

Local Currency Lending by Multilateral Development Banks*

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Abstract

This paper explores the prospects of local currency-denominated loans by Multilateral Development Banks (MDBs), focusing on mitigating foreign exchange and convertibility risks. It theoretically analyzes three financing strategies: (1) MDBs borrowing in hard currency and onlending through a diversified portfolio of local currencies and host countries or engaging in hedged local currency onlending; (2) issuing local currency bonds for local currency onlending; and (3) recapitalizing MDBs with hard currency to establish Local Currency Funds. Each strategy has distinct advantages and drawbacks, emphasizing the need for a case-by-case approach tailored to the macroeconomic conditions of host developing countries.

JEL classification: G01; G21; G28; H81; E51; E44; Q50

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1 Introduction

Since the global financial crisis erupted in 2008 and the subsequent credit crunch have revealed challenges in reigniting sustained economic growth, the role of public development banks (PDBs) and state-owned commercial banks has gained prominence in policy discussions. Initially, their countercyclical credit provision attracted attention for its capacity to mitigate business cycle fluctuations and prevent deeper crises (Brei and Schclarek, 2013, 2015, 2018; Bertay et al., 2015). Over time, additional roles have been recognized, including their ability to extend loan maturities (Schclarek and Xu, 2022; Schclarek et al., 2023), act as market makers for bonds and other financial assets (Schclarek et al., 2022), scale up sustainable finance initiatives (Mazzucato, 2023), and drive innovation, structural transformation, infrastructure investment, and the provision of public goods (Griffith-Jones et al., 2018; Mazzucato and Penna, 2018). More recently, there has been a growing focus on local currency lending by multilateral development banks (MDBs), as highlighted in the 2023 Finance in Common Summit, where the final communiqué identified foreign exchange risks as a critical barrier to scaling cross-border capital flows from developed to low- and middle-income countries.¹

One of the primary challenges for MDBs in providing local currency loans to real investment projects lies in their reliance on funding through the issuance of hard currency-denominated bonds in international markets.² This creates a currency mismatch in their balance sheets when local currency loans are granted, significantly increasing their exposure to foreign exchange (FX) and convertibility risks.³ Such risks not only threaten the financial stability of MDBs but could also result in the downgrading of credit rating. A lower credit rating would escalate MDBs' funding costs by requiring them to pay higher interest rates on international bond issuances while reducing the size and maturity of the funds they can raise. Consequently, the terms of local currency loans, including size, maturity, and interest rates, would also be adversely impacted. These currency mismatches and the associated downgrading of credit rating represent substantial challenges for both MDBs and other stakeholders involved in the financial ecosystem.⁴

¹At this summit, TCX et al. (2023) presented survey findings on PDBs, revealing that nearly two-thirds of these institutions identify foreign exchange (FX) risks as a significant threat to their profitability. Furthermore, over 50% of the foreign-denominated liabilities held by the surveyed PDBs were unhedged, with only 20% reporting access to a diverse range of hedging instruments.

²A hard currency is defined as any currency widely accepted for international transactions and payments, such as the US Dollar (USD), the Euro, or the Japanese Yen.

³FX risks refer to uncertainties arising from exchange rate fluctuations within a "normal" range of market variability. In contrast, convertibility risks arise during a balance of payments crisis when limited foreign currency availability hinders currency exchange. Such crises often cause severe local currency depreciation, not just "normal" fluctuations, significant liquidity loss in the foreign exchange market, especially for large transactions, and may even trigger a spike in inflation.

⁴For a detailed discussion on the relationship between credit rating agencies and MDBs, see, among others, Humphrey (2018); Independent Expert Panel G20 (2022); Munir and Gallagher

From a macroeconomic perspective, when MDB lending volumes are sufficiently high,⁵ addressing the challenges of currency mismatch requires distinguishing between two types of real investment projects financed by MDBs: 'export-enhancing' (EXIPs) and 'domestic-oriented' (DOIPs), as analyzed in Schclarek and Xu (2022). EXIPs, such as port construction or export-oriented agriculture, generate hard currency for the host country, improving its current account balance. This reduces FX and convertibility risks for both MDBs and the host country, making the currency denomination of MDB loans less critical for them. Conversely, DOIPs, such as sewage systems or solar farms serving non-exporting sectors, do not increase future hard currency supply in the host country. When financed with hard currency loans, for these projects to repay those loans, they require external actors—other than the MDBs and the projects themselves—to supply hard currency to the local foreign exchange market, enabling the exchange of their local currency. This often necessitates a current account or capital account surplus, or central bank intervention using foreign reserves. Consequently, MDBs can enhance financial and macroeconomic stability in host countries by prioritizing local currency financing for DOIPs and directing hard currency financing predominantly towards EXIPs (Schclarek and Xu, 2022).⁶

The financing of the green transformation in less developed countries by MDBs brings the macroeconomic challenges of currency mismatch and the risk of downgrading MDB credit rating to the forefront. Firstly, most green investment projects are DOIPs, and financing these with hard currency loans exacerbates FX and convertibility risks for all stakeholders, particularly host countries (Bortz and Toftum (2020)). Secondly, the scale of financing required for the green transition in less-developed countries is immense, with significant macroeconomic implications. For instance, Attridge and Engen (2019); Songwe et al. (2022); Prasad et al. (2022) estimate that emerging markets and developing countries need to mobilize between USD 600 billion and USD 3 trillion annually in external financing to address the climate crisis. This raises a crucial question: how can the green transformation be financed sustainably at scale? Sustainable financing must address challenges such as currency mismatch and the risk of currency crises. This highlights the pressing need for innovative financing mechanisms that empower MDBs to provide adequate volumes of local

(2020) Additionally, studies such as Bonizzi et al. (2024); Griffith-Jones et al. (2022) suggest that MDBs may have some capacity to take on additional FX risks. This potential creates opportunities for MDBs to expand their local currency lending, enhancing their developmental impact while maintaining financial stability.

⁵The macroeconomic effects become significant only if hard currency loans to domestic-oriented investment projects (DOIPs) are substantial relative to the size of the local financial and foreign exchange markets. Smaller lending volumes reduce the relevance of these macroeconomic challenges.

⁶Schclarek and Xu (2022) argue that when MDBs provide onlending in hard currency, the optimal proportion of lending to EXIPs does not necessarily need to be 100%. A balanced lending portfolio can include an allocation to DOIPs while maintaining sufficient support for EXIPs. Lending to EXIPs is essential to ensure a future supply of hard currency to stabilize the local foreign exchange market and prevent a sharp depreciation when repaying the hard currency loans of both DOIPs and EXIPs.

currency loans to support the green transformation in less developed countries. These mechanisms are especially critical for countries with current account or capital account deficits, or those with low foreign reserves, to safeguard long-term financial and economic stability.

This paper aims to explore the prospects of local currency-denominated loans provided by MDBs, focusing on strategies to mitigate FX and convertibility risks. Specifically, it theoretically analyzes and compares three alternative financing strategies that enable MDBs to extend local currency loans to DOIPs without incurring substantial risks.⁷ These financing strategies are: 1) MDBs borrow in hard currency but extend onlending to a well-diversified portfolio denominated in various local currencies or engage in hedged local currency onlending (Eichengreen and Hausmann, 2003; Perry, 2009; Persaud, 2023; Cingolani and Toporowski, 2024); 2) MDBs issue local currency bonds, and onlend in local currencies (Bresser-Pereira and Bechelaine, 2019; Hoschka, 2005; Levy-Yeyati, 2007; Perry, 2009); and 3) MDBs are recapitalized with hard currency that they exchange for local currencies to establish Local Currency Funds for local currency lending. While the use of MDB recapitalization to enhance onlending is a common argument in the literature and policy discussions,⁸ to the best of our knowledge, this is the first paper to apply this concept specifically to the context of local currency loans, including the creation of Local Currency Funds or Green Local Currency Funds. Consequently, the analysis of this financing strategy represents a key contribution of this paper to the literature. Furthermore, while the first and second financial strategies have been explored in previous research, this paper is the first to provide a comprehensive theoretical analysis and comparison of all three financial strategies. This also represents a key contribution to the literature, offering novel insights into sustainable and effective MDB financing mechanisms, especially for the green transformation.

Regarding the methodology of this article, it is a theoretical analysis of the above-mentioned issues, following the “money view” theory of Mehrling (2011, 2012, 2022), which has also been used in Schclarek and Xu (2022) and Schclarek et al. (2023). This theory allows a better understanding of the different payments and settlements, in particular interbank payments, that arise when the involved agents interact financially. The analysis examines the payment

⁷In this paper, we assume that MDBs lend directly to investment projects in host countries. However, our results and conclusions remain unchanged if this onlending is facilitated through collaboration with Regional Development Banks (RDBs) and/or National Development Banks (NDBs). These institutions can play a critical role in project origination and execution at the local level, ensuring better alignment with national development priorities while leveraging their proximity and expertise Marois et al. (2023); Schclarek and Xu (2022).

⁸To enhance the recapitalization of MDBs, in addition to traditional recapitalization by their owners, several innovative proposals have been put forward. IMF (2024) propose recapitalizing MDBs using Special Drawing Rights (SDRs) issued by the IMF, channeled through hybrid capital instruments issued by the MDBs. These instruments, such as perpetual subordinated bonds with contingent interest rate payments, possess both debt and equity characteristics but are recorded as equity. Similarly, Zucker-Marques and Gallagher (2023) advocate for hybrid capital instruments in the form of Sustainable Future Bonds. Also, there are several papers, such as Andrews (2021); ECA-ECLAC (2022); Lazard (2022); Plant (2021); Ryder et al. (2023); Vinokurov et al. (2024) that argue for the recapitalization of MDBs with SDRs.

mechanisms involved and the changes in the balance sheets of the involved actors, the implications for the supply and demand of hard currency in the local foreign exchange market, the FX and convertibility risks, MDB leverage and size of onlending, and the maturity and interest rates of the loans and bonds issued. Importantly, this study not only addresses the risks faced by MDBs but also evaluates how these risks impact other stakeholders, including the host country, from a macroeconomic perspective.

The remainder of this paper is organized as follows. In Section 2, we analyze the first financing strategy, where the MDBs fund themselves through USD bonds, but mitigate FX and convertibility risks through FX hedging or a well-diversified portfolio of loans in different local currencies. Section 3 analyzes the second financial strategy, in which the MDBs issue local currency-denominated bonds in the local bond market. The third financial strategy that analyzes the recapitalization of the MDB and the establishment of a Local Currency Fund is presented in Section 4. Finally, in Section 5, we conclude with key findings and policy recommendations.

2 First financing strategy: Mitigating FX risks through a well-diversified portfolio of loans in different local currencies or FX hedging

In this section, we examine the first financing strategy for MDBs to provide local currency loans to investment projects while addressing the challenges of currency mismatches between their assets and liabilities, which can adversely affect their credit ratings. This strategy assumes that MDBs fund their activities by issuing USD-denominated bonds in international markets and subsequently onlend in local currency to DOIPs, such as solar farms or sewage systems, which do not generate hard currency. While this approach initially creates a currency mismatch—assets in local currency (loans) and liabilities in USD (bonds)—FX risks are strategically mitigated through different financing strategies.

Regarding the mitigation of FX risks, Eichengreen and Hausmann (2003); Perry (2009) advocate for a diversification financing strategy that involves distributing local currency loans across multiple currencies and host countries. By building a well-diversified loan portfolio, MDBs can effectively mitigate FX risks.⁹ Further advancing this approach, Persaud (2023) propose an FX hedging financing strategy that involves establishing an FX Guarantee Agency. This agency, jointly owned by MDBs and the IMF, would pool risks and provide par-

⁹Perry (2009) argue that MDBs, particularly those with global reach like the World Bank, are well-positioned to assume currency risks in their balance sheets by financing themselves in hard currency and onlending in local currency. However, this requires careful diversification through global lending pools to various developing countries in multiple currencies. Similarly, Eichengreen and Hausmann (2003) propose that MDBs issue bonds denominated in an emerging market (EM) index, reflecting the exchange rates of several EM currencies. Such an index would reduce FX risks for international investors while providing MDBs with a mechanism to lend in local currencies, matching the currency composition of their liabilities.

tial FX guarantees during specific periods, thereby mitigating currency-related vulnerabilities. A key challenge of this strategy lies in aligning the maturity of local currency loans with that of the hedging instruments. If hedging A key challenge of this strategy lies not only in ensuring the availability of appropriate hedging instruments for the relevant local currency, but also in aligning the maturity of those instruments with the maturity of the local currency loans. If hedging instruments are not available with the same long-term maturity as the local currency loans used to finance real investment projects, the hedge will need to be renewed in the future—leaving some residual FX risk, even if the MDB has initially secured a hedging mechanism. are not available with the same long-term maturity as the local currency loans used to finance real investment projects, the hedge will need to be renewed in the future—leaving some residual FX risk, even if the MDB has initially secured a hedging mechanism.¹⁰ This analysis underscores that the strategy of hedged local currency onlending is conceptually aligned with leveraging a diversified portfolio of local currency loans, as both approaches aim to mitigate FX risks for MDBs through diversification.

From a different angle, Cingolani and Toporowski (2024) argue for a swap-based financing strategy, where MDBs enter into foreign exchange (FX) swap agreements with the central banks of the developing countries. These agreements include a repurchase (repo) clause, allowing the MDBs to sell USD to the central banks in exchange for local currency while securing the right to repurchase the USD later at the same exchange rate. In this sense, this swap-based financing strategy is similar to the FX hedging financing strategy, as both enable MDBs to eliminate FX risks effectively. However, in the FX hedging strategy, the financial entity providing the hedge assumes the FX risk, whereas in the swap-based strategy, it is the central banks of the developing countries that bear this risk. A possible advantage of the swap-based approach is that, because the host country’s central bank is directly involved, there may be a greater likelihood of aligning the maturity of the local currency loans with the maturity of the repo clause—thereby reducing rollover risks for the hedging instrument.

In Subsection 2.1, we explore the process through which the MDB issues USD-denominated bonds in international markets and exchanges the proceeds for various local currencies. This analysis also considers the implications of the international bond issuance on the maturity and interest rates of these bonds. Next, in Subsection 2.2, we analyze the process by which the MDB provides local currency loans to investment projects across different host countries. Here, we also evaluate the maturity and interest rates associated with these loans. Subsection 2.3 focuses on the development of investment projects requiring imported inputs and supplies, emphasizing the critical role of MDB-supplied USD in local foreign exchange markets to facilitate these imports. Finally, Subsection 2.4 addresses the repayment of local currency loans by DOIPs and highlights a key limitation of this financing strategy: while MDBs are repaid in local currencies, they must settle their USD bonds in the international market, ne-

¹⁰Other studies, including Bonizzi et al. (2024); CPI (2024); Fink et al. (2023); Karaki (2024), support similar proposals for mitigating FX risks through FX hedging and diversification financing strategies.

cessitating the conversion of local currencies into USD. Although this financing strategy shields the MDBs and investment projects from FX risks during the lending phase, FX and convertibility risks reemerge for host countries during repayment of loans and bonds, especially for host countries with low foreign reserves or current account deficits.

We explicitly model the above-mentioned financial transactions by analyzing, at each point in time, the balance sheets of the involved agents using T-accounts, that is, assets on the left-hand side and liabilities on the right-hand side, following the “money view” monetary theory, presented in Mehrling (2011, 2012, 2022), which has also been used in Schclarek and Xu (2022), and Schclarek et al. (2023). Every entry in an account has a subscript which refers to the agent for which that entry represents an asset, and a superscript which refers to the agent for which that entry represents a liability. Furthermore, the currency denomination of each entry is explicitly indicated. For example, $USDBonds_{ICB}^{MDB}$ is a USD denominated bond that is an asset for an international commercial bank (ICB) and a liability for the MDB. It is worth noting that this theory and methodology are consistently applied throughout the subsequent sections and subsections of the article.

2.1 The MDB issues USD bonds and exchanges the obtained USD for different local currencies

In this subsection, we analyze how the MDB issues USD bonds in the international market and then exchanges the obtained USD for different local currencies. We assume that the MDB exchanges the USD with local commercial banks and obtains local currency deposits from them.

Figure 1 presents the balance sheets, at each moment of time, of the MDB, a local commercial bank from host country 1 (Country1 Commercial Bank) and a local commercial bank from host country N (CountryN Commercial Bank). Note that in this figure, we present the balance sheet of these two local commercial banks, but we should consider that a similar analysis can be made for the other $N - 2$ local commercial banks from the other host countries. In the initial period ($T = 0$), none of the agents have assets nor liabilities. In the first period ($T = 1$), the MDB issues USD bonds in the international market ($+USDBonds_{ICB}^{MDB}$) and gets paid USD deposits in an international commercial bank, for example a commercial bank in New York ($+USDDep_{MDB}^{ICB}$). For simplicity reasons we do not show the balance sheet of this International Commercial Bank (ICB), but it has on the asset side the USD bonds issued by the MDB ($+USDBonds_{ICB}^{MDB}$) and it has in the liability side the USD deposits of the MDB ($+USDDep_{MDB}^{ICB}$). In the second period ($T = 2$), the MDB exchanges the USD ($-USDDep_{MDB}^{ICB}$) for different local currencies from different local commercial banks, receiving local currency deposits from these local commercial banks ($+\$C1Dep_{MDB}^{C1CB}$ and $+\$CNDep_{MDB}^{CNCB}$). Note that local commercial banks receive the USD deposits from the MDB in the International Commercial Bank ($+USDDep_{C1CB}^{ICB}$, ..., and $+USDDep_{CNCB}^{ICB}$) in exchange for creating local currency bank deposits ($+\$C1Dep_{MDB}^{C1CB}$, ..., and $+\$CNDep_{MDB}^{CNCB}$).

T	MDB		Country1 Commercial Bank		CountryN Commercial Bank	
	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
0						
1	$+USDDep_{MDB}^{ICB}$	$+USDBonds_{ICB}^{MDB}$				
2	$-USDDep_{MDB}^{ICB}$		$+USDDep_{C1CB}^{ICB}$		$+USDDep_{CNCB}^{ICB}$	
	$+\$C1Dep_{MDB}^{C1CB}$			$+\$C1Dep_{MDB}^{C1CB}$		
					
	$+\$CNDep_{MDB}^{CNCB}$					$+\$CNDep_{MDB}^{CNCB}$
	$\$C1Dep_{MDB}^{C1CB}$	$USDBonds_{ICB}^{MDB}$	$USDDep_{C1CB}^{ICB}$	$\$C1Dep_{MDB}^{C1CB}$	$USDDep_{CNCB}^{ICB}$	$\$CNDep_{MDB}^{CNCB}$
Final Situation					
	$\$CNDep_{MDB}^{CNCB}$					

Figure 1: The MDB issues USD bonds in the international market and then exchanges those USD for different local currencies

In the final situation, compared to the initial one, the balance sheets of the involved actors have expanded. On the asset side, the MDB now holds local currency deposits in various currencies ($\$C1Dep_{MDB}^{C1CB}$, ..., and $\$CNDep_{MDB}^{CNCB}$), which it will use to grant local currency-denominated loans to investment projects, as explored in the next subsection. On the liability side, the MDB has USD bonds issued in international markets ($USDBonds_{ICB}^{MDB}$). This creates a clear currency mismatch, with assets in local currencies and liabilities in USD. However, the strategy of using USD bond proceeds to acquire a diversified portfolio of local currencies across host countries helps mitigate FX risks by spreading exposure across multiple currencies. This aspect will be further discussed in Subsection 2.2 when analyzing how MDBs utilize these local currency deposits to provide loans. It is important to note that MDBs typically issue larger volumes of bonds in USD on international markets compared to local currency bonds issued in domestic markets. Typically, USD bonds issued internationally offer longer maturities and lower interest rates than local currency bonds. These characteristics—larger proceeds, longer maturities, and lower costs—directly influence the size, maturity, and interest rates of the local currency loans the MDBs can offer to investment projects, a topic also addressed in Subsection 2.2. Additionally, the balance sheets of local commercial banks have similarly expanded. On their asset side, they hold USD deposits in the International Commercial Bank ($USDDep_{C1CB}^{ICB}$, ..., and $USDDep_{CNCB}^{ICB}$), while on their liability side, they record local currency deposits from the MDB ($\$C1Dep_{MDB}^{C1CB}$, ..., and $\$CNDep_{MDB}^{CNCB}$).

2.2 MDB loan in local currency to the different local investment projects

In this subsection, we analyze how the MDB grants local currency denominated loans to the different local investment projects with the local currencies that it obtained from exchanging the USD for the different local currencies, which was analyzed in Subsection 2.1.

Figure 2 presents the balance sheets at each moment of time for the MDB, the Country1 Commercial Bank from country 1 and the Country1 Investment Project from country 1. For clarity and due to space constraints, the balance sheets of the other $N - 1$ countries' local commercial banks and investment projects are not shown. However, the financial and monetary transactions for those entities mirror the ones depicted for the Country1 Commercial Bank and Country1 Investment Project. In the initial period ($T = 0$), which corresponds to the *Final Situation* in figure 1, the MDB holds, in its asset side, local currency deposits in the different local commercial banks ($\$C1Dep_{MDB}^{C1CB}$, ..., and $\$CNDep_{MDB}^{CNCB}$) and it has, in the liability side, the USD denominated bonds it issued in the international bond market ($USDBonds_{ICB}^{MDB}$). The Country1 Commercial Bank has, in its asset side, the USD denominated bank deposits in the international commercial bank ($USDDep_{C1CB}^{ICB}$), which it got from the MDB by exchanging them for local currency bank deposits ($\$C1Dep_{MDB}^{C1CB}$). Note that these local currency bank deposits ($\$C1Dep_{MDB}^{C1CB}$) are in the liability side of the balance sheet of the Country1 Commercial Bank. At this stage, the Country1 Investment Project holds neither assets nor liabilities but requires a loan to finance a domestic-oriented investment project. Such projects, like a solar farm selling electricity in the domestic market or a sewage system funded by local taxes, will generate future local currency revenues. In the first period ($T = 1$), the MDB grants a local currency denominated loan to the Country1 Investment Project ($+\$C1Loan_{MDB}^{C1IP}$) by transferring its deposits at the Country1 Commercial Bank to the Country1 Investment Project ($-\$C1Dep_{MDB}^{C1CB}$). Accordingly, the Country1 Investment Project receives the local currency deposits ($+\$C1Dep_{IP}^{C1CB}$), with which it will pay all the inputs and supplies that are needed to develop its investment project, which is presented in the next Subsection 2.3. At the same time, the Country1 Investment Project owes the MDB a local currency loan ($+\$C1Loan_{MDB}^{C1IP}$). The Country1 Commercial Bank's balance sheet reflects these changes, debiting the MDB's account ($-\$C1Dep_{MDB}^{C1CB}$) and crediting the Country1 Investment Project's account ($+\$C1Dep_{C1IP}^{C1CB}$). In addition, in this first period ($T = 1$), the MDB also grants a local currency denominated loan to the CountryN Investment Project ($+\$CNLoan_{MDB}^{CNIP}$) by transferring its deposits at the CountryN Commercial Bank ($-\$CNDep_{MDB}^{CNCB}$). Local currency loans are also extended to other investment projects in the remaining countries.

In the final situation, compared to the initial situation, the asset composition of the MDB has shifted. Initially, the MDB held local currency deposits in various local commercial banks ($\$C1Dep_{MDB}^{C1CB}$, ..., and $\$CNDep_{MDB}^{CNCB}$). These assets have now been replaced by local currency loans extended to different local

investment projects in host countries ($\$C1Loan_{MDB}^{C1IP}$, ..., and $\$CNLoan_{MDB}^{CNIP}$). On the liability side, the MDB's balance sheet remains unchanged, as it still owes USD-denominated bonds issued in the international bond market ($USDBonds_{ICB}^{MDB}$). This creates a clear currency mismatch between the MDB's assets (in local currencies) and liabilities (in USD). A detailed analysis of this currency mismatch is presented below, as it represents a key result of this section. For the Country1 Investment Project, its balance sheet has expanded, reflecting an increase in both assets, with local currency deposits ($\$C1Dep_{C1IP}^{C1CB}$), and liabilities, with a local currency loan owed to the MDB ($\$C1Loan_{MDB}^{C1IP}$). Importantly, the Country1 Investment Project does not face a currency mismatch between its assets and liabilities, fulfilling one of the primary objectives of this funding strategy. As the project matures and begins generating local currency revenue, it will be able to repay the MDB loan without exposure to FX or convertibility risks. Additionally, the size, maturity, and interest rate of the local currency loans granted by the MDB to local investment projects are likely tied to the size, maturity, and interest rate of the USD bonds issued by the MDB in the international bond market. This relationship implies that this financing strategy enables the MDB to offer local currency loans with the largest size, longest maturity, and lowest interest rates—conditions that are particularly favorable compared to issuing local currency bonds in domestic bond markets. Finally, for the Country1 Commercial Bank, the balance sheet has not expanded. However, the ownership of the local currency deposits has shifted from the MDB to the Country1 Investment Project.

Returning to the analysis of the MDB's currency mismatch, while there is a clear mismatch between its assets and liabilities, the core objective of this first financing strategy is to mitigate FX risks by ensuring that the MDB's asset side consists of a well-diversified portfolio of loans in multiple local currencies. Such diversification reduces FX risks, as depreciation in some local currencies against the USD may be offset by appreciation in others. For instance, Eichengreen and Hausmann (2003) argue that a real exchange rate index constructed for 22 emerging market countries is less volatile than the yen-dollar or Deutsche mark-dollar real exchange rates. If the MDB were to lend exclusively in a single local currency, the absence of diversification would make it impossible to mitigate FX risks, significantly exacerbating the currency mismatch problem. By adopting a strategy focused on a diversified portfolio of local currency loans, the MDB can effectively lower FX risk and better manage the inherent challenges of currency mismatches.

Additionally, it is important to highlight that this first financing strategy, where an MDB diversifies the currencies of its local currency loans to mitigate average exchange rate risk, is conceptually similar to an alternative strategy involving the establishment of an FX hedging fund. In this setup, the responsibility for diversifying FX risks shifts from individual MDBs to the FX hedging fund, which provides hedging solutions to a well diversified base of local currencies in order to diversify away the FX risk. As a result, while individual MDBs may still experience currency mismatches, the FX risk is effectively managed and assumed by the FX hedging fund. Two notable examples of such

T	MDB		Country1 Commercial Bank		Country1 Investment Project	
	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
0	$\$C1Dep_{MDB}^{C1CB}$	$USDBonds_{ICB}^{MDB}$	$USDDep_{C1CB}^{ICB}$	$\$C1Dep_{MDB}^{C1CB}$		
					
	$\$CNDep_{MDB}^{CNCB}$					
1	$-\$C1Dep_{MDB}^{C1CB}$			$-\$C1Dep_{MDB}^{C1CB}$		
	$+\$C1Loan_{MDB}^{C1IP}$			$+\$C1Dep_{C1IP}^{C1CB}$	$+\$C1Dep_{C1IP}^{C1CB}$	$+\$C1Loan_{MDB}^{C1IP}$
					
	$-\$CNDep_{MDB}^{CNCB}$					
	$+\$CNLoan_{MDB}^{CNIP}$					
Final Situation	$\$C1Loan_{MDB}^{C1IP}$	$USDBonds_{ICB}^{MDB}$	$USDDep_{C1CB}^{ICB}$	$\$C1Dep_{C1IP}^{C1CB}$	$\$C1Dep_{C1IP}^{C1CB}$	$\$C1Loan_{MDB}^{C1IP}$
					
	$\$CNLoan_{MDB}^{CNIP}$					

Figure 2: The MDB grants local currency loans to different local investment projects in different countries

FX hedging funds are the TCX Fund and MFX Currency Risk Solutions. The critical role of these funds is emphasized by Persaud (2023), who notes that the average ex-post "overpayment" for hedging FX risks in five industrialized emerging markets (Brazil, India, Indonesia, Mexico, and South Africa) has been approximately +2.2% per year between 1999 and 2022.¹¹ This consistent "overpayment" indicates significant potential for establishing a joint "FX Guarantee Agency," established by MDBs and the IMF, to reduce hedging costs for investment projects in developing countries. Such an agency could make it more feasible for international private investors to finance green, domestic-oriented projects that generate local currency revenues. It is also vital to consider the maturity of the FX hedge. If the maturity of the hedge is shorter than the local currency onlending provided by MDBs, they remain exposed to rollover risk for the hedging instrument. This situation means that FX risk for MDBs is not entirely eliminated, as it is crucial that the FX hedge remains available when it needs to be rolled over. Thus, the alignment of hedge maturity with the MDBs' local currency loans is a critical component of effective risk management in such strategies.

2.3 The buying of imported inputs and supplies to develop the investment projects

In this subsection, we analyze the development of local investment projects, focusing on a scenario where the Country1 Investment Project must purchase imported inputs and supplies from a foreign firm, referred to as the Producer of

¹¹Persaud (2023) defines "overpayment" as the annualized percentage difference between the spot exchange rate today and the rate implied five years earlier by the forward market.

Imported Inputs. These inputs and supplies, essential for the project’s implementation, must be paid for in hard currencies such as USD, Euro, or Renminbi. For example, a solar farm might need to procure solar panels from the USA, the EU, or China, while a sewage system might require imported pumps and machinery. In the previous Subsection 2.2, we noted that the Country1 Investment Project received local currency funds. To buy imported inputs, an agent with access to foreign exchange must be willing to exchange it for local currency. Here, we assume that the Country1 Commercial Bank fulfills this role, having acquired USD by selling local currency to the MDB (as detailed in Subsection 2.1). However, this agent could also be any other entity with access to USD and demand for local currency. Often, this role is played by the host country’s central bank, which may intervene in the foreign exchange market to prevent excessive depreciation of the local currency.¹²

Figure 3 presents the balance sheets at each moment of time of the Producer Imported Inputs, the Country1 Commercial Bank and the Country1 Investment Project. In the initial period ($T = 0$), which corresponds to the *Final Situation* of figure 2, the Producer Imported Inputs, a foreign company, holds assets in the form of produced inputs and supplies needed for the development of the investment project, which could be goods and/or services ($ImpInp_{PII}$), and it is ready to sell those inputs and supplies in exchange for USD. Since it operates in a foreign country, it has no use for local currency and does not accept it as payment. In addition, the Country1 Commercial Bank holds, in its asset side, USD deposits in the international commercial bank ($USDDep_{C1CB}^{ICB}$) and has local currency denominated deposits by the Country1 Investment Project ($\$C1Dep_{C1IP}^{C1CB}$) as liabilities. Also, the Country1 Investment Project holds local currency denominated deposits in the Country1 Commercial Bank ($\$C1Dep_{C1IP}^{C1CB}$) as assets and has, in the liability side, the local currency denominated loan from the MDB ($\$C1Loan_{MDB}^{C1IP}$). In the first period ($T = 1$), the Country1 Investment Project exchanges its local currency holdings for USD with the Country1 Commercial Bank to pay for the imported inputs and supplies from the Producer Imported Inputs. This transaction reduces the investment project’s local currency deposits ($-\$C1Dep_{C1IP}^{C1CB}$) and adds USD deposits to its account at the International Commercial Bank ($+USDDep_{C1IP}^{ICB}$). Simultaneously, the Country1 Commercial Bank debits the local currency deposits of the investment project ($-\$C1Dep_{C1IP}^{C1CB}$) and transfers an equivalent amount of its USD deposits at the International Commercial Bank to the Country1 Investment Project ($-USDDep_{C1CB}^{ICB}$). In the second period ($T = 2$), the Country1 Investment Project uses its USD denominated deposits in the International Commercial Bank ($-USDDep_{C1IP}^{ICB}$) to pay the Producer Imported

¹²It is worth noting that, alternatively, the Country1 Investment Project might rely on domestically produced inputs and supplies instead of imported ones. In this case, it would simply use the local currency funds obtained to pay for these inputs, without the need to exchange them for foreign currency. While this is a plausible scenario, we focus on the case of imported inputs to underscore the importance of the Country1 Commercial Bank receiving foreign exchange from the MDB. By increasing the availability of foreign exchange in the local financial market, the MDB helps mitigate the risk of insufficient access to foreign currency, which could otherwise hinder the successful completion of the investment project.

Inputs and receives the imported inputs and supplies ($+ImpInp_{C1IP}$) needed to develop the local investment project. In return, the Producer Imported Inputs delivers the imported inputs and supplies ($-ImpInp_{PII}$) and receives the USD denominated deposits in the International Commercial Bank ($+USDDep_{PII}^{ICB}$).

In the final situation, compared to the initial one, we observe notable changes in the balance sheets of the involved parties. The asset composition of the Producer of Imported Inputs has shifted from holding imported inputs and supplies ($ImpInp_{PII}$) to holding USD deposits in the International Commercial Bank ($USDDep_{PII}^{ICB}$). The balance sheet of the Country1 Commercial Bank has shrunk entirely, with its assets ($USDDep_{C1CB}^{ICB}$) and liabilities ($\$C1Dep_{C1IP}^{C1CB}$) both reduced to zero. Meanwhile, the asset side of the Country1 Investment Project's balance sheet has changed from holding local currency deposits ($\$C1Dep_{C1IP}^{C1CB}$) to holding imported inputs and supplies ($ImpInp_{C1IP}$), which it will use to develop its investment project. The liability side of the Country1 Investment Project remains unchanged, still showing the local currency denominated loan from the MDB ($\$C1Loan_{MDB}^{C1IP}$). This subsection emphasizes the critical point that the Country1 Investment Project is able to purchase the imported inputs and supplies—and thereby proceed with its development—because an economic agent in the local economy had access to USD and was willing to exchange them for local currency. In this case, the agent was the Country1 Commercial Bank. However, the role could also have been filled by the local central bank or another economic agent with access to USD. Without such an agent, the Country1 Investment Project would not have been able to acquire the imported inputs and supplies.¹³ The Country1 Commercial Bank's access to USD stems directly from the MDB's initial provision of USD, which it exchanged for local currency to fund local currency loans. This underscores a central advantage of the first financing strategy analyzed in Section 2: the MDB's provision of USD to the local economy supports the development of investment projects requiring imported inputs and supplies. Without this provision, the local investment project could not develop, given its dependence on imported goods and services. It is worth noting that if the local investment project instead required domestically produced inputs and supplies, which are payable in local currency, its development would not depend on the availability of USD. This highlights the specific importance of USD availability in cases involving imported inputs.

¹³An alternative solution could involve the Producer of Imported Inputs extending a USD loan to the Country1 Investment Project to facilitate the purchase. While this arrangement would eliminate the immediate need for an agent to exchange USD for local currency, it would still require the extension of a USD loan. Furthermore, since the Country1 Investment Project generates revenue in local currency, it would eventually need access to an agent willing to exchange local currency for USD to repay the loan.

T	Producer Imported Inputs		Country1 Commercial Bank		Country1 Investment Project	
	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
0	$ImpInp_{PI}$		$USDDep_{C1CB}^{ICB}$	$\$C1Dep_{C1IP}^{C1CB}$	$\$C1Dep_{C1IP}^{C1CB}$	$\$C1Loan_{MDB}^{C1IP}$
1			$-USDDep_{C1CB}^{ICB}$	$-\$C1Dep_{C1IP}^{C1CB}$	$-\$C1Dep_{C1IP}^{C1CB}$	$+USDDep_{C1IP}^{ICB}$
2	$+USDDep_{PI}^{ICB}$				$-USDDep_{C1IP}^{ICB}$	
	$-ImpInp_{PI}$				$+ImpInp_{C1IP}$	
<i>Final Situation</i>	$USDDep_{PI}^{ICB}$				$ImpInp_{C1IP}$	$\$C1Loan_{MDB}^{C1IP}$

Figure 3: The Local Commercial Bank provides the foreign exchange to buy imported inputs and supplies

2.4 The development of the investment project and the repayment of loans and bonds by the investment project and the MDB

In this subsection, we analyze how the Country1 Investment Project uses local currency proceeds generated by the investment project to repay the local currency loan from the MDB. Additionally, we examine how the MDB subsequently repays its maturing USD bonds—a process that poses significant challenges, as the development of the investment project does not generate any new USD funds. This lack of USD proceeds highlights a critical drawback of this first financing strategy, discussed in detail in Section 2: the reliance on another economic agent to supply USD to the local foreign exchange market to facilitate the MDB’s bond repayment.

Figure 4 presents the balance sheets at each moment of time of the MDB, the Country1 Commercial Bank, the Country1 Investment Project and the Country1 Buying Firm. The Country1 Buying Firm represents the local economic agent that purchases the goods and services produced by the domestically oriented investment project (DOIP), paying in local currency. If we were instead analyzing an export-enhancing investment project (EXIP), this economic agent would be foreign and would pay in USD rather than local currency.¹⁴ In the initial period ($T = 0$), which corresponds to the *Final Situation* of figure 3, the MDB holds in its asset side local currency loans extended to various local investment projects across different host countries ($\$C1Loan_{MDB}^{C1IP}$, ..., and $\$CNLoan_{MDB}^{CNIP}$) and in its liability side the USD denominated bonds it issued in the international bond market ($USDBonds_{ICB}^{MDB}$). The Country1 Investment Project’s assets include imported inputs and supplies ($ImpInp_{C1IP}$), while its liabilities consist of a local currency loan from the MDB ($\$C1Loan_{MDB}^{C1IP}$). Additionally, the Country1 Buying Firm holds

¹⁴As discussed in the introduction, EXIPs inherently avoid FX risks for the involved agents since USD loans are directly repaid with USD revenues. However, in this study, we focus on DOIPs to analyze FX and convertibility risks within the global development finance architecture, where local currency loans are particularly crucial.

local currency-denominated bank deposits in the Country1 Commercial Bank ($\$C1Dep_{Firm}^{C1CB}$), which are reflected as liabilities on the Country1 Commercial Bank's balance sheet. With the local currency denominated bank deposits, the Country1 Buying Firm will buy the goods and services from the Country1 Investment Project. In the first period ($T = 1$), the Country1 Investment Project utilizes the imported inputs and supplies ($-ImpInp_{C1IP}$) to develop and produce the non-tradable goods or services of the local investment project ($+NTradGood_{C1IP}$). In the second period ($T = 2$), the Country1 Investment Project sells the non-tradable goods or services to the Country1 Buying Firm ($-NTradGood_{C1IP}$) and receives in exchange a local currency deposit in the Country1 Commercial Bank ($+\$C1Dep_{C1IP}^{C1CB}$). Concurrently, the Country1 Buying Firm reduces its local currency deposits in the Country1 Commercial Bank ($-\$C1Dep_{Firm}^{C1CB}$) and acquires the non-tradable goods or services ($+NTradGood_{Firm}$). In the third period ($T = 3$), the Country1 Investment Project uses the local currency deposits it received from the selling of the non-tradable goods or services ($-\$C1Dep_{C1IP}^{C1CB}$) to repay the local currency loan from the MDB ($-\$C1Loan_{MDB}^{C1IP}$). The MDB, in turn, receives local currency deposits from the Country1 Investment Project at the Country1 Commercial Bank ($+\$C1Dep_{MDB}^{C1CB}$). Additionally, figure 4 shows that during this period, the MDB also receives repayments from other local investment projects across different host countries. This results in a reduction of its outstanding local currency loans ($-\$C1Loan_{MDB}^{C1IP}$, ..., and $-\$CNLoan_{MDB}^{CNIP}$) and an increase in its local currency deposits ($+\$C1Dep_{MDB}^{C1CB}$, ..., and $+\$CNDep_{MDB}^{CNCB}$).

In the final situation, compared to the initial one, the balance sheet of the Country1 Investment Project has been reduced to zero, with no assets or liabilities. Initially, it held imported inputs and supplies ($ImpInp_{C1IP}$) as assets and a local currency loan from the MDB ($\$C1Loan_{MDB}^{C1IP}$) as a liability. The financing strategy of granting a local currency loan, analyzed in Section 2, has proven successful. Despite being a DOIP, the Country1 Investment Project was able to develop its local project and repay the MDB loan using local currency proceeds, all while avoiding FX and convertibility risks—one of the primary goals of this strategy. For the Country1 Buying Firm, the composition of its assets has shifted from local currency bank deposits ($\$C1Dep_{Firm}^{C1CB}$) to acquiring the non-tradable goods or services it demanded ($NTradGood_{Firm}$), demonstrating that the domestic market's needs were successfully met by the local investment project. Regarding the MDB, the composition of its assets has changed. Initially, it held local currency loans in various currencies ($\$C1Loan_{MDB}^{C1IP}$, ..., and $\$CNLoan_{MDB}^{CNIP}$). These have now been converted into local currency bank deposits in different local currencies ($\$C1Dep_{MDB}^{C1CB}$, ..., and $\$CNDep_{MDB}^{CNCB}$). On the liability side, the MDB continues to owe the USD-denominated bonds it issued in the international bond market ($USDBonds_{ICB}^{MDB}$). While this creates a currency mismatch between assets and liabilities, the strategy of maintaining a well-diversified portfolio of local currency loans has supposedly mitigated the FX risk, a key justification for this financing approach. However, for the MDB to repay its USD bonds, it must exchange its local currency deposits for USD. This critical aspect is analyzed further below, as it represents one of the most

important challenges of this strategy. Lastly, the balance sheet of the Country1 Commercial Bank has remained unchanged. The only modification has been in the ownership of its liabilities, with the local currency bank deposits shifting from the Country1 Buying Firm ($\$C1Dep_{Firm}^{C1CB}$) to the MDB ($\$C1Dep_{MDB}^{C1CB}$).

Returning to the analysis of how MDBs can settle their USD liabilities (i.e., the USD bonds issued in the international bond market), it is evident that MDBs need to exchange the local currency bank deposits they hold in various host countries for USD. However, since the local investment projects financed by MDBs are all DOIPs, they do not contribute to an increased supply of USD in the foreign exchange markets of these host countries. To enable the MDB to exchange local currencies for USD, external actors—other than the local investment projects—must be willing to supply USD in exchange for local currencies. These external actors could include local commercial banks or central banks with access to USD reserves. However, this cannot be assumed, as the development of local investment projects and the sale of their goods and services do not generate fresh USD inflows for local commercial banks or central banks.¹⁵ Furthermore, if the local investment projects are small relative to the overall size of the local FX markets, the demand for USD created by the MDB’s activities may not have a significant macroeconomic impact. However, as the relative size of these projects increases compared to the local FX markets, the MDB’s demand for foreign currency is more likely to influence exchange rates. This can exacerbate FX and convertibility risks for the host countries. In such cases, the burden of stabilizing the FX market often falls on the governments or central banks of host countries. To prevent sharp currency depreciation, currency crises and the associated inflationary pressures, these authorities may need to intervene by supplying USD, further straining their reserves and potentially increasing macroeconomic vulnerabilities.¹⁶

This analysis of the drawbacks associated with this financing strategy—particularly the inevitable FX and convertibility risks for host countries—is crucial to the broader discussion on strategies for financing the green transformation. The green transformation requires massive investments, even for middle-income countries. For instance, several studies, including Attridge and Engen (2019); Songwe et al. (2022); Prasad et al. (2022), estimate that emerging markets and developing countries need to mobilize between USD 600 billion and USD 3 trillion annually in external financing to address the climate crisis. Additionally, most

¹⁵This scenario would differ significantly if the local investment projects were export-oriented investment projects (EXIPs), which generate USD revenue and supply USD to local FX markets. Thus, focusing on DOIPs instead of EXIPs imposes a limitation on this first financing strategy analyzed in Section 2.

¹⁶If the macroeconomic challenges faced by host countries—such as FX and convertibility risks—negatively impact the risk perception of international bond investors, MDBs operating in these countries could also be affected. Despite maintaining a well-diversified portfolio of local currencies, these macroeconomic risks may lead to a reduction in the size, maturity, and favorable interest rates of the USD bonds that MDBs issue in international bond markets. Consequently, this would also constrain the size, maturity, and terms of the local currency loans that MDBs can provide to local investment projects, further limiting their developmental impact.

T	MDB		Country1 Commercial Bank		Country1 Investment Project		Country1 Buying Firm	
	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
0	$\$C1Loan_{MDB}^{C1IP}$ $\$CNLoan_{MDB}^{CNIP}$	$USDBonds_{MDB}^{MDB}$		$\$C1Dep_{Firm}^{C1CB}$	$ImpImp_{C1IP}$	$\$C1Loan_{MDB}^{C1IP}$	$\$C1Dep_{Firm}^{C1CB}$	
1					$-ImpImp_{C1IP}$ $+NTGood_{C1IP}$			
2				$-\$C1Dep_{Firm}^{C1CB}$ $+\$C1Dep_{C1IP}^{C1CB}$	$-NTGood_{C1IP}$ $+\$C1Dep_{Firm}^{C1CB}$		$-\$C1Dep_{Firm}^{C1CB}$ $+NTGood_{Firm}$	
3	$-\$C1Loan_{MDB}^{C1IP}$ $+\$C1Dep_{MDB}^{C1CB}$ $-\$CNLoan_{MDB}^{CNIP}$ $+\$CNDep_{MDB}^{CNCB}$			$-\$C1Dep_{C1IP}^{C1CB}$ $+\$C1Dep_{MDB}^{C1CB}$	$-\$C1Dep_{C1IP}^{C1CB}$ $-\$C1Dep_{C1IP}^{C1CB}$	$-\$C1Loan_{MDB}^{C1IP}$		
Final Situation	$\$C1Dep_{MDB}^{MDB}$ $\$CNDep_{MDB}^{CNCB}$	$USDBonds_{MDB}^{MDB}$		$\$C1Dep_{MDB}^{MDB}$			$NTGood_{Firm}$	

Figure 4: The development of the investment project and the pay back of loans and bonds by the investment project and the MDB

green projects tend to be DOIPs. For example, wind and solar farms are typically built not to export electricity directly but to increase its supply for domestic sectors that are not necessarily export-oriented or export-enhancing. This raises a critical question: how can MDBs repay the maturing USD-denominated bonds they issue without imposing excessive FX and convertibility risks on host countries? While the financing of the green transformation addresses an urgent global challenge, failure to adopt a truly sustainable local currency financing strategy—one that adequately considers FX and convertibility risks for both MDBs and host countries—risks creating significant macroeconomic instability in less developed countries. Such instability would undermine the very objectives of the green transformation and hinder progress toward achieving the Sustainable Development Goals (SDGs).

3 Second financing strategy: issuing local currency denominated bonds in the local bond market

In this section, we analyze a second financing strategy for MDBs that involves issuing local currency-denominated bonds in local financial markets to fund local currency onlending to investment projects. By issuing bonds and onlending in local currency, MDBs can effectively eliminate currency mismatches between their assets and liabilities, thereby avoiding FX and convertibility risks

for both themselves and the local investment projects.¹⁷ This strategy builds on proposals advanced by Bresser-Pereira and Bechelaine (2019), Hoschka (2005), Levy-Yeyati (2007), and Perry (2009).¹⁸

Levy-Yeyati (2007) argues that to hedge against inflation instability, MDBs could issue local currency bonds linked to the Consumer Price Index (CPI). Additionally, he highlights that MDBs have an advantage over local governments or NDBs because their local currency bonds would not be subject to sovereign risk.¹⁹ Hoschka (2005) extends this discussion by addressing treasury management considerations for MDBs issuing local currency bonds, including funding strategies, financial policies, investment practices, and risk management. This second financing strategy places particular emphasis on issuing local currency bonds in the domestic bond market rather than the international bond market. The rationale for this emphasis lies in the assumption that local residents, once repaid, are significantly less likely to demand hard currency compared to foreign residents, as noted by Beirne et al. (2024) and Hofmann et al. (2022).

Accordingly, we analyze the process of local currency bond issuance and lending, followed by a discussion of the resulting outcomes and conclusions. Figure 5 presents the balance sheets at each moment of time of the MDB, the Local Commercial Bank and the Local Investment Project. In the initial period ($T = 0$), none of the three agents have any assets or liabilities. In the first period ($T = 1$), the MDB opens a bank account with the Local Commercial Bank and issues local currency-denominated bonds in the local financial market ($+\$LocBonds_{LCB}^{MDB}$). These bonds may be purchased by either a financial agent with existing local currency bank deposits or a financial agent capable of creating local currency deposits, such as the Local Commercial Bank (Mehrling, 2022). For simplicity, and without affecting the conclusions, we assume that the Local Commercial Bank purchases the bonds ($+\$LocBonds_{LCB}^{MDB}$). As a result, the MDB receives local currency deposits in its account at the Local Commercial Bank ($+\$LocDep_{MDB}^{LCB}$). In the second period ($T = 2$), the MDB uses its local currency deposits in the Local Commercial Bank ($-\$LocDep_{MDB}^{LCB}$) to provide a local currency loan to the Local Investment Project ($+\$LocLoan_{MDB}^{IP}$). The Local Investment Project receives local currency deposits in its account at the Local Commercial Bank ($+\$LocDep_{IP}^{LCB}$) and simultaneously incurs a local currency loan obligation to the MDB ($+\$LocLoan_{MDB}^{IP}$). As in the previous section, the Local Investment Project utilizes these local currency deposits to

¹⁷It is important to note that this analysis does not consider the scenario where local currency bonds are issued in international bond markets and purchased by foreign investors. As discussed by Beirne et al. (2024) and Hofmann et al. (2022), when creditors are foreign residents, there remains a risk that upon repayment, they may convert local currency proceeds into foreign currency, thereby exerting pressure on the foreign exchange market. Consequently, while issuing local currency bonds in international markets is an improvement over issuing USD bonds, it does not entirely eliminate FX and convertibility risks.

¹⁸Additional analyses of this proposal can be found in works such as Bonizzi et al. (2024).

¹⁹While this is a compelling and relevant argument, it is worth noting that sovereign risk is often associated with macroeconomic volatility more broadly. As a result, this argument may not hold universally for all countries. It is likely more applicable in countries with very high sovereign risk. In countries with relatively low sovereign risk, the advantage of MDBs over governments or NDBs in this context becomes less clear.

develop the investment project, acquire the necessary inputs and supplies, and produce non-tradable goods and services.

In the final situation, compared to the initial one, the MDB's balance sheet has expanded from having no assets or liabilities to holding local currency-denominated loans to the Local Investment Project ($\$LocLoan_{MDB}^{IP}$) on the asset side and local currency bonds owed to the Local Commercial Bank ($\$LocBonds_{LCB}^{MDB}$) on the liability side. This arrangement eliminates any currency mismatch in the MDB's balance sheet, successfully achieving one of the main objectives of this second financing strategy. The Local Commercial Bank has also expanded its balance sheet by increasing its assets with the local currency bonds issued by the MDB ($\$LocBonds_{LCB}^{MDB}$) and its liabilities with the local currency-denominated bank deposits owned by the Local Investment Project ($\$LocDep_{IP}^{LCB}$). Similarly, the Local Investment Project's balance sheet has grown to include local currency bank deposits in the Local Commercial Bank on the asset side ($\$LocDep_{IP}^{LCB}$) and a local currency loan from the MDB on the liability side ($\$LocLoan_{MDB}^{IP}$). This means the Local Investment Project also avoids a currency mismatch in its balance sheet, fulfilling another key objective of this second financing strategy.

Focusing on the Local Investment Project, if it requires locally produced inputs and supplies for its development, there is no issue, as these can be paid for using its local currency bank deposits. However, if the project requires imported inputs and supplies, it will need to exchange its local currency deposits for USD. This exchange depends on the presence of an agent with access to USD who is willing to trade it for local currency. In Subsection (2.3), we assumed that the Local Commercial Bank supplied the USD, which it had received from the MDB as part of the financing strategy. The MDB, in turn, had obtained the USD through international bond issuance. In contrast, under this second financing strategy, the MDB does not supply USD to the Local Commercial Bank. Consequently, the agent supplying the USD must have acquired it independently of the financing and development of the Local Investment Project. This external supply of USD cannot be guaranteed. Moreover, as the scale of the local investment projects increases, so does the demand for USD, reducing the likelihood of finding an external agent able or willing to supply the necessary USD. This dependence on an external USD source to purchase imported inputs and supplies represents the primary drawback of this second financing strategy.

Regarding the repayment of the loan from the Local Investment Project to the MDB, it becomes evident that, even for a DOIP, there is no issue in obtaining the local currency required to repay the MDB, provided the project is profitable. The MDB, in turn, faces no challenges in repaying the local currency bonds it issued in the local bond market. Moreover, the host country avoids macroeconomic issues related to FX and convertibility risks. This absence of currency mismatches and FX and convertibility risks represents a significant advantage of this second financing strategy, particularly when compared to the first strategy discussed in Section 2.

When considering the size, maturity, and interest rate of the local currency loans granted by the MDB to the Local Investment Project, these parameters are likely influenced by the corresponding characteristics of the local currency bonds

T	MDB		Local Commercial Bank		Local Investment Project	
	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
0						
1	$+\$LocDep_{MDB}^{LCB}$	$+\$LocBond_{LCB}^{MDB}$	$+\$LocBond_{LCB}^{MDB}$	$+\$LocDep_{MDB}^{LCB}$		
2	$+\$LocLoan_{MDB}^{IP}$			$-\$LocDep_{MDB}^{LCB}$		$+\$LocLoan_{MDB}^{IP}$
	$-\$LocDep_{MDB}^{LCB}$			$+\$LocDep_{IP}^{LCB}$	$+\$LocDep_{IP}^{LCB}$	
<i>Final Situation</i>	$\$LocLoan_{MDB}^{IP}$	$\$LocBond_{LCB}^{MDB}$	$\$LocBond_{LCB}^{MDB}$	$\$LocDep_{IP}^{LCB}$	$\$LocDep_{IP}^{LCB}$	$\$LocLoan_{MDB}^{IP}$

Figure 5: The MDB issues local currency denominated bonds in the local financial market and onlends in local currency to the IP

issued by the MDB in the local bond market. As a result, this second financing strategy may result in loans with smaller sizes, shorter maturities, and higher interest rates compared to the first financing strategy discussed in Section 2, where the MDB issues USD bonds in the international bond market. One reason for this difference is investors' strong preference for hard currencies, such as the USD, which typically offer better terms due to their global demand, widespread acceptance, and minimal FX risk. Additionally, the international bond market is significantly larger and more liquid than most local bond markets, enabling MDBs to issue bonds with larger sizes, longer maturities, and lower interest rates. For instance, Marois et al. (2023) provide survey evidence indicating that multilateral development banks, such as CAF and IADB, view limited access to local currency at competitive interest rates as a key barrier to broader cooperation with national development banks (NDBs).

Moreover, in this second financing strategy, it is unclear whether MDBs have any significant advantage over other local financial actors, such as national development banks (NDBs), in terms of the size, maturity, and interest rate of local currency loans provided to local investment projects. For instance, Levy-Yeyati (2007) argues that MDBs may possess higher creditworthiness than local financial agents, such as NDBs, enabling them to issue local currency bonds with longer maturities and lower interest rates. However, this argument is not entirely convincing, as state-owned financial institutions, including NDBs and state-owned commercial banks, often benefit from the highest creditworthiness in their respective countries. This advantage is particularly pronounced when they have access to lender-of-last-resort services from the local central bank (Schclarek et al., 2023). Additionally, the financial services of MDBs are particularly valued in developing countries for their ability to provide relatively abundant and affordable USD financing—an advantage that is absent in this second financing strategy, which relies solely on local currency funding.

4 Third financing strategy: USD recapitalization of MDBs and establishment of a Local Currency Fund

In this section, we analyze the third and final financing strategy for MDBs, which involves recapitalization with USD or other hard currencies. The MDBs use these funds to purchase local currency and subsequently provide local currency loans to local investment projects. In this scenario, since the MDBs do not issue USD-denominated liabilities, there is no currency mismatch in their balance sheets, and the risk of credit rating downgrades is eliminated. Additionally, this strategy ensures that MDBs supply USD to the local foreign exchange market when converting it into local currency. This provision of USD facilitates the purchase of imported inputs and supplies required for the development of local investment projects. Moreover, as the MDBs are not required to repay bonds under this strategy, the local currency proceeds from loan repayments can be used to establish a Local Currency Fund. This fund can be reinvested to provide further local currency loans within the host country, ensuring the sustainability of local project financing in the future. Finally, since this strategy does not involve the repayment of USD bonds, host countries avoid macroeconomic challenges related to FX and convertibility risks.

This third financing strategy could also be implemented if the recapitalization of MDBs were carried out using Special Drawing Rights (SDRs) issued by the IMF to its member countries. In this case, the MDBs would need to exchange the SDRs for USD, as SDRs are reserve assets and not used for direct international commercial payments. This exchange would require a central bank—likely from a developed country—to be willing to accept SDRs and provide hard currency, such as USD, in return. This idea has gained traction following the IMF’s issuance of SDRs in 2021, which resulted in many developed countries accumulating excess foreign reserves. For discussions on using SDRs to recapitalize MDBs, see Andrews (2021); ECA-ECLAC (2022); Lazard (2022); Plant (2021); Ryder et al. (2023); Vinokurov et al. (2024), among others.

This strategy can be further enhanced by leveraging the IMF’s recent authorization to use SDRs for recapitalizing MDBs through hybrid capital instruments (IMF, 2024). These instruments offer both accounting and credit rating advantages by combining features of debt and equity. Typically, hybrid capital instruments are subordinate to other debt but are classified as equity, enabling them to absorb losses and bolster the MDBs’ financial resilience. They are designed to be perpetual and non-voting, meaning they do not confer ownership rights or governance influence. Additionally, they lack a fixed maturity date and generally pay interest instead of dividends. In cases of severe financial distress or portfolio losses, MDBs may suspend interest payments, and the instruments can be written down either at the discretion of the MDBs or based on prevailing financial conditions to safeguard institutional stability. A similar approach was proposed by Zucker-Marques and Gallagher (2023), who explored hybrid capital in the form of Sustainable Future Bonds as a means to strengthen MDB capital

frameworks.

In Subsection 4.1, we begin by examining the process through which an MDB is recapitalized, purchases local currency from a local commercial bank, and provides local currency loans to a local investment project. In the subsequent Subsection 4.2, we explore how the MDB can utilize the local currency proceeds from loan repayments by local investment projects to establish a Local Currency Fund. This fund enables the MDB to continue onlending to local investment projects in local currency, ensuring a sustainable financing mechanism.

4.1 The MDB is recapitalized, buys local currency from the local commercial bank and onlends to the IP

In this subsection, we analyze how the MDB is recapitalized by its owners and uses the USD received during recapitalization to purchase local currency from a local commercial bank. This enables the MDB to provide a local currency loan to a local investment project, eliminating any risk of currency mismatch or credit rating downgrades. While we assume the recapitalization is conducted in USD, the analysis and conclusions remain unchanged if the recapitalization were carried out in other hard currencies, such as the Euro or the Renminbi, or through SDRs utilizing hybrid capital instruments.

Figure 6 presents the balance sheets, at each moment of time, of the MDB, the Local Commercial Bank, and the Local Investment Project. In the initial period ($T = 0$), none of the agents hold any assets or liabilities. In the first period ($T = 1$), the MDB is recapitalized by its owners ($+CapMDB$), receiving USD bank deposits at the International Commercial Bank ($+USDDep_{MDB}^{ICB}$). In the second period ($T = 2$), the MDB transfers its USD deposits ($-USDDep_{MDB}^{ICB}$) to the Local Commercial Bank, which receives these as deposits at the International Commercial Bank ($+USDDep_{ICB}^{ICB}$). In return, the MDB opens an account at the Local Commercial Bank and receives local currency deposits ($+\$LocDep_{MDB}^{LCB}$) in exchange for the USD. In the third period ($T = 3$), the MDB provides a local currency loan to the Local Investment Project ($+\$LocLoan_{MDB}^{IP}$). To fund this loan, the MDB transfers its local currency deposits at the Local Commercial Bank ($-\$LocDep_{MDB}^{LCB}$) to the Local Investment Project, which receives these funds as local currency deposits in its account at the Local Commercial Bank ($+\$LocDep_{IP}^{LCB}$).

In the final situation, compared to the initial one, the MDB's balance sheet has expanded from having no assets or liabilities to holding local currency loans to the Local Investment Project on its asset side ($\$LocLoan_{MDB}^{IP}$) and capital contributed by its owners on its liability side ($CapMDB$). This arrangement eliminates any currency mismatch for the MDB and shields it from FX or convertibility risks, thereby achieving a key objective of this financing strategy. However, the owners of the MDB remain exposed to FX risk concerning the value of the MDB's capital. For example, if the local currency depreciates and the dollar value of the local currency loans decreases, the dollar value of the MDB's capital would also decline. Importantly, this risk is borne solely by the MDB's owners and does not result in FX losses for the MDB itself, as the deprecia-

tion has no direct financial impact on its balance sheet. The Local Commercial Bank has also expanded its balance sheet. Its assets now include USD deposits at the International Commercial Bank ($USDDep_{LCB}^{ICB}$), while its liabilities reflect local currency-denominated bank deposits ($LocDep_{IP}^{LCB}$). Similarly, the Local Investment Project's balance sheet has grown, with local currency bank deposits ($LocDep_{IP}^{LCB}$) on its asset side and a local currency-denominated loan from the MDB ($LocLoan_{MDB}^{IP}$) on its liability side. These local currency bank deposits enable the Local Investment Project to proceed with its development. If the necessary inputs and supplies are imported, the Local Commercial Bank can provide USD to the Local Investment Project in exchange for local currency. This ensures the project has access to the foreign exchange needed for imported goods, fulfilling another primary objective of this financing strategy. Alternatively, if the required inputs and supplies are domestically produced, the Local Commercial Bank retains the USD, which can increase the availability of foreign exchange in the local market, further benefiting the local economy.

Regarding the size of the local currency loans granted by the MDB to the Local Investment Project under this third financing strategy, the size of the loans is directly determined by the amount of recapitalization. Unlike the first and second financing strategies analyzed in Sections 2 and 3, the third strategy does not involve bond issuance, which means the MDB cannot leverage its capital to expand the size of its lending. Consequently, the size of the local currency lending under this third strategy will likely be smaller than in the first and second strategies. In the first and second strategies, the MDB can issue bonds to supplement its capital, thereby increasing its total lending capacity.²⁰ The inability to leverage capital in the third financing strategy is a significant drawback compared to the other two strategies. However, even within the constraints of this third strategy, the MDBs could increase their lending capacity by adopting an originate-to-distribute model, where they originate loans and subsequently distribute them to other investors. This approach could partially offset the limitations imposed by the lack of leverage. When comparing the first and second financing strategies, the size of local currency lending depends on which strategy allows for greater leverage. Although this is not immediately clear, it is likely that the first financing strategy, which involves issuing USD bonds in the international bond market, enables larger bond issuances compared to the second strategy, which relies on issuing local currency bonds in the smaller and less liquid local bond markets. This distinction suggests that the first financing strategy may allow for greater lending capacity than the second.

Regarding the maturity and interest rate of local currency loans provided by MDBs, it is likely that this third financing strategy will offer longer maturities and lower interest rates compared to the first and second financing strategies. The key reason is that, in the first and second strategies, the maturity and interest rate of the loans are constrained by the terms of the bonds issued by the MDBs. In contrast, under the third financing strategy, because MDBs are

²⁰A bank's leverage ratio is calculated by dividing its capital by its total assets. Higher leverage allows for more assets, such as loans, to be financed relative to capital.

T	MDB		Local Commercial Bank		Local Investment Project	
	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
0						
1	$+USDDep_{MDB}^{LCB}$	$+CapMDB$				
2	$-USDDep_{MDB}^{LCB}$		$+USDDep_{LCB}^{LCB}$			
3	$+\$LocDep_{MDB}^{LCB}$			$+\$LocDep_{MDB}^{LCB}$		
	$+\$LocLoan_{MDB}^{IP}$			$-\$LocDep_{MDB}^{LCB}$		$+\$LocLoan_{MDB}^{IP}$
	$-\$LocDep_{MDB}^{LCB}$			$+\$LocDep_{IP}^{LCB}$	$+\$LocDep_{IP}^{LCB}$	
<i>Final Situation</i>	$\$LocLoan_{MDB}^{IP}$	$CapMDB$	$USDDep_{LCB}^{LCB}$	$\$LocDep_{IP}^{LCB}$	$\$LocDep_{IP}^{LCB}$	$\$LocLoan_{MDB}^{IP}$

Figure 6: The MDB is recapitalized, buys local currency from the local commercial banks and onlends to the IP

not required to repay any issued bonds, they have the flexibility to provide longer-term loans to local investment projects. Moreover, the absence of bond-related interest payments allows MDBs to charge lower interest rates on local currency loans, without the need to account for the cost of funding.²¹ This flexibility in loan terms—both in maturity and interest rates—is a significant advantage of the third financing strategy, making it particularly attractive for financing long-term investment projects.

4.2 The repayment of the loan to the MDB and the creation of a Local Currency Fund

In this subsection, we examine the repayment of the loan by the local investment project to the MDB and the subsequent creation of a Local Currency Fund by the MDB using the repayment proceeds. We assume that the investment project produces a non-tradable good or service (*NTradGood*) that is sold in the domestic market, generating local currency revenues. In this case, as the project is a domestically oriented investment project (DOIP), it uses these local currency proceeds to repay the MDB loan. Since the loan is denominated in local currency, there are no FX or convertibility risks to consider, nor are there adverse macroeconomic effects for the host country. This situation contrasts sharply with the case where the MDB loan to DOIPs is denominated in USD, which would introduce significant FX and convertibility risks.²² When the MDB receives the local currency repayments, it can establish a Local Currency Fund. This fund allows the MDB to continue financing additional local investment projects in the host country, creating a sustainable cycle of local currency lending. Notably, because the MDB financed the initial loans using proceeds from its recapitalization, it has no outstanding liabilities to repay, as

²¹If recapitalization were conducted using SDRs through hybrid capital instruments, there could be some associated interest payments, as noted by IMF (2024).

²²For a detailed discussion of exchange rate and convertibility risks associated with USD-denominated loans for DOIPs, see Schclarek and Xu (2022).

would have been the case had it financed its lending operations by borrowing funds.

Figure 7 presents the balance sheets, at each moment of time, of the MDB, the Local Commercial Bank, the Local Investment Project, and a Local Buying Firm. In the initial period ($T = 0$), the Local Investment Project holds non-tradable goods or services ($NTradGood_{IP}$), which were developed and produced using the local currency loan provided by the MDB. This loan appears as a liability for the Local Investment Project ($\$LocLoan_{MDB}^{IP}$) and as an asset on the MDB's balance sheet. On the liability side of the MDB's balance sheet is its capital (Cap_{MDB}). Additionally, the Local Buying Firm holds local currency bank deposits at the Local Commercial Bank ($\$LocDep_{Firm}^{LCB}$), which are liabilities for the bank.²³ In the first period ($T = 1$), the Local Buying Firm purchases the non-tradable goods or services from the Local Investment Project ($+NTradGood_{Firm}$) and pays using its local currency deposits held at the Local Commercial Bank ($-\$LocDep_{Firm}^{LCB}$). In return, the Local Investment Project delivers the non-tradable goods or services ($-NTradGood_{IP}$) and receives payment in the form of local currency deposits at the Local Commercial Bank ($+\$LocDep_{IP}^{ComB}$). In the second period ($T = 2$), the Local Investment Project uses its local currency deposits at the Local Commercial Bank ($-\$LocDep_{IP}^{LCB}$) to repay the loan it owes to the MDB ($-\$LocLoan_{MDB}^{IP}$). In turn, the MDB receives these local currency deposits at the Local Commercial Bank ($+\$LocDep_{MDB}^{LCB}$).

In the final situation, compared to the initial one, we observe significant changes in the balance sheets of the involved agents. The Local Investment Project's balance sheet has completely contracted, shrinking from initially holding non-tradable goods or services as an asset ($NTradGood_{IP}$) and a local currency loan from the MDB as a liability ($\$LocLoan_{MDB}^{IP}$) to having no assets or liabilities. This reflects the successful completion of its purpose: repaying the local currency loan to the MDB using the proceeds generated by the investment project. For the Local Buying Firm, its asset composition has shifted from holding local currency bank deposits ($\$LocDep_{Firm}^{ComB}$) to acquiring the non-tradable goods or services ($NTradGood$). This change highlights that the goods or services produced by the investment project have been successfully delivered to meet domestic market demand. The Local Commercial Bank's balance sheet has not expanded or contracted, but there has been a change in ownership of the local currency deposits. Previously held by the Local Buying Firm, the local currency deposits ($\$LocDep_{MDB}^{LCB}$) are now owned by the MDB. This shift reflects a key change in the MDB's balance sheet. On the asset side, the MDB has replaced the local currency loan owed by the Local Investment Project ($\$LocLoan_{MDB}^{IP}$) with local currency deposits in the Local Commercial Bank ($\$LocDep_{MDB}^{LCB}$). The liability side remains unchanged, with the MDB's capital (Cap_{MDB}) intact.

A key advantage of this outcome is that the MDB does not need to use

²³While the origin of these funds is not explicitly modeled, it can be assumed they were obtained from the firm's business activities or through a local currency loan from the Local Commercial Bank.

the local currency deposits it receives to repay any loans or bonds. Instead, these funds can be utilized to establish and finance a Local Currency Fund, enabling the MDB to continue providing local currency loans to future investment projects. This creates a sustainable financing mechanism that does not require additional recapitalization or new bond issuances. This final situation underscores the strengths of this financing strategy, particularly its ability to avoid currency mismatches, eliminate FX and convertibility risks, and facilitate long-term, self-sustaining local currency lending. The creation of the Local Currency Fund provides a reliable source of long-term local currency financing, particularly for domestically oriented investment projects (DOIPs). Unlike the first and second financing strategies—where the MDB must use loan repayments to service issued bonds, preventing further lending unless new bonds are issued—this third strategy allows the MDB to continue lending even after the initial loan is repaid.

In terms of the initial size of local currency lending, the first and second financing strategies can achieve a larger volume due to the MDB's ability to leverage its capital by issuing bonds, as discussed in Subsection 4.1. However, when considering the total size of lending—which accounts for both the initial lending and future lending volumes made possible through the Local Currency Fund—the third financing strategy may ultimately surpass the other two. This is because the ability to recycle local currency repayments into new loans ensures a continuous flow of financing over time. Moreover, the total lending capacity of this strategy can be further expanded if MDBs adopt an originate-to-distribute financing model. The establishment of the Local Currency Fund, with its capacity to support ongoing and potentially larger total lending volumes compared to the other two strategies, is a significant advantage of this third financing approach. However, it is important to note that only the initial purchase of local currency by the MDB injects hard currency into the local foreign exchange market. If additional USD is required to buy imported inputs and supplies, the MDB would need to exchange further hard currency for local currency.

The establishment of the Local Currency Fund can also contribute to the development of the local currency bond market in the host country. An increase in local currency lending leads to higher future demand for the local currency, as borrowers will require it to repay their loans. This sustained increase in demand for the local currency can enhance its long-term stability, a key factor in fostering confidence in the local foreign exchange market and supporting the development of the local currency bond market. Moreover, the creation of the Local Currency Fund may encourage MDBs to play a more active role in the local bond market. For instance, instead of solely providing local currency bank loans, MDBs could allocate part of their local currency financing toward purchasing local currency bonds issued by local investment projects and firms. This involvement would not only deepen the local bond market but also provide alternative long-term financing options for investment projects, further strengthening the local financial system.

T	MDB		Local Commercial Bank		Local Investment Project		Local Buying Firm	
	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
0	$\$LocLoan_{MDB}^{IP}$	$CapMDB$		$\$LocDep_{Firm}^{LCB}$	$NTGood_{IP}$	$\$LocLoan_{MDB}^{IP}$	$\$LocDep_{Firm}^{LCB}$	
1				$-\$LocDep_{Firm}^{LCB}$	$-NTGood_{IP}$		$-\$LocDep_{Firm}^{LCB}$	
				$+\$LocDep_{Firm}^{LCB}$	$+\$LocDep_{Firm}^{LCB}$		$+NTGood_{Firm}$	
2	$-\$LocLoan_{MDB}^{IP}$			$-\$LocDep_{IP}^{LCB}$	$-\$LocDep_{IP}^{LCB}$			
	$+\$LocDep_{MDB}^{LCB}$			$+\$LocDep_{MDB}^{LCB}$		$-\$LocLoan_{MDB}^{IP}$		
<i>Final Situation</i>	$\$LocDep_{MDB}^{LCB}$	$CapMDB$		$\$LocDep_{MDB}^{LCB}$			$NTGood_{Firm}$	

Figure 7: The IP repays the local currency loan granted by the MDB and the MDB establishes a local currency fund

5 Conclusion

In this paper, we have theoretically explored different financial strategies that enable MDBs to offer local currency-denominated loans to DOIPs—those that do not generate hard currency—while avoiding currency mismatches in their balance sheets and mitigating FX and convertibility risks. Such mismatches and risks pose significant challenges, as they can lead to MDBs suffering credit rating downgrades, which in turn increase MDBs’ funding costs and reduce the maturity and size of the bonds they issue and the local currency onlending. From a macroeconomic perspective, if lending volumes are relevant, currency mismatches can exacerbate FX volatility in host countries, and may increase the risk of currency crises. Addressing these challenges is essential for MDBs to provide sustainable financing for the green transformation in developing countries.

Three alternative financing strategies to mitigate FX and convertibility risks have been analyzed, focusing on the payment mechanisms involved, the balance sheet implications for key actors, the impact on hard currency supply and demand in local foreign exchange markets, the FX and convertibility risks, MDB leverage and size of onlending, and the maturity and interest rates of loans and bonds issued. The first financing strategy involves MDBs borrowing in USD from international bond markets and onlending in local currency but mitigating FX risks through different financing strategies. One approach is the diversification financing strategy, which involves onlending to a well-diversified portfolio of loans in various local currencies to mitigate FX risks. The other approaches are the FX hedging financing strategy and the swap-based financing strategy. The second strategy entails MDBs issuing local currency bonds in domestic bond markets and using the proceeds for local currency onlending. The third strategy involves MDBs being recapitalized with USD or through hybrid capital instruments with SDRs, which are exchanged for local currencies to provide loans and establish Local Currency Funds dedicated to sustainable local currency lending.

When considering the supply of USD by MDBs to the local foreign exchange market, the third financing strategy emerges as the most favorable option, followed by the first strategy. The key advantage of the third strategy is that MDBs supply USD by exchanging them for local currency to onlend to in-

vestment projects, while they do not create additional demand for USD upon repayment, as the projects repay in local currency. In the first financing strategy, MDBs similarly supply USD by exchanging them for local currency during the onlending process. However, a notable drawback is that MDBs subsequently demand USD to repay the bonds they issued in international markets, which are denominated in USD. In contrast, the second financing strategy does not involve MDBs supplying USD when lending to local investment projects. Consequently, if imported inputs or supplies are needed for project development (e.g., solar panels or pumps for a sewage system), it will result in a net increase in the demand for USD in the local foreign exchange market. On the positive side, MDBs in this strategy do not create demand for USD upon repayment, as they are repaid in local currency and have issued local currency bonds in the domestic bond market.

Regarding the FX and convertibility risks, the third financing strategy is the one that faces the lowest risks, followed by the second financing strategy. The key advantage of the third financing strategy is that it eliminates currency mismatches on MDBs' balance sheets, ensuring that neither the MDBs, the host country nor other involved actors face FX and convertibility risks. In this scenario, only the owners of the MDBs—those who provided the recapitalization—bear FX risks related to fluctuations in the USD value of the MDBs' capital. In the second strategy, while MDBs also avoid currency mismatches in their balance sheets, potential FX and convertibility risks may arise if the financed local investment projects require imported inputs and supplies. This situation increases the demand for USD in the local foreign exchange market without a corresponding increase in the supply of USD from MDBs, potentially amplifying these risks. The first strategy, however, faces the greatest FX and convertibility risks, especially for the host country. After local investment projects repay their loans in local currency, MDBs must convert these repayments into USD to settle their USD-denominated bonds issued in international markets. This process significantly increases demand for USD in the local foreign exchange market, heightening FX and convertibility risks for the host country. When MDBs engage in hedged local currency onlending, the FX and convertibility risks are shifted to the FX hedging provider. However, it is crucial to minimize maturity mismatches between the hedge instrument and the local currency onlending. If a maturity mismatch occurs, requiring MDBs to roll over the hedge instrument, FX risks for MDBs are not fully eliminated, despite the existence of an FX hedge. It is important to note that these macroeconomic effects on the local foreign exchange market become significant only if the MDBs' lending to local investment projects is substantial relative to the size of the local financial and foreign exchange markets. When lending activities are relatively small, these effects are considerably less relevant. Unfortunately, the scale of financing required for the green transition is substantial for less-developed countries.

In terms of the size of local currency loans granted by MDBs, the first financing strategy is the most advantageous, followed by the second. This is because, under both strategies, MDBs can leverage their capital by issuing bonds, allowing the size of local currency lending to exceed the size of their capital base. The

extent of this leverage depends on the size and depth of the bond market, with the international bond market being significantly larger and deeper than most local bond markets. Furthermore, the currency of the bond issuance may also play a role, as USD-denominated bonds generally have the highest potential for large-scale issuance compared to local currency bonds. Thus, the first financing strategy, which involves issuing USD bonds in the international bond market, is likely to support larger lending volumes than the second strategy, which relies on issuing local currency bonds in local markets. In contrast, the third financing strategy is limited by the size of the initial recapitalization and the absence of leverage, resulting in smaller initial lending volumes compared to the first and second strategies. However, this approach supports the establishment of a Local Currency Fund, enabling sustained local currency lending over time using the proceeds from loan repayments. Since MDBs in this strategy do not have to service any debt obligations, the repayments can be reinvested into new loans, creating a self-sustaining cycle of lending. Moreover, the volume of lending can be further increased if the MDBs follow a originate-to-distribute financing model. Consequently, when evaluating total lending capacity—including both initial and future lending—the third strategy may ultimately achieve a greater cumulative lending volume than the first and second strategies.

Regarding the maturity and interest rate charged for local currency loans granted by MDBs to local investment projects, the third financing strategy stands out as the most advantageous, followed by the first strategy. The key advantage of the third strategy lies in the fact that MDBs use recapitalization proceeds to fund onlending to local projects. Since this approach does not involve liabilities tied to bond issuance, it allows MDBs greater flexibility in determining both the maturity and interest rate of their local currency loans. In contrast, the first and second strategies require MDBs to finance their onlending by issuing bonds with specific maturities and interest rates, which subsequently influence the terms of the loans they provide. Among these, USD bonds issued in the international bond market (first financing strategy) typically offer longer maturities and lower interest rates compared to local currency bonds issued in domestic markets (second financing strategy). This difference arises from the currency denomination and the relative size and depth of the international bond market compared to local bond markets.

In terms of the Local Currency Fund, established under the third financing strategy, it enables MDBs to continue providing local currency loans to real investment projects even after the initial loans are repaid, as discussed above. This strategy supports the creation of a long-term local currency lending facility. However, it is important to note that the initial purchase of local currency by MDBs using the USD proceeds from recapitalization is the only point at which hard currency is directly supplied to the local foreign exchange market. In the future, if USD is needed for imported inputs and supplies, MDBs or investment projects may need to exchange additional hard currency for local currency. Moreover, if an MDB operates at a sufficiently large scale across multiple countries and regions, it could establish multiple Local Currency Funds in different currencies. This diversification would help mitigate FX risks on its as-

set side, aligning with the principles of the first financing strategy. Additionally, the establishment of a Local Currency Fund could foster the development of the local currency bond market in host countries by increasing the demand for local currency as lending activities expand. Furthermore, the creation of the Local Currency Fund might also lead MDBs to play a more active role in the local bond market. For instance, some of the MDBs' local currency financing could be allocated toward purchasing local currency bonds issued by investment projects and firms, rather than exclusively providing local currency bank loans. This dual approach could further strengthen local financial markets while expanding the reach of MDB financing.

Our primary policy recommendation is that MDBs must carefully take into account currency mismatches as well as FX and convertibility risks when deciding which types of investment projects to finance, in what currency, and how to structure their funding. For EXIPs, USD lending generally does not pose significant FX or convertibility risks. However, for DOIPs, MDBs should prioritize providing local currency loans to minimize currency mismatches and mitigate substantial FX and convertibility risks. Regarding the financing strategies for local currency loans, there is no one-size-fits-all solution, as each strategy has distinct advantages and disadvantages. This underscores the need for a nuanced, case-by-case approach that considers the specific macroeconomic context of each host developing country. Currency mismatches and FX and convertibility risks are particularly critical for countries with current account deficits and low foreign reserves, whereas these concerns are less pressing for countries with current account surpluses and substantial reserves.

Another key policy recommendation is that MDBs should be recapitalized by their owners, using the hard currency proceeds to either leverage additional funds through borrowing (as in the first and second financing strategies) or directly purchase local currencies to establish Local Currency Funds (as in the third financing strategy). This recapitalization can be carried out using hard currencies such as the USD, Euro, or through Special Drawing Rights (SDRs) issued by the IMF to its member countries. Additionally, recapitalization with SDRs could be facilitated by increasing the hybrid capital instruments issued by MDBs, further enhancing their financial capacity.

In the case of creating Green Local Currency Funds, this could serve as a sustainable financial strategy to support the green transformation in developing countries. This approach would help address currency mismatch challenges while ensuring stable and effective financing for green initiatives. The establishment of Green Local Currency Funds can be achieved through collaboration with RDBs and NDBs. These institutions would take on a greater role in project origination and execution at the local level. This approach would enhance the origination capacity for high-quality green projects, minimize risks such as currency mismatches, and ensure alignment with national development priorities and the green transformation. Additionally, extending the reallocation of SDRs through the balance sheets of MDBs could support the refinancing of smaller PDBs. This strategy leverages the credibility and credit ratings of multilateral and regional platforms, further strengthening the financing ecosystem for local

and green development projects.

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