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Identifying and Classifying Public Development Banks and Development Finance Institutions

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About the research program

This paper is published in the framework of the International Research Initiative on Public Development Banks (PDBs) and Development Financing Institutions (DFIs) working groups, part of the research program: "Realizing the Potential of Public Development Banks for Achieving Sustainable Development Goals".

This research program aims to deliver concrete policy recommendations to decision-makers on how to scale up Public Development Banks' potential at achieving the Sustainable Development Goals (SDGs). The academic research focuses on five major themes:

• Characterization of SDG-compatible investments
• Business Models
• Governance
• Financial regulation
• Global Development Finance Architecture

Partners and coordinators

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All the information about this program, and all working papers published are available at INSE's website: https://www.nse.pku.edu.cn/en/research/df/oaa/index.htm and AFD's website:
www.afd.fr/en/carte-des-projets/realizing-potentialpublic-development-banksachievingsustainable- development-goals.

Identifying and Classifying Public Development Banks and Development Finance Institutions

(**Consultation Version**)

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Abstract
Institute of New Structural Economics (INSE) at Peking University and Agence Française de Développement (AFD) are collaborating to build the first comprehensive database on public development banks (PDBs) and development finance institutions (DFIs) worldwide. The present database report aims to build on the inaugural New Structural Economics Development Financing Research Report titled "Mapping Development Finance Institutions Worldwide: Definitions, Rationales, and Varieties" to propose the principles of building a credible list of PDBs and DFIs; refine the qualification criteria; propose potential classifications of PDBs and DFIs to uncover their diversities; and present the stylized facts of establishment year, geographical distribution, mandate, asset size, relative economic weight in their respective economies, and so on.

Keywords
Public Development Bank, Development Finance Institution, Database,Typology, Identification, Classification

Résumé
L'Institut de la Nouvelle Economie Structurelle (INSE) de l'Université de Pékin et l'Agence française de développement (AFD) collaborent pour créer la première base de données complète sur les banques publiques de développement (BDP) et les institutions financières de développement (IFD) dans le monde. Le présent rapport sur la base de données vise à s'appuyer sur le premier rapport de recherche sur le financement du développement de l'INSE, "Mapping Development Finance Institutions Worldwide: Definitions, Rationales, and Varieties" afin de proposer des principes pour établir une liste crédible de BDP et IFD, d'affiner les critères de qualification, de proposer des classifications potentielles des BDP et IFD pour révéler leur diversité, et de présenter les faits stylisés : de leur année de création, répartition géographique, mandat, de la taille de leurs actifs, et de leur poids économique relatif dans leurs économies respectives, etc.

Mots-clés
Banque publique de développement, institution de financement du développement, base de données, identification, classification

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Disclaimer
The present database report is intended to embark on a consultation process with scholars, experts, and practitioners in the field of development financing to solicit feedback on the joint INSE-AFD database as well as on the definition, qualification criteria, and classification of PDBs and DFIs. Because we are still in the process of refining the identification of PDBs and DFIs worldwide, we are open to constructive suggestions for the refining of our database and report. Although researchers from INSE and AFD have completed the report, it does not necessarily represent the views of INSE and AFD. Please send your feedback to dfinse@nsd.pku.edu.cn.

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Executive Summary

The present research report aims to build on the inaugural New Structural Economics Development Financing Research Report titled "Mapping Development Finance Institutions Worldwide: Definitions, Rationales, and Varieties" to refine the qualification criteria and to propose potential classifications of public development banks (PDBs) and development finance institutions (DFIs) so as to uncover their diversities.

To distinguish PDBs and DFIs from similar institutional arrangements, we propose five qualification criteria based on their core features to identify PDBs and DFIs worldwide:

(1) They have a separate legal personality and financial account [in distinction with government credit programs and bilateral aid agencies without legal status].

(2) They deploy financial instruments such as loans, equity, guarantee, or insurance and ensure financial discipline of clients to sustain the DFI's operations [as distinguished from grant-making aid agencies].

(3) Their funding sources go beyond periodical budgetary transfers from governments (or DFIs have financial liabilities on their balance sheets) [as distinguished from execution agencies that primarily receive government budgetary transfers].

(4) They have a public policy-oriented official mandate [in distinction with commercial banks].

(5) They have government sponsorship (governments initiate or establish DFIs, sit on the Board of Directors to play a steering role in pursuing the development-oriented mandate, or provide the support for fundraising).

If an entity meets all the minimum criteria above, it can be qualified as a DFI. It is worth noting that (2) and (3) are interrelated, and (4) and (5) are interlinked. In the inaugural report, we first identify likely PDBs and DFIs by compiling members of DFI associations or quasi-DFI associations as well as organizations falling under the official category of DFIs in national banking systems. We complement this initial list with potential PDBs and DFIs identified by AFD's country offices where professionals possess local knowledge.
In this report, we operationalize all five qualification criteria consistently to all cases in our database to verify those that are qualified as PDBs and DFIs.

To ensure that we build a credible list, we propose three principles:

(1) Conceptual clarity is crucial in distinguishing identity from modality to avoid making an unduly broad or narrow list;

(2) It is important to ensure verification consistency of applying qualification criteria to avoid arbitrary decisions on whether to include some entities in our database;

(3) Dealing with borderline cases requires a case-by-case screening in which justification must be provided for inclusion or exclusion from the DFI list when such a decision goes against the standardized operational criteria.

After systematically identify PDBs and DFIs worldwide, we propose to classify them according to establishment year, geographical level of ownership and mandated operation, mandate, size of total assets, economic weight in national banking systems, financing structure, profitability, and assets per personnel. We have discovered the following key findings and stylized facts:

- There are about 500 PDBs and DFIs worldwide from about 150 countries with total assets of nearly $12 trillion.
- It is estimated that annual contribution of PDBs and DFIs to the financing of global investment was $2.3 trillion in 2018, accounting for about 10% of the world's investment.
- The landscape of PDBs and DFIs worldwide is clustered around a few large institutions and a myriad of small banks. Only 143 PDBs have a balance sheet in excess of $3 billion, which represents 98% of listed assets. A majority of PDBs and DFIs are small: 258 PDBs and DFIs have total assets of less than $1 billion and do not even represent 1% of the world's assets.
- China Development Bank is the largest public development bank in the world, with the total asset of $2.355 trillion in 2018, which is on a par with the largest American bank, J.P. Morgan. China's PDBs and DFIs total $4 trillion in assets, or 35% of the global total alone.
- The PDBs of the 27 European Union member countries, including their European Investment Bank (EIB) and European Bank for Reconstruction and Development (EBRD) regional banks, have a total of $3.950 trillion in assets, or roughly the same order of magnitude as the Chinese PDBs.
- Governments are keen to establish PDBs and DFIs to tackle crises. Besides having a countercyclical role and maintaining stability during unstable moments, development banks are also essential when the market is weak in recovery periods and still vulnerable to new shocks.
- PDBs and DFIs sprang up in the wake of World War II because developing countries in Asia, Africa, and Latin America were eager to achieve faster industrialization and create their own national DFIs after gaining political independence. But this momentum stalled in the 1980s when development banks came under fire following the debt crisis of the mid-1980s in the broader context of prevailing free market-oriented neoliberalism. There followed a peak in the 1990s when newly independent Eastern European countries were eager to establish PDBs and DFIs after the collapse of the former Soviet Union.
- We classify PDBs and DFIs into three categories according to ownership structure:multi-national, national, and subnational. Each of these can be divided in subcategories, depending on the geographical scope in which they operate. Indeed, there are four different geographies in which a particular PDB or DFI can operate: global, regional (or sub-continental), national, or local (a particular territory within national frontiers). A majority of both PDBs and DFIs are created by one country which operate at the national level.

Moving forward, we will periodically apply the five qualification criteria to identify PDBs and DFIs worldwide to update the list and combine diverse data collection methodology—including manual data collection, machine learning, and commercial database—to triangulate collected data and ensure the validity and accuracy of data.

Introduction

The present report builds on the inaugural New Structural Economics Development Financing Research Report titled "Mapping Development Finance Institutions Worldwide: Definitions, Rationales, and Varieties" to refine the qualification criteria and to propose potential classifications of public development banks (PDBs) and development finance institutions (DFIs) so as to uncover their diversities.[1]

We aim to make two main contributions: first, to refine the qualification criteria and operational indicators of PDBs and DFIs to distinguish them from similar institutional arrangements, including state-owned commercial banks with policy functions; and second, to classify PDBs and DFIs into different categories so as to uncover the vast diversity within the PDB and DFI family. This systematic effort to identify PDBs and DFIs worldwide will lay the foundation for rigorous academic research to distinguish PDBs and DFIs from alternative institutional arrangements and clarify the distinction across subgroups of PDBs and DFIs. To achieve the above goals, the Institute of New Structural Economics at Peking University (INSE) has collaborated with the French Development Agency (AFD) to create synergies between academic rigor and practical experiences.

The report proceeds as follows: Section I discusses the principles of building a credible list of PDBs and DFIs. Section II clarifies the confusions regarding the qualification criteria of PDBs and DFIs in the inaugural report and proposes how to refine the qualification criteria of PDB and DFIs. Section III classifies PDBs and DFIs into different subcategories according to establishment year, geographical level of ownership and mandated operation, mandate, size of total assets, economic weight in national banking systems, financing structure, profitability, and assets per personnel. Finally, we conclude with key findings and propose future action plans of the database-building project.

[1] The term DFI is used in Europe as a particular category of bilateral specialized financial institutions to support private sector development in developing countries that often have membership in the Association of European Development Finance Institutions (EDFI). This stands in contrast with other regions, especially in developing countries where DFIs are widely used in the World Federation of Development Finance Institutions (WFDFI), There also exists the Association of African Development Finance Institutions (AADFI), Association of Development Financing Institutions in Asia and the Pacific (ADFIAP), Association of National Development Finance Institutions in Member Countries of the Islamic Development Bank (ADFIMI), and Association of Development Finance Institutions in Latin America (ALIDE) on a global scale. Their members include most development banks as well as guarantee-, insurance-, and equity-only financial institutions. PDBs are a major type of DFIs because most DFIs provide loans. However, governments sometimes create nonbank financial institutions that primarily provide guarantees, insurances, or equity investments to achieve public policy goals. Because PDBs account for a majority of DFIs, we use the terms PDB and DFI in parallel.

1. Terminology: Why PDBs and DFIs?

There is no internationally agreed-upon terminology for qualifying public financial institutions that perform development financing. In Europe, the term for institutions that mainly finance private sector activities is development finance institutions (DFIs). But the term DFI is also used in the name of their regional associations of DFIs, referring to a much wider range of specialized financial institutions in pursuit of public policy objectives. This includes banks as well as guarantee-, insurance-, and equity-focused financial institutions carrying out a public policy financing mission on behalf of the state. To avoid confusion, we use "development financing institution" instead of "development finance institutions" as the generic term. Another generic term for this type of mission—especially in the multilateral world—is development banks or public development banks when referring to national institutions. These missions are highly diversified, but all fall in one way or another under the Sustainable Development Goals (SDGs) adopted by all United States Member States.

For the clarity of the report, we use "PDBs and DFIs" to refer to samples in our database. This term includes all public financial institutions falling under our proposed definition, including international finance corporations, multilateral development banks, national development banks, investment funds, and guarantee funds.

But both of the terms PDB and DFI are not universal. Depending on the country, institutions are sometimes referred to as policy banks or promotional banks, which are sub-categories in particular national banking systems that clearly separate these banks from commercial banks or business banks.

2. Principles of Building a Credible List of PDBs and DFIs

To ensure that we build a credible list of PDBs and DFIs, we propose the following three principles: conceptual clarity, operational consistency, and case-by-case verification. We will elaborate on each principle below.

First, conceptual clarity is crucial in distinguishing ‘identity’ from “modality” and to avoid making an unduly broad or narrow list. When building our database on PDBs and DFIs, the most challenging task is to distinguish identity from modality. By identity, we refer to the defining features of PDBs and DFIs that distinguish them from other institutional arrangements, such as government credit programs, aid agencies, and state-owned commercial banks. By modality, we refer to the different features within the PDB and DFI family that reveal their vast diversity.

Grasping the core features of PDBs and DFIs helps to avoid proposing a working definition that is so broad as to include institutional arrangements such as state-owned commercial banks with public policy functions in practice or so narrow as to exclude certain entities that possess essential features of PDBs and DFIs but exhibit some characteristics that are atypical in conventional ones, such as deposit-taking financial institutions established by governments with an explicit development-oriented mandate. The analysis boils down to the fundamental question of what PDBs and DFIs are.

Second, it is important to ensure verification consistency of applying qualification criteria to avoid arbitrary decisions on whether to include some entities in our database. One pitfall of building our database is that we include some entities from certain types of institutional arrangements but exclude others within the same type without providing justifiable reasons. For instance, cooperative banks and microfinance institutions may often have development-oriented mandates, but not all of them qualify as PDBs and DFIs if they are not sponsored by governments. To avoid making such an error, we need to apply the qualification criteria in a consistent manner.

Finally, dealing with borderline cases requires case-by-case screening. Though it is important to apply qualification criteria in a consistent manner, it is also misleading to apply these criteria in a mechanical way. Borderline or exceptional cases require a judgment call based on professional knowledge. In such circumstances, justification needs to be provided for the decision of inclusion or exclusion from the DFI list when such a decision goes against the standardized operational criteria. This verification process helps to ensure the transparency of our database-building procedure and encourage dialogue with experts and practitioners on ways to improve our database.

In summary, we have followed the principles of conceptual clarity, verification consistency, and case-by-case screening to build a credible list of PDBs and DFIs.

3. Qualification Criteria of DFIs

PDBs and DFIs are financial institutions that operate between the state and the market. At the end of the spectrum toward the state, there are aid agencies and credit programs administered by government agencies or ministries. These institutions are development-oriented and rely on regular funding support from governments. At the other end of the spectrum toward the market, there are commercial banks, investment banks, venture capital firms, and equity investment funds that are aimed at maximizing profit. Lying between the state and the market, PDBs and DFIs are at the intersection between finance and public policy because they are aimed at using market means to achieve development goals. We define PDBs and DFIs as government-sponsored financial institutions with the official mission to orient their operations to pursue public policy objectives. Hence, the core task of defining PDBs and DFIs is to draw dividing lines distinguishing PDBs/DFIs from government credit agencies and market-oriented financial institutions.

One of the initial difficulties in understanding the number and financial weight of PDBs is identifying them as a community of similar institutions. The broad range of their mandates, the reasons for their creation, their geographical locations, their funding sources, and their financial instruments do not enable them to be easily and immediately grouped together.

The INSE inaugural report proposes three minimum criteria for categorizing PDBs—namely, a legally independent and self-sustaining financial institution, the pursuing of public policy objectives, and the receiving of government support. In addition, we propose one other feature: long-term liabilities and assets. In short, we define DFIs as legally independent and government-supported financial institutions in pursuit of public policy objectives (Xu et al. 2019, 14–19).

Upon publication, the inaugural report has received increasing attention from scholars, experts, and practitioners from universities, think tanks, governments, international organizations, and PDBs and DFIs. Our pilot effort to build a comprehensive database on PDBs and DFIs in a rigorous manner has been increasingly recognized as a laudable endeavor by a wide range of stakeholders. We have also received constructive feedback that helps us to clarify confusions and improve the qualification criteria of PDBs and DFIs.

Through incorporating feedback from stakeholders, we have refined the qualification criteria as follows:

- **Legal:** The entity must have a legal status and separate financial statements, which helps to distinguish PDBs and DFIs from government appropriation programs or certain ministerial agencies.

- **Financial Instruments:** The entity must deploy financial instruments that have some reflow seeking component. Indeed, a ministry or a governmental agency will only rely on an annual budget to be spent as a one-shot operation. On the contrary, a PDB or a DFI will rely on financial instruments derived from loans, equity investments, or guarantees to the benefit of customers whose business model must permit repayment. This emphasis on financial discipline on clients does not prevent PDBs and DFIs from extending soft loans with subsidized interest rates, and it does not mean that repayments will have to cover the borrowing costs.

- **Funding Sources:** Without prejudice to its ability to manage the grants that it may be given, the entity must be able to finance itself beyond periodic budget transfers from governments, unlike grant-executing agencies.

- **Mandate:** Its official mandate must focus on fulfilling public policy in a proactive manner, which helps to distinguish PDBs and DFIs from state-owned commercial banks with policy functions. The former is created to specialize in development financing, whereas the latter should maximize profits and take development financing as a policy burden imposed by its shareholder—governments.

- **Government Sponsorship**: Government sponsorship can take various forms: one or more governments may create or initiate PDBs and DFIs, own all or part of their capital, offer support for financing, or sit on the board of directors.

This makes it possible to include a large population of institutions, which includes multilateral development banks that are owned by groups of governments, as well as (sub-)national banks or institutions owned by central banks, central governments, or local governments. It includes both development banks and guarantee-, insurance-, and equity-focused financial institutions with an official mission to promote development. Some sovereign wealth funds whose budget allocation and mission are often organized in a separate financing institution, but which have an investment thesis very close to that of a PBD. In addition, we include some deposit-taking PDBs in our database if they meet the criteria of all five qualifications even though deposit-taking may be conventionally regarded as a core feature of commercial banks. For instance, some public banks have the mandate to enhance financial inclusion, such as by setting up branches in underdeveloped regions of their own country. This is certainly a public concern and priority for social balance. It is of particular interest that these types of banks would be identified and supported in their struggle for more social SDGs.

There is a particular case for sufficiently autonomous subsidiaries of public development banks themselves to be included in our database. Several of these institutions have been created as specialized DFIs to finance their private sector activities. Their rationale is usually to account for this activity outside of the core business to protect themselves from the moral hazard that may result in the transferring of private interest to grants or subsidies. A soft loan to a private entity is unlawful in Europe because it twists fair competition among companies. In Europe, there are some strict constraints on the utilization of public subsidies or grants when the customers are private entities, which might not be the case in other countries. When these institutions have their proper financial and legal structure and governance, they are to be considered "autonomous" and are therefore part of the database.

Some issues may arise for institutions that, strictly speaking, are not public development banks, but which partially meet the criteria and carry out missions that are often similar to those of development banks. Although they are to join the battle for more SDGs in financing, we have decided not to retain the following in the database:

- Universal public commercial banks whose business model is based on managing a network of branches that collect funds, take household deposits, manage accounts, and provide services to individuals. Like their private counterparts, they usually engage in a business that leads them to invest in infrastructure or business financing. Due to the public ownership, governments may sometimes delegate state-owned commercial banks to undertake policy lending. But implementing development finance is not the proactive effort of these public commercial banks.

- Special funds financed by government stakeholders for investing in specific companies or infrastructure projects. These are financial vehicles created by the governments or the PDBs themselves to limit a specific activity. The China Development Bank or the French Caisse des Dépôts et Consignations (CDC) have created these types of funds.

- Some specialized government departments, which most often carry out missions like those of PDBs, finance development projects—possibly by granting loans—but their governance and modus operandi are the same as the government's.

3.1. Legal independence does not necessarily imply operational autonomy

The first qualification criterion proposed in the inaugural report is "independent legal status." The purpose of this criterion is to distinguish PDBs and DFIs from government credit programs. Some question this criterion of legal independence by arguing that some DFIs do not have legal independence due to their reliance on annual appropriation in the parliament. This critique confuses "legal independence" with "budgetary autonomy." For the purpose of our study, legal independence means that the entity has separate legal personality, can contract or borrow in its own name, and can sue and be sued (with possible immunities for governmental entities). Hence, we refine this criterion by using the more neutral phrase of a separate legal personality and financial account.

In judging whether an entity has an independent legal status, we determine whether it has articles of agreement (AA) or quasi-AA (which is not a legal document in a strict sense) upon their establishment in the inaugural report. This operational criterion is critiqued because in the United States even government credit programs are created by issuing a bill in Congress. We further refine the operational indicator by examining the description of the legal status in the AA or quasi-AA. We pay particular attention to those DFIs whose names contain "agency" or "fund" (contrasted with "bank" or "corporation") because agencies or funds are more likely to lack a separate legal personality.

The qualification criteria on a separate legal status is probably the most important criteria, but it is also quite a complex one. Indeed, the question is not limited to status and accounts. Dedicated staff is a question that the report does not yet consider, but it can be equally important to qualify a separate legal personality. The business model is also at stake. For example, the International Bank for Reconstruction and Development (IBRD) and International Development Association (IDA) component are two legs of the same institution. The very reason for the creation of the IDA is the need to separate the "banking activities" of the World Bank at cost, meaning with an operational margin on the cost of funds, from the "subsidized" activities, meaning dedicated to a short list of countries. Questions also arise from "Special Purpose Vehicles or Funds" created by governments or PDBs themselves to isolate a particular section on investments. Such is the case of the China-Africa Development Fund, created by the China Development Bank, or the Inframed Fund, created by French and Italian "Caisse des Dépôts" to support investment in Infrastructures around the Mediterranean area. A stricter criterion may include separate personnel as an operational indicator of a separate legal personality in the future.

3.2. Financial sustainability as a modality instead of an identity

In the inaugural report, we proposed "financial sustainability." Even though we provide a clear working definition of "financial sustainability" in our inaugural report in footnote 24—namely, that PDBs and DFIs do not primarily rely on fiscal transfers from governments as their funding sources, it is critiqued that this working definition is too narrow to take into account implicit subsidies, such as government guarantees of bond issuance (Lucas 2012). Further, it is also critiqued that the criterion of "financial sustainability," if broadly defined, may contradict with another minimum criterion of government support, which may take the form of the injection of cheap credits or the provision of government guarantees. The reason we propose a narrowly defined, cash-based criterion of financial sustainability is to distinguish DFIs from aid agencies, as we argue in the inaugural report.

For our purpose, to distinguish PDBs and DFIs from aid agencies or grant-executing agencies, we modify the criterion of financial sustainability by proposing two alternative qualification criteria: their funding sources go beyond regular government budgetary transfers and they are financial institutions deploying financial instruments instead of purely providing grants.

Box 1 illustrates this distinction between aid agencies and PDBs/DFIs. One salient feature of aid agencies is that they primarily rely on budgetary transfers from governments to sustain their operations. By contrast, PDBs and DFIs rely on government support to use market means to mobilize resources such as issuing bonds on capital markets. Otherwise, it is hard to qualify an institutional arrangement as a financial institution if there is no financial liability on its own balance sheet. Another salient feature of aid agencies is that they primarily provide grants or at least concessional loans. Corresponding financial liability on the liability side, PDBs and DFIs deploy financial instruments, including loans, equity, guarantees, or insurance, instead of providing pure grants and place an emphasis on financial discipline upon their clients. To distinguish DFIs from aid agencies by focusing on financial products, the most challenging borderline consideration is how to deal with "concessional loans." After examining the definition of concessional loans, we decided that concessional loans are more of a modality than an identity when defining PDBs and DFIs. See Box 2 for more information.

Box 1: IDA vs IBRD

The International Development Association (IDA) of the World Bank Group needs to replenish its resources every three years by mobilizing donations (i.e., taxpayers' money) from donor countries. By contrast, its parent institution—the International Bank for Reconstruction and Development (IBRD)—relies on sovereign creditworthiness to raise funds from capital markets, which helps it reduce its borrowing cost. As a result, IBRD does not need periodical replenishments and hence has much less financial dependence upon its member countries. Their funding sources are closely linked with their financial instruments or products. IDA provide grants or interest-free concessional loans to low-income countries; therefore, it needs to rely on budgetary transfers from governments to carry on with its operations of providing development assistance. By contrast, IBRD provides loans with ordinary terms, guarantees, risk management products, and advisory services to middle-income and creditworthy low-income countries. Hence, reflows from its financial products can cover both overhead costs and borrowing costs from capital markets. Accordingly, IBRD can operate without resorting to tangible fiscal transfers from governments, though sovereign guarantees play an indispensable role in lowering borrowing costs to make the seemingly self-sustaining operation feasible. To generalize the difference between IDA and IBRD and to make the distinction between aid agencies and DFIs, we focus on the difference in their deployment of financial products: the former primarily provides grants and concessional loans, whereas the latter can deploy a wide range of financial products, such as ordinary-term loans (without tangible interest subsidies), guarantees, and insurance.

Historically, IDA is more of an executing agency of government grants for development purposes than a financial institution. However, since 2018, IDA has started to issue bonds and use reflows to repay its debt. After borrowing from capital markets, IDA has moved closer to being a financial institution and can be qualified as a DFI.

Box 2: Concessional Loans

The Development Assistance Committee(DAC) of the Organization for Economic Co-operation and Development (OECD) has used the "grant element" to determine to what degree a loan is soft (or concessional) in order to make the judgment on whether a loan is qualified as official development assistance (ODA; Scott 2017).2 The central question concerns how soft the loan is in order to be counted as ODA in the OECD-DAC aid reporting system. The OECD-DAC sets 25% of grant element as the threshold, whereas the OECD-Export Credit Group initially set the bar at 20% and later on raised it to 35%, and the IMF and World Bank use 35% in their debt sustainability surveillance framework. The seemingly technical definition of concessional loans was born out of political considerations. In the 1960s, the United States urged its allies to step up their aid efforts to counterbalance the Soviet influence in the Third World. The Export Credit Group attempted to make "tied aid" too expensive to be used as a disguised form of trade promotion (Xu and Carey 2015). That is why China's rise as a development finance provider poses significant challenges upon the existing ODA reporting system and export credit discipline; China was not at the negotiation table when the rules were made (Xu and Carey 2014). For the reason above, operationalizing the criterion of "concessionality" may be arbitrary when drawing the threshold and politically controversial. Furthermore, concessionality may not necessarily rely on budgetary transfers. For instance, some DAC donors, such as France, Germany, and the European Investment Bank, have raised money on financial markets at very low rates, using implicit or explicit state guarantees, and then re-lent to developing countries without any tangible and explicit fiscal effort. Such financial flows are still qualified as ODA in a sense that they are concessional, but they do not require tangible budgetary transfers. In these cases, the borderline between aid agencies and DFIs seems to be blurring because both use the market-based fundraising approach to provide development finance to developing countries. Given the trend of blended finance, it might be an artificial dividing line between aid agencies and DFIs because not all self-identified DFIs are fiscally self-sustaining and some aid agencies innovate new financial products and search for market-based funding sources by relying on sovereign guarantee.

For the above reasons, we have decided to use funding sources going beyond regular budgetary transfers and financial instruments, regardless of whether they are concessional loans, to distinguish PDBs and DFIs from aid agencies and grant-executing agencies.

[2] The grant element reflects the financial terms of a transaction: interest rate, maturity (interval to final repayment) and grace period (interval to first repayment of capital). It is a measure of the concessionality (softness) of a loan. It is calculated as the difference between the face value of a loan and the discounted present value of the service payments the borrower will make over the lifetime of the loan, expressed as a percentage of the face value. Source: OECD, 2004, Development Co-operation Directorate (DAC), Glossary - CRS aid activity database, OECD, Paris, https://stats.oecd.org/glossary/detail.asp?ID=3799 [accessed 2 March 2020].

3.3. Public policy orientation

Pursuing public policy objectives is the second qualification criterion used in the inaugural report to distinguish PDBs and DFIs from commercial banks that maximize profits. We operationalized this criterion by coding the official mission, including both general development purposes and specific sector/segment focuses (such as infrastructure, agriculture, housing, and small- and medium-sized enterprises) in the inaugural report.

However, this operationalization method brings about two problems. First, some banks have ambivalent identity: while claiming to pursue development, they also aim to enhance the shareholder value as commercial banks do. As a result, our DFI list contains some banks conventionally regarded as commercial banks, such as Banco do Brasil S.A. and Caixa Econômica Federal in Brazil. Second, commercial banks may also emphasize corporate social responsibility and include the element of public interests in their mission statement.

To address the above problem, we have strengthened the criteria by excluding commercial banks from our list. The exclusion criteria include the claim of shareholder value, profit maximization, and general statements of corporate social responsibility. Meeting any of the above exclusion criterion will help us to exclude commercially-oriented financial institutions from our database.

3.4. Use government sponsorship as a stricter criterion to replace government support

The inaugural INSE report uses government support as the third qualification criterion. Government support can take different forms, such as guaranteed bond-issuing, low-interest or interest-free loans, liquidity guarantees, and preferential tax treatment. The rationale for not using state ownership as the minimum criteria is that state ownership may not be the necessary condition for ensuring that DFIs are development oriented.

The above minimum criterion of government support may be critiqued on the grounds that the bar is set so low that it may qualify some small- and medium-sized enterprises (SME), focused private commercial banks, or cooperative banks as DFIs. Because promoting SME financing is often regarded as a public policy objective, given the importance of SMEs and the severity of credit constraints due to information asymmetry and lack of collaterals, governments may provide policy supports to incentivize private commercial banks to undertake more SME financing. This critique is well taken. We can make the criteria stricter to avoid the above pitfall. The key is to identify defining features that ensure that DFIs can operate in the public interests or that the government can play a steering role in setting its corporate strategy.

One potential solution is to use the majority government shareholder as the minimum criterion. This criterion assumes that only when governments are the majority shareholder of the financial institutions can such financial institutions operate in public interests instead of maximizing profits.

However, history shows that formal shareholding is not necessarily the only means by which the government shapes the board decision. In the wake of World War II, the World Bank Group (WBG) supported the establishment of dozens of privately owned development finance companies (DFCs) with government support to provide industrial finance and foster entrepreneurship. The WBG has allocated a substantial amount of its resources via these DFCs. Although governments did not formally own these DFCs, they provided lines of credit without a date of repayment that acted as equity capital. Hence, these DFCs were regarded as quasi-government institutions. For instance, DFCC Bank in Sri Lanka is privately owned, even though it was established in 1955 with help from the World Bank. The government, however, maintains the right to nominate its director to sit on the board of directors. The Industrial Development Bank of Turkey (TSKB) was established in 1950 as the first privately owned development bank in the country. DFCs are often privately owned but fulfill public policy objectives (Diamond 1968; Diamond 1965). In short, government sponsorship can help to ensure that DFIs fulfill their development-oriented official mandate.

In addition, scholars disagree on the threshold of the majority government shareholder; hence, choosing one threshold may appear arbitrary. For instance, Brei and Schclarek (2017) use a 50% threshold to define state-owned development banks, whereas de Luna-Martínez and Vicente (2012) use the 30% threshold in the World Bank's survey on DFIs in 2012. La Porta et al. (2002) argue that the 20% share can ensure that governments have sufficient control over banks if the government is the largest shareholder.

Therefore, we recommend use of government sponsorship as the minimum criterion. To operationalize the criterion of government sponsorship, we examine whether governments establish or initiate PDBs or DFIs, whether government officials sit on the board of executive directors, whether PDBs or DFIs are owned by governments, or whether governments provide support for fundraising. By doing so, we can avoid the pitfalls of setting the threshold too low (government support) or too high (the majority government shareholder). The loose criterion may include SME-focused private commercial banks in our list, and the strict criterion may exclude DFCs widely regarded as DFIs from our list (even though there are very few alive today).

3.5. Self-identity as indicative information instead of qualification criteria

Self-identity appears to be a convenient qualification criterion for identifying PDBs or DFIs because it is straightforward to include those who claim to be PDBs or DFIs and exclude those who identify themselves as commercial banks. But it has the potential pitfall of making our list arbitrary. Because of the lack of a common definition of DFIs among practitioners, different organizations may refer to different features to classify themselves as DFIs or not. Self-identity is a subjective judgment by organizations themselves that may not be consistent over time or across institutions. For instance, some micro-finance institutions (MFIs) may regard themselves as DFIs by joining DFI associations, whereas others do not while having similar functions and modalities. This would have made our list inconsistent.

In summary, we refine the qualification criteria of PDBs and DFIs as follows:

(1) They have a separate legal personality and financial account [in distinction with government credit programs and bilateral aid agencies without legal status].

(2) They deploy financial instruments such as loans, equity, guarantee, or insurance and ensure financial discipline of clients to sustain the PDB and DFI operations [in distinction with grant-making aid agencies].

(3) Their funding sources go beyond periodical budgetary transfers from governments (or PDBs and DFIs have financial liabilities on their balance sheets) [in distinction with execution agencies that mainly receive government budgetary transfers].

(4) They have a public policy-oriented official mandate [in distinction with commercial banks].

(5) They enjoy government sponsorship [governments initiate or establish DFIs, sit on the board of directors to play a steering role in pursuing the development-oriented mandate, or provide the support for fundraising].

Only if one entity meets all the five qualification criteria above can it be qualified as a DFI. It is worth noting that (2) and (3) are interrelated, and (4) and (5) are interlinked. In the inaugural report, we first identify likely DFIs by compiling members of DFI associations or quasi-DFI associations as well as organizations falling under the official category of DFIs in the national banking system. Then we operationalize the minimum criteria by focusing on whether a financial institution has an independent legal status and whether it has an explicit official mission to fulfill public policy objectives to evaluate whether these likely DFIs are qualified as DFIs in line with our working definition. In the present report, we operationalize all the five qualification criteria consistently with all cases in our database.

In a nutshell, our ultimate objective is to compile a credible list of DFIs worldwide. Given the lack of consensus on the definition of DFIs among scholars and practitioners (see Appendix II for further information in the inaugural report), it is important that we convincingly justify our qualification criteria and then apply them in a consistent manner. We should avoid two kinds of errors: including some institutions but excluding others in the same category, such as MFIs or cooperative banks, and failing to include institutions qualified as PDBs and DFIs. There is a tradeoff between the above two errors: the attempt to build a comprehensive DFI list may include multifaceted institutions that may fall in the gray areas. To address this tradeoff, we give more weight to accuracy: only when clear evidence shows that one entity meets all five qualification criteria can it be included in our database. To deepen our understanding of the vast diversity of the DFI family, we move to the next section about how to classify DFIs.

4. Typologies of PDBs and DFIs

The main characteristic of PDBs and DFIs is their diversity. Many criteria can be used to classify banks and financial institutions and—as a biologist—to organize a typology. Interestingly, in most cases we would need more than one analytical dimension to get to a coherent set of institutions. This section will identify analytical dimensions needed to classify DFIs into different categories.

4.1. Some key figures on PDB and DFI

The database developed by INSE and AFD conveniently allows researchers to not only identify PDBs and DFIs worldwide in a systematic manner but also provide the information on quantitative indicators that assesses their size through some of their balance sheet figures. Before entering details, the global landscape can be resumed with a few salient figures:

- **Number of PDBs and DFIs in the entire world: 450+**
- **Total assets in 2018**: $11.5 trillion
- **Estimation of annual contribution to the financing of global investment**: Estimating the balance sheet rotation at an average of five years, an estimation is that PDBs and DFIs contributed to $2.3 trillion new financing in 2018. According to World Bank estimates, gross capital formation—a reasonable proxy of global investment—was $21.85 trillion USD in 2018. This means that a reasonable estimation of annual financing of PDBs and DFIs is about 10% of the world's investment. This looks like quite an amazing figure, although, by experience, financiers know that most large infrastructures benefit one way or another from the participation of one or more PDBs.
- **China Development Bank** is the largest public development bank in the world: it has $2.355 trillion on its balance sheet, $189 billion of shareholders' equity, and $19 billion of net income. By way of comparison, the largest American bank in 2018 was J.P. Morgan, with a balance sheet of $2.367 trillion (September 2019).
- China's eight PDBs and DFIs total $4 trillion in assets or 35% of the global total alone. They include the China Development Bank, China Exim Bank, China Agricultural Development Bank, China-Africa Development Fund, China-LAC Cooperation Fund, China-Africa Fund for Industrial Cooperation, China-LAC Fund for Industrial Cooperation[3], and the Silk Road Fund[4].

[3] In 2019, the majority shareholder of the China-Africa Fund for Industrial Cooperation and China-LAC Fund for Industrial Cooperation, the State Administration of Foreign Exchange, established the Siyuan Investment Limited Liability Company to manage both funds. Both funds will carry on with their operations in their own names

[4] China Export & Credit Insurance Corporation (SINOSURE) is a guarantee-focused DFI, which will be added later on into our database.

- **The PDBs of the 27 European Union member countries**, including their EIB and EBRD regional banks, have a total of $3.950 trillion in assets, or roughly the same order of magnitude as that of the Chinese PDBs.

- It should be noted that the German Landesbank alone, which is the product of a savings inflow and corporate finance system that is highly specific to Germany, has a total of $1.180 trillion in assets (10% of the world total).

- **Some PDBs and DFIs are very small.** The development agency of the Roirama in Brazil has a balance sheet of only $2 million. The Fundo Ganadero (an agricultural bank in Paraguay for financing small livestock farmers) in 2018 had a balance sheet of only $18 million and $5 million in shareholders' equity. Development banks in island states such as Tuvalu, Niue, or American Samoa also have small balance sheets of the same order of magnitude.

- **The most longstanding: Caisse des Dépôts et Consignations (France 1816);** followed by Banco de la Provincia de Buenos Aires (Argentina 1822) and Casa Depositi e Prestiti (Italy 1850).

- **The most recent, created in 2019**: International Development Finance Corporation (US-IDFC); Banco del Bienestar (Mexico); Hellenic Development Bank (Greece); Banque Nationale d'Investissement of Guinea.

- **The most specific:** The Nederlandse Waterschapsbank (NWB of the Netherlands; founded in 1954; balance sheet total: $100 billion) is a public development bank that clearly specializes in the water sector. However, if water is the entry point, most projects are infrastructural (e.g., for the construction of large dams to gain land over the sea).

- **The largest multilateral:** The European Investment Bank, a European regional bank with a balance sheet total of $555 billion, profitability (net income of $2.3 billion, 2,900 employees), financial strength (AAA-rated), and governance, is shared among the 27 member states of the European Union.

- The landscape of PDBs and DFIs worldwide is clustered around a few large institutions and a myriad of small banks. Only 143 PDBs have a balance sheet in excess of $3 billion, which represents 98% of listed assets.

- 258 PDBs have a balance sheet that is less than $1 billion and do not even represent 1% of the world's assets. This observation leads one to imagine that increased solidarity and cooperation between development banks could enable their growth, provided that good governance and the level of capitalization are maintained.

4.2. By establishment year

Figure 1. Establishment Years of Currently Active PDBs and DFIs

Note: The red bar represents newly created DFIs during the crisis period.

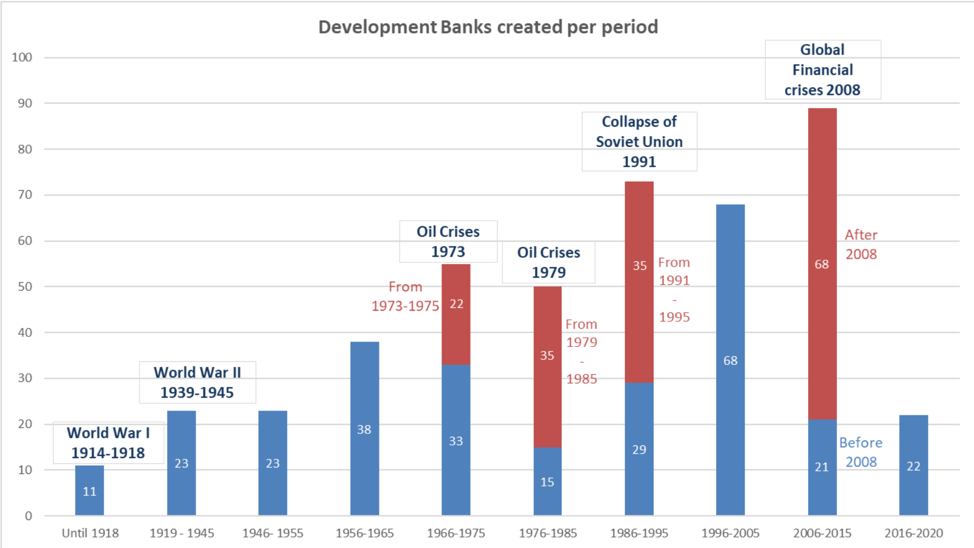


Figure 1 demonstrates the number of banks created during determined periods of history. For this analysis, the authors have chosen the following division: i) until the end of World War I (WWI), ii) the period between wars until the end of World War II (WWII), and iii) from 1946 to present is divided into periods of 10 years each. Such a classification was chosen due to the relatively slow creation of development banks until the end of WWI, and the acceleration of this process after WWI and particularly after WWII. Besides these periods of time, some relevant historic and economic events have been included in the graph for better interpretation of tendencies.

An analysis of this graph reveals the close relationship between international crises and the establishment of development banks. This movement can be interpreted as the need of government action in post-crises periods. Therefore, besides having a countercyclical role and acting during unstable moments, development banks are also relevant when the market is weak and still vulnerable to new shocks. The notion that PDBs and DFIs have been seen as an important tool of recovery during those periods can be corroborated by the increase in the number of banks created after the 1973 oil crises (during which 22 development banks were created in three years) and after the 2008 crises (during which 68 banks were created in seven years).

Further, Figure 1 also shows that PDBs and DFIs sprang up in the wake of World War II because developing countries in Asia, Africa, and Latin America were eager to achieve faster industrialization and create their own national DFIs after gaining political independence. But this momentum stalled in the 1980s when development banks came under fire following the debt crisis of the mid-1980s in the broader context of prevailing free market-oriented neoliberalism. There followed a peak in the 1990s when newly independent Eastern European countries were eager to establish PDBs and DFIs after the collapse of the former Soviet Union (Xu, Ren, and Wu 2019).

It is worth mentioning that development banks that have disappeared because of commercialization, bankruptcy, or liquidation are not included in this analysis. The graph above represents institutions that have remained active to the present date. PDBs and DFIs that have disappeared—and the causes of such phenomenon—are an interesting subject for which the authors of this paper recommend further investigation.

4.3. Breakdown of ownership by continent and geographic sub region

The first question in the creation of a PDB or DFI is to identify who owns it. We present below a breakdown by continent, meaning the countries that owns PDBs or DFIs, which does not necessarily coincide with their geographical area of activity. For the sake of comparability, in the table below, we include in the "Multi" only the banks with a capital not restricted to a particular region.

Table 1 shows that the Asia/Pacific region is the continent with the most PDBs, but it is also the most populated and largest continent. The weight of Chinese banks is decisive for total assets. The Asia and the Pacific region have slightly more institutions than the other continent, but for a greater number of countries. Indeed, the average ratio of 2.2 institutions per country is remarkably stable across continents.

Table 1. Number and Total Assets of PDBs and DFIs by Continent

Continent	Number of PDBs and DFIs	%	Total Assets (million USD)	%	Number of countries	Average number of PDBs and DFIs per country
Africa	95	21%	131 357	1%	54	1.8
America	100	22%	1 378 639	12%	35	2.9
Asia Pacific	146	32%	5 611 406	48%	64	2.3
Europe	102	23%	3 494 058	30%	50	2
Global	9	2%	958 879	8%	N/A	N/A
Total	**452**	**100%**	**11574340**	**100%**	**203**	**2.2**

A more detailed look at Pakistan and Malaysia is worth considering, where 11 PDBs exist. In Pakistan, for example, seven PDBs are taking the innovative form of a joint venture with a partner state to support investment by Pakistani SMEs. These original, transparent setups (the accounts are published), managed by a dedicated professional team, yield interesting results even if they are mixed (two of these PDBs show losses—Paklibya and Pair-PakIran—whereas the other five are profitable).

If we use the sub-geographical classification of the UN, we can also present an interesting picture of the repartition of PDBs and DFIs across the various subregions of the world. It should be noted that Table 2 shows that if the continental distribution of PDBs and DFIs is quite similar within a continent, there is a clear dominance of South East Asia and Western

Europe in terms of the number of PDBs and DFIs. These two subregions alone have 111 institutions (25% of the global total). Regarding the size of total assets, East Asia accounts for a lion's share largely due to the preponderant weight of Chinese PDBs and DFIs， followed by Western Europe. These two subregions account for 42.9% and 24.5% of total assets of all PDBs and DFIs, respectively.

By contrast, economies of Central Africa, although facing a huge challenge in terms of population growth and global environmental responsibility (taking into account the large equatorial forest of Central Africa), have relatively few development banks to implement the public policy of their governments.

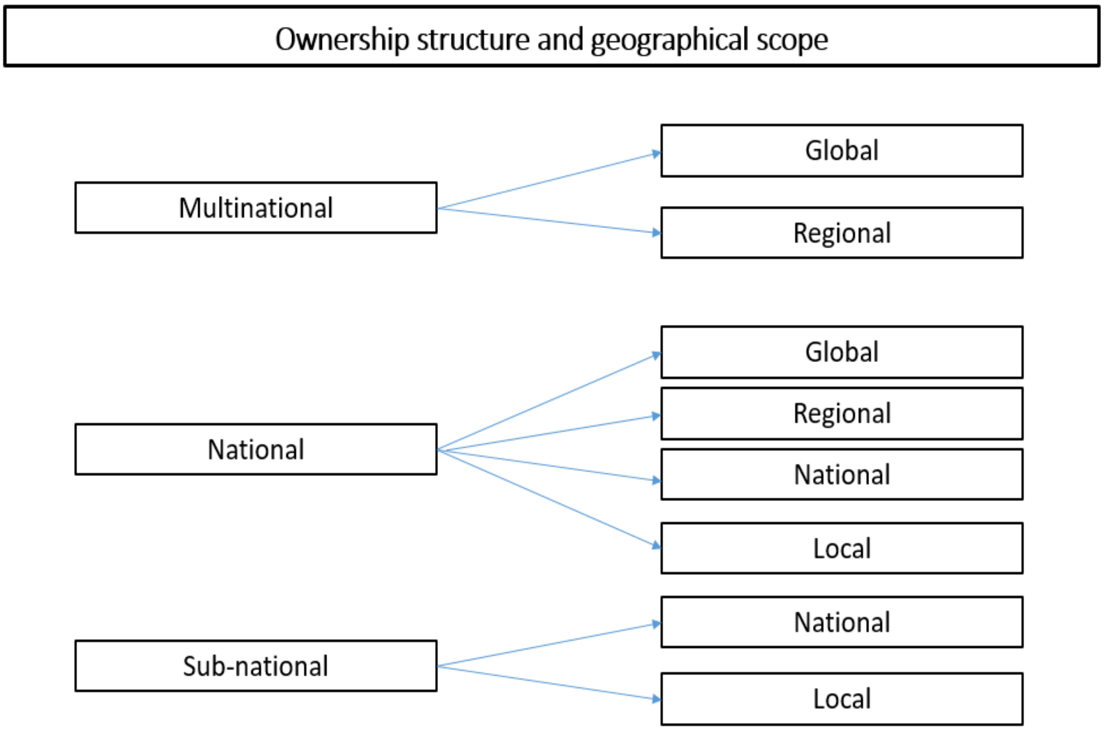
Table 2; Number and Total Assets of PDBs and DFIs by Sub region

Continent by Sub-region	Number of PDBs and DFIs		Total Assets (million USD)	Percentage
Africa	**95**	**21.00%**	**131 357**	**1.10%**
Eastern Africa	29	6.40%	14 848	0.10%
Middle Africa	9	2.00%	4 116	0.00%
Northern Africa	11	2.40%	74 011	0.60%
Southern Africa	19	4.20%	24 491	0.20%
Western Africa	27	6.00%	13 890	0.10%
America	**100**	**22.10%**	**1 378 639**	**11.90%**
Caribbean	8	1.80%	11 293	0.10%
Central America	22	4.90%	176 188	1.50%
North America	17	3.80%	387 488	3.30%
South America	53	11.70%	803 670	6.90%
Asia Pacific	**146**	**32.30%**	**5 611 406**	**48.50%**
Australia and New Zealand	2	0.40%	5 813	0.10%
Central Asia	3	0.70%	17 573	0.20%
Eastern Africa	1	0.20%	19 562	0.20%
Eastern Asia	14	3.10%	4 963 250	42.90%
Pacific	1	2.00%	17	0.00%
South Eastern Asia	52	11.50%	164 571	1.40%
Southern Asia	30	6.60%	161 232	1.40%
Western Asia	29	6.40%	278 308	2.40%
Europe	**102**	**22.60%**	**3 494 058**	**30.20%**
Eastern Europe	19	4.20%	98316	0.80%
Southern Europe	24	5.30%	563773	4.90%
Western Europe	59	13.10%	2831969	24.50%
Global	**9**	**2.00%**	**958 879**	**8.30%**
Global	9	2.00%	958 879	8.30%
Total	**452**	**100.00%**	**11 574 340**	**100.00%**

4.4. Geographical level of ownership and operation

We classify PDBs and DFIs into three categories according to their ownership structure: multinational, when owned by two or more countries; national, when created by a single government or national public entity, and sub-national, when created and owned by a local government entity. Each of these can be divided in subcategories, depending on the geographical scope in which they operate. Indeed, there are four different geographies in which a particular PDB or DFI can operate: global, regional (or sub-continental), national, or local (a particular territory within national frontiers). This first typology permits us to identify eight different types of institutions and certainly constitutes a first cut of analysis to properly differentiate them.

Figure 2: Geographical Level of Ownership and Operations



1. **Multinational PDBs and DFIs:** this category is the most internationally renowned category of PDBs and DFIs created by more than one country. In this category, we find some of the largest and most renowned development banks, such as the World Bank.

This category can be subdivided between two groups of banks:

A. **Multinational PDBs and DFIs with a global operational scope**, whose operation is not limited to specific region. Typical examples are those PDB and DFIs whose capital is open to all countries and geographical area is not limited to specific geographical region. They are the "true" multilaterals in the sense that both their capital and their area of activity are global. Below are some examples:

- The three institutions that emerged from the Bretton Woods agreements: the IBRD, IDA, and IFC[5].

- The "New Development Bank," known as the BRICS bank, which was founded by Brazil, Russia, India, China, and South Africa in 2014. The BRICS bank currently seeks to enlarge its membership for all UN member countries. Though its current operation focuses on the BRICS countries, its articles of agreement allow it to operate in developing countries and emerging markets

- The International Fund for Agricultural Development (IFAD)[6], a specialized agency of the United Nations, was founded in 1977 and carries out missions to finance agricultural development.

  Because the world of PDBs is a rich and complex one, multinational PDBs and DFIs with a global operational scope include PDBs such as the European Investment Banks (EIB) have shareholders of a certain region (i.e., 26 members of the European Union. Their main activity is not only to benefit their shareholders, but also have an international perspective (EIB is also active in Africa, Asia, and Latin America).

B. **Multinational PDBs and DFIs with a regional operational scope,** which designates developing institutions that are formed by the gathering of countries concentrating their operations in a specific region. It is relevant to point out that all the continents possess these kinds of banks, such as the African Development Bank or the Asian Development Bank. However, the capital of these banks is open to shareholders that are not from the region where the bank is active. Some regional banks, in contrast, such as Corporacion Andina de Fomento (CAF), concentrate both shareholders and area of intervention in the same geographical area.

In addition, we also note that some public development banks, although not many, concentrate on a specific geographic space, which is not necessarily a subcontinent. Although not really "regional" by a geographical point of view, these institutions belong to that category:

[5] MIGA from the World Bank Group should belong to this category as well; it is guarantee-focused to be added to our database in the future

[6] Strictly speaking, IFAD may not qualify as a PDB, because so far, it has primarily relied on budgetary transfer from member countries, though it has tried to issue bonds

- The International Bank for Economic Cooperation (IBEC) includes an alliance of former Eastern Bloc countries and claims to be global in its operation; however, with total assets of $450 million, its business is more anecdotal.

- International Investment Bank (IIB), which is an institution that was established in 1970 by Comecon and that is still active despite the fall of communism, is an active member of the International Development Finance Club (IDFC).

- The Islamic Development Bank is also a particular case of a regional bank, even though its geoographical focus on operation is not aligned with the UN classification of geographical regions. It extends credit only to Muslim-majority countries and with financial instruments compatible with the Sharia.

2. **National development banks:** A national capital bank means that the source of the capital that allowed the creation of the PDB is from one country only. In most of these cases, either the central government or a governmental institution (such as the central bank or a ministry) provides a majority of the bank's ownership. To reflect properly the variety of its members, this broad category can be divided into about five subcategories:

   A. **Global:** Some governments have created a PDB to channel funds internationally. This is particularly the case of European Development Finance Institutions channeling development financing at the international level, such as the German DEG or the French Development Agency. However, the bulk of these institutions is represented by Exim banks, which promote activities outside their national borders.

   B. **Regional:** These are institutions set up by a particular government to concentrate in a particular region, but outside their borders. Only the China Africa Fund has been identified thus, but this category is likely to increase once we incorporate some investment funds.

   C. **National (or global):** This category includes the vast majority because these are national banks extending financing in their national territories or beyond. This category should be further refined to distinguish those whose operation is restricted to national territories from those whose mandates allow them to provide finance abroad.

   D. **Local:** This group of PDBs and DFIs is not very numerous and is created by the national authorities to serve the needs of their own local authorities.

3. **Subnational:** Another possibility for the origin of the capital is local governments, considered as any subnational political division of a country and/or decentralized government entity. The names of these subnational entities may vary (e.g., states, regions, and provinces). We adopt here a large definition of "local government" because we do not require the existence of formal administrative structure for considering them as such.

Brazil and Vietnam have made a real model out of subnational development banks, each with 21 subnational development banks. In addition to the major national institutions, these two countries have set up local banks that channel financing to the territories. Our identification of subnational development banks is probably not finished; we may find that other governments have made the same choice. These types of banks are fulfilling at a national scale—to some extent—the mandate expressed by the international development finance institutions banks that support projects in poor countries.

A. **Local:** Subnational entities usually set up banks to finance economic activities in their own specific jurisdiction, mostly to the benefit of SMEs.

   Brazil can be mentioned as an example of a country with different kinds of subnational banks. One example is the state development banks or agencies. The country is a federation divided into states. Most Brazilian states possess a type of development bank or agency that meets the "PDB and DFI criteria" established in this paper. The Banco de Desenvolvimento de Minas Gerais (BDMG) or the Agência de Fomento do Amapá (AFAP) examplify this case. But we can also identify the case of the Banco Regional de Desenvolvimento do Extremo Sul (BRDE) that was founded from the initiative of three Brazilian states that comprise the South region of the country. Despite being an official geographic division of the country, the South region does not contain any official political administration at this level. Therefore, the bank was created by the union of different states, and because these are decentralized government entities, the origin of the bank's capital is classified as local government.

B. **National:** As a rare but interesting case, local governments in four countries have set up their own national bank, in the sense that it operates in the entire territory. They offer financing to their shareholders, and it is a very promising way of empowering local governments. Just as regional countries aggregate their forces in a regional bank to appear financially stronger than each member individually, local governments could and do the same on a larger scale.

Based on the classification presented above, interesting facts are revealed:

- Together, multilateral banks represent only 10% of the institutions and 18% of the assets.

- Conversely, national development banks have five layers of geographical focus. NDBs are an undisputed majority accounting for 74% of institutions and 74% of assets.

- An important feature is also that PDB-financing local governments are marginal. Considering the growing importance of the megalopolis and the role of cities in delivering infrastructure, transport, housing, jobs, and a decent life to many, this is a real gap that questions the necessity of developing institutions at a scale for serving only local governments.

Table 3. Stylized Facts of PDBs and DFIs by Geographical Level of Ownership and Operations

Ownership/Geographical Operation	Number	%	Assets (million USD)	%
MULTINATIONAL	**45**	**10%**	**2040416**	**18%**
GLOBAL	11	2%	1394 955	12%
REGIONAL	34	8%	645 461	6%
NATIONAL	**336**	**74%**	**8970 404**	**78%**
GLOBAL	62	14%	1413712	12%
REGIONAL	1	0%	10 000	0%
NATIONAL	268	59%	7514133	65%
LOCAL	5	1%	32559	0%
SUBNATIONAL	**71**	**16%**	**563520**	**5%**
NATIONAL	5	1%	278208	2%
LOCAL	66	15%	285312	2%
Total	**452**	**100%**	**11574340**	**100%**

4.5. National development banks by income levels

We use the four income levels of the World Bank classification, which distinguishes between high-income countries (HICs), upper middle-income countries (UMICs), lower middle-income countries (LMICs), and low-income countries (LICs). Only national and subnational banks are included, excluding multilateral banks.

The result is very clear. Most PDBs and DFIs are concentrated in MICs, accounting for 58% of the total numbers and 58% of total assets. This is followed by HICs. The PDBs andn DFIs of LICs play a marginal role in the global picture. This represents an inverted-U shape in line with the pattern identified in the inaugural NSE development financing research report (Xu, Ren, and Wu 2019).

Table 4. Distribution by Income Level

Income Level	Number	%	Assets (million USD)	%
HIC	139	34%	4183604	36%
UMIC	123	30%	5064 666	29%
LMIc	113	28%	274 407	29%
LIC	32	8%	11247	7%
Total	**407**	**100%**	**9 533924**	**100%**

4.6. By asset size

Following the World Bank 2017 study on NDBs (De Luna Martinez 2018), we can use total assets as a criterion to classify NDBs into four size categories: mega (more than $100 billion), large (between $10 billion and $99.9 billion), medium (between $1 billion and $9.9 billion), and small (less than $1 billion). This shows a relatively small number of large institutions, the bulk of PDBs being smaller banks.

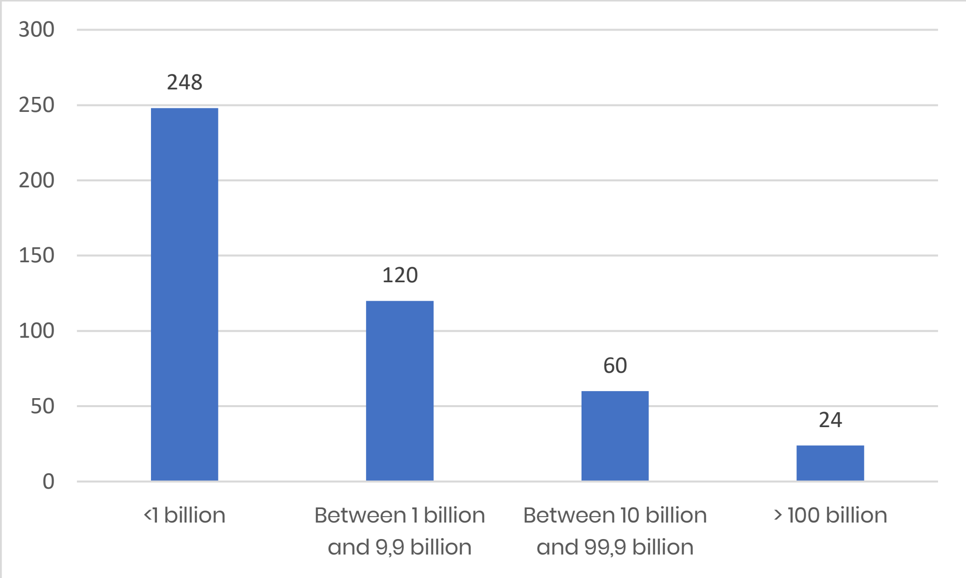
In financial terms, the landscape is clearly dominated by a small set of mega banks, aggregating more than $100 million in assets.

Table 5: The Top Ten PDBs and DFIs

Rank	Name of PDB	Acronym	Establishment Year	Total Assets (million USD)
1	China Development Bank	CDB	1994	2352292.855
2	Agricultural Development Bank of China	ADBC	1994	996286.6318
3	European Investment Bank	EIB	1958	636687.2365
4	Export-Import Bank of China	ChinaExim	1994	609695.4251
5	Kreditanstalt für Wiederaufbau	KfW	1948	560899.1172
6	Cassa de Depositi y Prestiti	CDP	1850	486952.7855
7	The World Bank	IBRD	1944	403056
8	Caixa Econômica Federal	CAIXA	1861	325862.7619
9	Caisse de dépôts et Placement du Québec	CDPQ	1965	256517.9025
10	Korea Development Bank	KDB	1954	233561.8499

The distribution of PDBs by size clearly shows that only 24 mega banks, representing only 5% of the banks, are in activity. At the other end of the spectrum, 55% of banks have less than $1 billion in assets.

Figure 3: Distribution of PDBs and DFIs by Size

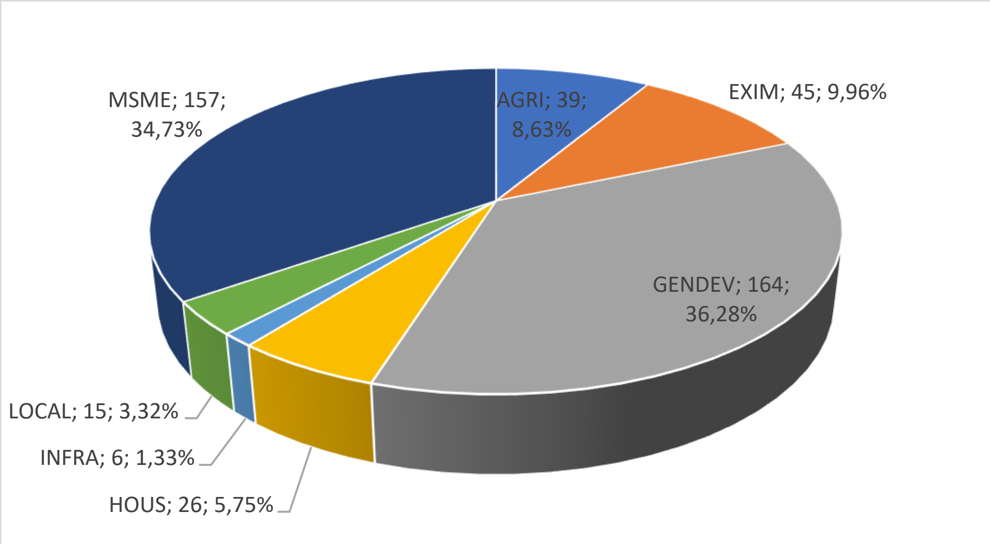


4.7. Official Mandate

We have identified seven main types of mandates, corresponding to specific missions to support a particular public policy. These missions are often related to one or more SDG financing needs in which private commercial banks or capital markets are not willing or able to fund such financing needs.

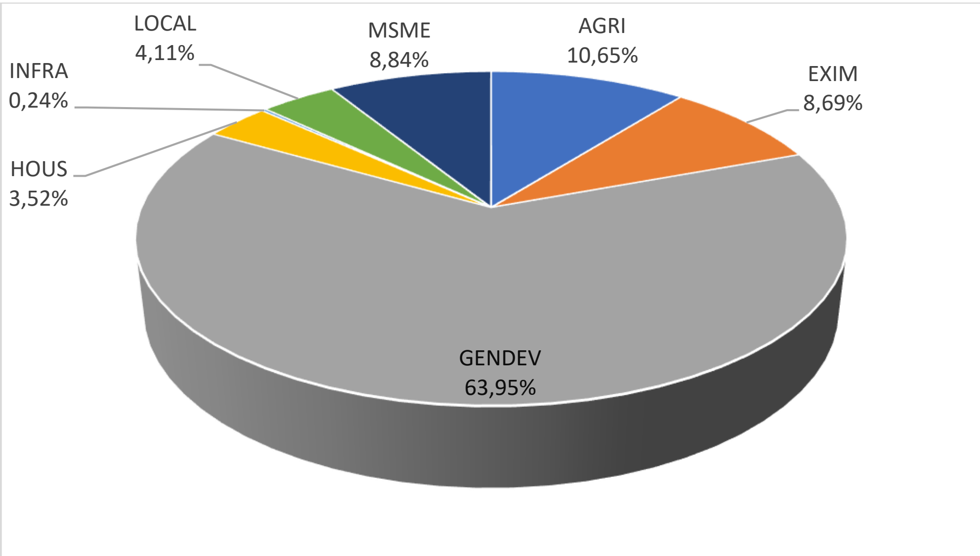
- **Development (**GENDEV**):** with a general national development mandate that may include infrastructure, industrial projects, support to SMEs, or specific industry mandates.
- **Infrastructure**(INFRA): PDBs and DFIs dedicated to financing infrastructure. A typical case is the Asian Infrastructure Investment Bank (AIIB).
- **Small Business Investment and Employment** (MSME): devoted to financing micro and small- and medium-sized companies. A typical case in France is the Banque Publique d'Investissement (BPI).
- **Promoting Exports and Foreign Trade** (EXIM): If import-export financing banks do not exist, their role is carried out by private banks with public insurance coverage.
- **Rural and Agricultural Development** (AGRI): Agricultural development banks or financial institutions, with a specific mandate to support the agricultural industry and mostly concerned with small-scale family farming.
- **Social Housing** (HOUS): specialized in financing buildings or housing, most often for underprivileged populations.
- **Decentralization and Local Government** (LOCAL): PDBs or DFIs specializing in financing municipalities, states, and local governments.

Figure 4. Distribution of the Number of PDBs and DFIs by Mandate



The most significant number of PDBs are general purpose to serve a variety of mandates and to provide support to SMEs. In a certain way, SME financing is just the selection of a certain size of companies, but it is also multisectoral by essence. Companies, however small, perform their activities in all the economic sectors.

Figure 5. Distribution of Asset Size of PDBs and DFIs by Mandate



In terms of size of assets according to mandate type, generalist banks dominate the landscape and account for 64% of total assets.

It should be noted that institutions specifically dedicated to MSME financing only account for 9% of total assets, even though they represent 35% of the number of institutions.

If we break down the subcategory of generalist banks, which represent 64% of institutions, it is quite clear that the bulk of assets is made up of national banks that account for 68% of assets. The "outgoing" institutions, whose mandate is global and whose financing goes beyond the national scope, represent a minority at 24%. Regional (i.e., subcontinental) banks account for only 9% of the total.

When we break down the subcategory of generalist banks according to their geographical focus, it is quite clear that the bulk of assets is made up of national banks (67%). The institutions whose mandate is global and whose financing goes beyond a national scope represent a minority at 24%. Regional (i.e., subcontinental) banks and banks focusing on local territories account for only 8.5%.

Table 6. Distribution of General-Purpose PDBs and DFIs by Geographical Level of Operation

Geo Area	Number of PDBs and DFIs	%	Total Assets (million USD)	%
GLOBAL	13	7.6%	1764 756	23.8%
REGIONAL	30	17.6%	633 987	8.5%
NATIONAL	97	57.1%	5 011 737	67.5%
LOCAL	30	17.6%	16 900	0.2%
Total	**170**	**100.0%**	7 427 380	**100.0%**

4.8. Economic weight of the PDBs

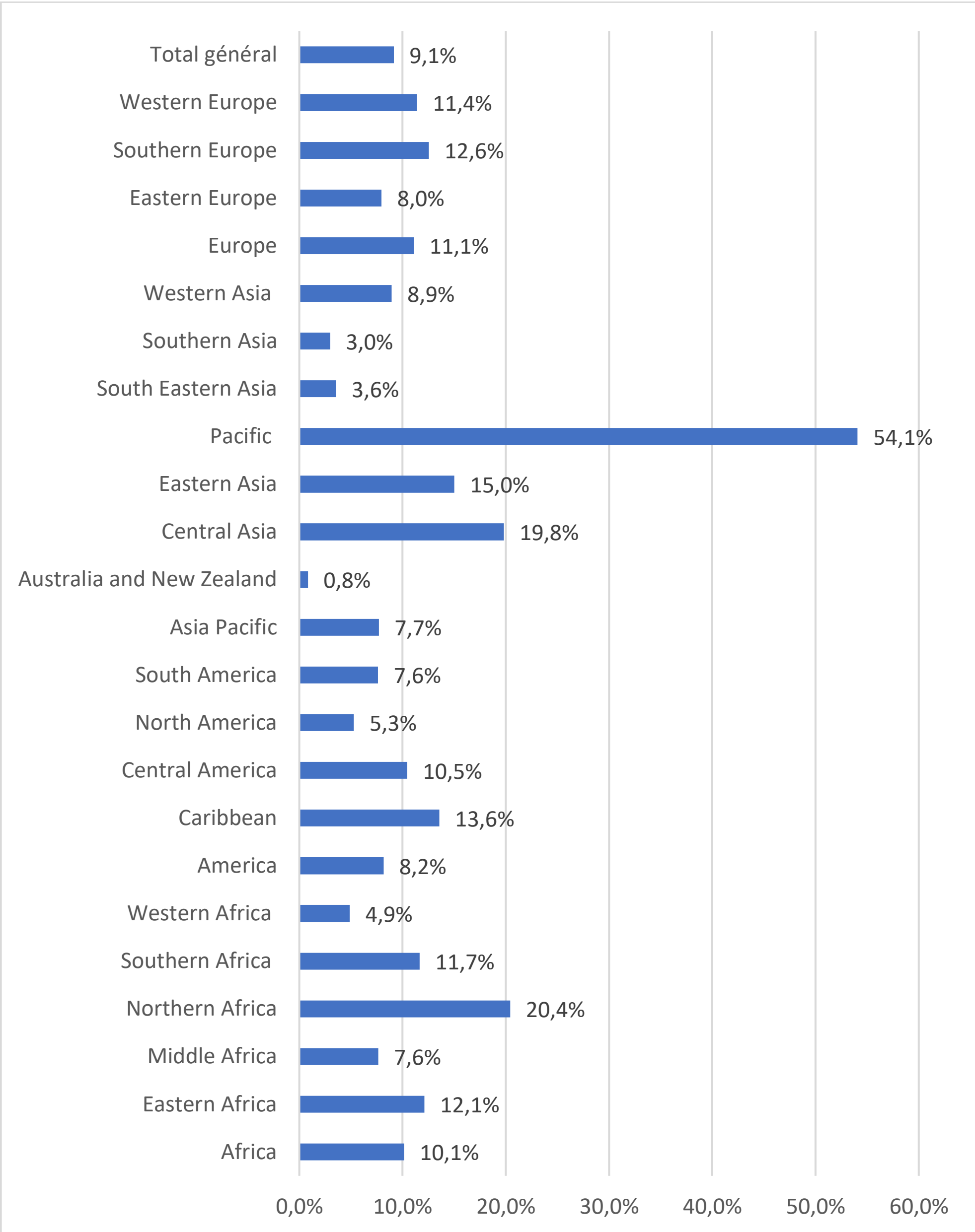
An assessment of the importance of PDBs in financing the economy is provided by the relative weight of their assets in relation to gross fixed capital formation (GFCF), as provided by the World Bank database. Taking the GFCF is a better proxy than the GDP is because it gives a better indication of the investment in a particular country for a particular year. This indicator might therefore prove more relevant for comparing with the asset size of a particular bank. However, this is still comparing a flow with a stock and not the market share of the bank. Another limit is that for banks with international activity, part of their balance sheet comprises loans in other countries.

This ratio averages 9.1%, but there are considerable regional disparities. Pacific small island states (54%), Central Asia (19.8%), and Northern Africa (20.4%) have a relatively significant weight through their PDBs and DFIs in the GFCF. Paradoxically, despite the vast demand for development financing, this is less the case in Africa and particularly in West Africa, where development banks have a financial weight that is lower than the global average and almost half of that in Europe.

Table 7. Economic Weight of PDBs and DFIs by Income Level

Income Level	Percentage
HIC	10.5%
UMIC	9.5%
LMIC	7.4%
LIC	8.3%
Total	**9.1%**

Figure 6. Economic Weight of PDBs and DFIs by Region



If we analyze the same criteria according to income level, there is no clear apparent pattern, apart from an expected distribution proportionate to the level of income in each country.

4.9. Financing Structure: Equity financing versus debt financing ratio

- We assess the financing structure by measuring the ratio equity/total assets, which gives us the proportion of assets covered with shareholders' funds. The difference is financed by the bank through its own borrowing. Indeed, the more the bank is capitalized, the higher the ratio and the less it will rely on the need to take debt.
- Our global estimation is that PDBs are generally well capitalized, with an average equity financing ratio of 36%, which is quite unexpected. This rate is significantly higher than the ratio of 8% required by the Basel accords, despite a broader definition that does not include a risk weighting on assets. Seventeen institutions have a ratio close to 100%, meaning that they do not resort to debt to refinance their activities. At the other end of the spectrum, 43 institutions have a ratio of less than 7%, indicating a significant reliance on external debt financing.

But whatever the continent, the general trend is that PDBs and DFIs rely heavily on their capital base to conduct their financial activity. This finding is supported by the NSE Development Financing Report No. 3 on Funding Sources of NDBs (Xu, Wang, and Ru 2020).

Table 8. Average Equity/Asset Ratio by Income Level

Income Level	Financing Structure
HIC	44%
UMIC	32%
LMIC	33%
LIC	30%
Total	**36%**

4.10. Financial Assessment Factors

Estimated Amount of Annual Financing from PDBs

Reliable, comparable statistics from development banks on their annual financing activity are not available. Some banks report on their annual commitments, others on the loans they sign, and still others on actual disbursements. Most do not, however, provide any such information. Rather, they report on effective financial activity affecting their accounts, such as changes in their balance sheets, risks, and profitability—as would commercial banks.

However, one can try to approximate their annual activity with a proxy. Indeed, each year a bank's balance sheet increases by the amount of loans that have been disbursed and decreases by the amount of repayments made by clients on existing loans. Assets build up and disappear according to a certain time pattern, which is the result of the average duration of loans, the cancellation or anticipated reimbursement, and the pattern of disbursement of approved operations. Some loans have the maturity of as much as 20 years for international development banks such as the EIB or the World Bank, which has lending on a long-term basis. However, for smaller banks, Exim banks and SME banks, the assets' "turn over" is much faster—especially for those banks that provide short-term facilities, cash facilities to farmers, or cover working capital needs.

The balance sheet growth rate must also be considered. In periods of increased activity, the balance sheet tends to grow through new loans and then stabilizes at a higher level.

By taking a sample of banks and combining these various factors, an average ratio of five is likely close to reality. Using this estimate as a hypothesis, the amount of investment financed by PDBs and DFIs can be estimated by dividing the assets by five. Because the cumulative balance sheet of development banks stands at $11.5 trillion, the annual investments of the PDBs would be close to $2.3 trillion, which represents about 10% of the world's gross capital formation.

Profitability of DFIs

A small number of DFIs post earnings in excess of $1 billion, including Caisse des Dépôts and BPI of France. But overall, PDBs are not very profitable, with a very low average ROA (return on assets), but above all, a ROE (return on equity) of only 2%.

By way of comparison, the ROE of private European banks is around 6%. However, the situation is quite mixed for PDBs, with 18 posting losses, whereas 44 have a ROE of more than 7%.

Personnel

The average assets-per-personnel under management ratio was $15 million in 2018, with significant variation across PDBs and DFIs. The nature and organization of the missions to be accomplished play a large role. Yet some 30 institutions have a ratio of more than 60, which is probably a sign of highly efficient management because these banks do not manage a network.

Conclusions and Future Plans

Our report has refined the qualification criteria of PDBs and DFIs. These include a separate legal status and financial account, deploying financial instruments, relying on funding sources that go beyond the regular budgetary transfers, public policy-oriented official mandates, and government sponsorship. This analysis of qualification criteria enables us to grasp the core features of PDBs and DFIs in distinction with similar institutional arrangements such as aid agencies, government credit programs, and state-owned commercial banks with policy functions.

We then take a step further to classify PDBs and DFIs by establishment year, geographical level of ownership and operational scope, distribution by continent or subregion, asset size, mandate, economic weight, income levels, and other financial assessment indicators, which helps us grasp vast diversities within the family of PDBs and DFIs.

Moving forward, we will periodically apply the five qualification criteria to identify PDBs and DFIs worldwide to update the list. This process will involve combining diverse data collection methodology, including manual data collection, machine learning, and commercial databases, to triangulate collected data to ensure the validity and accuracy of data.

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