers by the public sector, and shown how it can enable both accelerated processes, as well as new functionality such as small denomination issuances.

Box 13: Singapore's Savings Bonds for green infrastructure

Singapore's Savings Bonds have been available to local residents since 2015. In 2022, this platform was used to issue green infrastructure bonds. The Singaporean government intends to issue S$35 billion ($26 billion) in green bonds by 2030. Early tranches of this debt have been earmarked to finance investments into Singapore's electrified rail network. Two specific rail lines benefiting from past fund raising via this mechanism are expected to remove the equivalent of 22,000 cars from Singapore's road network (CNA 2023).

Via small denominations and retail distribution through digital channels, Singapore Savings Bonds have expanded retail access to government backed financial instruments that had previously only been accessible to institutional and high net worth investors. These bond offerings incorporate many consumer-friendly innovations. Bonds can be purchased through bank partners via mobile banking, internet banking and ATMs. Although the bonds are long term e.g., 10 years, they can be redeemed on a monthly schedule without penalty. Interest rates are fixed at the time of the offering and can be slightly above or slight below the equivalent yield on government debt. The applicable interest rate increases over the life of the bond.

Issuing ring fenced infrastructure and green bonds on the platform have been well received. Singapore savings bonds are particularly useful when an individual has exceeded the S$75,000 limits of the Singapore Deposit Insurance Scheme. Individuals are currently limited to S$200,000 of savings bonds.

Box 14: Hong Kong's tokenised green bonds

In February 2023, Hong Kong issued the world's first government issued tokenised green bond and raised HK$800 million ($62 million) (HKMA 2023). This pushed forward government use cases of DLT in multiple ways. On the technical front, it utilised atomic Delivery versus Payment (DvP), which makes the payment of funds and the delivery of the bond inseparable – an action that is historically recorded as two separate transactions and prone to one side failing. In addition to end-to-end DLT adoption across the lifecycle of the bond, and the sharing of a single system by many platform participants, these features shrink process times, reduce delays and eliminates potential risks (e.g., settlement risk).

On the regulatory front, this offering strengthened the legal basis of tokenised instruments, identifying where regulation was already technology neutral and conversely where additional rulemaking was required. The Central Moneymarkets Unit (CMU) of the HKMA is the clearing and settlement system for the bond, and settlement transactions through the CMU enjoy statutory settlement finality under Hong Kong law. Other benefits included improved transparency and real time data synchronisation.

Box 15: The Philippine's tokenised government bonds

In November 2023, the Philippines issued PHP 15 billion ($270 million) of one-year tokenised government bonds. With a yield of 6.5% it was over two times over-subscribed (Lopez 2023). The offering was solely to institutional investors and is not tradeable.

This debt exists in the form of digital tokens and utilises a DLT registry owned by the Bureau of the Treasury. These records will exist in parallel to the official bond records held by the National Registry of Scripless Securities, but ultimately it is hoped a move to a DLT will reduce issuance and administration costs.

These are not a first time the Philippines have issued bonds on a DLT, with a pilot in 2020 targeting retail investors via an app Bonds.ph (Business Inquirer 2020). The difference between the two offerings highlights how using a distributed ledger for records is not the same as executing them as tokens on a distributed ledger.

These pilots show that technologies such as DLT, asset tokenisation, and mobile banking can enable individuals to invest in smaller units of assets in a cost-efficient manner, broadening the local investor base and helping governments to raise more capital for infrastructure investment and other activities in local currency.

These are examples that can be built on. In particular, the blockchain technology, a type of DLT, offers interesting opportunities.[40] However, it is important to not confuse the often problematic and societally harmful uses of this technology through the largely unregulated crypto industry with applications that can enhance social welfare. One way to think of the blockchain based crypto industry, with its plethora of digital tokens, is as an unregulated reinvention of the existing financial system of capital markets and payment rails that breaks many of our existing financial rules, such as Know Your Customer (KYC) and Anti Money Laundering (AML) rules. This new digital infrastructure – which needs to be regulated to address risks related to consumer protection, financial stability and market integrity (Garcia Ocampo et al. 2023) – can be used to leverage financing for green investments, including via tokenisation of government and non-government local currency bonds. Critically, we propose wrapping these assets with enforceable rules and regulations, creating a hybrid between old and new.

Concerted efforts are needed to develop these markets and the underlying infrastructure. The technology is available, but adoption needs to be promoted. The World Bank issued the first global "blockchain bond" (bond-i) already in 2018, raising A$110 million ($80 million) from seven Australian financial institutions (Silva et al. 2023). A follow-on offering occurred in 2019, raising another A$50 million. But despite the benefits of this approach

[40] Lo (2023) identifies five threads to DLTs. The first is as a mechanism to enable decentralised record keeping. The second are shared rules written on the blockchain. These are sometimes referred to as smart contracts but are better described as shared computer code. The third, and currently dominant, thread are digital tokens, which can be used to reward employees and users, and raise finance. Raising finance with tokens is somewhat awkward as in most jurisdictions this is a regulated activity. The fourth thread is as a payment infrastructure. Many in the developed world have access to instant payments, without realising the system complexity and multitude of partners involved. Blockchain has made it relatively easy for anyone to not merely make payments, but to deploy their own payments infrastructure. The final thread is the ability to use this technology to break rules, disrupt existing systems and change power structures.

and a successful proof of concept,[41] the adoption of blockchain bonds is not yet at the adoption curve of green bonds. Five years after the first issuance of a green bond by the World Bank in 2008 (Silva et al. 2023), green bond issuance reached $11 billion in 2013 (Boulle 2014) and scaled further rapidly from there. Arguably, the low uptake of blockchain bonds is because developed markets already have an established infrastructure they can rely on, whilst policymakers in developing economies that could benefit most from them often lack awareness of their potential, whilst incumbent financial institutions lack incentives to change the status quo. Indeed, due to a lack of competition, banks in less economically and financially developed countries often have already lucrative business models with large loan-deposit margins.[42] Raking high profits by lending at high rates to governments while paying low deposit rates to savers, incumbent banks have no incentive in promoting tokenised bonds that would allow retail investors to lend to governments directly.

Tokenised savings bonds issued by the government or NDBs can be a disruptor and provide multiple benefits. First, they can provide small-scale savers an opportunity to easily invest in savings products in capital markets, providing higher returns than they would get from depositing savings with a bank. Second, they would help governments and NDBs to broaden the investor base, which would not only enhance market stability but could also lower the rates at which they could borrow. And third, they could be a way of raising formal savings developing local currency capital markets and reducing the flight into safe overseas assets.

Local currency bonds for green infrastructure investment issued by governments or NDBs – possibly credit enhanced by MDBs or international DFIs – are a natural candidate to be issued as a token on a blockchain. One part of why is that blockchain infrastructure can act in the same way as the USA's TreasuryDirect, a retail distribution channel for these bonds. Importantly, EMDEs have no equivalent of TreasuryDirect, therefore the proposed system does not compete with an alternative form of existing distribution. A related one is that considerable blockchain software is open source, and reusable for such purposes, potentially standardising and accelerating infrastructure deployment. But a central reason stems from the fact that the NDB bonds and blockchain bonds share the same wider pre-requisites. If one set of requirements are solved, then financial authorities are well positioned to solve the other set. Both require a clear legal framework with rules related to origination, trading and default, plus provisions to ensure enforcement. Both require regulatory approval for investors. Both require tax rules.

Further, in many EMDEs, government debt issues have many of the required rules already in place but see almost no secondary trading due to a paucity of investors and a lack of liquidity, whereas blockchain based systems lack rules but bring the potential to widen investor bases and generate liquidity. In an IMF-World Bank survey of 32 debt management authorities, these two issues are cited as the most difficult barriers to

[41] The initial benefits of such a scheme are that record keeping and custody is decentralised to a private Ethereum based blockchain, eliminating the need for the ownership registry maintained by the Reserve Bank of Australia and for Austraclear to act as the legal owner and custodian of the bonds. Custody cost can be a significant recurring expense for asset holders.

[42] Less economically and financially developed countries tend to exhibit higher lending rates and spreads (Feyen and Zuccardi Huertas 2020).

expanding local currency bond markets (Hashimoto et al. 2021). Blockchain tokenisation has the potential to be the missing piece of the puzzle. NDBs would source, validate and monitor a pipeline of green infrastructure projects in conjunction with the local government. MDBs or international DFIs could credit enhance these offerings such that they become desirable local currency, proxy risk-free assets. Blockchain tokenisation draws in new investors and creates liquid secondary markets.

Further, blockchain bonds could be integrated with tamper resistant record keeping. Chen and Volz (2022) adumbrate potential blockchain bonds for sustainable investments. In addition to the benefits already covered, they highlight the ability to implement traceability through the financed project's lifecycle. What the funds are spent on could be recorded. The progress of construction could be recorded. Operating data, performance metrics, environmental impact could all be stored immutably. The key value addition from blockchain bonds are social inclusivity. Users can be investors, and stakeholders have visibility of all the data they care about.

It is important to clarify several implementation issues. These investible assets are not intended to be bearer instruments. Rather they would be regulated financial assets that must follow KYC and AML rules, most likely requiring an account at a fully regulated bank. If such an asset is stolen, for example in a hack, then the stolen assets should be invalidated and the original asset owner made good. All parties would need to agree the legal jurisdiction for disputes. Countries and issuers would be able to set controls regarding valid investors. The proposed assets would be more comparable to a tokenised term deposit than a digital currency (Garratt and Shin 2023), with an agreed intermediary, that could be the NDB or a set of domestic banks. This framework keeps the assets within the banking industry. An assumption is that scaling a DLT for this purpose would cost less than building the equivalent TreasuryDirect infrastructure without reference to standardised open source code. A key future benefit would be the composability of the application and assets with Decentralised Finance (DeFi) protocols such as decentralised exchanges and collateralised lending.

The potential for raising savings through such instruments is large. As discussed before, in many EMDEs, including lower income countries, significant amounts of informal savings wait to be tapped. Digital systems, especially mobile money, can be employed to offer assets that are perceived as safe and with decent returns in an accessible way and with low operating costs, making saving more accessible for all parts of society.

5. Mobilising international patient capital

As previously discussed in Section 2, the mobilisation of international private capital has not been successful to date. While efforts need to be reinforced, it is important to learn from mistakes and get real about the types of capital that can be attracted, at terms that are favourable for developing countries.

5.1 Leveraging MDBs

"An oft-overlooked aspect to the MDB model is that it channels mainly private financing into development projects that would otherwise have no chance of attracting private investors. Most investors avoid developing countries entirely, even for projects likely to generate a profit like a toll road or electric power station, due to perceptions of risk. And most investors have no interest at all in putting money toward training primary school teachers, building rural roads, or reforming subnational tax systems. These projects do not generate short-term financial returns but rather long-term benefits to a country's human capital and future growth potential, meaning investors cannot realize a financial profit. A low-risk, highly-rated MDB bond, on the other hand, is an extremely attractive option for many investors, including huge institutional investor like pension funds or insurance companies. The MDB financial model serves to channel substantial private investor resources to projects with social benefits on a financially sustainable basis."

– Chris Humphrey (2022, 29)

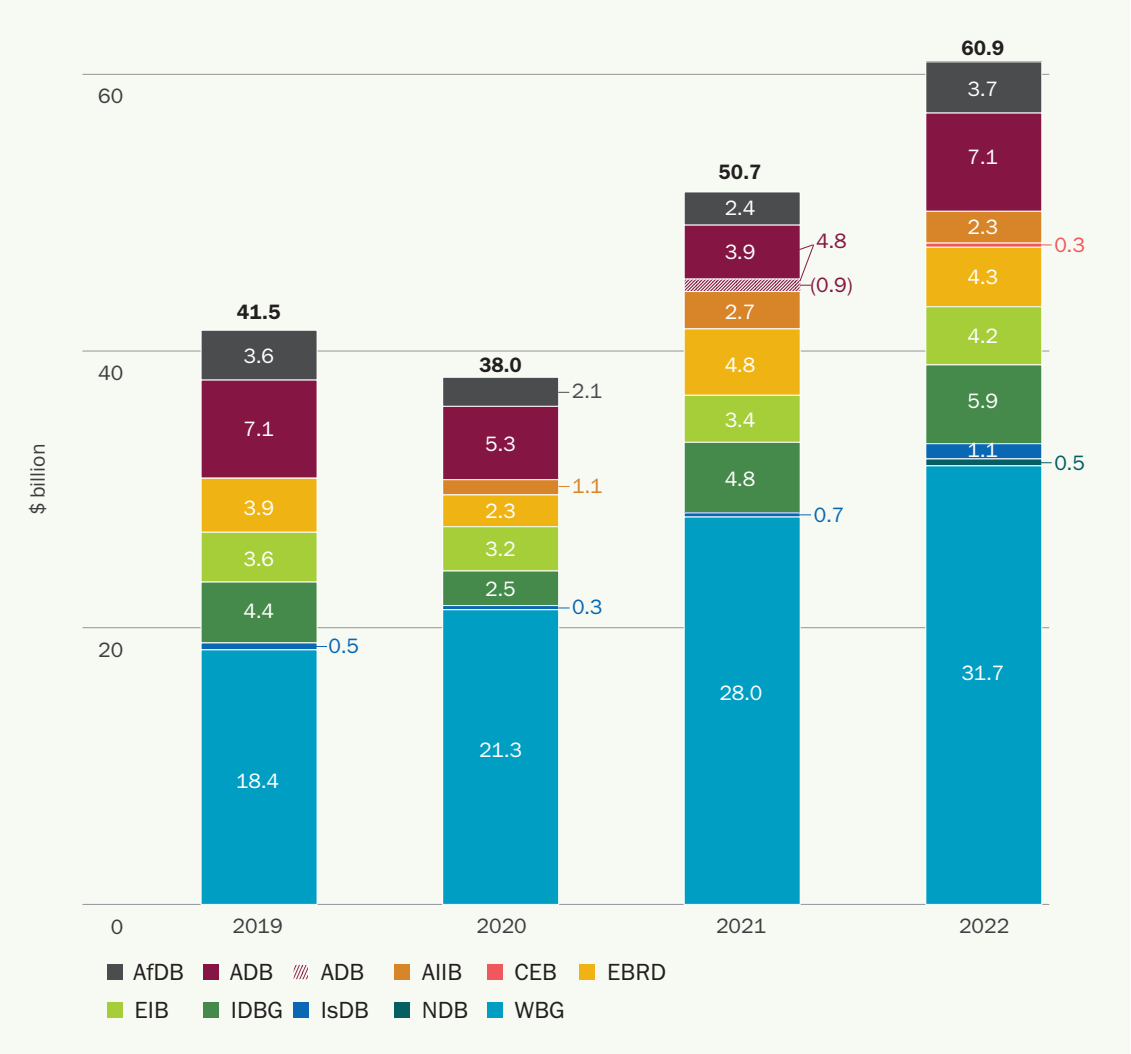
With $100 billion of climate finance commitments in both developing and advanced economies in 2022 (EIB 2023), MDBs are the largest contributors to climate finance.[43] They have played a vital role in supporting countries in their transition to a low-carbon economy and in strengthening their resilience (Getzel and Prizzon 2023). The last couple of years have seen an increased focus on how to further leverage MDBs' financing for climate and development. The recommendations by the Independent Review of Multilateral Development Banks' Capital Adequacy Frameworks (2022) on *Boosting MDBs' Investing Capacity* chaired by Frannie Léautier were welcomed by the G20 at the 3rd G20 Finance Ministers and Central Bank Governors meeting in Bali in July 2022, creating further momentum to move this agenda forward. Likewise, the recommendations of the G20 Independent Experts Group on the Multilateral Development Bank System led by Lawrence Summers and N.K. Singh under the Indian G20 Presidency in 2023 for a triple agenda of reforms to MDBs (IEG 2023a, 2023b, 2024) have been endorsed by the G20 leaders and the MDBs themselves.[44]

[43] In comparison, total international private finance flows to EMDEs amounted to only $15 billion on average in 2021/2022 (Buchner et al. 2023).

[44] The three elements of this agenda are: (1) adopting a triple mandate of eliminating extreme poverty, boosting shared prosperity, and contributing to global public goods; (2) tripling sustainable lending levels by 2030; and (3) creating a third funding mechanism which would permit flexible and innovative arrangements for purposefully engaging with investors willing to support elements of the MDB agenda.

There is no question about the potential of MDBs to play a much more powerful role in financing climate action in the Global South going forward. Figure 16 shows the climate finance commitments reported by the ten major MDBs – the AfDB, the ADB, the Asian Infrastructure Investment Bank (AIIB), the Council of Europe Development Bank (CEB), the EBRD, the EIB, the IDB, the Islamic Development Bank (IsDB), the New Development Bank (NDB) and the WBG – for low- and middle-income economies for the period 2019-2022 as reported in the 12th edition of the *Joint Report on Multilateral Development Banks' Climate Finance* (EIB 2023). The figures show that MDBs committed a total of $60.9 billion to low-income and middle-income economies in 2022, $38.2 billion of which (63%) was for climate change mitigation finance and $22.7 billion (37%) was for climate change adaptation finance. $48.7 billion went to public recipients and $12.3 billion to private recipients. According to the report, MDB climate finance investments was accompanied by $46.3 billion of climate co-finance, 33% of which came from private sources.

Figure 16: MDBs' climate finance commitments in low- and middle-income economies, 2019-2022 (billion US dollar)



Source: EIB (2023, Figure 1a).

While climate finance commitments of MDBs to EMDEs increased substantially from $41.5 billion in 2019 to $60.9 billion in 2022, this is still far from what is needed and what is possible. As pointed out by the Independent Review of Multilateral Development Banks' Capital Adequacy Frameworks (2022, p. 7), MDBs have displayed an extremely low risk tolerance, and a better utilisation of their balance sheets would likely enhance their lending capacity by "several hundreds of billions of dollars over the medium term."

Moreover, there is a strong case for increasing MDBs' capital. Thanks to the paid-in capital they have received from their shareholders as well as callable capital to guarantee their bonds and their preferred creditor status,[45] MDBs have an unmatched ability to leverage public resources. In essence, MDBs' traditional – and highly successful business model – has been to borrow cheaply against their equity in international capital markets to lend out greater volumes of finance, often at concessional rates. IDA, for instance, leverages every $1 that donors contribute into almost $4 of financial support for the poorest countries (IDA 2023). As pointed out by Humphrey and Prizzon (2022), "[a]t a time when many shareholder governments are attempting to balance their books, investing in MDBs – especially in their non-concessional windows – offers excellent value for money to mobilise financing at scale."

Indeed, as highlighted by Humphrey (2022) and shown in Table 1, the five largest MDBs have leveraged their paid-in capital more than 30 times since their establishment. Cumulative lending of MDBs ranges from 21% for the AfDB to 42% for the World Bank. The total paid-in capital of the five largest MDBs ($52 billion) is less than a quarter of the $223.7 billion in official development assistance (ODA) that members of the Development Assistance Committee provided in 2023 alone (OECD 2024). Along with MDB reforms to make them more efficient and optimise balance sheets, enhancing MDBs' capital base will be the most straightforward and effective way of mobilising private international capital.

Table 1: Shareholder capital, reserves, and lending of major MDBs

	Total paid-in share capital (billion US dollar)	Retained earnings (billion US dollar)	Cumulative financing (to 2020, billion US dollar)	Cumulative financing / paid-in share capital (%)
World Bank – International Bank for Reconstruction and Development (1944)	18.0	28.8	754.8	41.9
Inter-American Development Bank (1959)	11.9	23.2	296.5	24.9
Asian Development Bank (1966)	7.6	45.1	264.5	34.8
African Development Bank (1963)	7.3	3.9	151.0	20.7
European Bank for Reconstruction and Development (1991)	7.5	14.2	201.2	26.8
Total	**52.3**	**115.2**	**1,668.0**	**31.9**

Source: Adapted from Humphrey (2022, Table 0.1).

[45] MDBs' preferred creditor status is a widely accepted principle under which MDBs are given priority for repayment of debt in the event of a borrower experiencing financial stress.

A general shareholder capital increase would enable MDBs to mobilise more private capital from international capital markets. Another way would be the provision of subordinated debt or "hybrid capital", as discussed in Section 4.3. Both the AfDB and the World Bank have already introduced hybrid capital in 2024, giving current shareholders and institutional investors an opportunity to purchase bonds with special leveraging potential (AfDB 2024, World Bank 2024d). As a new component of their capital base, the hybrid capital will allow additional lending capacity. This could be further complemented by a Global Challenges Funding Mechanism, a platform proposed by the G20 Independent Experts Group on the Multilateral Development Bank System to provide opportunities to non-government investors (such as sovereign wealth funds, foundations, impact investors and businesses contributing funds as part of their corporate social responsibility programs) wanting to provide additional resources for priority goals that can be leveraged by MDBs for scale and impact (IEG 2023b).

It will not suffice if MDBs leverage their balance sheets. For MDB finance to become a major part of the solution, MDBs need to stop passing on exchange risk to their client countries. Exchange risk has been a major problem for EMDEs (and LICs in particular), contributing time and again to sovereign debt sustainability problems (including the current debt crisis). Recent evidence highlights that climate change and the resulting increase in the frequency and intensity of disasters worsens devaluation risk for IDA-eligible countries (Lo and Volz 2024). MDBs should therefore enhance their share of local currency financing. One option, as discussed, is that MDBs could themselves issue local currency debt in EMDEs – thereby contributing to the development of local currency bond markets and removing foreign exchange risk. But, as discussed, there is a risk that MDBs crowd out local bond issuers and that they will forego the pricing benefits they enjoy in international markets. If it is not an option to raise local currency, MDBs should hedge exchange risk themselves or offer hedging solutions to their client governments.[46] Regarding the former, MDBs have a large regional or global lending portfolio, allowing them the possibility of pool currency risk across countries (Perry 2009). Regarding the latter, they should make use of existing hedging markets or a cooperative hedging platform like TCX to reduce the overall currency risk exposure of borrowers as proposed in the Summers/Singh Triple Agenda Report, Volume 2 (IEG 2023b).

5.2 A Financing Facility Against Climate Change

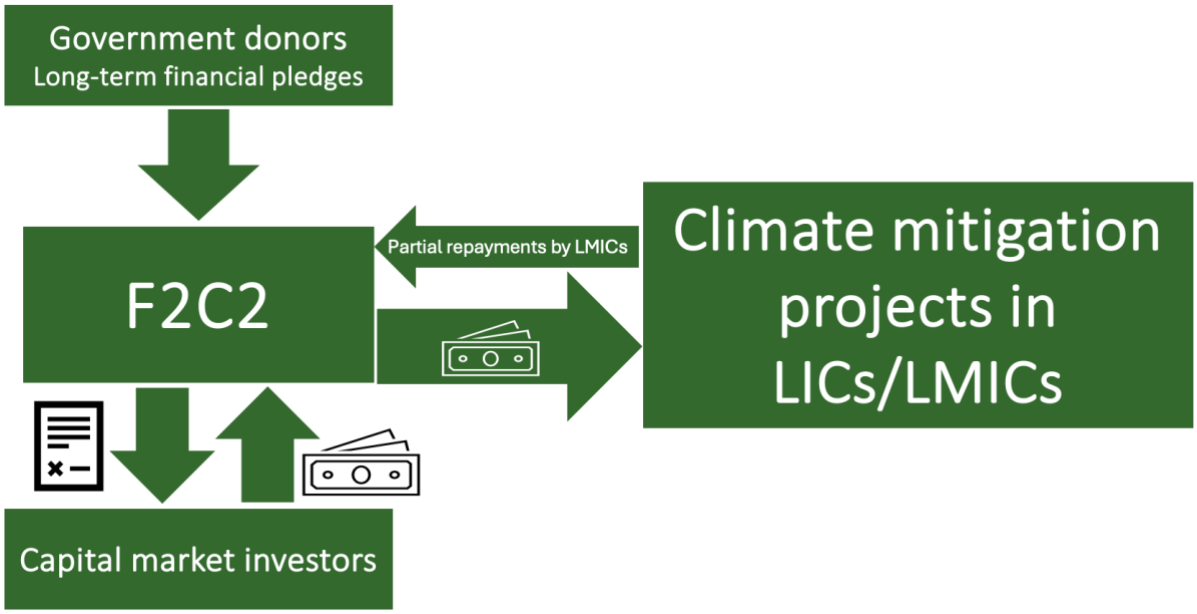
Many developing countries are struggling under a high sovereign debt burden and rising interest rates that leave little fiscal space to meet their Nationally Determined Contributions (NDCs) under the Paris Climate Accord. While the 80 economies designated by the World Bank as LICs or lower-middle-income countries (LMICs) – home to over half the world population – contributed just over 17% of total world carbon emissions in 2021 (Ritchie 2023), and much less in terms of historical emissions, global population growth

[46] AIIB and EBRD (2024) have developed a proposal for a DFI-sponsored vehicle (named Delta) to facilitate local currency finance by DFIs by offering onshore foreign exchange hedging and shared treasury capabilities. In essence, Delta would source and manage local currency liquidity onshore and offer hedging solutions for the benefit of all interested DFIs. Delta's liquidity pools could be used by all involved, creating economies of scale. Besides providing local currency liquidity, Delta would also support local money and capital market development. As a highly rated intermediary, Delta would shield DFIs from all the onshore risks they cannot take.

will be entirely driven by these countries in the coming decades (Zeifman et al. 2022). Their future contribution to global emissions is set to grow substantially if the foundations for low-carbon development pathways are not put in place today. If poor countries were to embark on a fossil-fuelled growth process along the lines of high-income countries, the globally available carbon budget would soon be fully consumed. Poorer countries must therefore be enabled to make the necessary investments to lift their people out of poverty in a way that is compatible with global climate aspirations.

To enable these countries to invest in climate mitigation, Kraemer and Volz (2024) propose the establishment of a Finance Facility against Climate Change (F2C2) that would raise $1 trillion (Figure 17) and complement MDB financing. This sum is equivalent to one fifth of the total estimated cost of financing the NDCs for the 80 LICs and LMICs that would be eligible to receive funding from F2C2. The facility would mobilise funding with a substantial grant element through the issuance of green bonds earmarked for emission reduction programmes in LICs and LMICs. The F2C2 bonds would be backed by rich nations' future commitments of official development assistance, which cover the green bonds' debt service obligations. This would allow the necessary frontloading of climate spending in poor countries, while minimising the short-term impact on donor countries' stressed budgets.

Figure 17: Finance Facility against Climate Change



Source: Kraemer and Volz (2024).

F2C2 would emulate the successful example of the International Finance Facility for Immunisation (IFFIm n.d.), which was established in 2006 to raise funds through the issuance of vaccine bonds earmarked for immunisation programmes in LICs. Kraemer and Volz (2024) envisage an annual issuance of $100 billion of F2C2 bonds over the next decade, providing a liquid market. This period reflects the limited absorption capacity of

receiving countries. Of the $1 trillion raised through F2C2, a minimum of $100 billion would be reserved for LICs.

F2C2 bonds would be structured to reflect the different stages of development of recipient countries. LICs will receive the funds as grants with no cofinancing requirement. LMICs would be expected to provide a 10% cofinancing contribution, but also receive highly concessionary conditions by applying a 50% "discount" on the most concessionary terms currently offered by the World Bank's IDA (World Bank 2024c), with a repayment period of 50 years including a ten-year grace period. This would result in a very low net present value of the recipient LMICs' payment obligation with annual principal repayment of 1.25% of the total from year 11 to 50. F2C2 would be expected to enjoy preferred creditor status like other multilateral lenders.

As demonstrated through their past practice in the cases of the International Finance Facility for Immunisation (IFFIm) and NextGenerationEU, the rating agencies will treat the commitments of donor countries to support F2C2 on par with the full faith and credit of the sovereigns making that promise (Kraemer and Volz 2024). As a result, F2C2 bonds will carry ratings in the AA or even AAA range. The exact rating will depend on the size and composition of rich countries' commitments for future funding and possible overcollateralisation of pledges.

F2C2 would make it possible to generate the funds necessary for frontloading climate mitigation investments in poor countries where emissions are otherwise poised to rise very quickly in the coming decades. Using this tried and tested concept of financial engineering to fund climate investments in the Global South sidesteps the challenges that come about by currently tight fiscal positions in donor and recipient countries alike.

F2C2 effectively pushes the financial burden of fighting climate change to future generations of rich-country taxpayers. Arguably, this this fair as they would be among the main beneficiaries if global warming were limited. But whatever the sense of intergenerational fairness may be, there are no good alternatives that would permit poor countries' climate investments on the necessary scale.

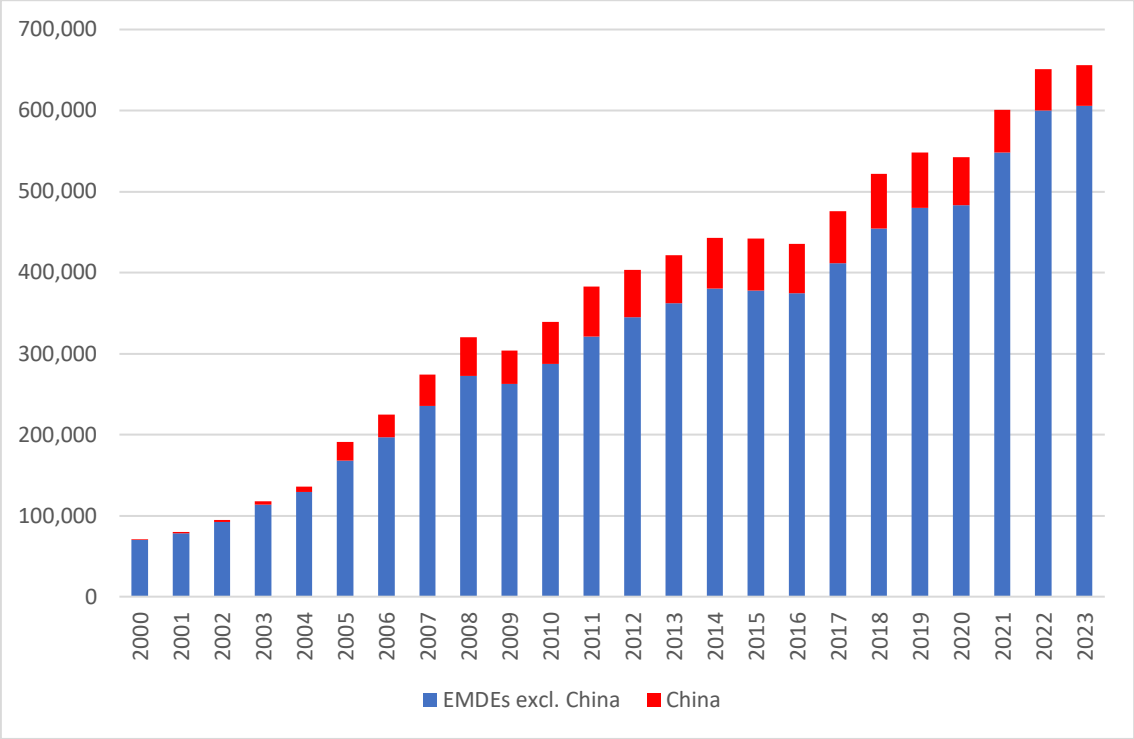
5.3 Diaspora bonds

Remittance flows have been the biggest source of external finance for EMDEs excluding China since 2015 (Ratha et al. 2022). In 2023, officially recorded remittance flows to EMDEs reached an estimated $656 billion (Ratha et al. 2024, Figure 18), almost three times the volume of ODA flows from DAC countries. Remittance flows are less affected by macroeconomic cycles than private debt and equity. But remittances are typically not contributing to the development of productive sectors in receiving economies.

Diaspora bonds have been proposed as a way of mobilising patient international capital from a country's nationals living abroad as well as their descendants (Gevorkyan 2021, Schneidman et al. 2022). Ketkar and Ratha (2007, p. i) define a diaspora bond as "a debt instrument issued by a country – or potentially, a sub-sovereign entity or a private corporation – to raise financing from its overseas diaspora." Proponents of diaspora bonds argue that these instruments can help governments diversify the investor base while benefiting from so-called patriotic discounts – provided that the diaspora is willing to forgo returns or take on greater risk due to their desire to support their country of origin

or ancestral homeland (Gevorkyan 2021). As Famoroti (2018, p. 33) puts it, if the diaspora bond issuance is successful, "the issuer receives crisis-resilient foreign-currency funding; in return, the diaspora is given a chance to contribute their quota to national development."

Figure 18: Remittance inflows (million US dollar)



Source: Compiled with data from World Bank-KNOMAD, June 2024.

The perhaps most prominent example of diaspora bonds are the so-called Israel bonds. These bonds have been issued through the Development Corporation for Israel, a broker-dealer headquartered in New York City, since 1951, raising more than $50 billion to finance infrastructure, security and strategic developments in Israel (DCI n.d.). Another country that has issued several diaspora bonds is India. The Indian government issued three diaspora bonds since the early 1990s to raise funding at times when it was struggling to access international capital markets (Ketkar and Ratha 2007). $1.6 billion of India Development Bonds were issued in 1991 in the face of a balance of payments crisis (Asquith and Opoku-Owusu 2020). This was followed by a $4.2 billion issuance of so-called Resurgent India Bonds in 1998 after India was confronted with economic sanctions and stoppage of loan aid imposed after a series of nuclear tests, and a $5.5 billion issuance of five-year India Millennium Deposit Bonds in 2000 to cope with volatility in international oil prices and bolster foreign exchange reserves and India's overall balance of payments position (GoI 2006).

As shown in Table 2, a few other countries have issued diaspora bonds.[47] But not all issuances have been successful. Ghana's Golden Jubilee Savings Bond in 2007, a local currency bond that was available to all Ghanaian citizens but mainly marketed to the non-resident Ghanaian diaspora, was undersubscribed and raised only GHC 20 million, or 40% of the targeted GHC 50 million – with only 6% of bond purchases from the Ghanaian diaspora (Faal 2019, Coffie 2022). Ethiopia's first diaspora bond, issued in 2008 to finance the construction of the Grand Renaissance High Dam on the Nile, failed because of environmental concerns and mistrust of the government (Famoroti 2018). A more recent diaspora bond issuance by Nigeria in 2017 was more successful with an oversubscription of 130%, raising $300 million for infrastructure investment.

Table 2: Overview of existing diaspora bonds schemes

Country	Type of bond	Target investor	Purpose of borrowing	Level of patriotic discount	Type of institution managing the bond	International regulations
Israel	Sovereign (annual issuance since 1951)	Diasporans but open to other investors	Development	Large but declining	Public agency (Development Corporation for Israel)	Registered with the US Securities and Exchange Commission
India	Sovereign (1991, 1998, 2000)	Diasporans only	Balance of payments support	Small	Government-owned bank (State Bank of India)	—
Ethiopia	Sovereign (2008, 2011)	Ethiopians with access to foreign exchange (2008) / all potential investors (2011)	Development (infrastructure)	Large but declining	Central bank (National Bank of Ethiopia) and commercial bank (Commercial Bank of Ethiopia)	—
Ghana	Sovereign (2007)	All potential investors	Development (energy and transport infrastructure)	None	Central bank (Bank of Ghana)	—
Nepal	Sovereign (2009, 2010, 2011)	Nepalese workers abroad	Development (infrastructure)	Large	Central bank (Nepal Rastra Bank)	—
Nigeria	Sovereign (2017)	Diasporans only	Development (infrastructure)	None	Commercial banks (BofA Merrill Lynch, Standard Bank, First Bank, UBA)	UK Financial Conduct Authority

Source: Adapted from Frimpong Boamah et al. (2017, Table 1) and own research.

[47] South Africa issued Reconciliation and Development bonds to both domestic and expatriate investors (Bradlow 2008).

Ketkar and Ratha (2007) consider factors that favour diaspora bond issuance. Not surprisingly, they highlight a large and wealthy diaspora, particularly with a large proportion of first-generation migrants with closer ties to the home country, as an important factor that will favour diaspora bond issuance. In addition, diaspora bonds benefit from political stability and a strong and transparent legal system to enforce contracts. Conversely, low governability and especially civil wars are likely to diminish the demand for diaspora bonds.

Ketkar and Ratha (2007) also mention that the existence of national banks facilitates the marketing of bonds to the diaspora. The recent, second SLB issuance by BRD in Rwanda provides an encouraging example in this respect (Box 6). Although the bond was not coined as a diaspora bond and marketed primarily to the diaspora community, it succeeded in attracting considerable interest amongst Rwandans abroad, facilitated by an online digital subscription and payment platform. The Rwandan example lends support to the World Bank's (2024b) recent recommendation of engaging the Rwandan diaspora in domestic capital markets through diaspora bonds and other initiatives to support Rwanda's financial sector and broader development goals. It also underscores the potential of using digital sales channels that facilitate purchase of bonds by retail investors also in small quantities.

Kenya, the country that pioneered mobile banking, has not issued diaspora bonds yet (despite occasional mischaracterisation). However, it has been successful in attracting considerable interest amongst its diaspora in its local currency government bills and bonds. Anyone with a Kenyan bank account, regardless of their place of residence, can easily invest in these instruments through their mobile phone. This has attracted Kenyan investors from abroad who still have a Kenyan bank account and can therefore benefit from easy purchase options through mobile banking.

6. Conclusions and recommendations

Mobilising finance for climate and SDG action is more urgent than ever. As the goals of the Paris Agreement and the Agenda 2030 start to slip from our grasp, we need to have a sober reality check regarding the most promising approaches to mobilise finance for sustainable development and stop pursuing elusive blended finance solutions that have not delivered at scale to date and are unlikely to do so in the future. International private investors demand high risk-adjusted returns when investing in EMDEs, and many – perhaps the majority – climate- and SDG-related projects will not deliver those.

This report calls for a much larger role of public development banks at the national and international level in developing a sustainable project pipeline and in financing these. Over the last three years, the MDB reform agenda has taken off, raising the prospect of mobilising hundreds of billions of US dollars in new financing. It needs to be accelerated, and shareholders should further bolster the potential of MDBs to mobilise private capital through international bond markets by new capital increases. As has been rightly pointed out by the likes of Humphrey, Kapoor, and Kenny: MDBs have an unmatched ability to leverage public resources, and capital invested in MDBs will generate a multiple in returns.

Going further, we need to empower NDBs in EMDEs to replicate how MDBs and advanced country DFIs backed by highly solvent governments can borrow against their equity in capital markets. Hence, a key recommendation of this report is that MDBs and international DFIs work more closely with NDBs and support them in strengthening their governance structures, enhancing their ability to develop sustainable project pipelines, and in bolstering their capabilities to raise funds in capital markets. Going beyond technical assistance and capacity building, MDBs and international DFIs can strengthen the capital base of NDBs by providing equity, callable capital, and subordinate debt, and thereby empower NDBs to mobilise a multiple in local capital. Moreover, they can provide guarantees to NDBs when issuing debt. With international support, NDBs can become stronger local partners and investors in low-carbon climate resilient projects that are well placed to generate, monitor and audit significantly expanded project pipelines.

In this report, we have documented that trillions of EMDE savings are currently invested abroad. Many EMDEs, especially in Asia, are net capital exporters, and even countries that are net capital importers see large chunks of their savings invested at low or negative returns in the financial centres of advanced countries, only for them to be channelled back home, but at much higher rates which then benefit foreign investors. This is money that could in part be invested domestically to foster climate action and enable progress in achieving the SDGs. This presents a huge opportunity for mobilising trillions of EMDE savings to put them to good use at home. While domestic financial resource mobilisation has been a long-standing issue in the development finance agenda, it is critical to scale up ambition and make concerted efforts to strengthen the mobilisation of domestic savings and the development of local currency bond markets. While foreign capital in the form of direct investment or foreign aid has played an important role in the economic development of many countries, historically, no economy has developed its infrastructure and financed its development primarily through foreign finance, spare a few resource-rich countries. Mobilising domestic savings for local investments is a crucial part of economic development, and it is vital to lower the cost of capital – one of the main bottlenecks to development. An economy that is dependent on foreign currency financing

will continue to suffer from high cost of capital. NDBs in developing countries can assume a central role in mobilising domestic savings and channelling them into domestic investment.

There are no silver bullets, but there are important lessons from countries that have been successful in mobilising savings and developing their financial systems. In most of them, public financial institutions – be it savings banks, NDBs, or provident funds – have played a crucial role in mobilising savings and setting in motion a virtuous cycle where financial institutions finance productive investment and where growth then generates new income and investment. International development cooperation can make important contributions in helping EMDEs to build a financial infrastructure that will do a better job at mobilising capital.

Digital technologies provide an enormous opportunity for developing countries to develop new, innovative fundraising approaches and reinvent how capital market infrastructure and instruments are built to serve the specific financing needs in these markets, as well as the needs of the local investor base. Fintech solutions have a capacity to facilitate domestic resource mobilisation for sustainable investments and at the same time improve the implementation of infrastructure projects by facilitating processes and enhancing transparency.

Tokenised local-currency SDG or sustainability-linked bonds issued by NDBs could target retail investors and remittances. The tokenisation of bonds can enable citizens in EMDEs to become investors with smaller amounts of savings, while digital aggregation of these micro-investments helps to raise additional sustainable investment capital. One way to address this is through tokenising NDB bonds and offering them on distributed ledger systems directly to retail investors in EMDEs. This can be also used to attract international investors, including a country's diaspora. DFIs and MDBs can act as anchor investors and support new digital approaches for the tokenisation of bonds and the aggregation of micro-investments, sending a signal to other private investors about the viability and credibility of the instruments, ultimately crowding in new investors.

It is imperative that we find better ways of directing domestic savings into domestic investments across EMDEs. Creating safe, local-currency assets that attract domestic savings is one critical element. With the support of MDBs and international DFIs, and by using innovative digital approaches, NDBs can be powerful vehicles to overcome investment barriers and leverage private domestic and international finance for development by borrowing from capital markets. A strengthening of NDBs can accelerate and scale up green investment in EMDEs.

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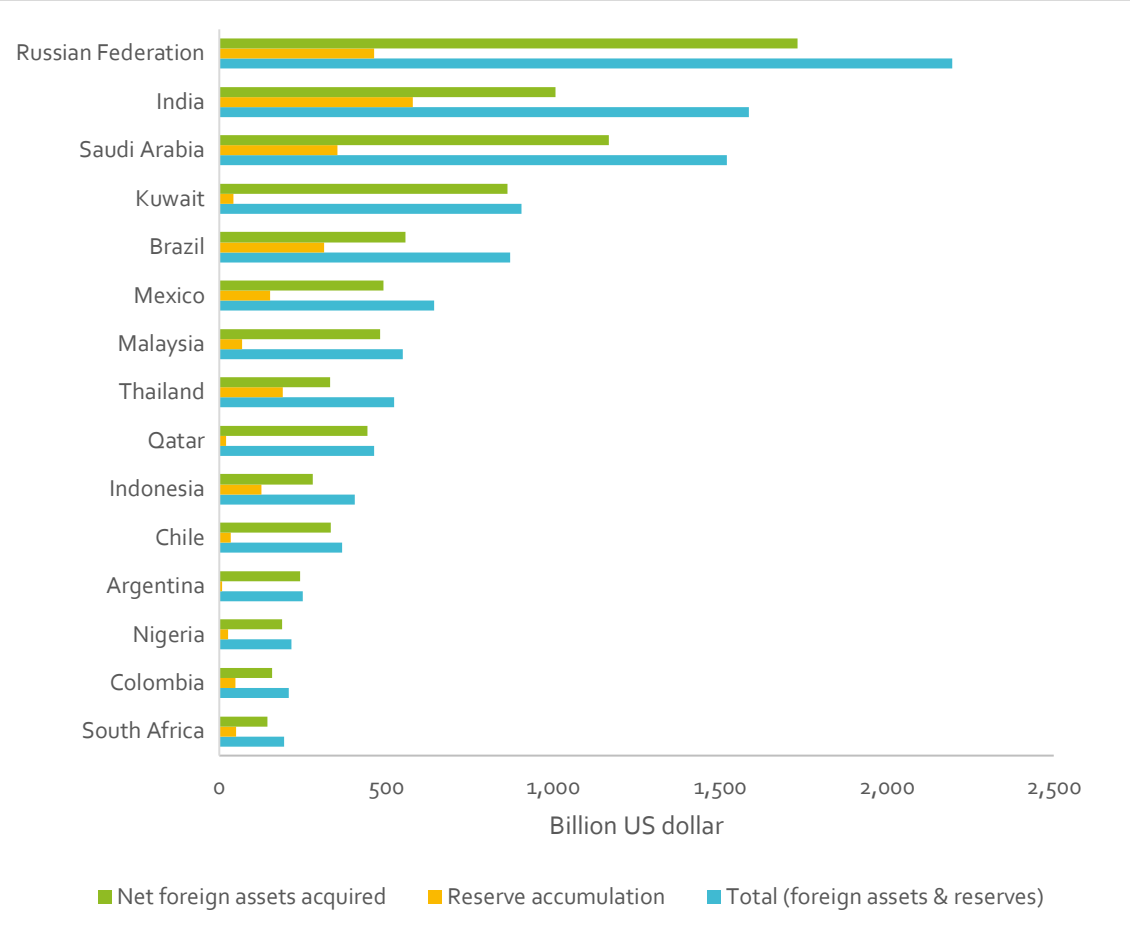
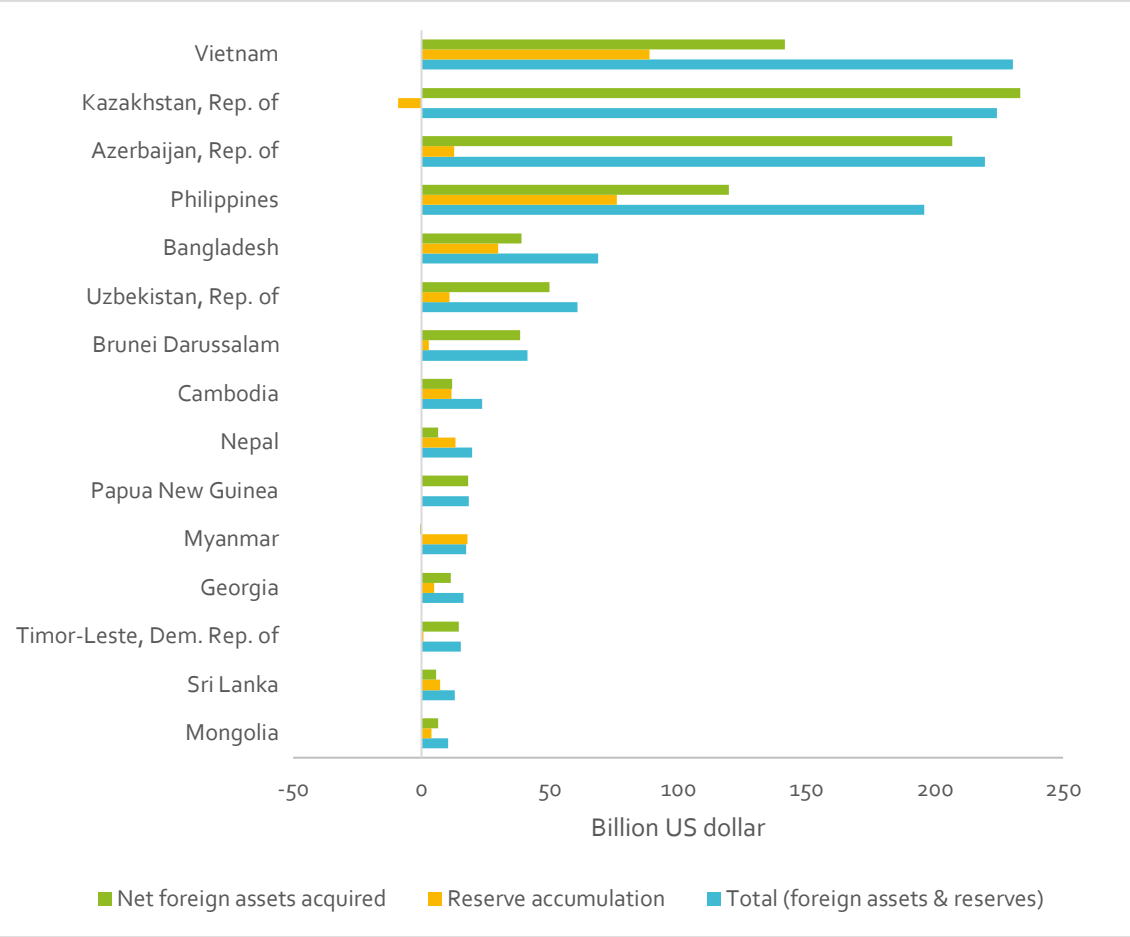
Annex

Figure A1: Cumulative net foreign assets and reserves acquired by select large EMDE countries (billion US dollar), 2004-2023



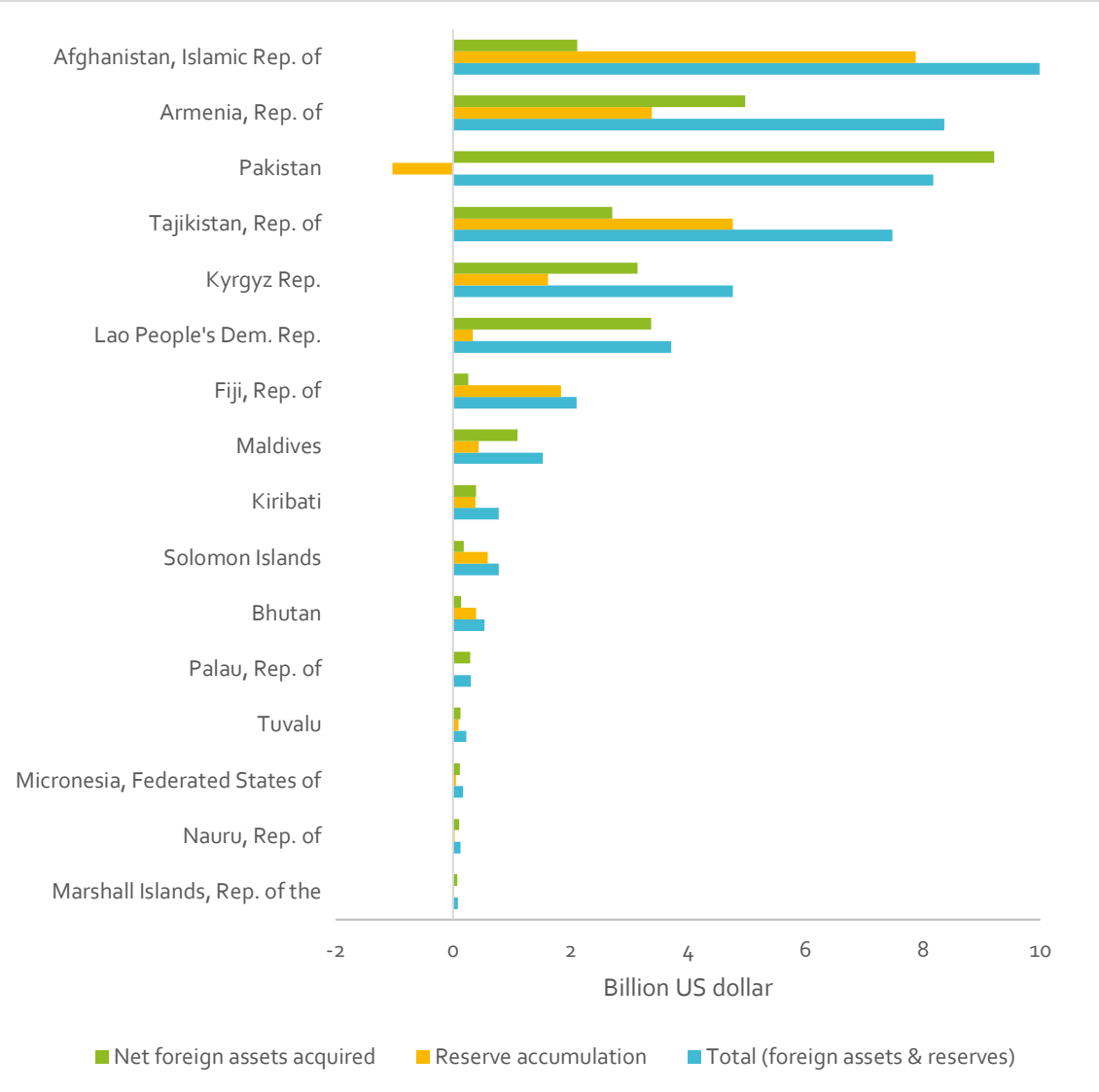
Source: Compiled by authors based on data from IMF BPM6.

Figure A2.1: Cumulative net foreign assets and reserves acquired (billion US dollar), 2004-2023 – EMDE Asia



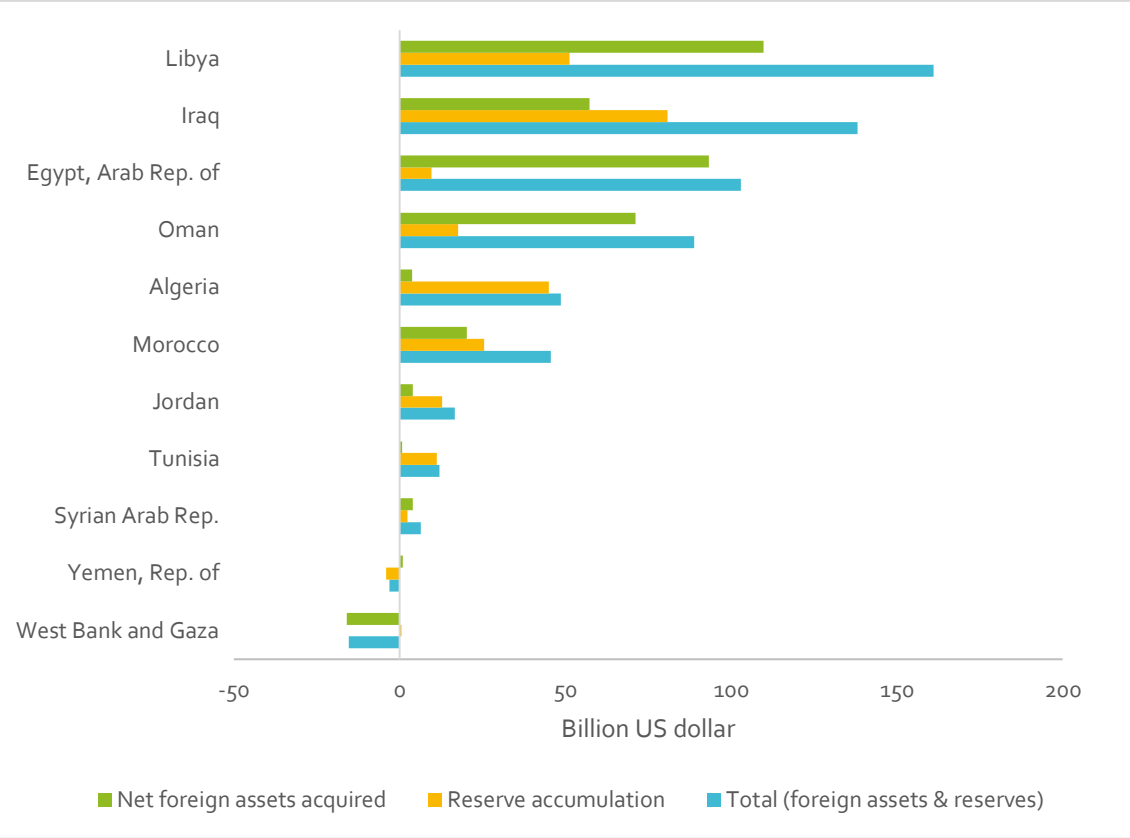
Source: Compiled by authors based on data from IMF BPM6.

Figure A2.2: Cumulative net foreign assets and reserves acquired (billion US dollar), 2004-2023 – EMDE Asia, part 2



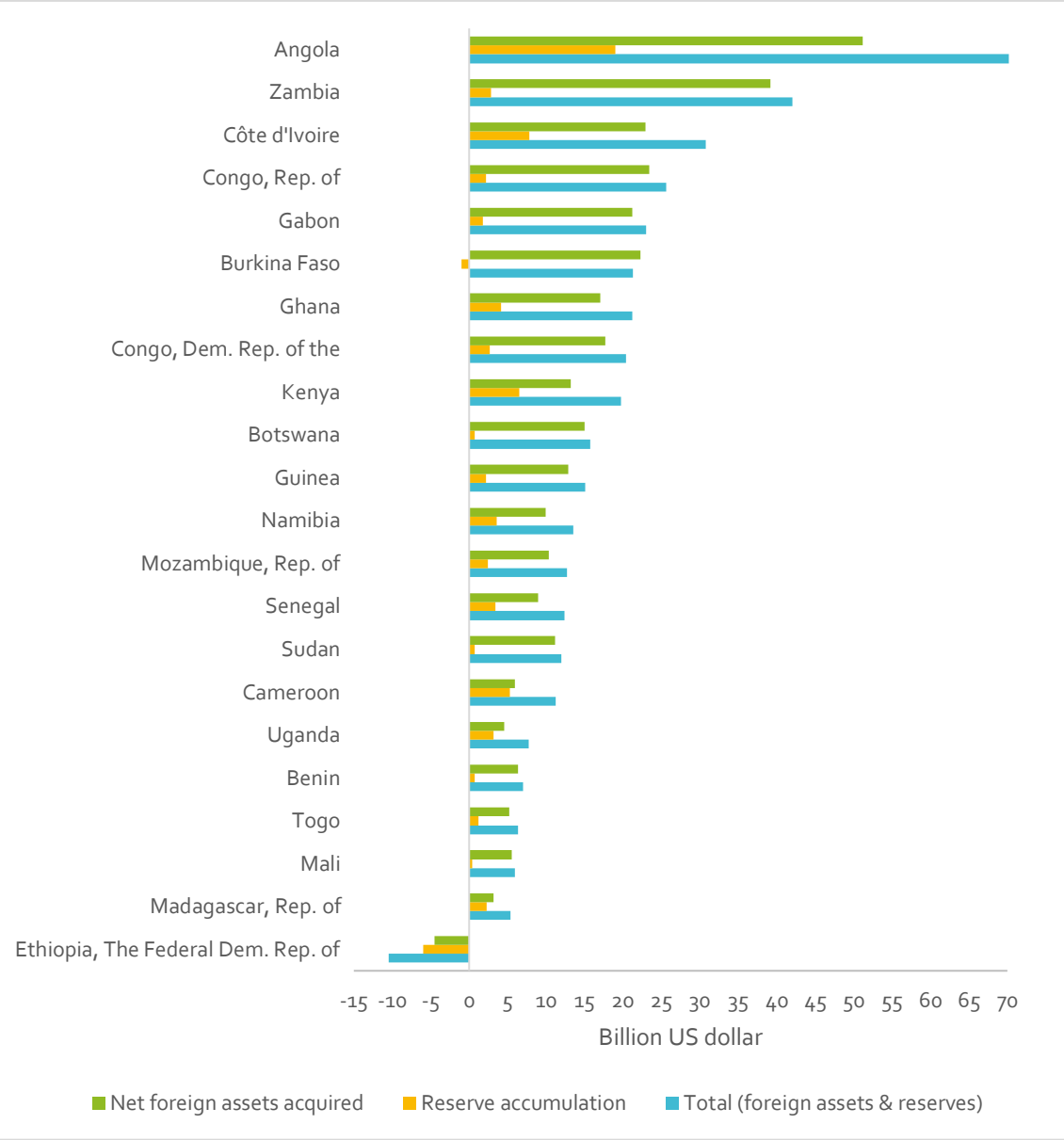
Source: Compiled by authors based on data from IMF BPM6.

Figure A3: Cumulative net foreign assets and reserves acquired (billion US dollar), 2004-2023 – Middle East and North Africa



Source: Compiled by authors based on data from IMF BPM6.

Figure A4.1: Cumulative net foreign assets and reserves acquired (billion US dollar), 2004-2023 – Sub-Saharan Africa

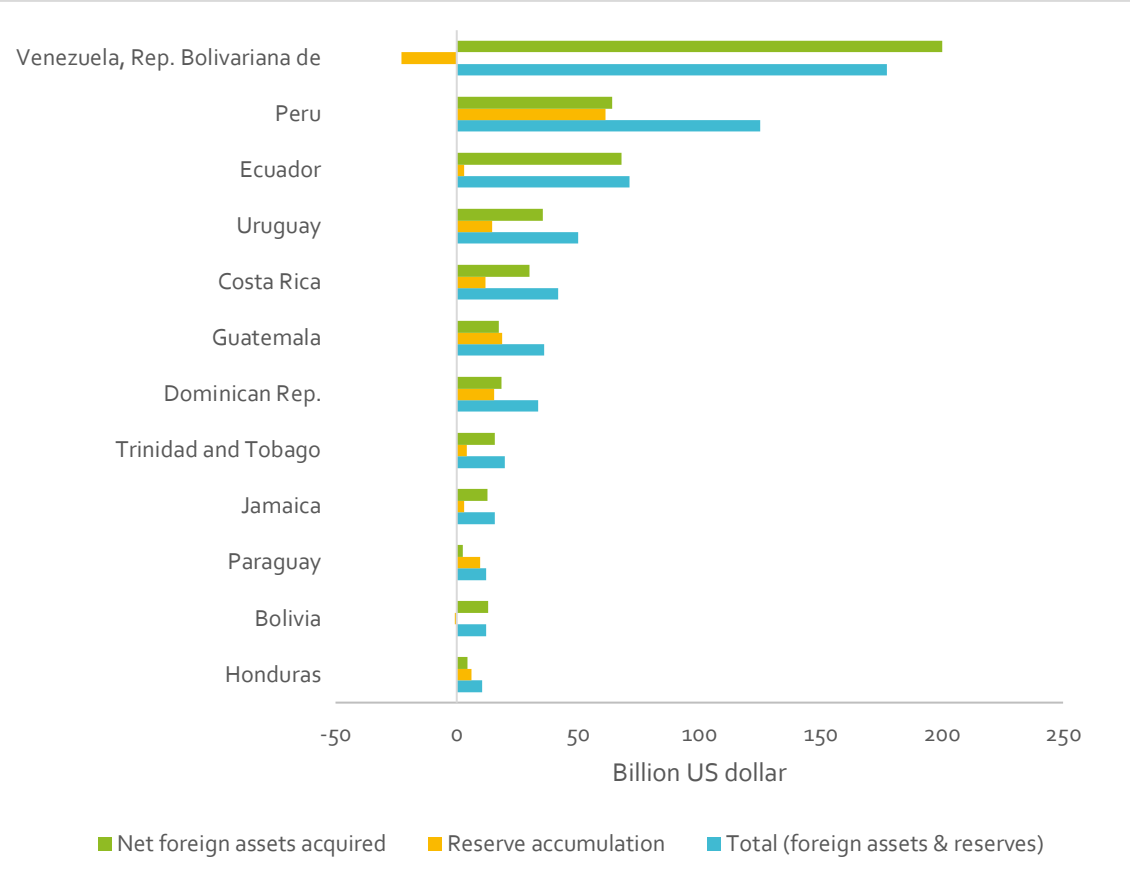


Source: Compiled by authors based on data from IMF BPM6.

Figure A4.2: Cumulative net foreign assets and reserves acquired (billion US dollar), 2004-2023 – Sub-Saharan Africa, part 2

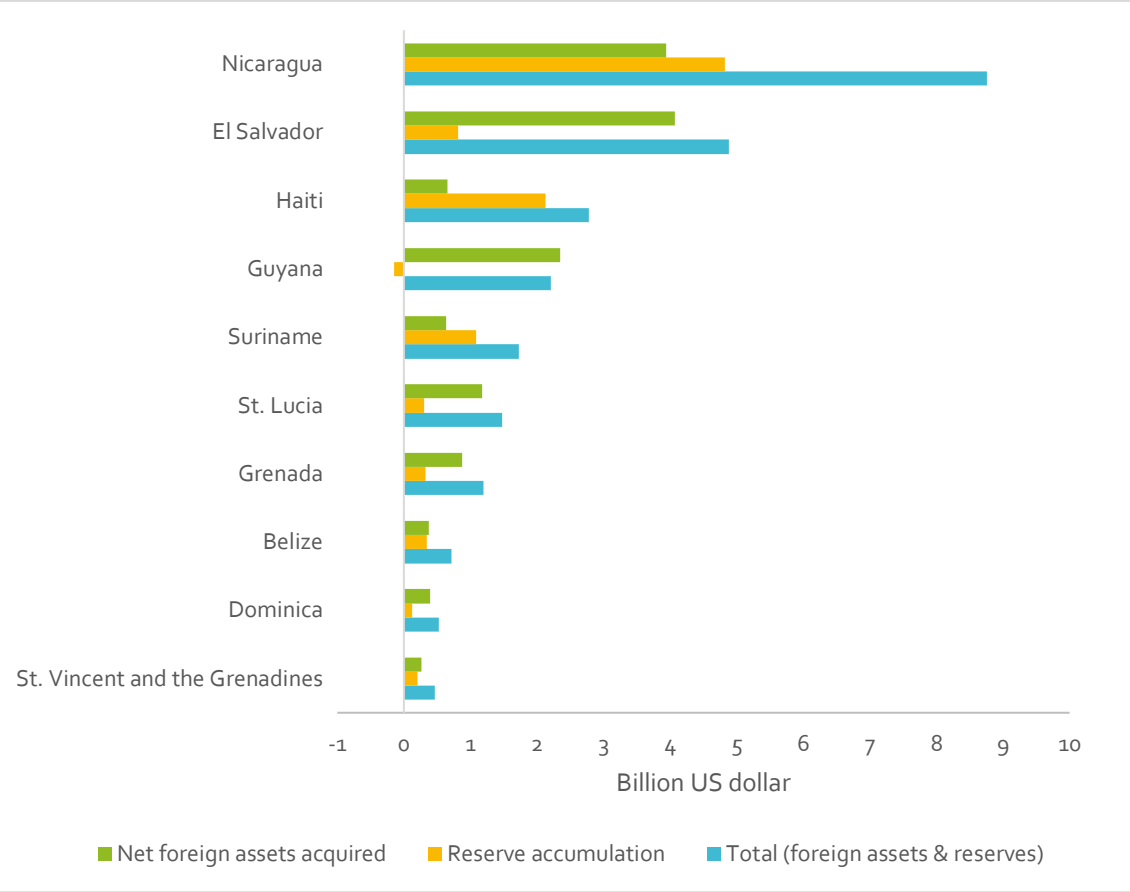
Source: Compiled by authors based on data from IMF BPM6.

Figure A5.1: Cumulative net assets acquired (billion US dollar), 2004-2023 – EMDE Americas



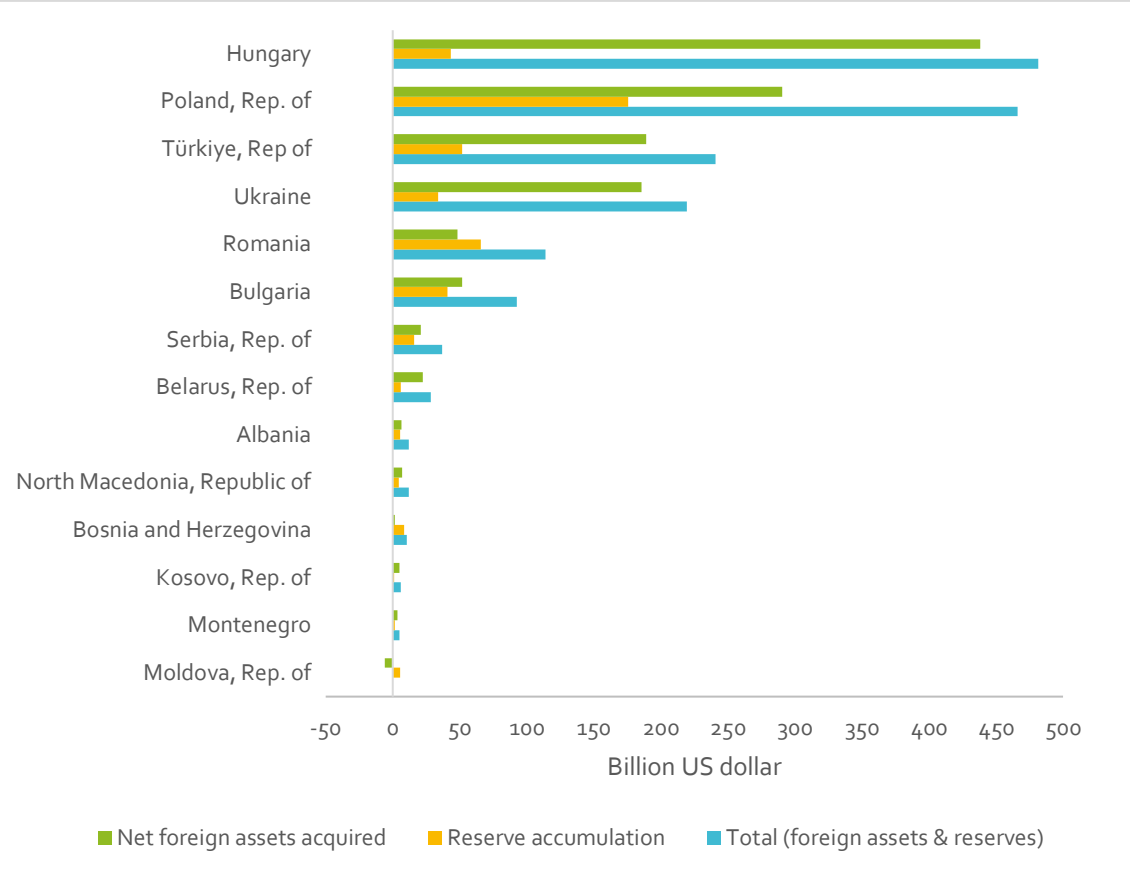
Source: Compiled by authors based on data from IMF BPM6.

Figure A5.2: Cumulative net assets acquired (billion US dollar), 2004-2023 – EMDE Americas, part 2



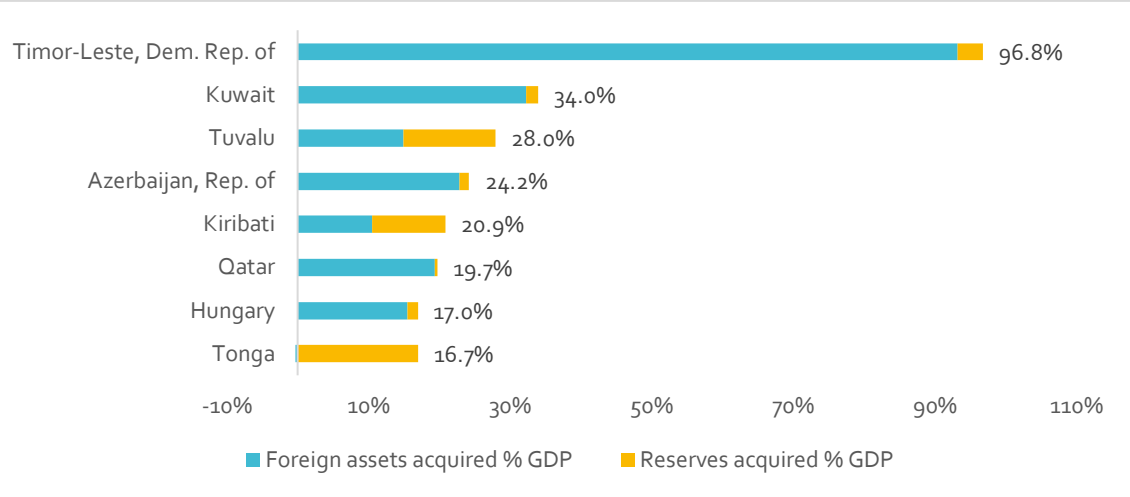
Source: Compiled by authors based on data from IMF BPM6.

Figure A6: Cumulative net assets acquired (billion US dollar), 2004-2023 – EMDE Europe excl. Russia



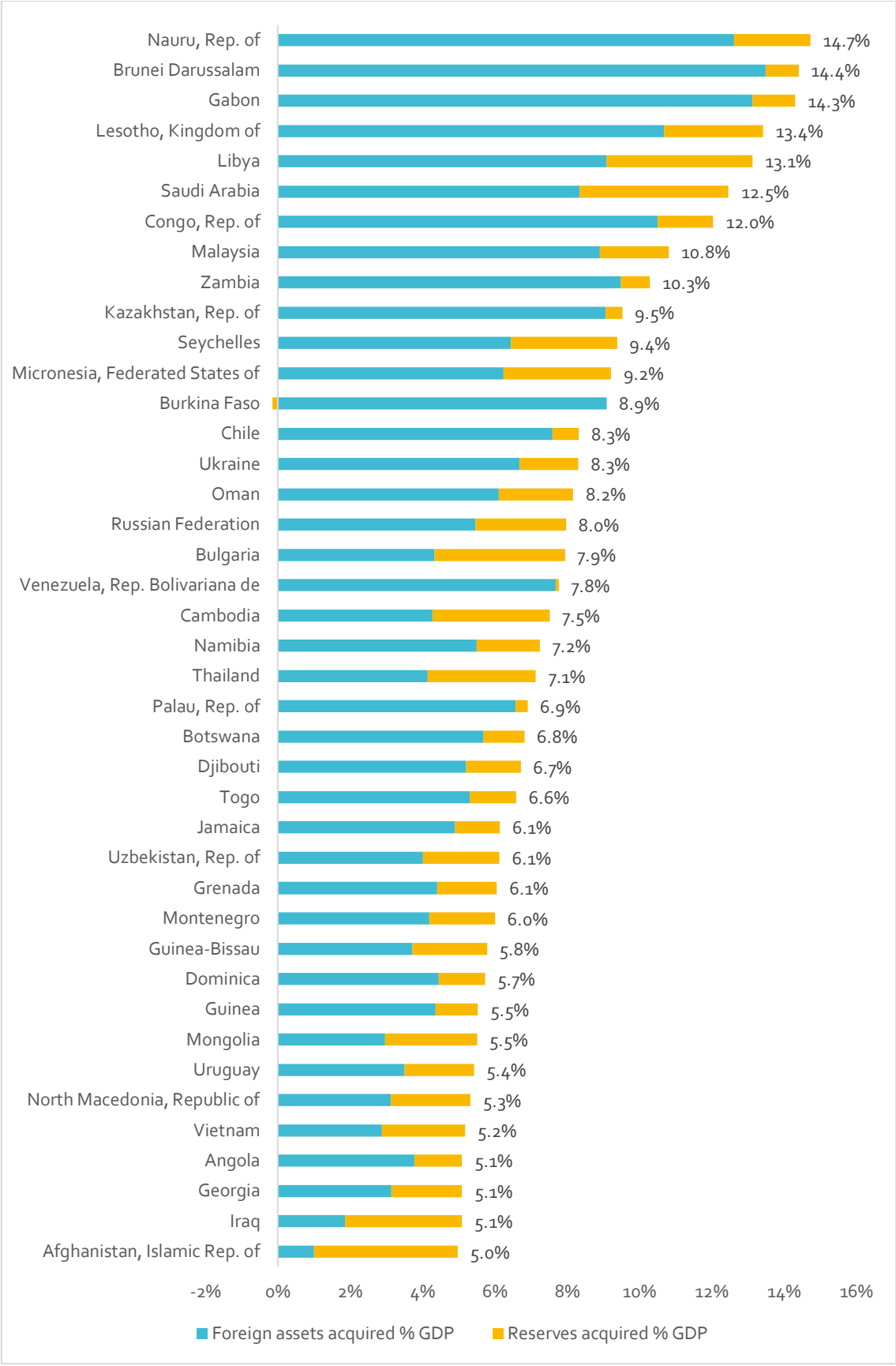
Source: Compiled by authors based on data from IMF BPM6.

Figure A7.1: Average annual foreign assets and reserves acquired as percent of GDP, 2004-2023



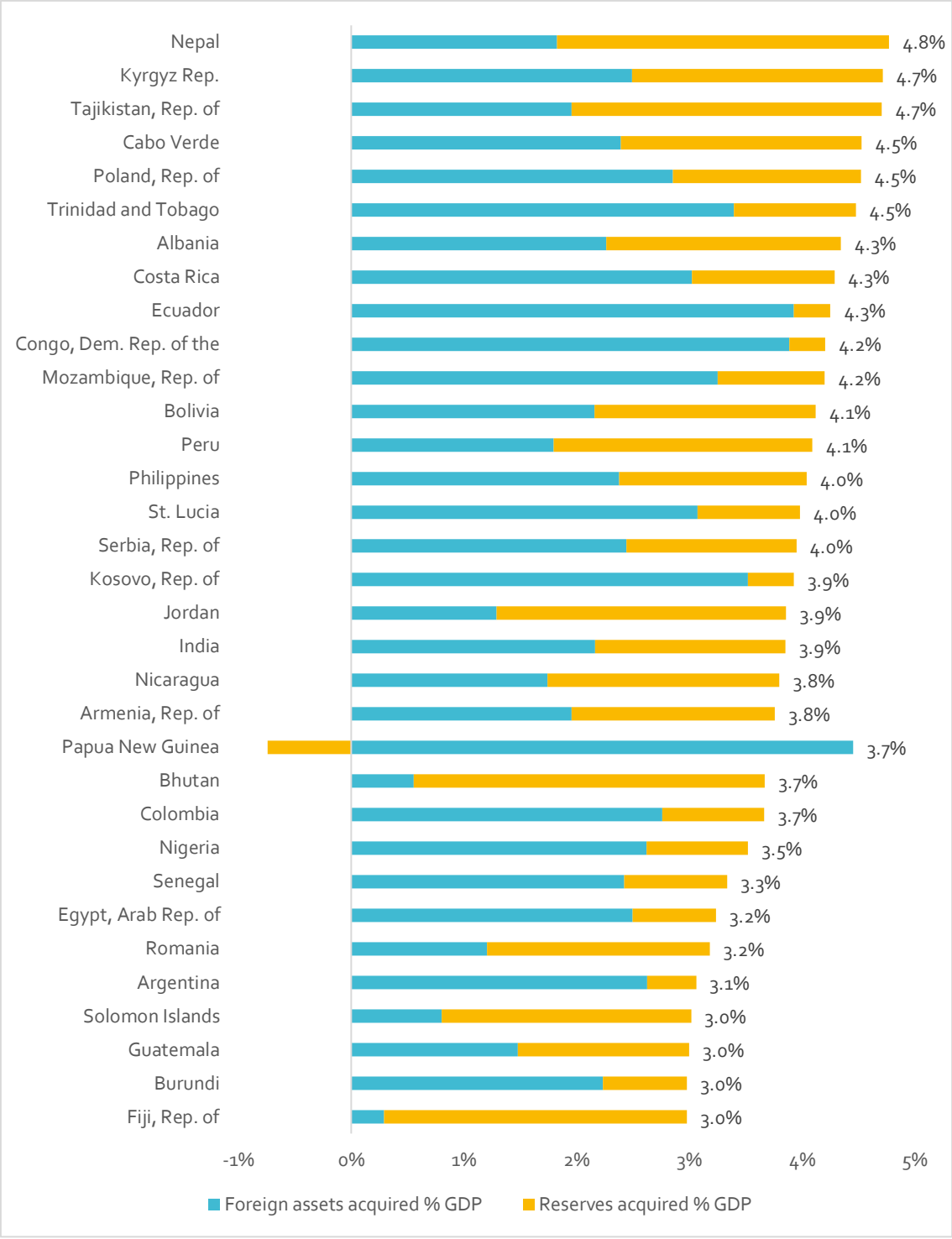
Source: Compiled by authors based on data from IMF BPM6.

Figure A7.2: Average annual foreign assets and reserves acquired as percent of GDP, 2004-2023, part 2



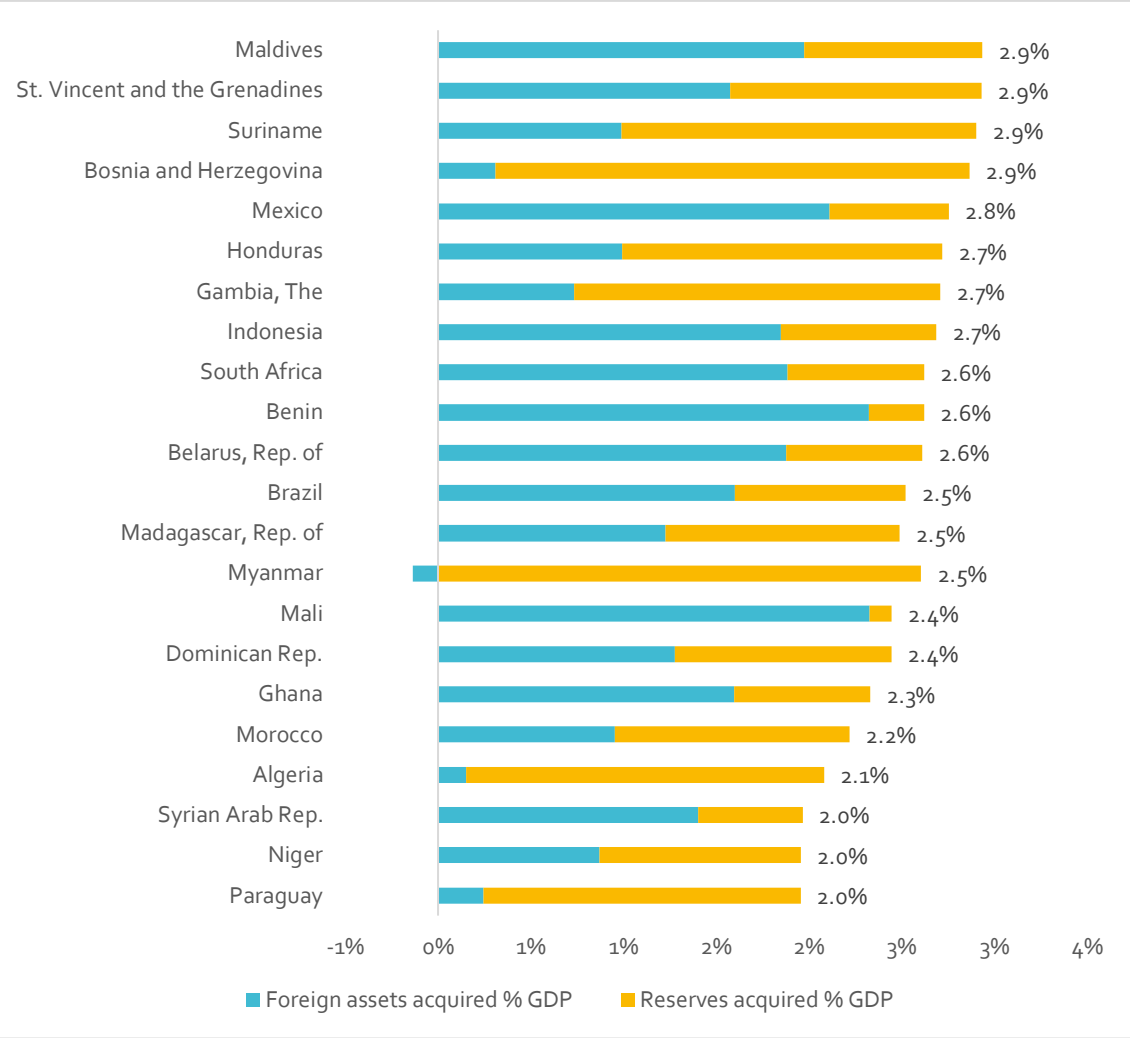
Source: Compiled by authors based on data from IMF BPM6.

Figure A7.3: Average annual foreign assets and reserves acquired as percent of GDP, 2004-2023, part 3



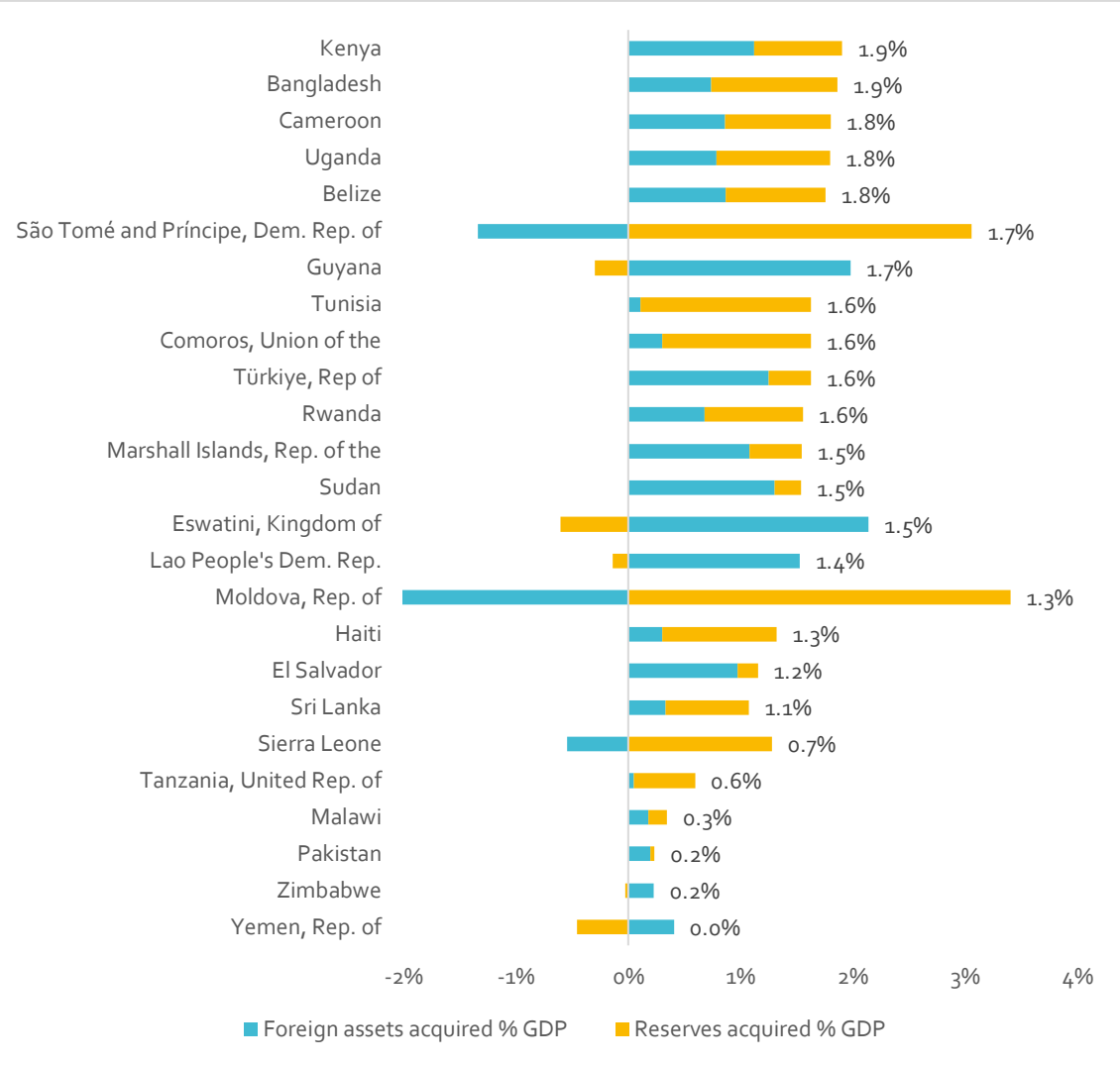
Source: Compiled by authors based on data from IMF BPM6.

Figure A7.4: Average annual foreign assets and reserves acquired as percent of GDP, 2004-2023, part 4



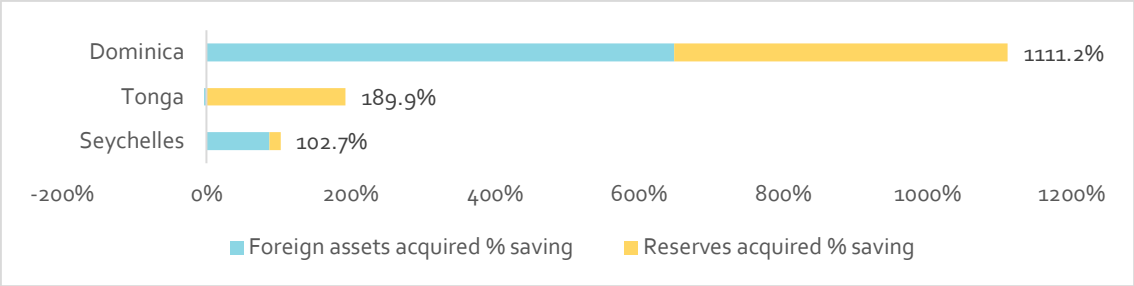
Source: Compiled by authors based on data from IMF BPM6.

Figure A7.5: Average annual foreign assets and reserves acquired as percent of GDP, 2004-2023, part 5



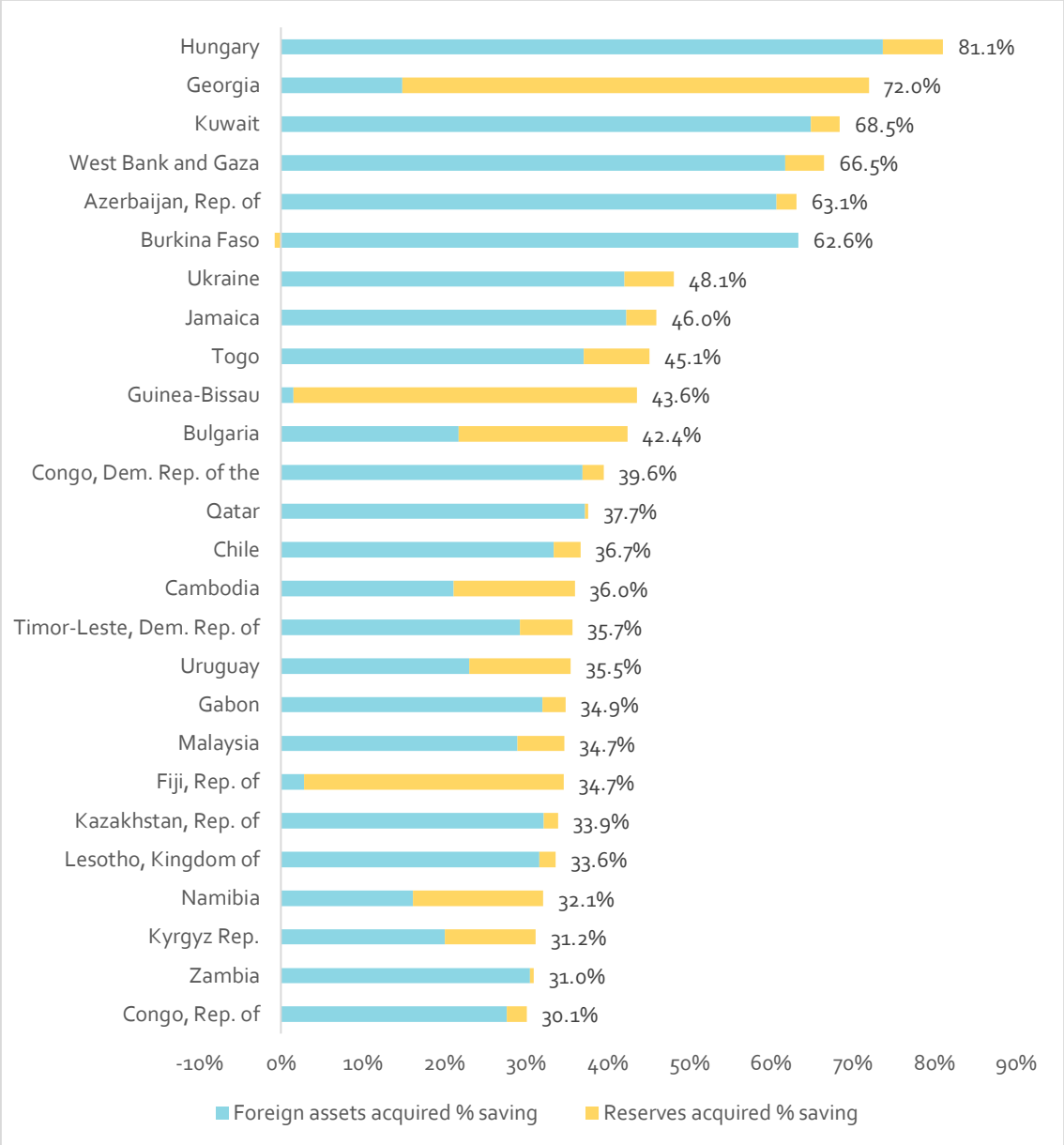
Source: Compiled by authors based on data from IMF BPM6.

Figure A8.1: Average annual foreign assets and reserves acquired as percent of gross saving, 2004-2023



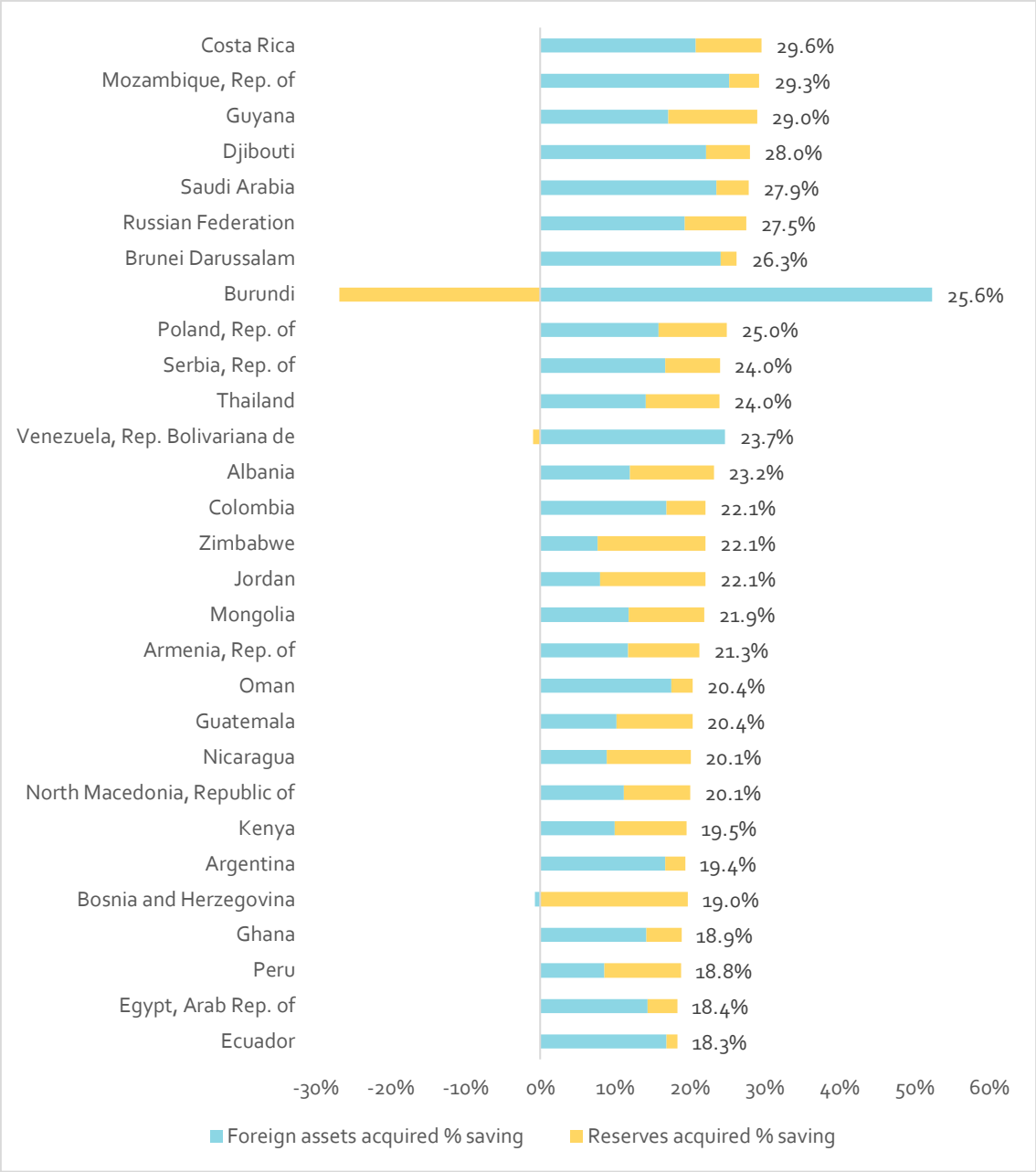
Source: Compiled by authors based on data from IMF BPM6.

Figure A8.2: Average annual foreign assets and reserves acquired as percent of gross saving, 2004-2023, part 2



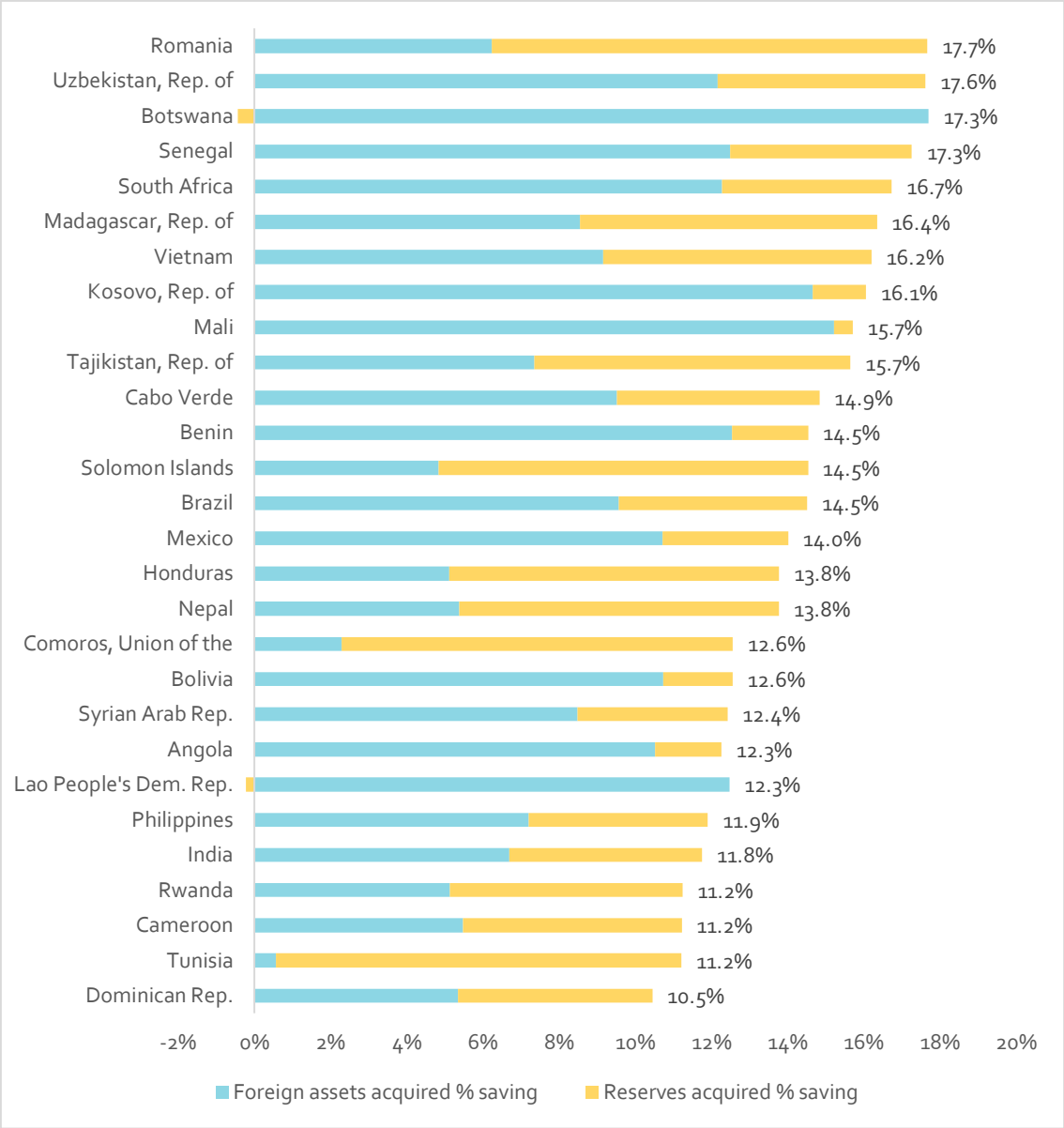
Source: Compiled by authors based on data from IMF BPM6.

Figure A8.3: Average annual foreign assets and reserves acquired as percent of gross saving, 2004-2023, part 3



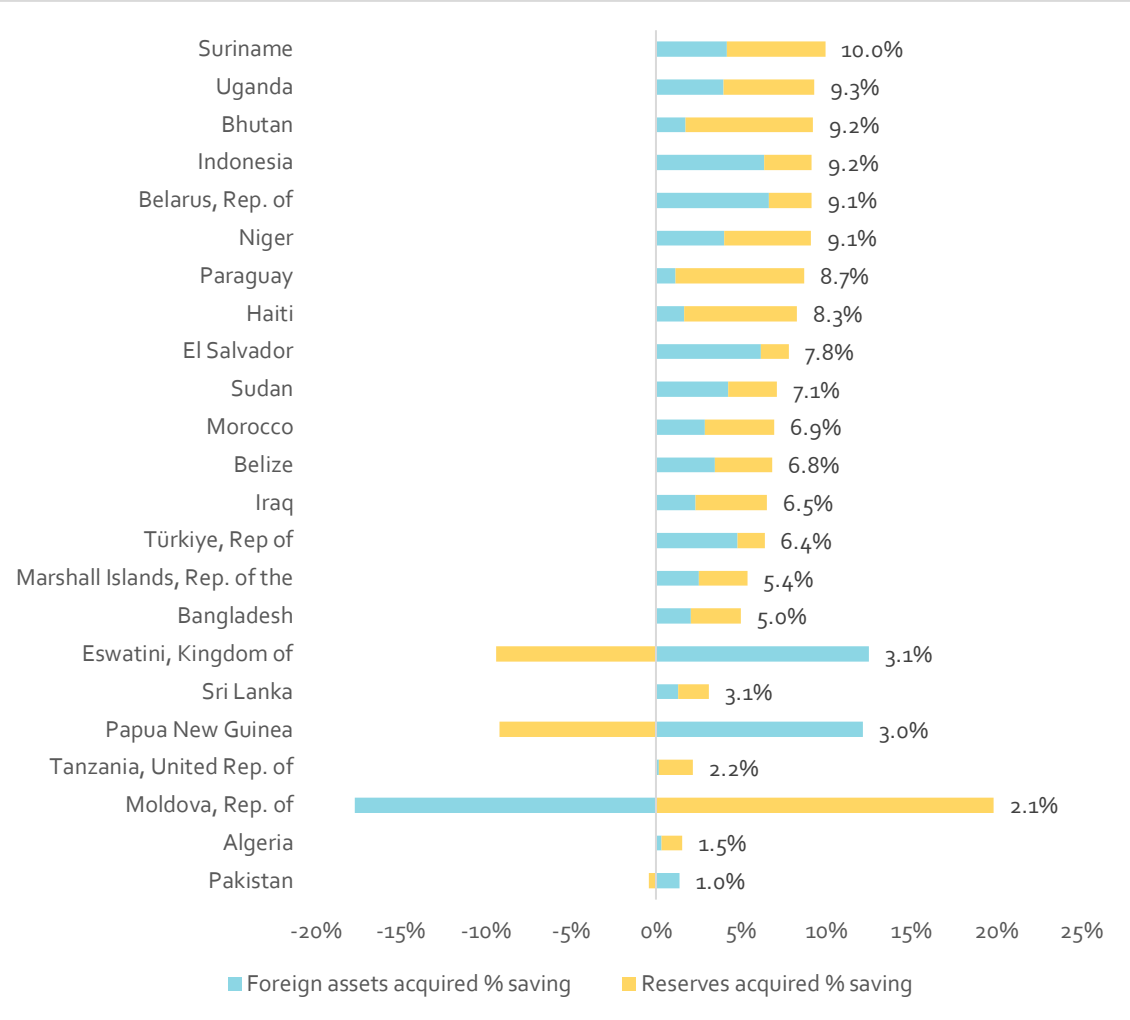
Source: Compiled by authors based on data from IMF BPM6.

Figure A8.4: Average annual foreign assets and reserves acquired as percent of gross saving, 2004-2023, part 4



Source: Compiled by authors based on data from IMF BPM6.

Figure A8.5: Average annual foreign assets and reserves acquired as percent of gross saving, 2004-2023, part 5



Source: Compiled by authors based on data from IMF BPM6.