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From Dormant to Catalytic

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Working paper
NUMBER | 011

SEPTEMBER | 2025

Centre for Sustainable Structural Transformation Working Paper Series is published electronically by SOAS University of London.

ISSN 3049-9097

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Adria Rius[1] and Antonio Andreoni[2]

Abstract

There is a growing interest in Development Finance Institutions (DFIs) as key instruments to drive structural transformation in Africa. When (re)examining their role, research shows that both the scale and composition of DFIs' capital base influence their performance. This has led to arguments in favour of drawing on international sources of finance to strengthen the funding structures of domestic DFIs. However, such arguments assume a structural deficiency in the potential for raising and mobilising domestic resources. In this context, this paper examines the role of alternative domestic sources of finance for structural transformation, with a focus on Public Institutional Investors (PIIs), and provides evidence of their relevance for African DFIs. Paradoxically, PIIs in Africa and public pension funds in particular often engage in reverse maturity transformation. Leveraging their long-term liability structure to channel funding to resource-constrained DFIs presents an opportunity to transform 'dormant' resources into 'catalytic' ones. Given that empirical evidence on the PII-DFI relationship in Africa remains limited, this paper first analyses the role of PIIs in the funding structures of 14 African DFIs, with Brazil's BNDES included as a comparator. It then provides a comparative analysis of five DFI-centred domestic resource mobilisation configurations and the position of PIIs within them. The paper finds that the contribution of PIIs to DFI financing needs to be understood in line with the instruments and forms of financing they provide as well as their position within the broader institutional configuration of domestic resource mobilisation efforts.

Key words: development finance institutions, public institutional investors, domestic resource mobilisation, structural transformation, capital structures

JEL codes: O55, O16, G28, G23, O14

Acknowledgements: We are thankful to the CSST team for valuable comments and feedback.

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1. Introduction

There is a growing interest in the role of Development Finance Institutions (DFIs) to steer pathways of structural change (Griffith-Jones et al., 2018). In Africa, there have been 23 new National Development Bank (NDB) creations since 2010, with four new banks established in 2019 alone (in Benin, Burkina Faso, Côte d'Ivoire, and Guinea), and two more between 2019 and 2021 (Banque Agricole du Faso and Development Bank of Ghana). Not only are new DFIs emerging, but the role of many existing ones was strengthened during the COVID-19 pandemic, as they performed a critical counter-cyclical role through short-term debt relief and/or expanding lending (Attridge et al., 2021, 2022).

It has been argued that their current capital structures hinder their performance, both in terms of the type and scale of finance they can access, which stands in contrast to the financial resources available to their counterparts in the Global North (Ndikumana, 2006; Xu et al., 2020). In this context, strengthened collaboration with international DFIs, particularly Multilateral Development Banks (MDBs) such as the African Development Bank (AfDB) could be leveraged to support and enhance their capital structures. This, however, assumes a structural deficiency in savings and resource mobilisation capacity, which potentially stems from theories that highlight a high propensity to consume and financial fragmentation as barriers to capital accumulation and resource mobilisation.

In this respect, recent work suggests that domestic savings and resource mobilisation capacity may be greater than is often recognised, and the role of what we term here Public Institutional Investors (PIIs), defined as public financial institutions with long-term liability structures, has begun to be unpacked (AfDB, 2020; UNCTAD, 2025). Research has focused on understanding the role of public pensions, insurance, and sovereign wealth funds in financing development, especially by leveraging maturity premiums to invest in long-term assets. Paradoxically, however, PIIs in Africa and pension funds in particular tend to engage in reverse maturity transformation, whereby long-term liabilities are invested in short- and medium-term assets and/or low-risk instruments such as listed equity or real estate. Because DFIs tend to invest in long-term developmental ventures, and they can take on and manage risks in ways that PIIs usually would not thanks to their deeper ties with industry, a potential option to transform 'dormant' resources into 'catalytic' ones would be for PIIs to support the capital base of DFIs through the provision of finance.

Despite the above, there is limited empirical evidence about the existing links between PIIs and DFIs in Africa. Hence, this research provides new evidence about the involvement of PIIs in financing African DFIs. The paper explores three main areas of inquiry: (i) whether PIIs are involved in many DFIs (breadth), (ii) if, when involved, the funding they provide to DFIs is significant in scale (depth), and (iii) what type of funding, in terms of the instruments used, they provide. The analysis adopts a comparative case study method (Bryman, 2012, Chapter 3). It draws from the annual financial statements of 15 DFIs in 2023, the most recent available at the time of writing. Due to data limitations, the analysis focuses on 14 African DFIs, with Brazil's National Bank for Economic and Social Development (*Banco Nacional de Desenvolvimento Econômico e Social,* BNDES) included as a comparator given its status as one of the largest DFIs globally and its reliance on public institutional investor funds. An overview of their funding structures is first provided, followed by a more detailed exploration of the funding structures of five DFIs that leverage PIIs' resources, examining South Africa's Industrial Development Corporation (IDC), the Development Bank of Rwanda (BRD), the Development Bank of Mauritius (DBM), the Caisse de Dépôt et de Gestion of Morocco (CDG), and Brazil's BNDES.

The next section reviews the current state of the literature on the role of DFIs in structural transformation, their capital constraints, and the potential role of PIIs. Section 3 develops the analysis by providing an introductory landscaping of DFIs in Africa, subsequently focusing on the PII-DFI interface for the 15 DFIs under consideration, with greater attention paid to the 5 DFIs that use PII finance. Section 4 discusses the main findings, and Section 5 concludes.

2. Structural transformation, development finance institutions, and 'dormant' domestic resources

2.1. Financial systems, development finance and structural transformation

Early development economists examined structural constraints on capital formation and the conditions to stimulate economic growth. Classical contributions emphasised that low purchasing power, small market size, and a high propensity to consume were major obstacles to the accumulation of financial capital, constraining its redeployment in the form of productive investment (Nurkse, 1953), while growth theorists stressed the role of savings and investment in the capacity of the economy to sustain a stable output growth trajectory (Domar, 1946; Harrod, 1939), leading to a broader consideration of external financing, mainly through aid, as a condition for overcoming limits in the domestic capacity to save (Chenery & Strout, 1966; Rosenstein-Rodan, 1961). Yet these models largely overlooked the role of *financial systems* in mediating savings and investment.

In response, since the mid-20th century an extensive body of literature in the neoclassical economics tradition developed theory and empirical evidence on the role of financial systems in economic growth and, more generally, development (Goldsmith, 1969; King & Levine, 1993). Theoretical arguments for the existence of financial systems - that is, financial institutions and organisations, were essentially rooted in the transaction costs critique that emerged around the same time (Coase, 1937, 1960). Financial systems provide mechanisms that enable economic outcomes that would otherwise be hampered by high transaction costs. By performing their primary function, which is to "facilitate the allocation and deployment of economic resources, both spatially and temporally, in an uncertain environment" (Merton, 1995), they become a more effective means of financial capital allocation than individual contracting (Benston & Smith, 1976)[3].

With their existence and nature established, financial systems can be understood as performing five basic functions (Levine, 1997). First, they facilitate risk management by designing mechanisms (e.g. mutual funds or securities markets) that act as vehicles for trading, pooling, and diversifying risk. Second, they collect information that enables them to ensure financial capital flows to its highest value use, and efficient capital allocation ensues. Third, financial systems provide monitoring and control functions over managers, providing third-party enforcement in the interest of outsiders (including shareholders). Fourth, they enable the mobilisation of savings which, by pooling investors, makes the financing of certain projects (i.e. large-scale investments with high liquidity risk) possible. Finally, by facilitating transactions, financial systems can promote specialisation, thereby stimulating technological innovation and growth.

[3] Benston and Smith (1976) argue that financial intermediaries have a competitive advantage in reducing transaction costs due to (i) their ability to achieve economies of scale as a result of specialisation, (ii) a reputation for exhibiting discretion, and (iii) providing a platform that reduces search costs associated with matching supply and demand.

It is important to examine the origins of the mainstream research tradition on the link between financial systems and economic growth because its theories and models shaped the financial liberalisation policies applied to developing countries from the 1980s onwards under Structural Adjustment Programmes, which generally discouraged the use of development finance. Under this framework, the role of the state is to facilitate the existence of financial institutions and (private) financial organisations typically through basic (and minimal) regulation and contract enforcement. The framework took shape through the 'financial deepening' and 'financial repression' hypotheses advanced in two influential books (McKinnon, 1973; Shaw, 1973), which argued that government intervention for example to artificially lower interest rates impeded the efficient allocation of capital by financial markets. Instead, high interest rates were perceived as beneficial because they ensured (scarce) financial capital could end up in the hands of those borrowers who valued it the most. Moreover, keeping interest rates artificially low alongside high inflation discouraged savings while eroding firms' purchasing power and investment capacity.

This reasoning assumed that withdrawing the state from direct intervention in financial systems would promote efficient capital allocation and drive growth. However, it was later pointed out that, even well-developed financial systems not only do not by themselves eliminate market failures but can be the locus of more pervasive failures than other markets because information costs are particularly endemic. This foreshadows that the state, in ensuring financial systems meet the role and functions defined above, needs to take measures other than basic regulation and contract enforcement (Stiglitz, 1993; Stiglitz & Weiss, 1981). It involves instead the direct provision of finance, for example due to credit rationing stemming from adverse selection, the public good nature of specialised skills for assessing new investments' creditworthiness, or the shortage of long-term finance associated with banks' risk-aversion against funding new enterprises (de Aghion, 1999).

The direct engagement of the state in the provision of finance with the aim of steering development pathways gives way to 'development finance' and its implementing agencies, development finance institutions (DFIs). DFIs can be defined as financial organisations with a public policy orientation and for which the government steers their corporate strategy, which rely on funding sources beyond regular budgetary transfers, and whose main products are fund-reflow-seeking financial instruments (Xu et al., 2021). As noted above, DFIs have often been theoretically conceptualised as mechanisms that address (financial) market failures and their role is expected in instances where reliance on private finance cannot adequately fulfil the functions financial systems are meant to perform. This relates to financing certain types of businesses, for example small-scale firms or start-ups which cannot provide collateral, technological innovation, public-good investments such as the green transition or infrastructure, or the provision of long-term capital (Griffith-Jones & Cozzi, 2016; Ndikumana, 2021).

But more than this, development finance necessarily transcends the market failure rationale since financing development requires criteria that extend beyond the *static efficiency* focus of neoclassical economics frameworks. It concerns meeting development goals that may be justified by reasons other than economic efficiency (e.g. financial inclusion) or static efficient allocation, particularly with regard to steering specific long-term development pathways. These arguments have often been framed within Schumpeterian frameworks which place innovation and technological change at the centre of economic development and recognise that, given the pervasiveness of fundamental uncertainty in innovation, (public) finance can be important in shaping the *direction* of technological change (Mazzucato & Penna, 2016; O'Sullivan, 2006; Perez, 2003).

The role of finance in development has been documented by economic historians, especially for late and 'late-late' industrialisers. Gerschenkron (1962) made the important point that the catch-up process of European late industrialisers required financing enterprises on a much larger scale, involving greater initial fixed capital outlays than those typical of 18th century Britain. This required coming up with financial institutional innovations such as universal banks, combining commercial and investment banking functions. Universal banking, particularly in Belgium and Germany, both enabled large-scale long-term financing for industrial ventures, as well as an unprecedented degree of involvement in the governance of industrial firms. Although these banks were typically privately owned, the financial system in Belgium, France, and Germany remained highly regulated until the late 19th century and the state both intervened in and benefited from these institutions in different ways. A prominent example is Belgium's Société Générale, set up with the remit to advance Belgium's development and which would later serve as a model for the well-known Crédit Mobilier in France; almost 50% of its initial share capital was subscribed by the state and it was granted administrative rights over parts of the royal estate (Cameron, 1967)[4].

Development banks were equally commonplace in 'late-late' development, especially over the second half of the 20th century, and in fact supported by the World Bank itself (see Diamond (1957) for a review). Amsden (2001) documented the direct intervention of DFIs in state-led industrialisation and showed how under certain conditions they acted as effective 'extended arms' of industrial policy. Funding by NDBs was used, for example, as a vehicle to promote policy goals by making it conditional upon meeting export performance and local content targets. Lending was also used as a vehicle to influence firm management practices, with a view to improving project performance by setting 'techno-standards' that could have wider implications for market structures and profit reinvestment. To increase monitoring, banks such as the Industrial Development Bank of India reserved the right to nominate a director to a company's board to gain information about the firm and exert discipline over its operations, while also acting as sources of expertise.

As DFIs as instruments to drive structural transformation (re)gain attention and their historical role is revisited, the limitations they face in playing such a transformative role have also been brought to the fore. The next section highlights one of the most significant constraints on DFIs' ability to pursue their mandate, which relates to their capital structure.

2.2. DFIs' financing constraints: capital structures shape the realm of possible performance

Despite differences in their specific scope of operations, most DFIs share a series of challenges that constrain and condition their performance. The recent reviews developed in the context of DFIs in Africa (J. Abor, 2023; J. Y. Abor & Ofori-Sasu, 2024) indicate that raising finance is one of the most critical issues. They highlight that the scale of external finance that DFIs can raised is often too low, and that narrow capital structures constrain their ability to carry out their missions. For example, Amoussou et al. (2024) indicate that, on average, between 2018 and 2022 NDBs' total assets represented only 3.7% of their countries' GDP[5]. Scale constraints are amplified when the structure of NDBs' funding relies on credit lines or bond issuances primarily denominated in foreign currency. Currency devaluations, trade disruptions, and inflation increase the burden of foreign currency

[4] Central banks have also often played a historically important role in steering industrial development pathways. See Epstein (2006) for a review.

[5] By comparison, China Development Bank's assets accounted for circa 16% of the country's GDP (Amoussou et al., 2024).

liabilities, which weakens the asset position of NDBs. In addition, they affect borrowers' profits thereby undermining their capacity to service their debts with NDBs, which further erodes banks' asset quality.

Given their distinct mandate and structure compared with commercial banks, cheaper, more diversified, and long-term sources of funding strengthen DFIs' balance sheets and enable them to perform their role more effectively. For example, it improves their capacity to manage risk in all its forms (especially credit, market, and liquidity risk), since a better financed DFI can more effectively absorb potential losses arising from its (relatively riskier, in comparison to commercial banks) loan and equity investments. Given their mandate to provide long-term funding (e.g. long-term loans and patient equity finance), long-term borrowing is essential for proper asset-liability matching. Moreover, diversified sources of financing enhance the credibility of the bank, which improves its credit rating, which in turn improves its ability to raise external funds from capital markets, creating opportunities for portfolio growth (Diamond, 1957; Gottschalk et al., 2022).

Xu et al. (2020) review the source of financing for 378 NDBs worldwide. NDBs typically rely on: (i) internal financing, most notably through retained earnings, and (ii) external financing, through debt financing (bonds, deposits, interbank borrowing) and equity financing (share capital). Budgetary allocations are often the main source of equity finance, while the government can provide further resources through direct (often earmarked), operating (e.g. preferential tax treatment), and interest subsidies. Bond issuance is a critical source of funding for most NDBs, especially in high- and middle-income countries, which the government can support through explicit or implicit guarantees for long-term securities at relatively low prices. Moreover, NDBs can leverage off-balance sheet funds, which are funds administered on behalf of the government (e.g. trust funds).

As hinted above, significant differences emerge in NDBs' sources of financing across income groups. The table below summarises the findings of Xu et al. (2020) to highlight the contrast between high- and low-income country NDBs. As is evident, low-income NDBs can rely much less on bond issuances, especially through domestic capital markets, given that NDBs are more likely to use these markets if they are more developed and the government is able to provide explicit or implicit guarantees (making these assets 'quasi-government bonds'). A lower percentage of lower-middle and low-income countries' NDBs receive government subsidies, while they rely significantly more on concessional grants and aid. Another significant difference with NDBs in high-income countries is the higher number of lower-middle- and low-income country NDBs taking on household deposits.

Percentage of NDBs…	High-Income	Upper-Middle Income	Lower-Middle Income	Low-income
Issuing bonds	47.15%	55.74%	37.84%	18.18%
Receiving trust funds from the government	10.57%	7.38%	9.01%	4.55%
Receiving Risk-bearing funds from the government	10.57%	3.28%	8.11%	9.09%
Receiving government subsidies	16.26%	14.75%	7.21%	9.09%

Receiving on-lending	8.94%	6.56%	10.81%	9.09%
Receiving ODA	10.57%	12.30%	6.3%	18.18%
Taking household deposits	11.57%	35.11%	36.27%	52.38%

Table 1. Differences in NDBs' funding sources across different income groups

Notes: The sample distribution is 123 NDBs in high-income countries, 122 in upper-middle income countries, 111 in low-middle income countries, and 22 in low-income countries. The total sample size is 378, except for household deposit data which draws from 375 NDBs. 'Trust funds' refers to funds made available by the government, with the government bearing the associated risks. 'Risk-bearing funds' from the government refer to earmarked funds facilitated by the government and for which the risk-bearer is the NDB. 'On-lending' are funds received from multilateral development banks, aid agencies, or NDBs from more developed countries.

Source: authors' compilation from Xu et al. (2020)

The above indicates that DFIs in developed countries can mobilise finance that developing countries cannot, as also noted in Ndikumana (2006). Differences are owed to both the *type* and the *scale* of finance. On the one hand, bond issuances facilitate access to both cheaper and long-term credit, while leveraging household deposits, which have short-term maturities, leads to maturity mismatches. On the other hand, the scale of finance that can be leveraged through bond issuance in international markets is possibly much larger than what can be leveraged through domestic household savings. Naqvi et al. (2018) illustrate this dynamic in their analysis of the role of KfW in Germany's industrial development, They find KfW's ability to attract cheap long-term finance in international markets strengthened its role even at a time when industrial policy selectivity was, at least rhetorically, curtailed under globalisation and 'Europeanisation'. The ability to borrow in international markets was underpinned by Germany's hegemonic position in Europe, and by extension in world markets, its high credit rating, and the Euro's status as an international reserve currency.

While the above emphasises the international dimension of DFI financing, there is also a domestic resource mobilisation dimension to the ability of DFIs to raise finance. As Table 1 shows, DFIs in low-income countries are less likely to raise funding through capital markets, while relying relatively more on household deposits, ODA, and on-lending. Both the literature and evidence provided so far tend to assume a structural deficiency in the availability and opportunities for raising and mobilising *domestic* resources. Yet, it has been argued that the opportunities for domestic resource mobilisation might be greater than currently recognised. This is due to the existence of large asset pools held by public institutional investors, defined herein as public financial institutions with long-term liability structures, such as sovereign wealth funds, mutual funds, life insurers, and pension funds (AfDB, 2020; UNCTAD, 2025).

The next section explores public institutional investors as potential sites of 'dormant' financial capital that could be mobilised for industrial development. This is illustrated with a focus on one of the most common institutional investors for which data are more readily available: pension funds.

2.3. Public Institutional Investors as alternative domestic sources of development finance: an illustration from pension funds

Pension funds manage a pool of assets bought with funds provided through contributions to a pension plan. The members have a legal claim against the assets, which are meant to provide benefits on retirement. Pension funds engage in financial transactions on their account and have their assets and liabilities[6]. Traditionally, pension funds, alongside other institutional investors (mutual funds, life insurers, or sovereign wealth funds), have been sources of long-term capital. Although differences across countries exist, their asset allocation is typically in (listed) equity and bonds, and they have a long-term investment horizon tied to their liabilities (OECD, 2024). This enables pension funds to leverage illiquid asset 'premiums', for example through investments in infrastructure, which are less attractive to investors with shorter time horizons. Holding assets over longer periods of time also offers the advantage of lowering the costs associated with buying and selling assets (e.g. brokerage fees, taxes, administrative charges) (Croce et al., 2011)[7].

Most African countries developed their current pension fund schemes in the past 30 years. The young demographics and the recent establishment of pension systems result in low ratios of eligible beneficiaries to contributors, while high informality contributes to low coverage. According to Ben Barka et al. (2018), over three-quarters of African countries have mandatory contributory national pension schemes, mostly based on the defined benefits (DB) system and financed on a PAYG basis[8]. Moreover, all countries have civil service pension systems, providing social security coverage to public sector workers, and most countries have separate pension schemes for these workers. Civil service pension schemes are generally based on the DB system and are financed either through PAYG or from the government budget.

An important observation is that pension funds' total assets stand in stark contrast with the assets held by NDBs: in 2020, while NDBs' share of assets over GDP was 4.2%, the share of pension funds' assets reached 16.8% (AfDB, 2017; Amoussou et al., 2024). UNCTAD (2025) finds that African countries' 36 sovereign wealth funds and 16 public pension funds manage assets of over $400 billion. While this signals a potentially untapped source of long-term finance, only a limited proportion of funds are actually invested in long-term ventures, effectively making these resources 'dormant' from a structural transformation perspective. Instead, pension funds prioritise savings deposits with banks, paradoxically engaging in reverse (from long- to short-term) maturity transformation, or low-risk assets including government securities, listed equity, or real estate, amongst others. As a result, in 2020 the share of pension funds' long-term assets (i.e. with maturities longer than 5 years) was 53.8%.

The landscape is highly heterogeneous across countries and regions (Figure 1). Looking at the countries for which data are available in the AfDB Africa Long-Term Finance Initiative database (AfDB,

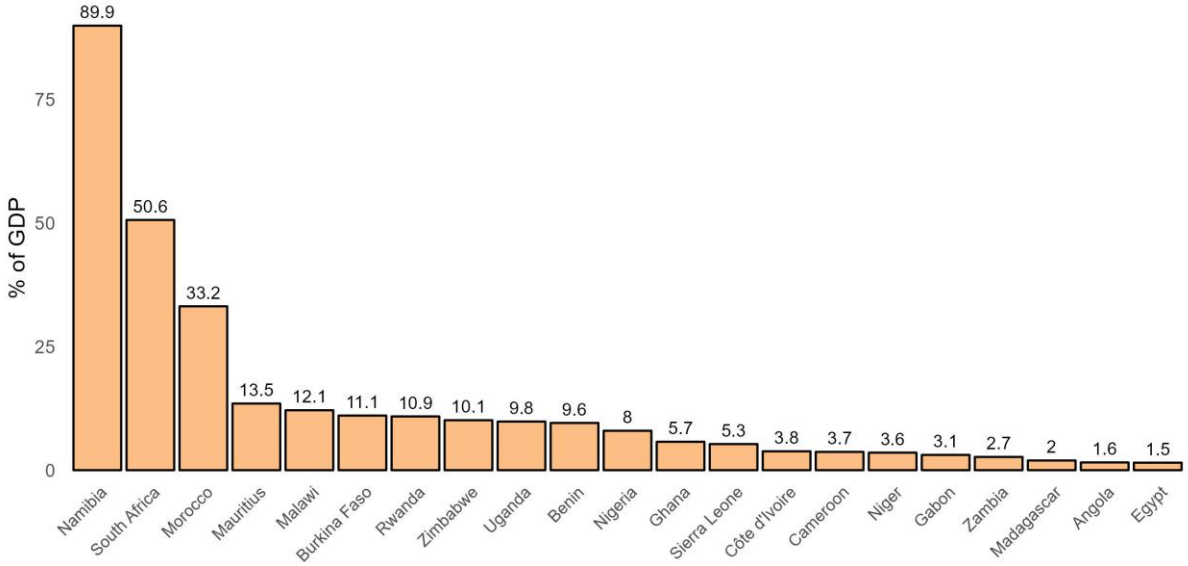
[6] OECD Glossary of Statistical Terms, accessed at: https://www.oecd.org/en/publications/oecd-glossary-of-statistical-terms_9789264055087-en.html

[7] Croce et al., (2011) also make the important point that the outsourcing of the funds' operations to external asset managers by particularly small institutional investors has contributed to increase their exposure to risk driven by speculative and short-term investments. This points to a trend towards short-termism whereby managers' remuneration based on short-term performance (e.g. meeting quarterly earnings expectations) and the dominance of institutional investors as owners (rather than individuals) has been an important factor behind the prioritisation of short-term gains over long-term gains (Rosenblum, 2016).

[8] There are, roughly, two main pension plan systems, the defined benefits (DF) and the defined contributions (DC). Under DB, the pension plan's benefits are guaranteed based on a prescribed formula. These are typically financed under the pay-as-you-go (PAYG) method where current outlays are paid out of current revenues. In the DC plan, contributions go into individual accounts and determine the payout depending on the amount saved and the returns to investment.

2017), in 2020, Namibia, South Africa, and Morocco had by far the largest pension funds in terms of asset-to-GDP ratio. Looking at regional disparities, Southern Africa holds the largest pension funds, accounting for 38.7% of the region's GDP. Pension funds' assets over GDP stood at 10.1% in East Africa, 9,1% in North Africa, 7.3% in West Africa, and 3.5% in Central Africa. Maturity patterns in pension funds' portfolios do not necessarily match scale patterns. Pension funds in North Africa are the ones with the highest percentage of long-term assets over total assets (87.1%), followed by East Africa (53%), West Africa (45.3%), Southern Africa (38.7%), and Central Africa (35.8%).

a) Assets over GDP, by country



b) Comparison between assets over GDP and percentage of long-term assets in funds' portfolios, by region

Figure 1. Pension funds' asset portfolio by relative size and maturity, by country and regional group (2020)

Source: authors based on the Africa Long-Term Finance Initiative database (AfDB, 2017)

There are several reasons behind the lack of investment in long-term assets. Weak financial systems whereby limited securities are issued in domestic financial markets can hamper successful exit strategies, or additional risks related to these projects (e.g. political, regulatory) can also deter risk-averse pension funds' investment propositions. One of the most critical reasons, however, is that long-term investments require built-in expertise. This argument has been made to explain why pension funds do not leverage the opportunities of infrastructure investments (AfDB, 2020; Ben Barka et al., 2018; Sy, 2017), pointing out that the complexity and idiosyncrasy of infrastructure projects require adequate expertise, oftentimes at the sectoral level (e.g. energy, transportation, ICT).

It is at this point that the link between pension funds and other public institutional investors and DFIs can be articulated. DFIs such as national development banks hold a greater degree of sector-specific expertise due to their experience in providing direct financing[9] and, as such, they can be useful in allocating pension funds' assets into productive ventures with long-term maturities, meeting the needs of both pension funds and industrial projects. Their sector-specific expertise can help reduce risks arising from information asymmetries and a lack of sector-specific knowledge in a way that may not be possible for PIIs given their tendency to invest in listed equity and other safe assets. Therefore, mobilising resources in this way can both leverage available domestic resources and reallocate financial capital towards strategic developmental areas. It is in this sense that we may refer to transforming 'dormant' resources into 'catalytic' ones.

3. Domestic Resource Mobilisation, PIIs, and DFIs' Capital Structures in Africa: evidence from 15 DFIs

Despite growing interest, there is limited empirical evidence on the existing linkages between public institutional investors and development finance institutions in Africa. This section provides preliminary evidence about the position of PIIs in domestic resource mobilisation configurations and, more concretely, in DFIs' capital structures for 14 selected African DFIs, with Brazil's BNDES included as a comparator. The focus is on identifying and understanding the position of PIIs in these DFI capital structures. Specifically, the section seeks to examine (i) how many DFIs receive PII funding, (ii) for these DFIs, how much of their external financing is sourced from PIIs, and (iii) what specific instruments PIIs use when financing DFIs. In addressing these questions, the section also seeks to connect DFIs ability to leverage PII resources affects their long-term borrowing and lending capacity.

3.1. Data and methods

DFIs and PIIs are considered distinct in so far as the former have a developmental mandate while the latter have the mandate to secure wealth for contributors. In terms of comparing across DFIs, the focus is on DFIs with a mandate towards industrial development more broadly, rather than specialised DFIs (e.g. targeting MSMEs, infrastructure, etc.). The aim is to use comparable cases not only from the side of capital structures, but also from the asset side, that is, with a similar business model. Moreover, note that we focus on DFIs as defined in Xu et al. (2021) includes but is not limited to traditionally conceived (or labelled) National Development Banks. This enables the incorporation of more hybrid models such as industrial development corporations or savings banks, as long as they have a

[9] Note that NDBs can follow a retail, wholesale, or hybrid model. Under the retail model they engage directly with the borrower, while under the wholesale model they channel funds through third-party financial institutions (e.g. commercial banks). The hybrid model combines both. The point above applies more strongly to those DFIs that engage directly with the borrower.

developmental mandate and invest in developmental and strategic ventures as defined by the government.

Before addressing the three questions delineated above, the first subsection provides an overview of the landscape of DFIs in Africa drawing on the recently developed Global Database on Public Development Banks and Development Financing Institutions (Xu et al., 2021). The following subsection focuses on PIIs and provides an overview of the sources of external financing of 14 DFIs in Africa for which data are available. Brazil's development bank BNDES is provided as a comparator, making the total number of DFIs considered 15 (Table 2). The choice of BNDES also responds to the bank's reliance on PIIs as a funding source, as will be explained later, while the choice of African DFIs was conditioned by data availability. This subsection is then followed by a more detailed exploration of the funding structures of five DFIs: South Africa's Industrial Development Corporation, the Development Bank of Rwanda, the Development Bank of Mauritius, the Caisse de Dépôt et de Gestion of Morocco, and Brazil's BNDES. These have been selected for being the DFIs with the largest PII involvement in their funding structure[10]. The cases enable us to gain insights about different types of domestic resource mobilisation configurations where PIIs are involved.

DFI	Country	Establishment Year	Asset value (USD Bn)	Asset value over GDP (%)
Bank of Industry	Nigeria	1959	6.1	1.1
Botswana Development Corporation	Botswana	1970	0.4	2.4
Caisse de Dépôt et de Gestion	Morocco	1959	35.1	26.9
Development Bank of Angola	Angola	2006	0.8	0.9
Development Bank of Ethiopia	Ethiopia	1918	2.8	2.5
Development Bank of Ghana	Ghana	2021	0.2	0.3
Development Bank of Mauritius	Mauritius	1936	0.3	1.9
Development Bank of Namibia	Namibia	2004	0.4	3.6
Development Bank of Rwanda	Rwanda	1967	0.6	3.9
Development Bank of Seychelles	Seychelles	1977	0.1	3.7
Ind. Development Corporation	South Africa	1940	8.6	2.4
Ind. Development Corporation	Zambia	2014	9.2	33.4
Ind. Development Corporation	Zimbabwe	1940	0.2	0.8
National Bank for Economic and Social Dev.	Brazil	1952	147.9	7.5
Uganda Development Bank	Uganda	1972	0.4	1.0

Table 2. Selected DFIs (2023)

Source: authors from Xu et al. (2021) and WB (2023)

The main source of data is banks' annual financial statements for 2023, the latest available at the time of writing, while the detailed case studies account for a longer-term view of DFIs' financing structures[11]. Sources of external non-equity finance are mainly represented by borrowings, to which funds under management are added because they typically originate from long-term oriented funding sources, aligning with the interest in locating sources of 'dormant capital'. To compensate for a possible bias against borrowings, which are not necessarily banks' main source of finance, debt-to-equity (liabilities-equity side) and loans-to-equity investment (asset side) rates are also reported. For example, in South Africa, the Industrial Development Corporation's assets are largely backed by its equity structure

[10]The Development Bank of Angola (DBA) draws significantly on PII funding, but because it uses a similar instrument as BNDES (subordinated debt), to avoid duplication and since BNDES provides a basis for international comparison, the DBA was not included in the detailed cases under study. Similarly, the Development Bank of Mauritius, despite not being a DFI that receives non-equity external finance from PIIs, is used as illustration of a domestic resource mobilisation configuration whereby PIIs involvement is limited to equity.

[11] Except for the Industrial Development Corporation of Zambia, for which the latest available data was for year 2022.

(essentially composed of accumulated profits), rather than borrowing. As such, the involvement of PIIs in DFIs' equity structures is also reported. Sources of external funding are categorised depending on whether they come from (i) PIIs (including 'funds under management'), (ii) (other) public domestic entities, primarily state-backed sources of funding such those provided by the central bank and other state entities, (iii) public non-domestic sources, which mainly consists of foreign DFIs, and (iv) private sources of funding whether domestic or foreign, which in most cases has to do with DFIs' bond issuances in capital markets and commercial bank lending.

Although inevitably an imperfect exercise, efforts have been made to harmonise distinct reporting conventions across DFIs' financial statements[12]. The existence of funds under management exemplifies this case. In some cases, these funds are set up by the government and are earmarked towards specific investment targets. The responsibility to manage the fund's resources is transferred to the DFI in question. This is the case, for example, of the creation of a trust fund through a grant from the Government of Kuwait aimed at supporting MSMEs in food production, managed by the Uganda Development Bank. In other cases, these funds represent a resource allocation that is transferred to the DFI without a specific purpose and through a different instrument, as is the case of Brazil's Workers Support Fund, which channels resources to BNDES in the form of subordinated debt.

3.2. The landscape of DFIs in Africa

As noted earlier, the number of DFIs, particularly National Development Banks, has increased over the past 10 to 15 years, especially in West Africa, where four banks were established in 2019 alone (Benin, Burkina Faso, Côte d'Ivoire, and Guinea) and two more were added over the 2019-2021 period (Banque Agricole du Faso and Development Bank of Ghana). In 2021, every African country had at least one NDB except for Somalia and South Sudan (Attridge et al., 2021). The largest DFIs tend to be in the largest African economies. Out of the total 84 DFIs included in the Global Database on Public Development Banks and Development Financing Institutions (Xu et al., 2021), and out of those for which data are available as of 2022, Morocco, Zambia, South Africa, and Nigeria are home to the largest DFIs. Morocco's CDG is, in terms of scale, the largest DFI in Africa. These countries are followed by Egypt, Tunisia, and Côte d'Ivoire (Table 3)[13]. Moreover, their role has in several cases been strengthened since the COVID-19 pandemic (Attridge et al., 2022).

DFI	Country	Asset value (USD bn)	Asset value over GDP (%)
Caisse de Dépôts et de Gestion du Maroc	Morocco	32.5	24.9
Agricultural Credit of Morocco	Morocco	13.7	10.4
Industrial Development Corporation	Zambia	11.0	37.5
Industrial Development Corporation	South Africa	9.0	2.2
Development Bank of Southern Africa	South Africa	6.1	1.5
Bank of Industry	Nigeria	5.3	1.1
Export Development Bank of Egypt	Egypt	4.0	0.8
Caisse des Dépôts et Consignations Tunisia	Tunisia	3.4	7.6
Zambian Investment Holding	Zambia	2.7	9.2
National Investment Bank	Côte d'Ivoire	2.6	3.7

[12] See the methodological note in Appendix I

[13] Note that total asset valuation in USD changes significantly with exchange rate volatility, affecting the ranking.

Table 3. Top 10 DFIs by asset valuation (2022)

Source: authors from Xu et al. (2021) and WB (2022)

At the same time, the landscape of DFIs is highly heterogeneous. Focusing on their mandate, the most common DFIs are those with a flexible mandate, followed by those that support MSMEs and those focused on the agriculture sector. When their total asset valuation, instead of the absolute number of DFIs, is considered, in 2022 flexible-mandate DFIs accounted for 70.4% of the total, followed by agriculture-mandate DFIs (18.2%). The total valuation of MSME DFIs is similar to EXIM DFIs, with 3.6% and 4.3% of the total, respectively. Looking at their year of establishment, Figure 2 suggests that new DFI creation since the 2000s has been particularly focused on flexible DFIs. MSME development has also remained important, while export-import DFIs increased significantly in 2010-2019 as opposed to virtually no creation of such type of DFI during 2000-2009. Overall, the figure shows the increasing number in DFIs from 2000s-2010s onwards after a reduction in the number of DFI creations over the 1990s.

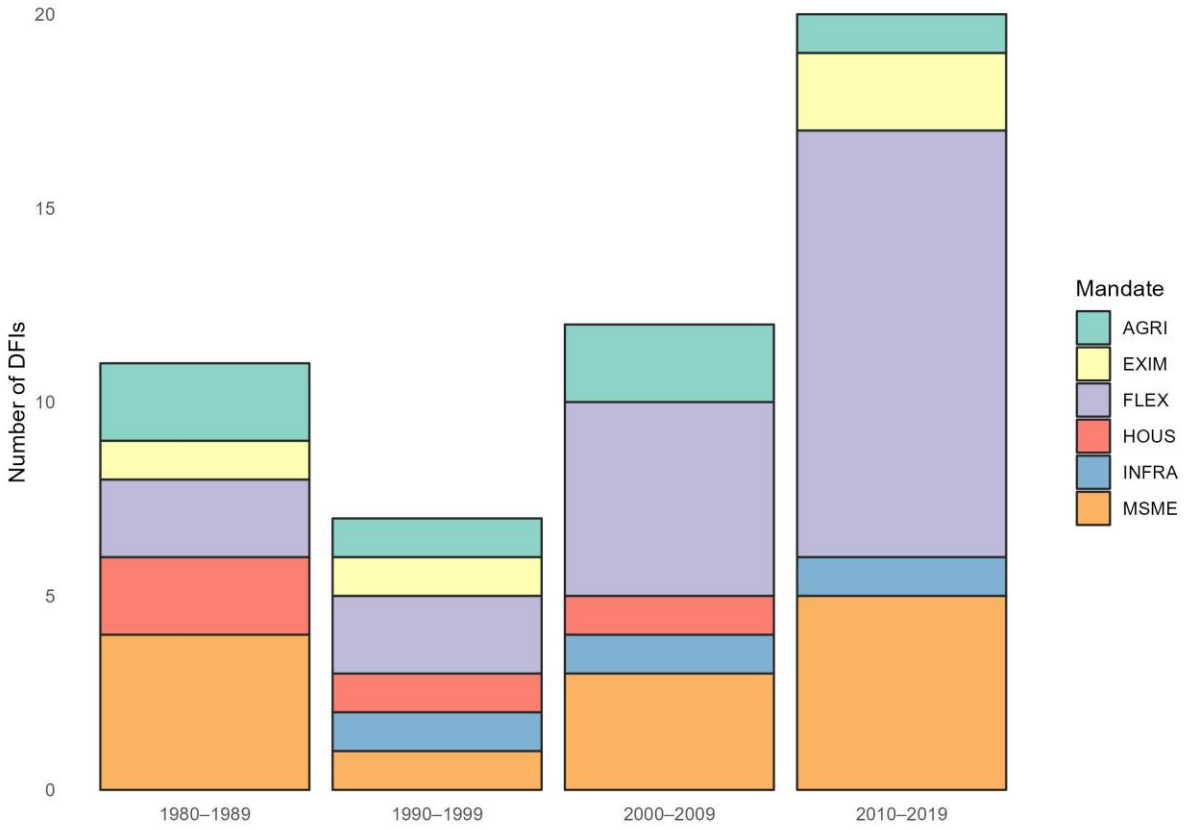


Figure 2. Number of national DFI creations by mandate and year of establishment (1980-2019)

Notes: AGRI: rural and agricultural development bank; EXIM: promotion of exports and foreign trade; FLEX: flexible; HOUS: social housing; INFRA: infrastructure; LOCAL: local government; MSME: Micro-, small-, and medium-sized enterprises

Source: authors from Xu et al. (2021)

Despite the increase in the number of DFIs, it remains unclear how 'transformative' they be. A recent review of eleven NDBs in Africa (Ghana, Nigeria, Côte d'Ivoire, Ethiopia, Rwanda, Kenya, Mauritius, Tunisia, Botswana, Zimbabwe and Uganda) provides preliminary insights (J. Abor, 2023; J. Y. Abor & Ofori-Sasu, 2024). Considering (i) the alignment between NDBs and government priorities in selected sectors, and (ii) whether they have an explicit mandate to steer structural transformation beyond funding provision, five NDBs stand out from the review: the Uganda Development Bank Limited, the Botswana Development Corporation, the Development Bank of Rwanda, the Development Bank of Ethiopia, and the Development Bank of Mauritius. However, even when alignment exists in principle, DFIs might not always allocate funding accordingly. For example, in their review of the alignment between DFIs' disbursements and sectoral priorities in Kenya, Ghana, and Ethiopia, Marbuah et al. (2022) find different degrees of alignment, with Ghana's DFI investments being the most aligned, followed by Kenya and Ethiopia.

The Development Bank of Rwanda, whose funding structure is explored in more detail later, provides an example of an NDB with a mandate that aligns with government priorities and that undertakes activities beyond narrowly defined finance provision. The bank was originally established to be the financial arm of the state's efforts to pursue national development goals, and as such its mandate is not limited to addressing long-term funding gaps, but also as a vehicle to steer the country's development strategy (Ofori-Sasu et al., 2024). Its six-year strategic plan 2018-2024 shows priority sector targeting, and aims at promoting exports by combining financing for traditional as well as non-traditional export crops. About 30% of the bank's loan portfolio in 2020 and 2021 is linked to export promotion projects, it has a dedicated Export Growth Fund, and uses several trade finance products (e.g. export credits, guarantees, import credits). In addition to promoting exports, the bank encourages networking amongst value chain actors to share resources and address common problems. Finally, the BRD provides several services that range from investment promotion, special economic zones development, and skills development. Hence, both in its mandate and its activities the BRD may be an example of a DFI that takes on an active and strategic role that is functional to industrial policy and structural transformation.

3.3. Domestic Resource Mobilisation Configurations: the link between PIIs and DFIs

Focusing on the question of domestic resource mobilisation for DFI funding, and the position of PIIs within that system, the analysis of the 15 DFIs considered shows that most are fully owned by the state and fall directly under the relevant government ministry (Figure 3). The exceptions are the Development Bank of Mauritius, of which 3.7% ownership falls under the State Investment Corporation, the Development Bank of Rwanda, which is owned by the Rwanda Social Security Board and the Agaciro sovereign wealth fund, the Bank of Industry of Nigeria, of which 49.6% is owned by the Central Bank, the Industrial Development Corporation of Zimbabwe, which was recently restructured with its ownership transferred to the state-owned sovereign wealth fund Mutapa, and the Development Bank of Seychelles, which is jointly owned by the government (60.5%), a state-owned bank (Nouvobanq), and two foreign DFIs (AFD and EIB)[14]. From this perspective, the potential injection of capital from PIIs in the form of new share issuance purchases is limited. On the contrary,

[14] Data about the specific shares of AFD and EIB are not readily available. The share of the government's ownership is drawn from (DBS, 2025). The share of Nouvobanq is obtained by cross-validating figures from Nouvobanq and DBS financial statements. The Government of Seychelles owns 78% of Nouvobanq.

the government is both the main and often sole owner, as well as the main responsible entity for the capitalisation of the DFIs considered.

DFI	PII	Government	Other
Bank of Industry, Nigeria	0.0%	50.4%	49.6%
Botswana Development Corporation	0.0%	100.0%	0.0%
Caisse de Dépôt et de Gestion, Morocco	0.0%	100.0%	0.0%
Development Bank of Ethiopia	0.0%	100.0%	0.0%
Development Bank of Ghana	0.0%	100.0%	0.0%
Development Bank of Mauritius	3.7%	96.3%	0.0%
Development Bank of Namibia	0.0%	100.0%	0.0%
Development Bank of Rwanda	100.0%	0.0%	0.0%
Development Bank of Seychelles	0.0%	60.5%	39.5%
Development Bank of Angola	0.0%	100.0%	0.0%
Ind. Development Corporation, South Africa	0.0%	100.0%	0.0%
Ind. Development Corporation, Zambia	0.0%	100.0%	0.0%
Ind. Development Corporation, Zimbabwe	100.0%	0.0%	0.0%
National Bank for Economic and Social Dev., Brazil	0.0%	100.0%	0.0%
Uganda Development Bank	0.0%	100.0%	0.0%

Figure 3. DFIs ownership structure (2023)

Notes: 'PII' refers to domestic Public Institutional Investors, 'Government' refers to central government entities, and 'Other' refers to any source other than domestic PII and central government entities.

Source: authors from banks' financial statements

With respect to non-equity liabilities, Figure 4 below shows the structure of external financing sources, focusing on borrowings as well as funds under management, while Table 4 shows the bank's debt-to-equity ratio, share of long-term loans and borrowings over total lending and borrowing, and the share of assets invested in loans over equity investments. The first plot shows that not all DFIs leverage PIIs as a source of funding. Apart from BNDES, Morocco's CDG, the Development Bank of Angola, the Industrial Development Corporation of South Africa, the Development Bank of Rwanda, Zambia's IDC, and the Development Bank of Seychelles rely on some form of PII funding. BNDES' reliance on PII funding accounts for more than 75% of total borrowings. The case of the Development Bank of Angola is similar, with resources being channelled through the National Development Fund, which is financed from petroleum and diamond proceeds, in the form of subordinated debt. A significant advantage of these funds, both in the case of BNDES and the case of the Development Bank of Angola, is that a significant portion of them do not have a set maturity date, which supports the banks' liquidity management and asset-liability matching efforts.

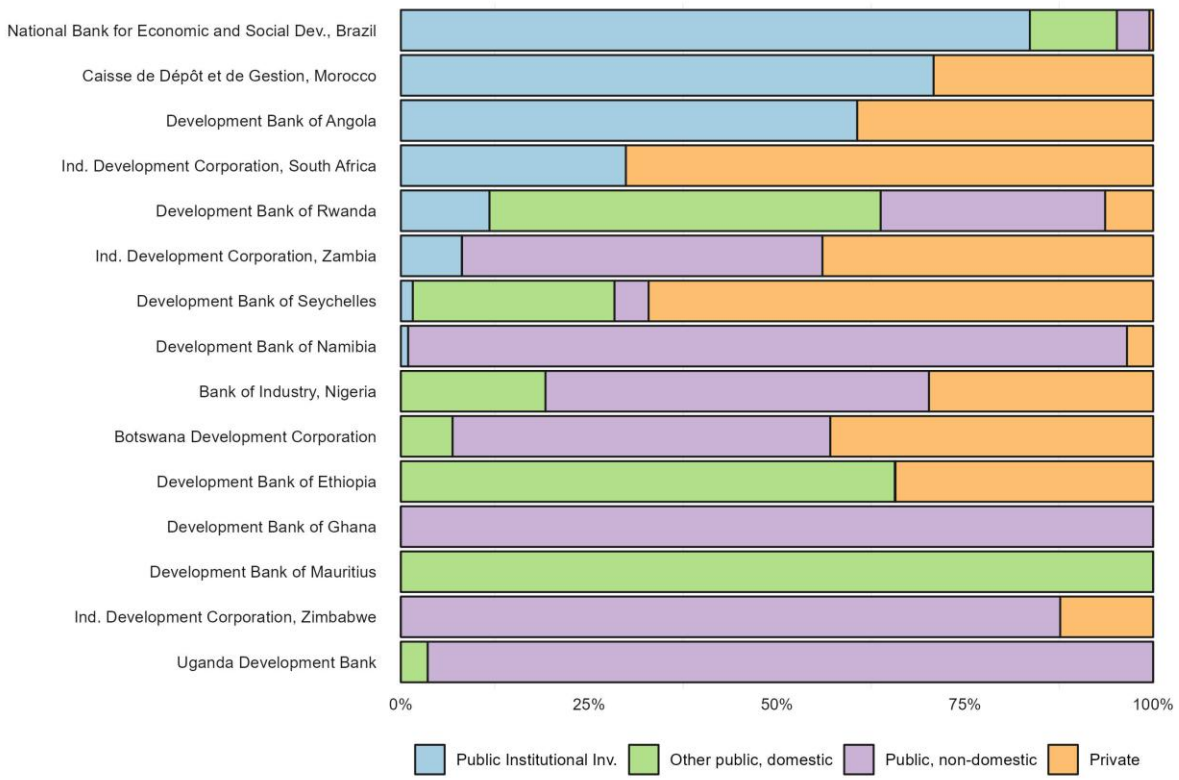


Figure 4. Sources of external (non-equity) finance (2023)

Source: authors from banks' financial statements

In the case of South Africa's IDC, as will be explained later, PIIs' provision of financing comes in the form of bond purchases from the country's social security fund manager, PIC, and the Unemployment Insurance Fund (through PIC). In the case of Rwanda, PIIs' (non-equity) finance comes through a loan from the Rwanda Social Security Board, while in the case of the Industrial Development Corporation of Zambia, the Development Bank of Seychelles, and the Development Bank of Namibia, it relates to funds under management of the respective development bank, some of which originate in insurance and pension schemes (e.g. National Pensions Scheme Authority on-lending facility provided to Zambia's IDC). CDG is a hybrid institution which collects savings, pensions, and deposits from the legal professions and consignations while investing in strategic ventures.

It is worth noting that almost all DFIs considered leverage government and central bank resources as a source of external funding. It constitutes a significant source of funding for the Development Bank of Rwanda, the Development Bank of Ethiopia, and the Development Bank of Mauritius. In the cases of Rwanda and Ethiopia, the banks receive funding from both the government and the central bank. In the case of Mauritius, domestic public finance primarily comes from government loans. Apart from the above, another source of external funding is resources from foreign DFIs, which in most cases are MDBs. That is particularly the case of the Development Bank of Namibia and the Development Bank of Ghana, where non-domestic DFIs contribute to virtually 100% of total external funding. However, in the case of Ghana, the bank's strong equity position backs most of its investments and reliance on borrowings is limited.

In contrast, Namibia receives credit lines and facilities from KfW and AfDB, which constitute important backing of the bank's operations and debt exceeds equity by 60%. In the case of Uganda, the bank is able to leverage funds from multiple MDBs such as the AfDB, the Arab Bank for Economic Development in Africa, and the Islamic Development Bank. However, as noted above, with a debt-to-equity ratio of 0.21, its strong equity position does not make external sources of funding particularly critical. The Bank of Industry of Nigeria sources funds from the AfDB and the AFD, while the Industrial Development Corporation of Zambia is strongly supported by funding originating from Chinese state-owned entities such as the Export-Import Bank of China[15].

DFI	Debt/Eq	LT-B	LT-L	Loan/Eq
National Bank for Economic and Social Dev., Brazil	3.45	0.83	0.44	6.56
Caisse de Dépôt et de Gestion, Morocco	17.03	NA	NA	4.75
Development Bank of Angola	0.93	0.78	0.89	20.56
Ind. Development Corporation, South Africa	0.47	0.14	0.22	0.27
Development Bank of Rwanda	4.26	0.83	0.49	11.98
Ind. Development Corporation, Zambia	3.75	NA	NA	Limited loans
Development Bank of Seychelles	1.40	0.59	0.51	Limited equity
Development Bank of Namibia	1.61	0.41	0.32	28.86
Bank of Industry, Nigeria	4.78	0.12	0.09	51.32
Botswana Development Corporation	0.87	0.52	0.01	NA
Development Bank of Ethiopia	3.32	NA	NA	651.56
Development Bank of Ghana	0.81	0.93	0.54	Limited equity
Development Bank of Mauritius	1.84	0.37	0.21	23.49
Ind. Development Corporation, Zimbabwe	0.23	NA	NA	Limited loans
Uganda Development Bank	0.21	0.1	0.47	225.84

Table 4. Balance sheet ratios (2023)

Notes: DFIs sorted by share of PII in borrowings (Figure 4). Debt/Eq refers to the debt-to-equity ratio. It includes all liabilities (interest- and non-interest bearing) as well as equity. LT-B and LT-L refer to the share of long-term borrowings/lending (>5 years) over total borrowings/lending. Loan/Eq corresponds to the ratio between the bank's investments held in loans over equity investment assets.

Source: authors from banks' financial statements

Most DFIs are able to access private sources of funding, in most cases through bond issuances and commercial bank lending. In the case of the Industrial Development Corporation of Zimbabwe, financing comes from two private banks. However, the bank barely makes any loans, with most of its activity concentrated in equity investment and property. This may explain its low level of borrowing, illustrated by a debt-to-equity ratio of 0.23. The Development Bank of Seychelles also shows a strong reliance on private sources of funding such as Al Salam Bank[16] or the Absa Bank. Most of the contracted private debt is, however, through bond issuances. In the cases of Botswana and Zambia, where private borrowings account for almost 50% of total borrowings, resources originate from

[15] Despite state-ownership, Chinese firms have been classified as 'private' in Figure 4 in order to limit the non-domestic public category for DFI-type entities.
[16] Note that Al Salam Bank is 30% owned by the Seychelles Pension Fund

private company loans for IDC Zambia, and commercial banks (SCB, First Capital, Gaborone)[17] in the case of the Botswana Development Corporation.

3.4. Domestic public sources of funding in five selected DFIs: IDC (South Africa), BRD (Rwanda), CDG (Morocco), DBM (Mauritius), and BNDES (Brazil)

Having provided an overview of the capital structures of these DFIs and the role of PIIs, this section provides further detail by examining five different domestic resource mobilisation configurations which use PII funding in relation to five DFI cases: South Africa's Industrial Development Corporation (IDC), the Development Bank of Rwanda (*Banque Rwandaise de Développement*, BRD), the Development Bank of Mauritius (DBM), the Caisse de Dépôt et de Gestion (CDG) of Morocco, and the National Bank for Economic and Social Development (*Banco Nacional de Desenvolvimento Econômico* e *Social,* BNDES).

Industrial Development Corporation, South Africa

The IDC is the largest DFI in South Africa. It was established in 1940 to steer the country's industrial development. As of 2023, it held total assets valued at R159.3bn (USD8.6bn), accounting for about 2.4% of the country's GDP (WB, 2023a). IDC has a close relationship with industry partners and makes direct loans for industrial projects, with 16.8% of its financial assets held in the form of loans and advances in 2023. The remaining 83.2% asset types mainly consist of equity investments in listed equity (31.3%), and (unlisted) associates (26.6%)[18]. One example of an investment in an associate is BAIC Automobile, a joint venture between IDC and the Chinese automobile manufacturer BAIC, established in 2016 with a 35% and 65% share each (IDC, 2023)[19]. Despite diversification efforts, the IDC portfolio has tended to remain largely concentrated in South Africa's core mineral-energy complex (Goga et al., 2019).

While IDC is owned directly by the government, its funding must come fully or substantially from off-budget sources. That is, the government makes no capital injections and shareholders' equity remains a very small portion of the corporation's total equity. As such, retained earnings and reserves account for about 98% of its total equity. As a result, the IDC must be self-sustainable, which limits its funding sources to borrowings and retained earnings, the latter coming primarily from dividends, disinvestments, and interest-bearing assets. While off-budget NDBs can enjoy greater operational flexibility (Amsden, 2001, Chapter 6), the IDC's single-shareholder structure means that it cannot rely on equity finance to improve its capital base in the way that other banks do (e.g. see BRD below), and it is therefore more exposed to volatile market conditions and the performance of its own portfolio.

The main public institutional investor in South Africa is the Public Investment Corporation (PIC) (Figure 5). PIC is a state-owned asset management corporation that pools together and manages assets on behalf of the Government Employees Pension Fund (GEPF), Unemployment Insurance Fund (UIF), Compensation Commissioner Fund (CC), Compensation Commissioner Pension Fund (CP) and Associated Institutions Pension Fund (AIPF). Out of these, pension funds constitute the largest share of total assets under management by PIC (88.9%), with R2.35tn. PIC investments combine domestic and global equity and bonds[20]. Domestic bonds are particularly tailored to established SOEs, while a

[17] In the case of Mauritius, the financial statement does not provide sufficient detail to specify the sources or indeed amount of private sourced borrowings and the figure should be taken as indicative.
[18] Listed equity investments refer to strategic publicly listed companies where no control over the company is sought, while investments in associates reflect a closer engagement between the IDC and the funded companies.
[19] Note that IDC equity investment is limited to 50% of ownership.
[20] PIC invests GEFP funds primarily in equity (61%) and bonds (33%).

large share of equity finance is directed towards listed firms. Unlisted domestic firms are financed through the Isibaya fund, which is developmental and holds R102bn in committed investments. The fund invests in 140 portfolio companies, focusing on housing, manufacturing, financial services, and renewable energy ventures (GEPF, 2023; PIC, 2023).

IDC has liaised with PIC to raise finance through bond purchases. As of 2023, PIC held R4.7bn in bonds issued by IDC while the Unemployment Insurance Fund held bonds from IDC (through PIC) valued at R4.1bn (IDC, 2023). Funds provided by the Unemployment Insurance Fund had an average interest rate in 2023 of 5.5% while PIC's accrued an 8.8% interest[21]. As noted in Section 3.3, in 2023 these borrowings accounted for nearly 30% of IDC's total borrowed resources. However, it is also important to note that, with a debt-to-equity ratio of 0.47 and considering the government does not make capital injections, these funds do not constitute a significant backing of the institution, which is largely reliant on the performance of its assets. In addition to providing direct funding, PIC and IDC have sometimes made investments in the same companies. Two cases are Spar Group and Sasol. In 2021, IDC provided a R150mn loan to Spar Group, while PIC held a 19,4% stake (IDC, 2022). IDC and PIC are the major shareholders of Sasol, holding 8.3% and 18.7% of total shares, respectively, as of 2023 (Sasol, 2023).

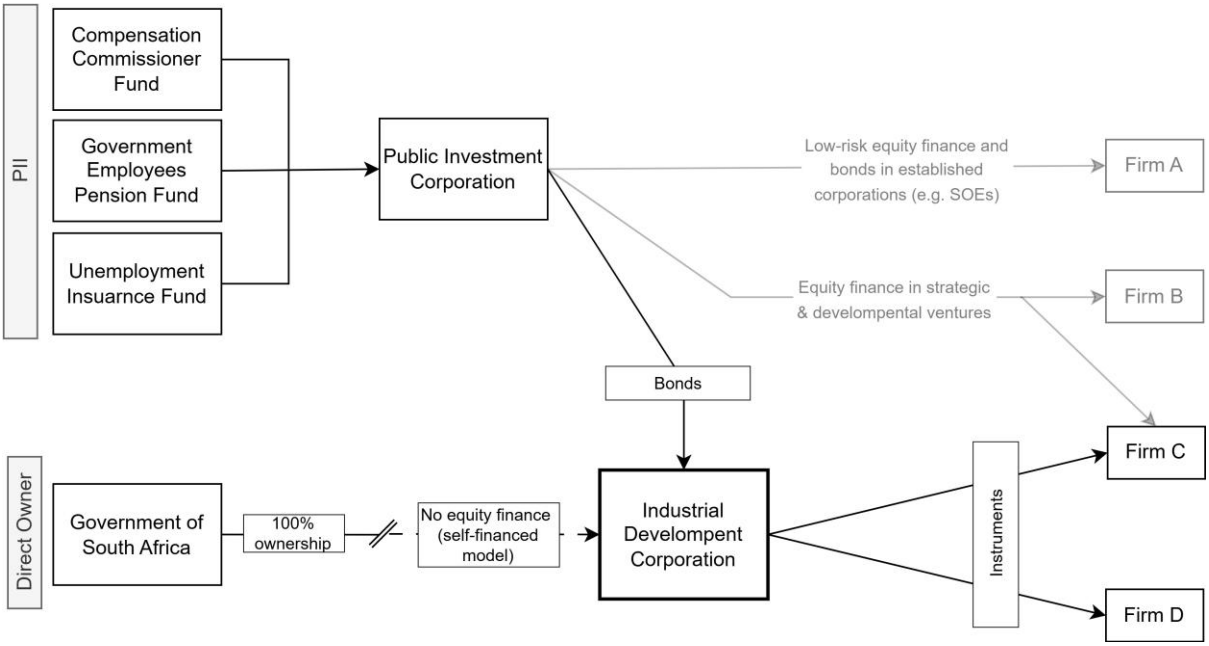


Figure 5. Domestic resource mobilisation, Industrial Development Corporation, South Africa

Notes: The Compensation Commissioner Pension Fund and Associated Institutions Pension Fund, which contribute PIC's portfolio, have been excluded for simplicity and due to their small contribution.

Source: authors from GEPF (2023), IDC (2023), PIC (2023)

[21] PIC purchased 'green bonds' to support IDC's investments in renewable energy projects in 2012, with a 14-year tenure and valued at R5 billion. UIF has been purchasing IDC bonds at least since 2009 as part of collaborative projects aimed at job creation (IDC, 2010; Reuters, 2012).

Looking at IDC's ability to lend over the long-term, the share of long-term (>5 years) lending over total lending stands at approximately 22%, which exceeds the proportion of long-term borrowings over total borrowings, which stands at 13.5%. It should also be added that equity investments, which as noted above are significant and greater than loans, are not reflected in the figure above yet are long-term in nature. Given that IDC does collect deposits from customers, liquidity to lend long-term must be backed by retained earnings, making it dependent on the balance sheet's performance. This also means that the growth in the loan portfolio of IDC is tightly linked to the performance of its balance sheet. By looking at liquidity gaps between lending and borrowing over shorter periods of time, the figure below suggests that needs for funds with maturities greater than four years are largely unmet by borrowings, while short- and medium-term excess lending can be matched with borrowings with maturities of less than four years.

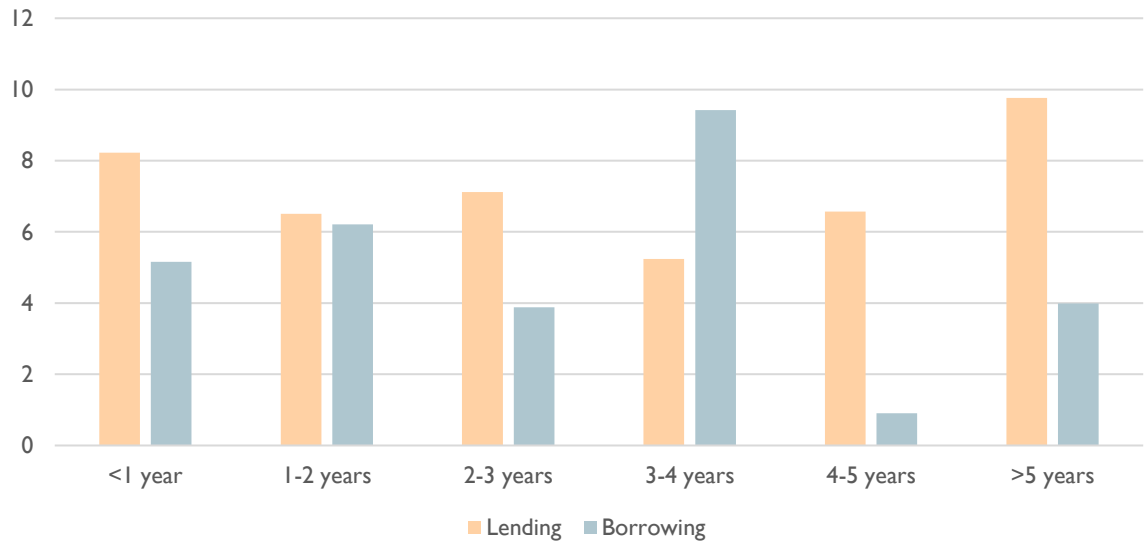


Figure 6. Maturity matching, loans and borrowings, Rand billion (2023)

Notes: The total value of borrowings is R29bn, and the total value of loans and advances R43bn (excluding expected credit losses on loans and on interest receivable).

Source: authors from IDC (2023)

Development Bank of Rwanda, Rwanda

Rwanda's main development finance institution is the Development Bank of Rwanda (*Banque Rwandaise de Développement*, BRD). BRD's asset valuation in 2023 was RWF 638.4bn (USD0.55bn), accounting for about 3.92% of the country's GDP (WB, 2023). Its loan portfolio aligns with national priorities by targeting export-based agro-processing, manufacturing, and diversifying the energy mix by promoting renewable energy projects. The two main loan recipient categories are 'special projects and infrastructure' and 'exports', followed by 'housing'. Lending instead of equity investment constitutes the primary activity of the bank, with the value of loans and advances in the asset portfolio in 2023 about 11 times bigger than equity investments. Equity investment is restricted to projects with a significant developmental impact and firms that need restructuring, and most of these investments are therefore made in unlisted companies.

As opposed to the IDC, the bank is owned by two public institutional investors, the Rwanda Social Security Board (RSSB) and the Agaciro Development Fund (AGDF), which respectively own 26.4%

and 71.9% of BRD[22] (Figure 7). RSSB coordinates social security benefits provision, including pensions but also occupational hazards insurance, maternity leave, health insurance, survivorship benefits, and non-occupational invalidity benefits. Agaciro is Rwanda's sovereign wealth fund. Both RSSB and AGDF invest through equity in established companies. RSSB's equity investments are distributed across a wide range of investment vehicles (e.g. Eastern Province Investment Corporation, Crystal Telecom), while AGDF holds equity shares in companies in sectors other than finance, for example in rice, tea or fertiliser production.

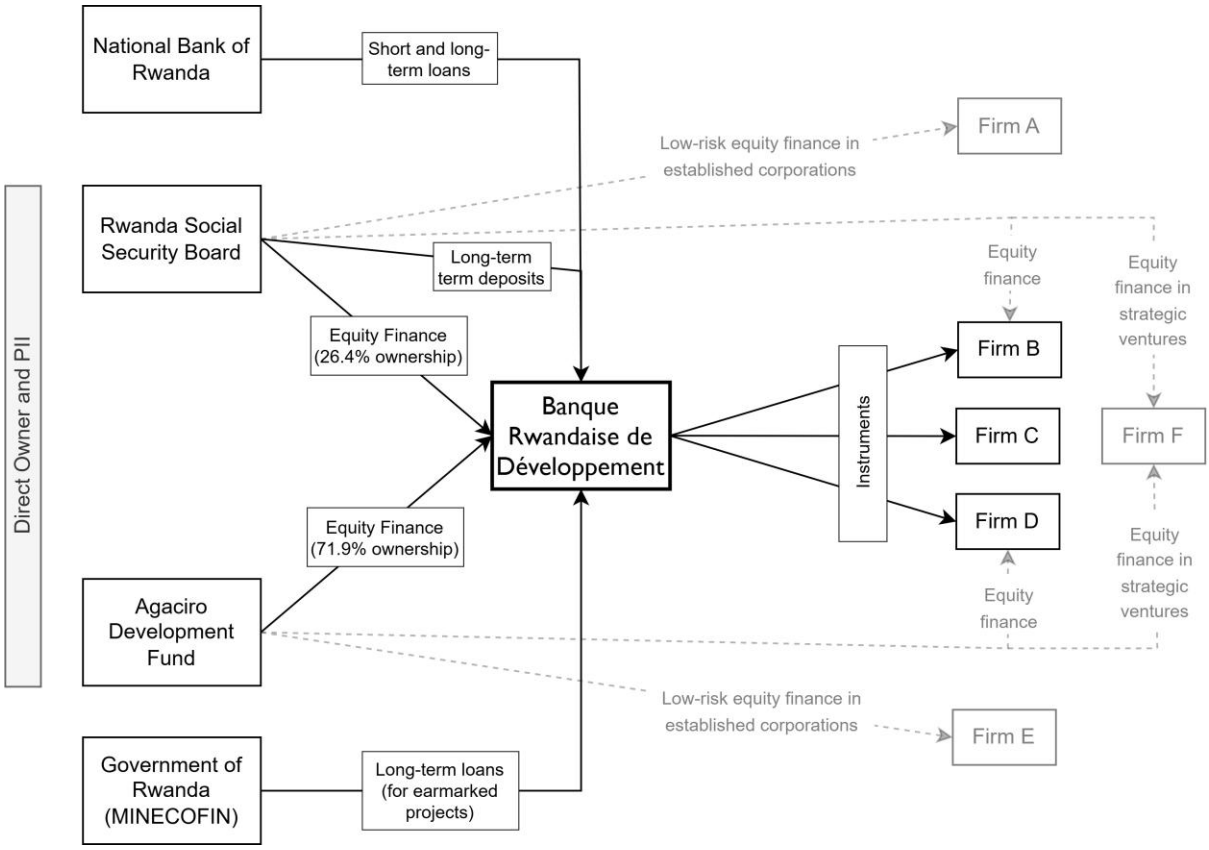


Figure 7. Domestic resource mobilisation, Development Bank of Rwanda, Rwanda

Notes: the demarcation of the instruments used by Agaciro and RSSB is simplified to highlight their primary use of equity finance. In some cases, especially in the case of Agaciro, in addition to equity finance, (limited) corporate loans and bond purchases are also undertaken. Their assets are, notwithstanding, primarily located in deposits, treasury bills, and (in the case of RSSB) real estate.

Source: authors from AGDF (2020), BRD (2023), RSSB (2019)

In 2017, equity finance of RWF35bn provided by RSSB contributed to strengthening BRD's capital base, which allowed the bank to withstand on-lending operations at a time when forex-associated losses were undermining the bank's solvency position. Moreover, in 2017 RSSB provided term deposits for about FRW58.8bn maturing in 2032 at an effective rate of 10.5% (BRD, 2017, 2018)[23]. More recently, the BRD has received cheap funding from the Ministry of Finance and Economic Planning

[22] The remaining 1.5% is owned by several other institutions, including the Belgian Government.
[23] In 2017, the interest rate for short- and medium-term lending offered by commercial banks was 17.2% (WB, 2023b)

(MINECOFIN) through the state's budget targeted at (i) enhancing resilience in the face of the COVID-19 pandemic, (ii) agricultural transformation, and (iii) housing. These funds are provided at between 0% and 3.75% interest while RSSB term deposits accrue a 10.47% interest. Finally, BRD borrowings also include loans from the National Bank of Rwanda. In total, non-equity finance from domestic sources (RSSB, BNR, RSSB) accounts for 64% of total borrowings, where much of this relates to MINECOFIN's funding.

In addition, both RSSB and AGDF invest independently in Rwandan corporations but sometimes co-invest with BRD. An example of a firm that received funding from both RSSB and BRD is Inyange Industries, a diary manufacturer and subsidiary of the Rwandan Patriotic Front's investment arm Crystal Ventures Ltd. RSSB provided equity finance for Inyange's restructuring when the company faced high indebtedness, while BRD provided concessional funds to foster its exports through the Export Growth Fund (Behuria, 2018; TMEA, 2019). An example of a firm receiving funds from Agaciro and BRD is Kinazi Cassava Plant, a cassava processing company owned by both institutional investors (AGDF, 2021). Notwithstanding this, when RSSB invests directly into existing companies, primarily through equity, this is in large established corporations with low-risk profiles. As noted earlier, the AGDF's portfolio is more diversified and has a stronger focus on manufacturing ventures. In some instances, AGDF and RSSB have invested together in new strategic projects, such as OneWeb, which aimed at providing internet access to remote areas of the country (AGDF, 2020; RSSB, 2019).

BRD undertakes most borrowing with long-term maturities, which in 2023 constituted about 83% of total borrowings. On the other hand, the share of long-term lending over total lending was nearly 50%, as the lending portfolio is shorter and more medium-term. Notwithstanding this, the bracket with the largest value was loans with maturities of seven years or more, as shown in Figure 8 below. The large share of long-term borrowings over total borrowings helps BRD manage liquidity mismatches. In addition, the total loan book is significantly higher than borrowings, but as opposed to IDC, BRD can rely on capital injections or concessional funding coming from the state when retained earnings are not sufficient or the balance sheet weakens. This type of support was illustrated in 2023 when funding from MINECOFIN increased by almost FRW90bn. Moreover, BRD's capacity to raise funding from other sources (AFD, BADEA, and the issuance of a Sustainable-Linked Bond) have contributed to long-term borrowing exceeding long-term lending. Nearly 30% of BRD's borrowings came from non-domestic DFIs.

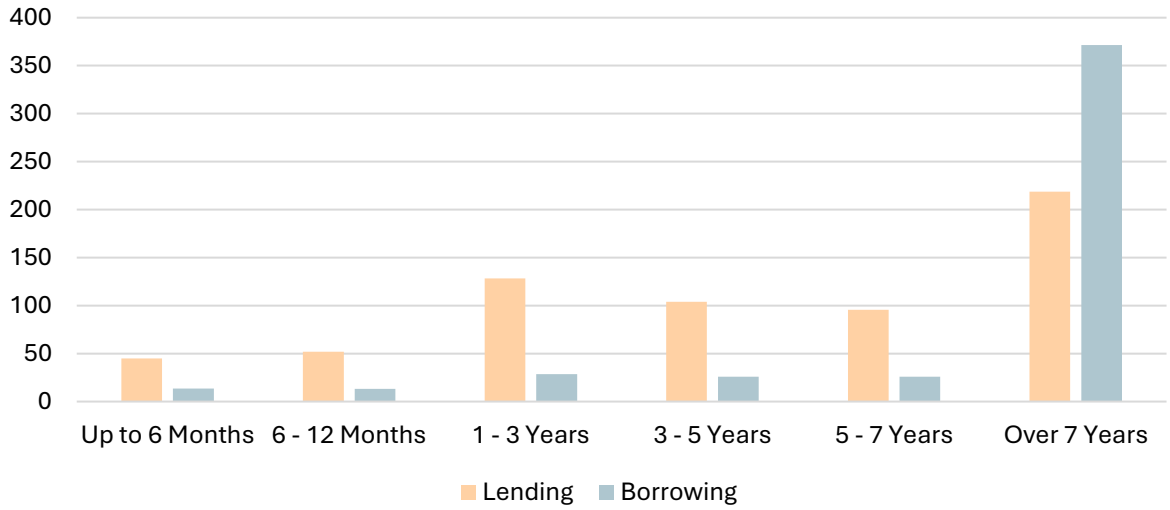


Figure 8. Maturity matching, loans and borrowings, FRW billion (2023)

Source: authors from BRD (2023)

Development Bank of Mauritius, Mauritius

The Development Bank of Mauritius is the main DFI in the country. It has played an important role in steering sectors in alignment with government priorities. Its total asset valuation in 2023 was Rs11.9bn (USD262mn), which accounts for about 1.8% of the country's GDP (WB, 2023a). The bank's main product is loans (long-term loans, loans for working capital, bridge loans, and start-up loans) and it makes limited investments through grants, equity financing, or guarantees. The DBM has historically played a key role in the country's EPZ and industrial hubs strategy by pioneering the construction of industrial sites, subsequently leased to import substitution and export-oriented industries (J. Y. Abor & Ofori-Sasu, 2024, Chapter 8). This may help explain why it holds a comparable share of its assets in the form of loans and property, which collectively account for 72.7% of total assets.

The state holds a 96.3% ownership stake in the bank, complemented by a 3.7% share owned by the State Investment Corporation, itself owned by the government (99.99%) and the DBM (0.01%). With an asset value of Rs9.4bn in 2022, the State Investment Corporation is the state's investment holding company providing equity finance to strategic ventures. The State Investment Corporation does not engage in loan disbursements, focusing instead on equity participation. As with the cases above, the interface between the State Investment Corporation and the DBM provides an opportunity to channel some of the former's resources towards industrial development ventures by leveraging DBMs' stronger involvement with industry partners and reliance on direct loans as its key financing mechanism.

In addition to equity from the government and the State Investment Corporation, DBM's borrowings are mainly owed to the government and the Bank of Mauritius. With respect to the government, funding has been channelled primarily through long-term loans, term deposits, and guarantees[24]. More concretely, out of Rs5.1bn in borrowings in 2023, Rs0.6bn are loans provided by the government at a cost that ranges between 1% and 10.5%, guaranteed by the government itself. Then, DBM holds a

[24] While the state can provide equity finance, it has not done so at least since 2018.

Rs1.8bn loan from the central bank (Bank of Mauritius), guaranteed by the government[25]. These funds, however, are earmarked towards the implementation of the Government Wage Assistance Scheme developed to assist workers during the COVID-19 pandemic.

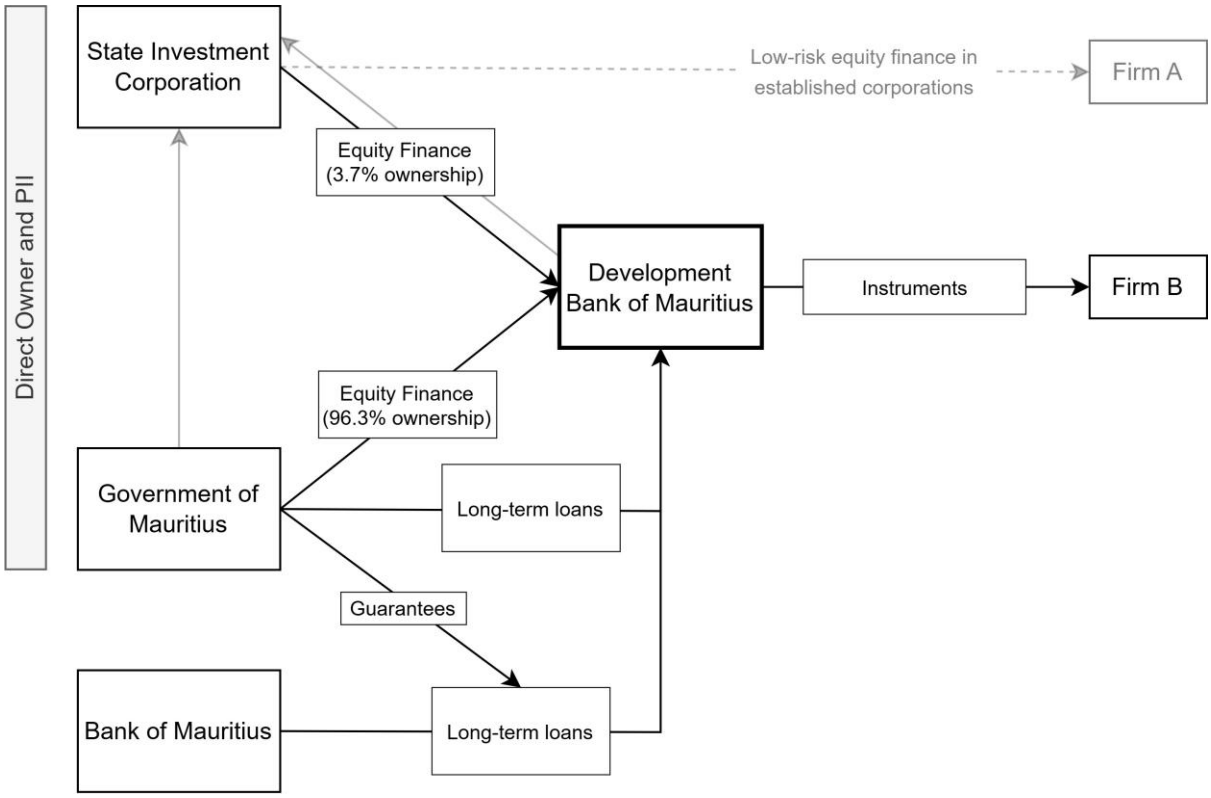


Figure 9. Domestic resource mobilisation, Development Bank of Mauritius, Mauritius

Source: authors from DBM (2023)

In contrast to IDC and BRD, in 2023 the Development Bank of Mauritius had a loan book that exceeded its borrowings. In terms of its capacity to lend and borrow long-term, the share of long-term loans over total loans, and long-term borrowings over total borrowings was 20.1% and 37.1%, respectively. This indicates that the bank does not fully leverage its long-term borrowing capacity to lend long-term. As a result, a net liquidity gap arises in both the 1 to 5-year and over 5-year brackets (Figure 10). This prudential lending policy could be aligned with the DBM's reliance on its returns for operational performance, with retained earnings accounting for 78% of the bank's equity, and relatively sound leverage, with a debt-to-equity ratio of 1.22. This can also reflect the bank's strong position in property assets, which account for 32% of total bank assets.

[25] The source of the remaining borrowings is not clearly stated in DBM (2023).

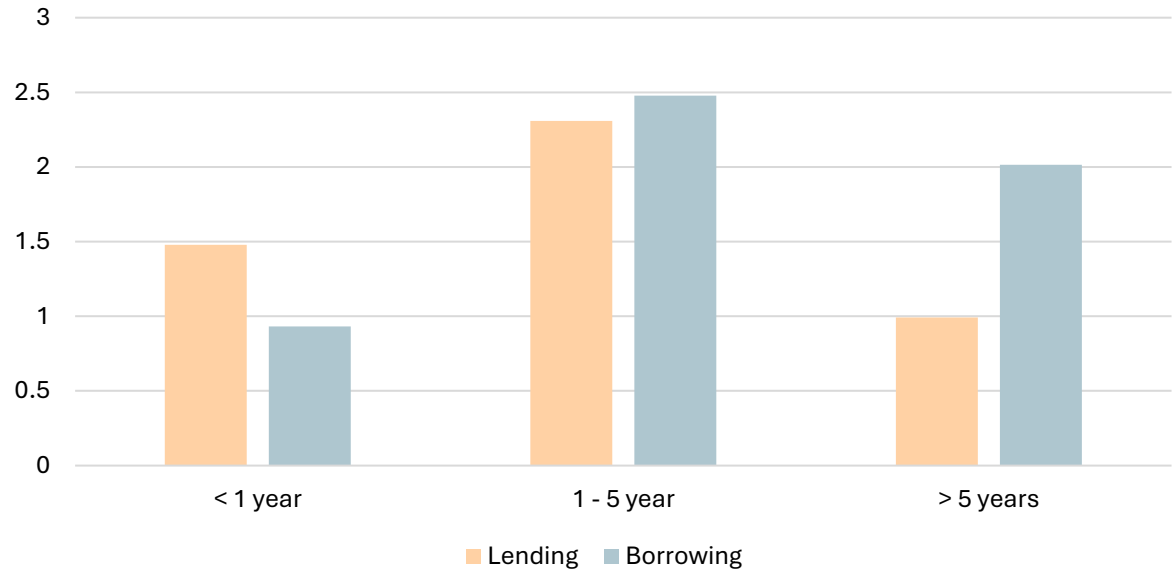


Figure 10. Maturity matching, loans and borrowings, Rs billion (2023)

Source: authors from DBM (2023)

Caisse de Dépôt et de Gestion, Morocco

The Caisse de Dépôt et de Gestion of Morocco is the largest DFI in Africa, according to (Xu et al., 2021). In 2023, it held assets valued at MAD335tn (USD35.1bn), which is equivalent to 24.3% of Morocco's GDP (WB, 2023). It is a state-owned long-term savings institution that invests in strategic areas in alignment with the government's priorities. For example, CDG contributed to the development of the Tanger Med Port, part of the country's industrial hubs strategy, by acquiring a stake in the Tanger Med Port Authority. It is also involved in manufacturing, for example by acquiring shares in the Renault-Nissan Tangier plant thereby helping anchor Renault's investment in the country and supporting the government's strategy to diversify towards the automotive sector (Oubenal & Zeroual, 2021). Apart from equity investment, CDG assets are mainly held in loan provision, which account for 28.9% of total assets.

CDG is 100% owned by the government. Its main source of funding is customer deposits, which account for nearly 60% of its liabilities (Figure 11). The other significant source of funding is credits with financial institutions (20.1%), while 4.5% of total liabilities accrue to debt securities. Deposits from customers largely originate from savings (National Savings Bank), pensions (National Social Security Fund), and deposits from the legal professions and consignations. Therefore, these sources provide resources that enable CDG to make long-term investments. In addition, however, CDG operates a banking business (CIH Bank) which acts as a universal bank, and which in 2023 held MAD74bn in deposits (approximately 37% of total customer deposits reported in the balance sheet[26]).

[26] It is unclear whether the two figures are based on the same valuation method and are therefore fully comparable.

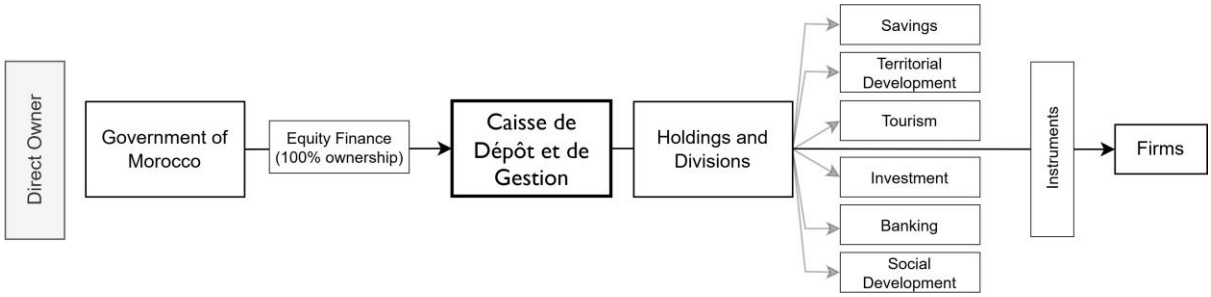


Figure 11. Domestic resource mobilisation, CDG, Morocco

Source: authors from CDG (2023)

To both collect and mobilise these resources, CDG is structured into holdings that operate five distinct business lines: Savings – Providence, Territorial Development, Tourism, Investment, Banking and Finance, and Social Development and Knowledge. The Savings – Providence branch manages customer deposits originating from pensions, insurance, and legal professions and consignations. The Territorial and Development as well as Tourism business lines are the main arms of strategic investment in local and regional projects as well as the development of the tourism value chain. CDG Investment is the main tool to invest in strategic ventures in alignment with government priorities. It is composed of subsidiaries that undertake different types of interventions.

CDG Invest is a private equity investor, CDG Invest Growth holds a diversified portfolio notably in SMEs and structured mid-sized companies, CDG Invest Management focuses on portfolio management, CIPAR Holding supports financial investments in large-scale projects and companies, and Name Holding focuses on industrial sectors with high export potential. In its banking businesses it operates several other subsidiaries. Apart from CIH Bank, mentioned above, CDG is involved in banking through CDG Capital (fixed income, bond issuance, consulting, mutual fund management, asset management), SCR (reinsurance), FINEA (loans for SMEs), JAIDA (microfinance), and AjarInvest (real estate). Finally, the Social Development and Knowledge division invests in knowledge promotion and skills development through the CDG Foundation and the International University of Rabat.

As such, the diversified holding structure brings together a remarkable source of funding from social security-related funds, notable both for its scale and long-term maturity structure, with divisions that mobilise these resources for investment in commercial areas through CIH bank as well as strategic areas through CDG Investment. CDG therefore operates a hybrid business model that combines a traditional public institutional investor profile, such as South Africa's PIC, and a DFI mandate to invest in developmental ventures, such as traditional NDBs.

National Bank for Economic and Social Development, Brazil

The National Bank for Economic and Social Development (*Banco Nacional de Desenvolvimento Econômico e Social,* BNDES) is amongst the largest DFIs in the world. Its assets were valued at R$738.8bn (USD147.9bn) in 2023, which is equivalent to about 6.8% of Brazil's GDP. Loans and on-lending are the largest single chapter in the bank's asset structure, accounting for 67.5% of total assets. The second largest is securities, largely led by government bonds (8.3%) and equity shares in companies where BNDES does not exert significant influence (10.4%), while a much smaller share of equity investment (0.2%) is held in a few companies where BNDES has a stronger influence through its subsidiary BNDESPAR.

BNDES is 100% owned by the federal government, and is linked to the Ministry of Development, Industry, Trade, and Services (Figure 10). Profit reserves account for about 25.8% of total equity, while share capital adds up to a further 54.5%. Share capital increased by 45% in 2023 as a result of the incorporation of a reserve for future capital increase, consisting of a portion of the profit appropriated from 2021 and without new share issuances. In terms of the bank's liabilities, a major source of funding has been National Treasury funds, which stood at R$33.8bn in 2023 and correspond to on-lending operations, in addition to the R$9.7bn in dividend and interest payables and the and R$8.7bn in instruments eligible for core capital, bringing the total budget-related funding to R$52.2bn.

But apart from the above, the primary source of funding is the Workers Support Fund (*Fundo de Amparo ao Trabalhador, FAT*). FAT collects unemployment benefits and insurance and is mandated to earmark 28% of the proceeds of this fund to BNDES. The mandate of the FAT has become, since it succeeded PIS-PASEP, to address unemployment on two fronts. The first front refers to the provision of unemployment support (compensation and training), while the second aims to prevent unemployment by creating new jobs through economic development. In addition to the 'Constitutional FAT', there is a second line of funds named 'Special Deposits' which FAT provides to BNDES under specific programmes and conditions, which is much smaller in comparison to the former. On the other hand, funding from the National Treasury has fluctuated significantly over the past decade (it accounted for as much as 56.3% of total liabilities in 2015 (Ferraz & Coutinho, 2019)).

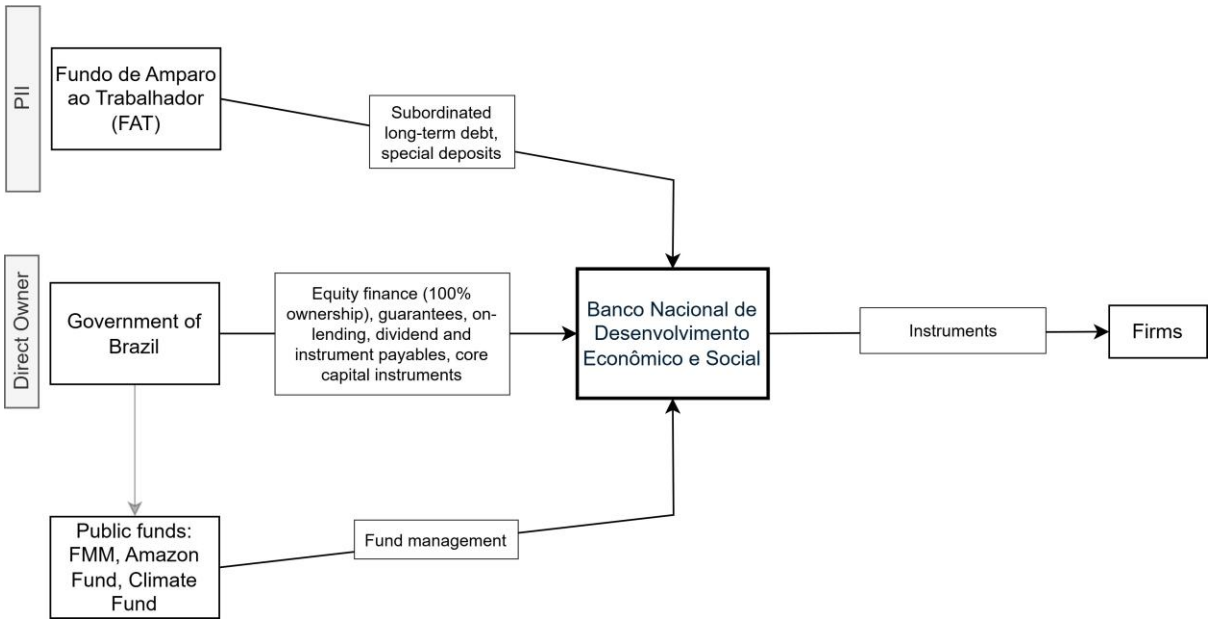


Figure 12. Domestic resource mobilisation, BNDES, Brazil (2023)

Source: authors from BNDES (2023)

In contrast, FAT has been a historically significant source of funding for BNDES. In 2023, it totalled R$402.1bn (R$397.4bn Constitutional FAT and R$4.7bn special deposit), which accounts for 55.7% of total liabilities. FAT funding is denominated at different interest rates. In 2023, 97% of the Constitutional FAT resources were denominated at the long-term interest rate (TJLP), long-term rate

(TLP), and the average rate of the Special Settlement and Custody System (SELIC)[27]. At the end of 2023, the TJLP stood at 6.55% and the TLP at 5.56%. This is in stark contrast to the commercial bank lending rate of 43%, amongst the highest in the world (WB, 2023).

Then, in addition to National Treasury and FAT, BNDES receives funding from other government sources, in particular the Investment Fund for the Government Severance Fund (*Fundo de investimento do Fundo de Garantia do Tempo de Serviço – FI-FGTS*). Through Caixa Econômica Federal, FI-FGTS subscribed to an issuance of 700,000 debentures from BNDES in 2008 with a 2023 outstanding value of R$567.2mn. And the Government Severance Fund (Fundo de Garantia do Tempo de Serviço – FGTS), for which BNDES holds liabilities with the FGTS for a loan it sourced to purchase government bonds back in 2008, with an outstanding value of R$1bn in 2023. BNDES also manages resources from the Amazon Fund, the National Climate Change Fund, and the Marine's Merchant Fund, which together totalled R$26.3bn. One more way the government supports BNDES' capital structure is by guaranteeing some of the funds it raises from other actors, mainly multilateral development banks. However, funding originating in foreign DFIs is limited in comparison to the support provided from FAT, and stands at 4.3% of total borrowings. Similarly, private domestic or non-domestic funding stood at 0.5% of total borrowings in 2023.

In terms of long-term lending, the ratio of long-term lending over total lending is 43%, while the ratio of long-term borrowing over total borrowing is 83%. The high rate of long-term borrowing is due to the FAT subordinated debt instrument, of which a significant portion has no specific maturity date and repayments will be made only in the case of a shortage of funds to honour the commitments of the unemployment insurance programme. This, combined with its low interest rate, enables cheap and long-term secure funding for BNDES. Potential short-term liquidity mismatches are balanced by short-term government bond security assets, most of which have less than one-year maturity dates in 2023. Moreover, long-term borrowing enables equity investments in established strategic companies such as PETROBRAS or EMBRAER. It also permits a positive lending-to-borrowing ratio for short- and medium-term maturities. Including subordinated debt, BNDES has a high leverage, with a debt-to-equity ratio of 3.5.

[27] TLP replaced TJLP as of 2018. TLP corresponds to the inflation-adjusted interest rate on 5-year government bonds. The Selic rate is the Central Bank overnight rate (IMF, 2024).

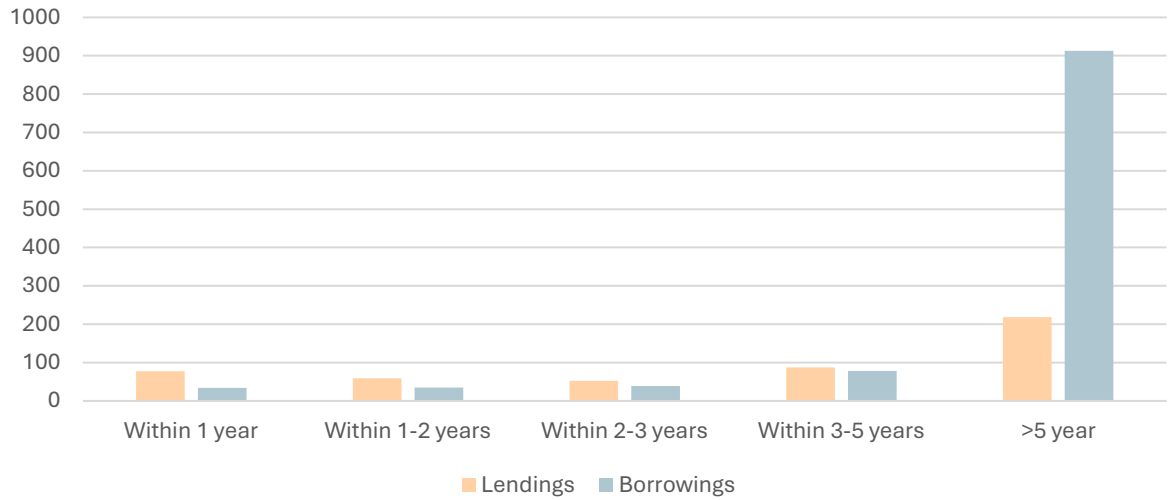


Figure 13. Maturity matching, loans and borrowings, R$ billion (2023)

Source: authors from BNDES (2023)

4. Discussion

Consistent with Attridge et al. (2021)'s findings, most DFIs considered in the present paper are fully owned by their respective central government entities. However, some DFIs operate under different shareholding structures and in some cases the central bank directly owns a stake in the DFI, such as in the Bank of Industry of Nigeria. The role of PIIs in equity is limited to three of the 15 cases considered: the Development Bank of Rwanda, of which 26.4% is owned by the Rwanda Social Security Board and 71.9% by the Agaciro sovereign wealth fund, the Industrial Development Corporation of Zimbabwe, whose ownership has recently been transferred to the country's sovereign wealth fund Mutapa, and the Development Bank of Mauritius, where the State Investment Corporation holds a 3.7% stake.

In terms of borrowings, out of the 14 African DFIs considered, 7 made use of PIIs' resources for financing their operations. Out of these, PII funding was most important for the Development Bank of Angola and Morocco's CDG. The former receives funding from the National Development Fund in the form of subordinated debt, which accounts for more than 50% of the bank's external (non-equity) funding. CDG operates as a hybrid institution, itself collecting social security savings that constitute a significant portion of the bank's capital structure. PIIs' funding for the Industrial Development Corporation of Zambia, the Development Bank of Seychelles, and the Development Bank of Namibia relates to funds under management, some of which come from insurance and pension schemes. In these cases, the total contribution of PIIs is testimonial, and they rely on other sources of internal and external finance instead. In the cases of IDC-South Africa and the Development Bank of Rwanda, borrowings originating in PIIs' funding range between 10%-30% of total borrowings, constituting an important but not critical source of funds.

The analysis of non-equity external funding sources has also shown how different their funding models can be. All banks rely on domestic public funds, mainly leveraging funding channelled through central government ministries or the central bank. Some banks are able to attract (and are dependent on) funding from foreign DFIs. Extreme cases are the Uganda Development Bank and the Development

Bank of Namibia, which owe over 90% of their non-equity commitments to public non-domestic sources of financing. Borrowings do not always originate in the same DFIs, for instance while the AfDB, AFD and KfW feature prominently in many DFIs, the Industrial Development Corporation of Zambia relies at a much larger scale on Chinese entities such as the Export-Import Bank of China. The figure of non-domestic external funding should be considered with the recognition that, in many cases, borrowings are guaranteed by the state. For example, in the case of Nigeria, direct public funding (i.e. from the Central Bank of Nigeria) accounted for 26.2% of the total Bank of Industry's borrowings. However, if borrowing guaranteed by the CBN with third parties are included, the figure rises to 52%. Finally, private sources of financing are also an important source of external funding for some banks, in most cases through commercial bank lending.

The analysis of four selected African DFIs, in comparison with BNDES, has provided a clearer view of the various DFI-centred domestic resource mobilisation configurations and the role of PIIs within them (Table 5). The cases show that the type of engagement between DFIs and PIIs is not homogeneous. BNDES reliance on FAT funds constitutes a significant backing of the bank's balance sheet because, first, it comes at a low interest rate, and second, it comes in the form of subordinated debt, a significant part of which has no maturity date and does not have to be returned unless the funds are needed to honour the financial commitments of the unemployment insurance programme.

	Instrument	**Relevance**	**Maturity** (borrowings)	**Interest rate** (borrowings)	**Earmarked**
IDC-South Africa	Bond purchases Co-investment	29% borrowings	14 years (PIC) NA (UIF)	8.8% (PIC) 5.5% (UIF)	Renewable energy (PIC) Employment generation (UIF)
Development Bank of Rwanda	Equity finance Term deposits Co-investment	100% Equity 11.8% borrowings	15 years	10.50%	No
Development Bank of Mauritius	Equity finance	3.7% Equity	-	-	No
CDG, Morocco	Direct deposit-taking	70.8% borrowings	No maturity date (deposits)	NA	No
BNDES, Brazil	Subordinated debt	83.6% borrowings	Either long-term or no maturity date	TJLP/TLP/SELIC	No

Table 5. PIIs involvement in the 5 selected DFIs, summary

Source: authors

This type of PII-DFI engagement differs from the arrangements observed in South Africa's Industrial Development Corporation and the Development Bank of Rwanda. Non-equity funding from PIIs to these banks is less significant in scale, accounting for 11.8% of BRD's total borrowings (including RSSB loans and funds under management coming from the Economic Recovery Fund and the Rwanda Green Fund) and nearly 30% by IDC. Moreover, IDC's case shows that domestic PII funding can come at varying costs depending on the source, with the average interest rate of IDC bonds purchased by the Unemployment Insurance Fund at 5.5%, compared to 8.8% for those purchased by the Public Investment Corporation. Finally, PII funds in Rwanda and Mauritius are directed towards strengthening the equity base of their respective development banks.

The instruments used by PIIs to engage with DFIs affect the strength of the latter's balance sheet and may help explain differences in their ability to borrow long-term and at a cheap cost. This is the case of BNDES, whereby its reliance on the subordinated debt instrument through which FAT resources are channelled significantly increases its leverage ratio. But it also contributes to a very high share of long-term borrowings over total borrowings of 83%. The BRD features similar characteristics but with a different capital structure, with a debt-to-equity ratio higher than BNDES (4.26 against 3.45) and a similar long-term borrowing capacity, also at 83%. In the case of IDC, its lack of access to budget transfers through equity finance makes it particularly reliant on the performance of its assets. Perhaps this explains its low leverage, with a debt-to-equity ratio of 0.47, as well as its low share of long-term borrowings, at14%.

The cases have also helped position the role of PIIs in relation to complementary financing provided from other sources, and the ability of DFIs to diversify their funding sources. The Development Bank of Rwanda perhaps represents the most complex model, blending various public sector financing instruments in complementarity with PII resources. PIIs provide equity financing through the RSSB and the Agaciro wealth fund, but the bank enjoys a diversified composition of domestic and non-domestic public finance. In addition, the RSSB provides loans, while both RSSB and Agaciro co-invest with BRD in strategic ventures. Moreover, PIIs' involvement is complemented with non-equity finance provided through the National Bank of Rwanda in the form of short- and long-term loans, as well as long-term loans for earmarked projects coming from the government. In total, there are up to four different public sector entities engaged in strengthening BRD's balance sheet (RSSB, Agaciro, National Bank of Rwanda, and the government through MINECOFIN).

This highlights another area of overlap between PIIs and DFIs, as they occasionally co-invest in the same firms. While PIC and Agaciro allocated funding towards developmental ventures in manufacturing sectors, their business model seeks low-risk long-term returns and, together with RSSB, investments are concentrated in listed equities and other low-risk asset classes. Sometimes, this means investing in strategic established corporations, and due to the mandate of DFIs to invest in areas targeted by the government, this often entails some degree of co-investment between PIIs and DFIs. This is also the case with PIC and IDC in South Africa, where both financial institutions are exposed to strategic players in the economy through joint equity stakes. Investing in listed equity is typically conceived as a source of secure long-term revenue, but poor performance by these companies can create systemic risks by affecting both PIC's and IDC's income and balance sheet positions.

Finally, the cases of the Bank of Industry of Nigeria and the Development Bank of Mauritius show two more types of domestic resource mobilisation configurations that do not strongly rely on PIIs (or not at all, as is the case with BoI). The Development Bank of Mauritius has a cross-ownership position

with the State Investment Corporation, where DBM holds 0.01% of SIC and SIC holds 3.7% of DBM. From this perspective, the role of SIC is limited and, instead, the case shows a strong reliance on both the government and the central bank as key sources of funding. Similarly, the BoI also relies on the central bank and the government for external funding provision, which jointly provide loans, guarantees, and deposits. But in addition to this, it relies strongly on foreign sources of funds, especially from DFIs, which collectively account for about 51% of the bank's borrowings.

5. Conclusions

While the role of DFIs in steering structural change in Africa is receiving greater attention, realising their potential depends on easing capital structure constraints related to both the scale and composition of available funding. Proposals to leverage foreign sources of funding seem to assume a structural deficiency in the potential for raising and mobilising domestic resources. Recent work has challenged this assumption by drawing attention to the presence of long-term asset pools in low-income countries in the form of public institutional investor funding. In line with this, this paper has examined the role of public institutional investors and the paradox whereby these actors, despite holding long-term liabilities, engage in reverse maturity transformation by allocating capital to short- and medium-term assets, while investing in safe assets such as listed equity or government bonds. Effectively linking PIIs and DFIs could therefore help mobilise these 'dormant' resources in support of structural transformation efforts.

The empirical evidence provided herein indicates that PIIs' participation in DFI funding or equity structures is not widespread across the 15 cases reviewed, although it is more common than previously expected. Aside from the case of BNDES, provided as a comparator, the Development Bank of Rwanda, the Development Bank of Angola, Morocco's CDG, South Africa's Industrial Development Corporation, and the Development Bank of Mauritius, have all leveraged resources from PIIs. Indeed, while most DFIs considered are owned by their respective central government entities, their external funding sources are heterogeneous as they draw in different proportions from public domestic and international entities as well as private sources. In addition to the 'breadth' of PIIs' involvement, in the sense of the number of DFIs making use of PII funding, their 'depth' shows that some DFIs have indeed made PII funding key to their operations, while for others they remain a complementary source of domestic public finance.

In this vein, a closer analysis of PIIs' engagement in DFI capital structures confirms that they can be a significant source of low-cost, long-term financing, helping to strengthen DFIs' balance sheets. This is evident in the cases of BNDES, CDG, and the Development Bank of Angola, which manage resources originating from the Workers Support Fund, social security funds, and the National Development Fund, respectively. In the case of BNDES and the Development Bank of Angola, these resources take the form of subordinated debt, much of which only has to be returned under specific circumstances (in the case of BNDES) and does not have a set maturity date. This has enabled these three banks to hold the largest share of long-term borrowing over total borrowing in the sample and, in the cases of CDG and BNDES, relatively high equity investments. However, not all PII involvement takes this form. The case of South Africa's IDC and the Development Bank of Rwanda indicates that PIIs can be an important but not critical source of funding. The case of BRD is particularly illustrative of how a complex blend of distinct public funding sources and instruments can complement each other to support DFI's performance.

As a result, this research contributes to the literature by providing evidence on the PII-DFI link in selected African DFIs. It helps unpack the role of PIIs in financing structural transformation, showing that while, as expected, PII's involvement brings benefits due to the typically long-term and low-cost nature of the finance they can provide to DFIs, their impact on DFIs' balance sheet position depends on two key aspects. First, the type of instrument used. The cases show that not all PIIs supporting DFIs' capital structures use the same instrument, and distinct instruments yield different implications for the DFIs' balance sheets. The contrast between IDC's reliance on bond issuances and BNDES use of subordinated debt illustrates this point. The second is that PIIs' support must be understood as part and parcel of a broader system of domestic resource mobilisation that DFIs can leverage. The case of the Development Bank of Rwanda, which uses up to four complementary public sector funding sources to strengthen its capital base, further demonstrates this point.

Finally, this research is not without of limitations. The fact that the study does not cover the full range of DFIs in Africa limits the scope for generalisation. Also, relying primarily on 2023 as the source of evidence may have led to the omission of important historical context. While the detailed case studies aimed at addressing this potential bias, further research could help build empirical evidence that may complement or refine the findings by increasing coverage both in time and space. Moreover, the current methodology has prevented engaging with deeper causal explanations of why PIIs, even in countries with long-standing and very capable DFIs such as South Africa, do not take a more proactive role in financing structural change through DFIs as the current argument would suggest logical. We hope further research can shed light on these areas of inquiry.

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Appendix I: Harmonising financial reporting conventions across DFIs

The table below shows the components included in each source of financing for the 15 selected DFIs, along with comments, including caveats and assumptions about the harmonisation of reporting practices.

DFI	Public Institutional Investor	Other public, domestic	Public, non-domestic	Private	Notes
BNDES	Workers Support Fund (FAT), financial and development funds, financed insurance premiums payable to the Export Guarantee Fund	Borrowings and onlending (except with foreign multilateral institutions and private lenders); liabilities for the acquisition of government bonds	Onlending with foreign multilateral institutions	Foreign borrowings (bonds)	-
CDG	Customer deposits	-	-	Amounts owed to credit institutions and similar entities; Debt securities issuances	CDG customer deposits, assume all from PII but in fact some from CDG capital/banking; In case of borrowings, the lender is not reported, it was assumed it was private
Development Bank of Angola	National Development Fund	-	-	Tripartite funding provision combining public domestic institutions and commercial banks	Two main financing arrangements where the public sector essentially acts as guarantor, one tripartite agreement with SMBC (Japan) and the Japan Bank for International Cooperation, the second one between Deutsche Bank and the Ministry of Finance
IDC-South Africa	Bonds purchased by PIC and the Unemployment Insurance Fund	-	-	Public bonds and foreign loans	Assume that foreign loans, rand-denominated loans, and public bonds primarily have private buyers
BRD, Rwanda	RSSB + Economic Recovery Fund from CB and Rwanda Green Fund	MINECOFIN and Central Bank	Foreign DFI lending	Private sustainable bonds,	-
IDC-Zambia	Life insurance fund, and funds borrowed from the National Pensions Scheme Authority	-	Foreign DFI lending	Corporate (including banks) lending	-
Development Bank of Seychelles	Solar PV project and Seed capital grant on behalf of the government, both funds	Borrowing from the government, including Nouvobanq; private sector	EIB lending, EU fisheries, AFD, SBFA, Blue investment, and SBSF fund;	Bond issuances; commercial bank lending	Consider Nouvobanq as public due to 78% government ownership; Bond issuances are guaranteed by the government

		relief scheme (CBS)	UNFCCC green climate fund		
Development Bank of Namibia	New Energy Fund	-	KfW credit lines and loan, AfDB credit facility	Bond issuance	-
Bank of Industry, Nigeria	-	Central Bank loans,	AfDB line of credit, Afrexim Bank loan, African Finance Corporation and Standard Chartered Bank loan (guaranteed by AFC), AFC lending	Euro Bond	Government guarantees are provided for DFI and private loans; AFC is 58% owned by the public sector
Botswana Development Corporation	-	Central bank and government loans	AfDB line of credit	Commercial bank lending	Excludes government grants; data for Botswana Development Bank should be treated with care due to differences in reporting as compared to other DFIs
Development Bank of Ethiopia	-	National Bank of Ethiopia and Ministry of Finance onlending	China Development Bank lending	Bonds issuance	Funds onlent by the Ministry of Finance originate from various bilateral and multilateral lending institutions
Development Bank of Ghana	-	World Bank and KfW lending	-	-	EIB also provided funding but they are not included in the balance sheet
Development Bank of Mauritius	-	Government loan, government-owned transferred property and liabilities, Bank of Mauritius Government Wage Assistance Scheme loans	-	-	-
IDC-Zimbabwe	-	-	Lending from the SINO-Zimbabwe Cement Company and 'other'	Commercial bank lending	SINO-Zimbabwe Cement Company is 65% owned by the China Building-Material Corporation for Foreign Eco-Technical Cooperation (CBMC) and the IDC. The financial statement includes 'other' in the same section as SZCC, without specifying the origin. It was assumed that the origin is public non-domestic.
Uganda Development Bank	-	Bank of Uganda refinancing facility	Foreign DFIs' lines of credit and loans, UNCDF Fund, EU grant	-	-

Table A1. Sources of financing for the 15 selected DFIs, components and notes

Source: authors

Centre for Sustainable Structural Transformation
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