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Funding Sources of National Development Banks

Concise Version

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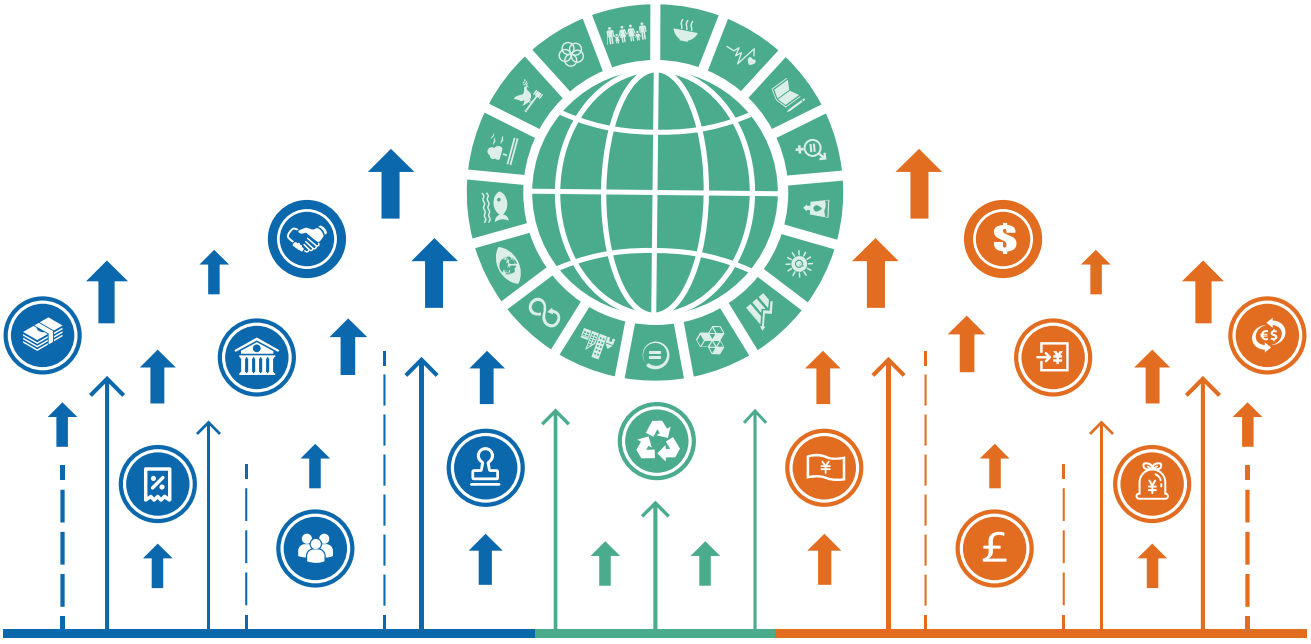

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The New Structural Economics Development Financing Research Paper Series aims to build the first comprehensive database of worldwide development finance institutions (DFIs) and foster original research on the rationales, operations, performance, and impact of DFIs to improve understanding of these important institutions and achieve better development outcomes.

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This report was completed by researchers at the Institute of New Structural Economics (INSE) at Peking University but does not necessarily represent the views of INSE. The research team acknowledges the financial support from the Ford Foundation and China International Development Research Network.

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I. Introduction

In the aftermath of the global financial crisis and the outbreak of the new coronavirus pandemic, the importance of national development banks (NDBs) has increasingly received recognition, and the world is witnessing their renaissance. They can potentially play a counter-cyclical role, bridge the infrastructure financing gap, advance structural economic transformation, and achieve sustainable development. Access to large, long-term, and stable funding sources is a prerequisite for achieving the objectives of NDBs. However, so far lack of data has prevented researchers from providing answers to the following questions: what are the main types of funding sources available to NDBs, and what are the stylized facts of such funding sources? To fill the gap, the Institute for New Structural Economics at Peking University is the first to systematically collect data on the funding sources of NDBs worldwide. We will propose typologies of funding sources of NDBs, present basic empirical evidence regarding these funding sources, and identify the stylized facts to lay the groundwork for solid academic and policy research in the future.

Access to large, long-term, and stable funding sources is a prerequisite for achieving the objectives of NDBs.

The present report (concise version) proceeds as follows: in Chapter II, we introduce data sources, the data collection methodology, and our quality control methods; in Chapter III, we propose an analytical framework for examining the funding sources of NDBs; in Chapter IV, we present the sample selection and demonstrate the diversity of NDBs; in Chapter V, we show the stylized facts of the financing structure of NDBs, including internal financing vs. external financing as well as equity financing vs. debt financing; in Chapter VI, we present basic facts and patterns regarding main sources of financing NDBs from capital markets, national governments, foreign and international public agencies and households; and finally, in Chapter VII, we summarize key findings and propose future research directions.

II. Data Sources, Data Collection Methodology, and Quality Control Methods

This chapter describes data sources, data collection methodology, and quality control methods undertaken in the research. The aim is to ensure the accuracy and reliability of collected data by clearly defining variables and making the verification process as traceable as possible. This will lay out the foundation for original academic research in the future.

▪ 2.1 Data Sources

To collect the data on funding sources of NDBs, we have primarily relied on the following data sources, including official primary sources and existing databases. Official primary sources include NDBs´ official websites, annual reports, financial statements, charters, and legal documents. To manually collect firsthand data from official primary sources, we have established a team of research assistants who are fluent in English, French, Portuguese, Spanish, Russian, Arabic, and other languages and who have backgrounds in finance and accounting. Furthermore, we have matched the list of NDBs with banks in the existing databases, including Bankfocus and Cbond, to enable us to make full use of the existing data sources.

▪ 2.2 Data collection Methodology

Our data collection team consisted of a principal investigator, two research directors, a project manager, research assistants, and their team leaders. This report's manual data collection methodology comprises the following steps: first, the development of a data collection codebook where each variable is clearly defined and data collection procedures are carefully designed (as not all NDBs disclose the information on all variables, only when a research assistant exhausts all data collection procedures can he or she comes to a conclusion that information on a variable is lacking); second, the training of research assistants and the pretesting of data collection exercises; third, data collection and process-tracing; and fourth, quality control of the data collection results.

▪ 2.3 Data Quality Control Methods

To ensure the accuracy and reliability of the data collection process, we conducted four steps of data

quality checks. In the first step, the project manager, who is responsible for monitoring progress in completing the data collection performed by research assistants, checks the standardization of data sources and data formats, and ensures that every data point has rigorously cited original data sources for verification. In the second step, the research assistant team leaders are responsible for verifying the accuracy of each data point based on well collected by research assistants and double check whether "no information" on certain variables concluded by research assistants is true or not. The third step is performed by the research directors, who check and evaluate the first two steps for unclear data collection results and spot check the first two steps to ensure that there are no problems with the data points. Finally, in the fourth step, the principal investigator comprehensively evaluates the results of the first, second, and third steps of the review process and gives a final judgment on the pending cases.

III. Analytical Framework for Funding Sources of NDBs

In this chapter, we first provide a working definition of funding sources available for NDBs to define the scope of our data collection efforts. Second, focusing on the core feature of NDBs as financial intermediaries between the government and the market, we propose a typology of their funding sources to help us to grasp how each specific funding source is positioned along the two analytical dimensions: sources of funding (public agencies or market actors) and mechanisms of mobilizing funding (administrative measures or market-based means). Finally, we provide a preliminary analysis on the appropriate financing structure for NDBs from the perspective of New Structural Economics.

▪ 3.1 Working Definition of Funding Sources

In this report, we define funding sources of NDBs as all types of funding obtained for NDBs to engage in developing financing operations as well as sustaining their own operations. From different analytical angles, we can classify funding sources in at least the following ways: (1) internal financing from an NDB's own net income versus external financing; (2) external financing includes both funds recorded on the balance sheet, as well as unrecorded off-balance sheet funds (e.g., funds administered on behalf of the government); and (3) equity financing versus debt financing (see Figure 3.1).

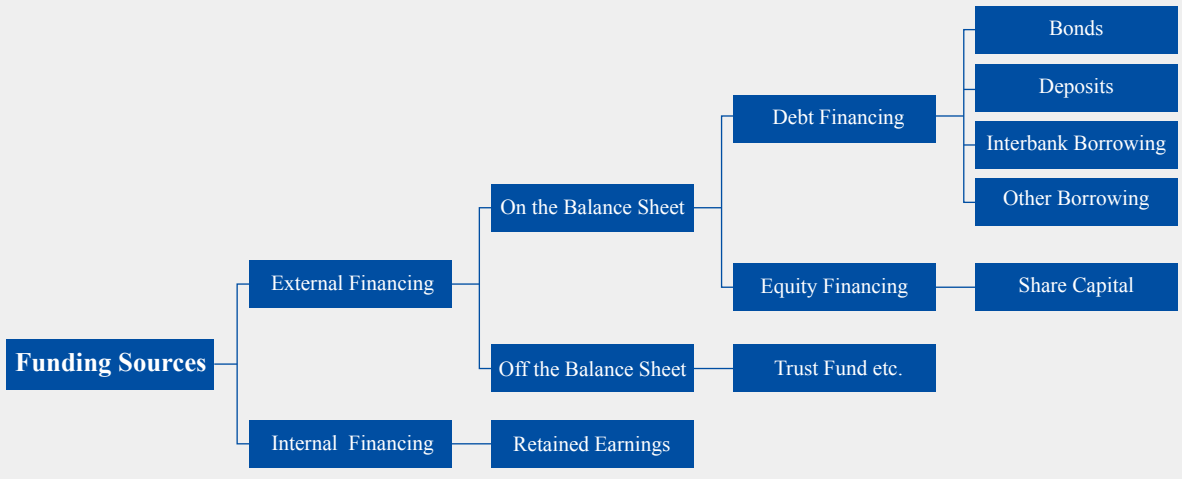

Figure 3.1 Analytical Dimensions of Funding Sources for NDBs

In terms of sources of funding, NDBs primarily mobilize funding from the following six sources: (1) issuance of debt securities in domestic or international capital markets; (2) share capital, borrowing, grants, and subsidies from national governments (including central banks); (3) borrowing from other financial institutions; (4) taking in savings and deposits from households and enterprises; (5) on-lending and official development assistance (ODA) from international financial institutions such as the World Bank, foreign public financial institutions, and aid agencies; and (6) retained earnings from NDBs' own income.[1] Trust funds or on-lending from the government or foreign financial institutions are further divided into two subcategories: off-balance sheet funds, which are administrated by NDBs on behalf of fund providers who bear the credit risk, and on-balance sheet funds, where NDBs bear the credit risk by themselves (see Figure 3.2).

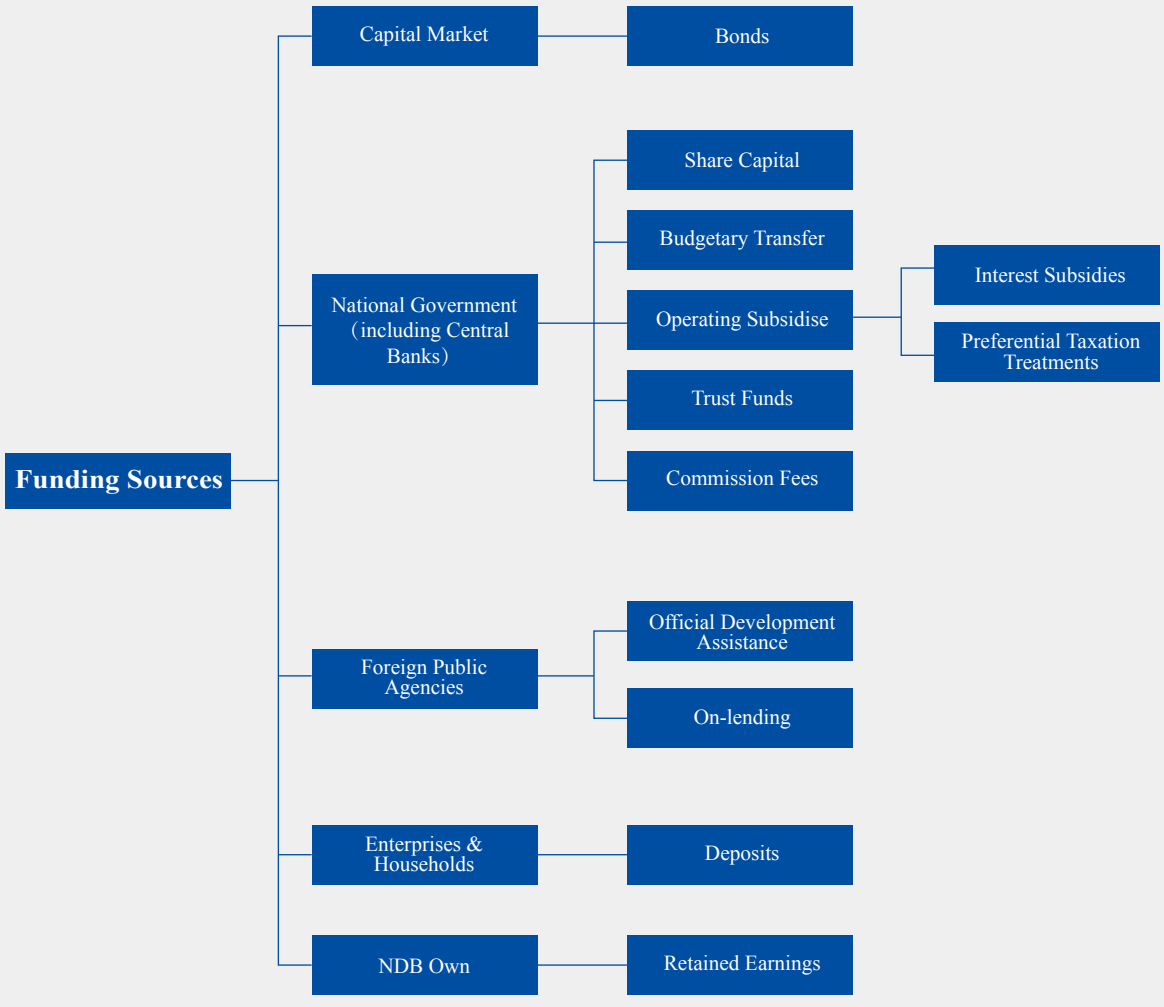

Figure 3.2 Main Funding Sources of NDBs

[1] Here there may be overlap between on-lending and ODA, as on-lending may be concessional enough to be qualified as ODA. But not all on-lending may disclose information on concessionality, and ODA may also be used for purposes such as capacity building of the NDBs themselves instead of on-lending to end customers. Therefore, for statistical convenience, we have divided them into two broad categories.

3.2 Main Types of Funding Sources for NDBs

NDBs are financial institutions created or owned by governments to advance national strategies or fulfill public policy objectives. Unlike commercial banks, NDBs do not aim to maximize profits. The projects that NDBs undertake are generally characterized by long project cycles, large capital requirements, high risks, and a positive development impact. As a result, profit-driven financial institutions or capital markets are not willing to provide financial support for NDBs, so that NDBs are often unable to mobilize sufficient funding by relying solely on their own efforts. Therefore, government support for fundraising is indispensable for NDBs. Unlike aid agencies that rely mainly on direct budgetary transfers from governments, NDBs can rely on government support to use market-based means to give full play to the leverage of the sovereign creditworthiness, transforming market funds into large long-term funds to advance development goals. The combination of sources from public agencies and market actors, and the integration of administrative measures and market-based means is a distinctive feature of mobilizing funding for NDBs.

The combination of sources from public agencies and market actors, and the integration of administrative measures and market-based means is a distinctive feature of mobilizing funding for NDBs.

We summarize the core features of funding sources for NDBs in figure 3.3. The horizontal axis represents the source of funding (i.e., ***who directly provides funding to NDBs***). There are two main sources: public agencies and market actors. The leftmost end of the horizontal axis represents the extent to which NDBs depend on public agencies, including central governments, local governments, and central banks, as well as multilateral development banks, foreign official aid agencies, and development finance institutions. The closer to the right end of the horizontal axis, the higher the degree of reliance on market actors providing funding sources for NDBs. Market actors include household depositors, financial institutions, and capital market investors. The vertical axis represents the funding mechanisms (i.e., ***how to mobilize funding sources***). There are two main ways to mobilize funding sources: administrative measures and market-based means.

Government support is crucial for NDBs to mobilize funding sources because NDBs are mandated to engage in financing high-risk or long-term projects or programs with positive externalities that profit-driven financial institutions are unable or unwilling to finance.

As discussed earlier, government support is crucial for NDBs to mobilize funding sources because NDBs are mandated to engage in financing high-risk or long-term projects or programs with positive externalities that profit-driven financial institutions are unable or unwilling to finance. However, the degree and means of government support may differ. Towards the top of the vertical axis, the government intervention in financing NDBs is ***indirect and implicit*** in line with market principles, where market players decide the scale or price of funding for the NDBs. For instance, governments can provide implicit or explicit guarantees for the bonds issued by NDBs. Towards the bottom of the vertical axis, the government intervention in funding NDBs is ***direct and explicit***. In other words, governments take administrative measures to decide the scale or price of funding available to NDBs. For example, the central bank assigns state-owned commercial banks to purchase a certain amount of bonds issued by an NDB at a given price by administrative orders.

Based on the sources and means of fund-raising, we can divide funding sources of NDBs into four main types. As shown in Figure 3.3, the first quadrant on the upper right represents funding sources from market actors and through market-based mechanisms. These include issuance of bonds on the capital market based on the creditworthiness of the state and receipt of deposits from households. The third quadrant on the lower left represents funding sources from public agencies via administrative measures. These include direct budgetary transfers from the government or capital injections from the central bank. However, it is worth noting that the government can take an administrative approach to help the NDB raise funds from market actors. The fourth quadrant in the lower right-hand corner indicates such types of funding sources. For instance, in the early years of China Development Bank (CDB), the People's Bank of China placed an administrative order upon state-owned commercial banks to purchase a certain amount of CDB bonds at a certain price. Meanwhile, the public agencies may provide financial support for NDBs in accordance with market principles, as exemplified in the second quadrant in the upper left-hand corner. Such examples include service fees for services commissioned by governments and on-lending from MDBs.

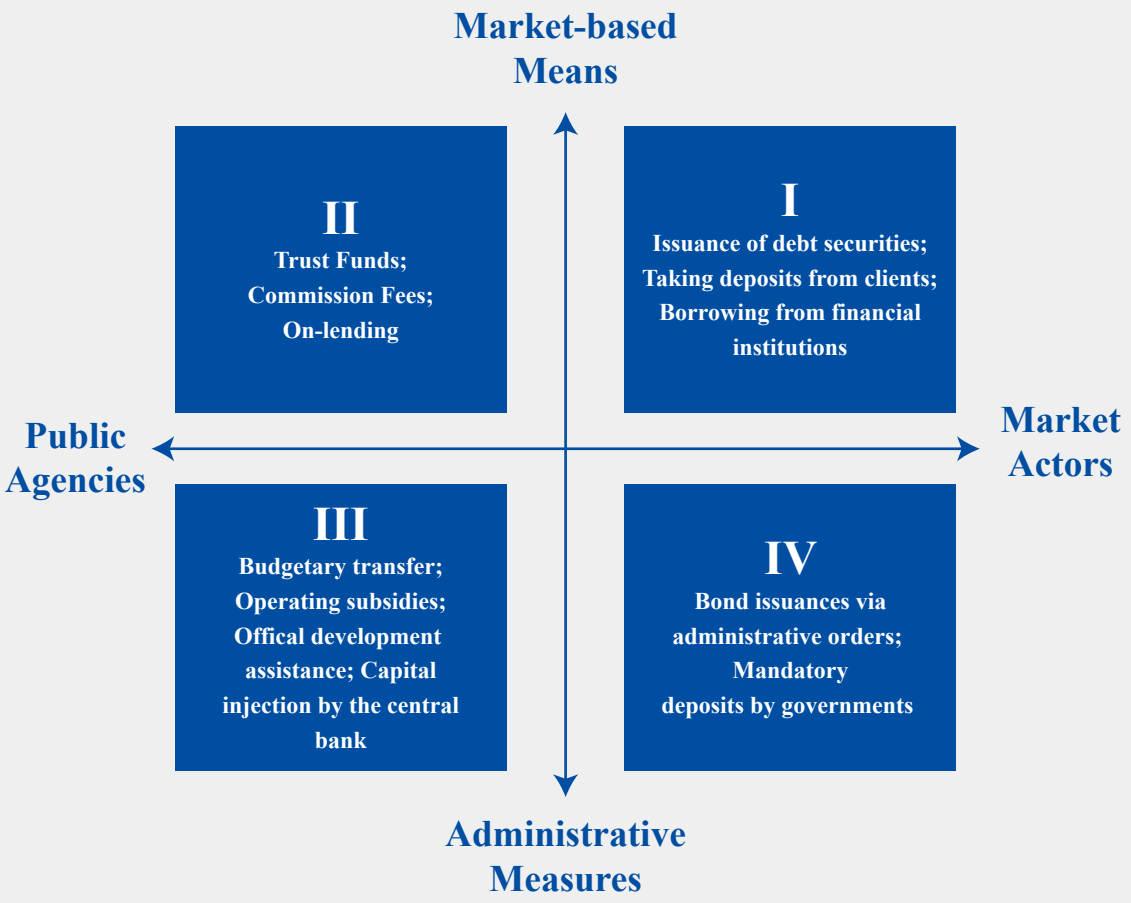

Figure 3.3 Main Types of Funding Sources of NDBs

3.3 A Preliminary Analytical Framework on the Appropriate Financing Structure of NDBs

The appropriate financing structure for an NDB depends on the development objectives it pursues; different development objectives are involved in different financing needs on the asset side that have implications for corresponding financing structure. We use the term "appropriate" rather than "optimal" financing structure for the following reasons. There are structural differences in the financing needs or challenges of the real economy in countries at different stages of development, and the mandate and role of the NDB should adapt to changing financing needs. As a result, there is no one-size-fits-all optimal financing structure. In the following section, we take into account structural differences between developing and developed countries in terms of factor endowment and industrial structure. Building upon the New Structural Economics perspective, this allows us to determine how to best analyze the appropriate financing structure for NDBs at different stages of development.

The appropriate financing structure for an NDB depends on the development objectives it pursues.

The New Structural Economics (NSE) has been proposed by Professor Justin Lin, the former chief economist of the World Bank. NSE is primarily built upon the development experiences of China and other developing countries to achieve industrial upgrading and structural transformation (Lin, 2012). Since World War II, mainstream development economics has experienced two major trends: "structuralism" and "neoliberalism". The former emphasizes that market failures require a strong government to accelerate economic development. In contrast, the latter places the free market economy as the most important engine to achieve economic development, which prescribes privatization, liberalization, and deregulation to remedy government failures. NSE reflects on the limitations of the first two waves of development thinking and proposes that a prosperous economy must create synergies between an effective market and a facilitating government. That is, at any given stage of development, the market plays a fundamental role in allocating resources. Still, the government should play a facilitating role in promoting industrial upgrading and structural transformation (Lin, 2012).

NSE maintains that the role of finance is to serve the real economy, and it stresses the differences in the scale of capital as well as the existing risk characteristics determined by the industrial structures of a country at different stages of development. Thus, the most appropriate financial arrangements also differ. At different stages of development, different factor endowment structures determines different industries with comparative advantages; different industries have different scales of financing needs and risk characteristics of production activities. Thus, these require financial arrangements with different capital mobilization and risk mitigation capabilities (Lin, Sun, and Ye, 2009; Lin, Sun, and Jiang, 2013).

From an NSE perspective, in addition to correcting market failures, NDBs can play a crucial role in incubating markets. Moreover, the role of market incubation evolves accordingly in different stages of development. At the early development stage, NDBs can provide hard and soft infrastructure to mitigate binding constraints in order to turn latent comparative advantages into competitive advantages. At the later development stages, they may also provide venture capital to incubate new industrial sectors.(Xu, 2017).

Given that development objectives are different in different development stages, the financing structure of NDBs should be adjusted accordingly to meet new development challenges.

Given that development objectives are different in different development stages, the financing structure of NDBs should be adjusted accordingly to meet new development challenges. The mainstream literature centers the debate about the financing structure of commercial banks on retail financing (e.g., household deposits) versus wholesale funding (e.g., large-scale funding from financial institutions) (Agur, 2013; Amidu and Wolfe, 2013; Balduzzi and Thadden, 2018; Craig and Dinger, 2013). However, the suitable measurement of the financing structure of an NDB depends on the characteristics of its development objectives. For example, if the purpose of the NDB requires the provision of long-term funding, we can define the financing structure in terms of maturity as the ratio of short-term to long-term funding. If the bank aims to finance industries with a positive development impact, but do not directly promote export or generate foreign reserves, the financing structure can be analyzed from the angle of local versus foreign currency funding to assess the balance of payments risks associated with different currency financing structures.

IV. Diversity of National Development Banks

Based on the New Structural Economics Development Finance Research Reports (Xu, Ren and Wu, 2019; Xu, Marodon and Ru, 2020), we have identified 378 NDBs worldwide for the purpose of this report. NDBs are defined as banks created or owned by governments with an official mandate of fulfilling public policy objectives.

In this chapter we classify NDBs according to the development stage of their countries, official mandate, and bank size. This classification shows the diversity of NDBs. Among them, we classify countries into four income groups, based on the World Bank's GNI per capita in current USD: low-income countries (LICs), low- and middle-income economies (LMICs), upper-middle-income countries (UMICs), and high-income countries (HICs).[2] Following the World Bank 2017 study on NDBs (De Luna Martinez, 2018), we 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).

Table 4.1 shows the characteristics of the distribution of samples in this report across the three dimensions of development stage, official mandate, and bank size. NDBs cover about 150 countries, of which a majority of NDBs are located in middle-income countries (MICs), about a third in HICs and only about 5.82% in LICs. Regarding the bank size, about one half of NDBs are small-sized, 27.25% are medium-sized, 11.64% are big-sized and only about 4.76% are classified as mega ones. In terms of mandate, about one half of NDBs have the official mandate in support of general development or multi-sectors; among single-purpose NDBs, the mandate includes small and medium-sized enterprises (SMEs) and entrepreneurship (17.72%), trade (11.11%), agriculture and rural development (9.26%), housing (5.82%), local government (2.12%), and infrastructure (1.59%).

[2] The thresholds of the income classification are as follows: LICs (< 1,036), LMICs (1,036–4,045), UMICs (4,046–12,535), and HICs (> 12,535).

Table 4.1 Diversity of NDBs

Classification		Number of Samples	Percentage
Full Samples		378	100%
Development stage	HICs	123	32.53%
	UMICs	122	32.28%
	LMICs	111	29.37%
	LICs	22	5.82%
Size	Mega	18	4.76%
	Big	44	11.64%
	Medium	103	27.25%
	Small	192	50.79%
	Unknown	21	5.56%
Mandate	General	198	52.38%
	Trade	42	11.11%
	Agriculture and rural development	35	9.26%
	SMEs and entrepreneurship	67	17.72%
	Housing	22	5.82%
	Infrastructure	6	1.59%
	Local government	8	2.12%

Note: Regarding the bank size, "Unknown" refers to NDBs that lack information on total assets.

In the following chapters, we focus on presenting the basic empirical evidence on the funding sources of NDBs. We also analyze whether the empirical evidence displays stylized facts, if any, in terms of development stage, official mandate, and bank size. It should be noted that our analysis is mainly based on publicly available data, yet some data points are not required for mandatory disclosure according to accounting standards. Therefore, data points with missing information do not necessarily indicate that an NDB does not have this type of funding source. This implies that we may be underestimating the usage of certain funding sources.

V. Stylized Facts on the Financing Structures of NDBs

In this chapter, we present the stylized facts about financing structures of NDBs, namely, internal financing versus external financing, and equity financing versus debt financing. We have tried our best to collect the data on financing structure at the disaggregated level such as the weight of bond issuances in total liabilities, but the scare data has rendered the analysis infeasible.

■ 5.1 Internal Financing vs. External Financing

This section elaborates on empirical evidence regarding the use of internal financing by NDBs. We first explore whether there are significant differences in the use of internal financing by NDBs from the angle of different stages of development, bank size and mandates. Second, we compare the level of internal financing of NDBs with that of commercial banks. Internal financing refers to the sources of funding generated by an enterprise through its own operations and retained within the enterprise. Internal financing enables enterprises to reduce funding costs and allows a certain degree of autonomy, compared with external financing such as debt financing or equity financing. However, internal financing has limitations, namely that it is mainly a source from the net income of an enterprise. Thus, the scale of internal financing is often small compared with that of external financing.

The indicator on internal financing used in this report is retained income as a percentage of net income. The retained income refers to the net income (after interest and taxes) remaining after dividends are deducted. The rationale for using this indicator is that we aim to examine the extent to which shareholders of banks are willing to forgo dividends to support bank operations. We matched the NDBs with banks in the Bankfocus database to calculate the average of this indicator from 2015 to 2019.

Table 5.1 Internal Financing of Different Types of NDBs

Classification		Number of Samples	Mean	Median	Standard Deviation	Min	Max
Full Samples		195	0.96	1	0.13	0.32	1
Development stage	HICs	60	0.95	1	0.13	0.34	1
	UMICs	73	0.96	1	0.15	0.32	1
	LMICs	55	0.97	1	0.11	0.4	1
	LICs	7	0.99	1	0.03	0.92	1
Size	Mega	16	0.97	1	0.07	0.75	1
	Big	37	0.95	1	0.12	0.55	1
	Medium	70	0.96	1	0.15	0.32	1
	Small	71	0.96	1	0.12	0.34	1
Mandate	General	114	0.97	1	0.13	0.32	1
	Trade	25	0.94	1	0.13	0.56	1
	Agriculture and rural development	15	0.99	1	0.04	0.85	1
	SMEs and entrepreneurship	25	0.92	1	0.16	0.34	1
	Housing	10	0.96	1	0.11	0.63	1
	Infrastructure	2	1	1	0	1	1
	Local government	4	1	1	0	1	1
Acceptance of household deposits	Accept	73	0.96	1	0.1	0.5	1
	Does not accept	122	0.96	1	0.14	0.32	1

Table 5.1 shows that the level of internal financing of NDBs does not differ significantly across development stages, bank size, or bank mandates. There is also little significant difference between those NDBs that take household deposits and those that do not.

Table 5.2 Comparison of the Level of Internal Funding Between NDBs and Commercial Banks

Type	Number of Samples	Mean	Median	Standard Deviation	Min	Max
NDB	195	0.96	1	0.13	0.32	1
Commercial bank	6993	0.7	0.77	0.30	0	1

Table 5.3 T-test of the Level of Internal Funding of NDBs and Commercial Banks

	NDB	Commercial Bank
Mean	0.96	0.70
Observation	195	6993
Difference	0.26***	
t-Stat	(27.54)	

Note: ***indicates significant at the 1% level.

NDBs are more likely to retain net income internally than commercial banks.

We then further compare the differences in internal financing between NDBs and commercial banks. Table 5.2 reveals that NDBs are more likely to retain net income internally than commercial banks. Table 5.3 shows that the t-test indicates that the level of internal financing is higher for NDBs than for commercial banks, which is statistically significant at the 1% level. In absolute terms, almost all of the net income of NDBs is retained as internal financing. One potential reason might be that shareholders of commercial banks are usually profit-driven, demanding a high level of dividends, whereas governments, as the main shareholders of NDBs, place more emphasis on public policy objectives. A fundamental reason might be that it is more challenging for NDBs to mobilize external financing from market actors than for commercial banks due to the focus of NDBs on high-risk, long-term and large-scale projects. As shareholders of NDBs, governments are more willing to forgo dividends to enable NDBs to better fulfill their development-oriented mandates.

Internal financing of NDBs is relatively small compared with the scale of external financing.

To evaluate the weight of internal financing in total funding of NDBs, we use the indicator of retained

Table 5.4 Retained Earnings as Percentage of Total Assets

		Number of Samples	Mean	Median	Standard Deviation	Min	Max
Full Samples		189	4.6%	1.9%	10.47%	-21.3%	64.98%
Development stage	HICs	57	5.9%	2.4%	12.04%	-19.96%	64.98%
	UMICs	71	5%	1.88%	10.06%	-17.53%	41.06%
	LMICs	54	2.7%	1.43%	9.51%	-21.3%	31.29%
	LICs	7	3.87%	2.54%	8.59%	-9.88%	17.98%
Size	Mega	20	3.26%	2.11%	5.43%	-4.34%	15.25%
	Big	34	2.15%	1.26%	4.04%	-8.32%	13.82%
	Medium	70	4.24%	1.9%	11.14%	-19.96%	64.98%
	Small	69	5.9%	3.49%	11.87%	-21.3%	41.06%
Mandate	General	110	4.7%	2.11%	10.34%	-21.3%	64.98%
	Trade	24	2%	1.43%	8.82%	-20.37%	20.34%
	Agriculture and rural development	15	4.04%	2.41%	7.58%	-4.47%	27.45%
	SMEs and entrepreneurship	24	5.89%	2.04%	11.38%	-16.67%	29.32%
	Housing	11	7.74%	1.18%	17.68%	-13.32%	41.06%
	Infrastructure	2	3.79%	3.79%	1.33%	2.85%	4.73%
	Local government	3	0.94%	0.08%	2.72%	-1.25%	3.98%
Acceptance of household deposits	Accept	71	2.17%	1.18%	8.3%	-21.3%	29.32%
	Does not accept	118	6%	2.52%	11.42%	-20.37%	64.98%

earnings as the percentage of total assets (i.e., the sum of equity financing and debt financing). Table 5.4 indicates that It varies across NDBs. The ratio is as low as -21.3% and as high as 64.98%. Regarding development stages, the more advanced the development stage is, the greater reliance on internal financing NDBs have. As for the bank size, the internal financing plays a smaller role in mega and big NDBs than medium and small ones. One potential reason might be that large NDBs may have more external funding sources available such as bond issuances than small ones. In terms of mandates, NDBs with the mandate of SMEs and entrepreneurship and housing financing rely more on internal financing than those with other mandates. Finally, NDBs that does not take household deposits depend more on internal financing than those that take.

▪ 5.2 Equity Financing vs. Debt Financing

This section explores the differences in the financing structure of equity financing versus debt financing for different types of NDBs. We use the indicator of the ratio of total liabilities to total assets to measure the extent to which NDBs rely on debt financing.

Table 5.5 Ratio of NDBs' Total Liabilities to Total Assets

Classification		Number of Samples	Mean	Median	Standard Deviation	Min	Max
Full Samples		196	0.71	0.81	0.25	0.01	0.98
Development stage	HICs	59	0.65	0.8	0.31	0.01	0.98
	UMICs	74	0.76	0.81	0.19	0.17	0.98
	LMICs	56	0.71	0.8	0.23	0.03	0.96
	LICs	7	0.75	0.88	0.23	0.31	0.97
Size	Mega	16	0.8	0.89	0.25	0.13	0.98
	Big	36	0.79	0.91	0.07	0.6	0.98
	Medium	71	0.71	0.81	0.24	0.01	0.97
	Small	72	0.61	0.66	0.26	0.03	0.96
Mandate	General	115	0.71	0.81	0.26	0.01	0.98
	Trade	24	0.78	0.84	0.2	0.23	0.95
	Agriculture and rural development	15	0.8	0.84	0.19	0.17	0.98
	SMEs and entrepreneurship	25	0.67	0.75	0.27	0.01	0.94
	Housing	11	0.66	0.64	0.25	0.24	0.95
	Infrastructure	2	0.52	0.52	0.15	0.37	0.68
	Local government	4	0.82	0.96	0.26	0.37	0.98
Acceptance of household deposits	Accept	73	0.81	0.88	0.17	0.04	0.98
	Does not accept	123	0.66	0.76	0.27	0.01	0.98

Table 5.5 show that the larger the size of NDBs is, the higher proportion of debt financing they have. Moreover, NDBs located in HICs are more likely to choose equity financing than those in MICs and LICs. The average level of debt financing with the mandate to finance SMEs and start-ups is lower than the average for the total sample. This could be due to the risk characteristics of their specific business (i.e., the business side of supporting SMEs and start-up funding is characterized by short-cycle, high-risk, high-return characteristics). In this regard, equity financing better matches the characteristics of startup businesses on the asset side than debt financing. In addition, NDBs with a housing and infrastructure objective are more likely to take equity financing. However, further analysis is needed to explore concrete explanations.

Table 5.6 Comparison of Debt Funding between NDBs and Commercial Banks

Bank Type	Number of Samples	Mean	Median	Standard Deviation	Min	Max
NDB	197	0.71	0.81	0.25	0.01	0.98
Commercial bank	7264	0.87	0.89	0.11	0	1

Commercial banks are more inclined to undertake debt financing than NDBs.

Table 5.6 shows that commercial banks are more inclined to undertake debt financing than NDBs. One potential reason for this could be that the asset-side business of NDBs has long-term, high-risk characteristics. These make it more difficult for NDBs to get support from debt financing; thus, NDBs require more reliance on equity financing from the government. Furthermore, Table 5.7 demonstrates that commercial banks are still more likely to use debt financing than NDBs that accept household deposits, though the level of debt financing is higher for NDBs that accept household deposits than for NDBs that do not accept these (as shown in Table 5.5). This might be explained by the fact that although NDBs accepting deposits from households have an additional source of debt financing on the liability side, they are still engaged in development finance, whereby the mission of promoting development makes them more dependent on government support for equity financing.

Table 5.7 Comparison of Debt Financing Ratios of Household Deposit-taking NDBs to Commercial Banks

	NDBs that Take Household Deposits	Commercial Banks
Mean	0.81	0.87
Observation	73	7264
Difference	-0.06***	
t-Stat	(-2.96)	

Note: ***indicates significant at the 1% level.

VI. Empirical Patterns on Main Funding Sources of NDBs

In this chapter, we present the empirical patterns of main funding sources of NDBs from capital markets, national governments, international and foreign public agencies, and household.

▪ 6.1 Capital Markets: NDBs as "Bond Banks"

In this section, we present the stylized facts of NDBs that issue bonds, analyze the locations of bond issuances, and examine the government support for bond issuances by NDBs.

(i) Bond Issuance

1. Characteristics of Bond-Issuing NDBs and their countries

Table 6.1 shows the bond issuance by NDBs. Overall, a total of 45.50 percent of NDBs financed themselves through issuing bonds. This report collects the characteristics of the NDBs and their home countries to analyze the diversity of NDBs that issue bonds.

(1) The development stage of the country

This report classifies countries into HICs, UMICs, LIMCs, and LICs. A total of 123 NDBs are in HICs, of which 47.15 percent issue bonds; 122 NDBs are in UMICs, of which 55.74 percent issue bonds; 111 NDBs are in LMICs, of which 37.84 percent issue bonds; and 22 NDBs are in LICs, of which 18.18 percent issue bonds. The comparison shows that, in general, NDBs from HICs, UMICs and LMICs are more likely to finance their operations through bond issues..

NDBs from HICs, UMICs and LMICs are more likely to finance their operations through bond issues.

(2) Bank size

The sample in this report includes 18 mega banks, of which 100.00 percent issue bonds, 44 large banks, of which 79.55 percent issue bonds, 103 medium-sized banks, of which 56.31percent issue bonds, and 192 small banks, of which 27.60 percent issue bonds. In general, the larger the NDB is, the more likely it is to issue bonds.

The larger the NDB is, the more likely it is to issue bonds.

(3) Mandates

This report divides the mandate of NDBs into the general purpose and single mission including trade, agriculture and rural development, SMEs and entrepreneurship, housing, infrastructure, and local government. For 198 NDBs with general mandates, 49.49 percent issue bonds;

42 NDBs promote trade, with 54.76 percent issuing bonds; 35 NDBs support agriculture and rural development, of which 31.43 percent issue bonds; 67 NDBs support SMEs and entrepreneurship, of which 25.37 percent issue bonds; 22 NDBs support housing, of which 68.18 percent issue bonds; 6 NDBs have a mission to build infrastructure, of which 33.33 percent issue bonds; and 8 NDBs support local government, of which 75.00 percent issue bonds. This indicates that NDBs with official mandates on agriculture and rural development and SMEs and entrepreneurship are less likely to issue bonds. One potential reason might be that their risks are too high to attract investors from capital markets.

(4) Degree of capital market deepening

This report uses the "corporate bond issuance as a percentage of GDP" indicator from the World Bank´s Global Financial Development Database to measure the degree of bond market deepening in the country where NDBs are located. It should be noted the World Bank's Global Financial Development Database offers data on this indicator for only 70 countries (or territories); such data is unavailable for 144 countries or territories. Therefore, in this report, the analysis of this indicator is limited to the NDBs in these 70 countries (or territories). This

Table 6.1 Bond Issuance of NDBs

Classification		Number of Samples	NDBs that Issue Bond	
			Number	Percentage
Full Samples		378	172	45.50%
Development stage	HICs	123	58	47.15%
	UMICs	122	68	55.74%
	LMICs	111	42	37.84%
	LICs	22	4	18.18%
Size	Mega	18	18	100.00%
	Large	44	35	79.55%
	Medium	103	58	56.31%
	Small	192	53	27.60%
	Unknown	21	8	38.10%
Mandate	General	198	98	49.49%
	Trade	42	23	54.76%
	Agricultural and rural development	35	11	31.43%
	SMEs and entrepreneurship	67	17	25.37%
	Housing	22	15	68.18%
	Infrastructure	6	2	33.33%
	Local government	8	6	75.00%
Capital market deepening	High	67	42	62.69%
	Medium	81	45	55.56%
	Low	57	29	50.88%

[3] It should be noted the World Bank's Global Financial Development Database offers data on this indicator for only 70 countries (or territories); such data is unavailable for 144 countries or territories. Therefore, in this report, the analysis of this indicator is limited to the NDBs in these 70 countries (or territories).

report classifies countries based on the ratio of corporate bond issuance to GDP: HICs which are characterized with a high degree of capital market deepening; UMICs and LMICs with medium capital market deepening, and LICs with low capital market deepening. In the sample, there are 67 NDBs with high capital market depth, of which 62.69 percent issue bonds; 81 NDBs with moderate capital market depth, of which 55.56 percent issue bonds; 57 NDBs with low capital market depth, of which 50.88 percent issue bonds. The comparison shows that, at large, the deeper the country's bond market is, the more likely an NDB will finance its operations through bond issuances.

(ii) Location of Bond Issuance Markets

NDBs issue bonds in either their domestic capital markets or international capital markets. The result shows that of 172 NDBs that issue bonds, only 69 issue bonds in the domestic market, 51 issue bonds in foreign markets, and 44 issue bonds in both domestic and foreign markets. Further analysis shows that NDBs are more likely to issue bonds in domestic capital markets if their countries' capital markets are more developed.

NDBs are more likely to issue bonds in domestic capital markets if their countries' capital markets are more developed.

(iii) The Government Support for Bond Issuances of NDB

Because NDBs are usually required to provide long-term funding for development projects, they require access to adequate amounts of low-cost and long-term funding. However, short-term funding, such as deposits from households, cannot fully meet an NDB's financing needs. In contrast, long-term bonds may have maturities of several decades or even longer, which are able to meet the long-term funding needs of the NDBs and mitigate the risk of maturity mismatch. The projects supported by the NDBs are generally characterized by long term, large capital requirements, and high risks; yet, they have positive development impacts. As the above-mentioned projects are generally projects for which profit-driven financial institutions or capital markets are not willing to provide financial support under market economy conditions, NDBs are often unable to effectively issue bonds on their own. Thus, the government plays a key role in the NDB's bond financing. Governments often provide sovereign credit support for an NDB's bond issuance through explicit or implicit guarantees of all or certain types of bonds. Hence, bonds issued by an NDB have the qualities of "government bonds" or "quasi-government bonds"; the competitiveness of the bonds in capital markets is enhanced and the cost of funding is reduced. Therefore, it is the "market" + "government" model that meets the financing needs of NDBs.

Governments often provide sovereign support for an NDB's bond issuance through explicit or implicit guarantees.

▪ 6.2 Government Funding

This section describes the characteristics of NDBs' funding sources from national governments. It also analyses how, in addition to providing share capital, the government helps NDBs to moblize funds.

(i) Types of Government Funding

As NDBs aim to serve national strategies and implement public policies rather than maximizing profits, profit-driven financial institutions are not willing or able to

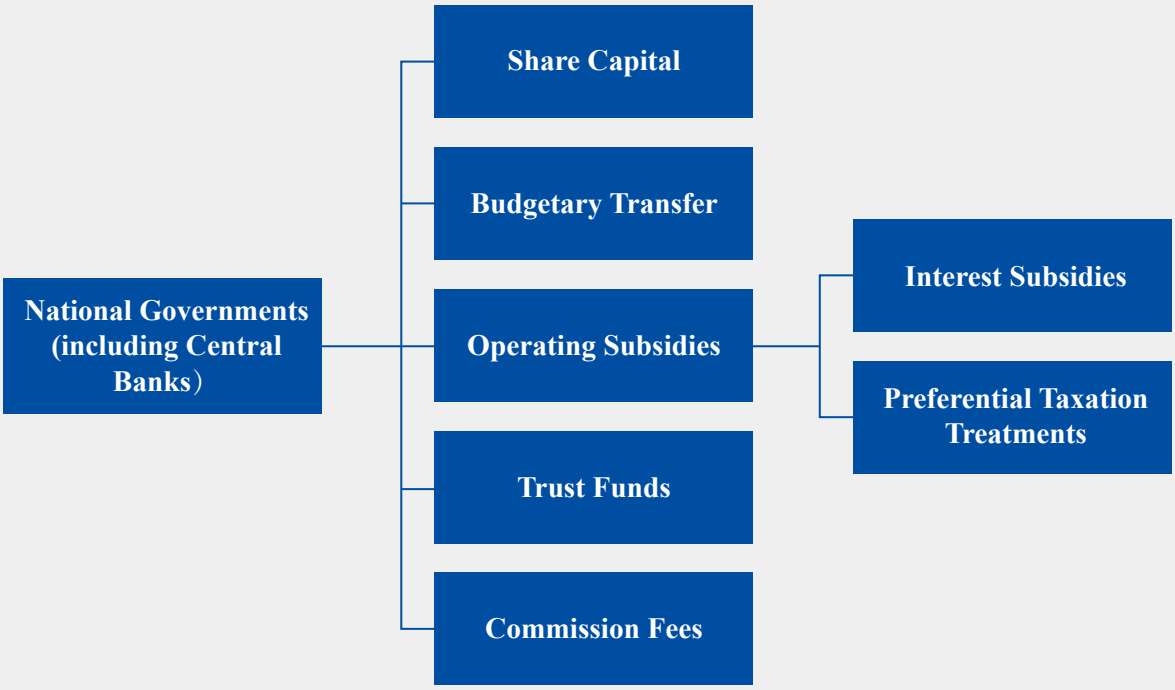

Figure 6.1 Types of Government Funding

finance development projects with long implementation cycles, high capital requirements, and low returns. As a result, the government usually provides financial support to NDBs in various ways to enable them to fulfill their development-oriented missions. This report classifies government support to NDBs into the categories shown in Figure 6.1

(ii) Establishment of the Fund

1. Types of funds

There are two main types of government funding mechanisms through NDBs. The first is through the establishment of trust funds commissioned by governments for certain purposes, whereby NDBs manage funds on behalf of governments. In this case, NDBs are not responsible for the fund's profit or loss. The second is that governments provide funds to NDBs earmarked for certain purposes where NDBs bear credit risks.

NDBs with general mandates are likely to undertake trust funds or risk-bearing funds than single-mandate NDBs.

Table 6.2 summarizes the stylized facts of the two types of funds that NDBs receive from governments. Among 378 NDBs worldwide, 8.73% of the NDBs report that they receive trust funds (Type 1 trust funds), and 7.41% of the NDBs report that they obtain earmarked funds where they themselves bear risks (Type 2 risk-bearing funds). Furthermore, we try to identify empirical patterns across NDBs along the analytical dimensions of development

Table 6.2 Funds from Governments

Classification		Number of Samples	Trust funds (Type 1)		Risk-bearing funds (Type II)	
			Number	Percentage	Number	Percentage
Full Samples		378	33	8.73%	28	7.41%
Development stage	HICs	123	13	10.57%	13	10.57%
	UMICs	122	9	7.38%	4	3.28%
	LMICs	111	10	9.01%	9	8.11%
	LICs	22	1	4.55%	2	9.09%
Size	Mega	18	6	33.33%	2	11.11%
	Big	44	4	9.09%	3	6.82%
	Medium	103	5	4.85%	4	3.88%
	Small	192	10	5.21%	9	4.69%
	Unknown	21	8	38.10%	10	47.62%
Mandate	General	198	27	13.64%	17	8.59%
	Trade	42	1	2.38%	3	7.14%
	Agriculture and rural development	35	0	0.00%	3	8.57%
	SMEs and entrepreneurship	67	5	7.46%	4	5.97%
	Housing	22	0	0.00%	1	4.55%
	Infrastructure	6	0	0.00%	0	0.00%
	Local government	8	0	0.00%	0	0.00%

stage, bank size, and bank mandate. It shows that Type 1 trust funds do not differ significantly across NDBs at different stages of development. NDBs in HICs and LICs are more likely to establish Type 2 risk-bearing funds. There is also a tendency that NDBs with general mandates are likely to undertake trust funds or risk-bearing funds than single-mandate NDBs. The potential reason might be that governments can earmark funds for specific purposes. In addition, mega banks are more likely to administrate trust funds commissioned by governments.

(iii) Government Subsidies

1. General information on government subsidies

Government subsidies are an important type of government support for NDBs. Table 6.3 shows the basic facts of NDBs receiving government subsidies, in

Table 6.3 Government Subsidies by NDBs

Classification		Number of Samples	Access to government subsidies	
			Number	Percentage
Full Samples		378	48	12.70%
Development stage	HICs	123	20	16.26%
	UMICs	122	18	14.75%
	LMICs	111	8	7.21%
	LICs	22	2	9.09%
Size	Mega	18	5	27.78%
	Big	44	5	11.36%
	Medium	103	12	11.65%
	Small	192	14	7.29%
	Unknown	21	12	57.14%
Mandate	General	198	31	15.66%
	Trade	42	10	23.81%
	Agriculture and rural development	35	2	5.71%
	SMEs and entrepreneurship	67	2	2.99%
	Housing	22	3	13.64%
	Infrastructure	6	0	0.00%
	Local government	8	0	0.00%

which 12.47% of NDBs report that they have received government subsidies. Furthermore, for those who receive subsidies from governments, NDBs from HICs and UMICs, mega NDBs, and NDBs promoting trade are more likely to receive government subsidies. Yet it worth noting that those who have not reported subsidies do not necessarily indicate that they do not obtain subsidies in practice.

2. Operating Subsidies

Government subsidies are usually earmarked for certain purposes, and and very few NDBs receive government interest subsidies applied to all their loans.

6.4 Characteristics of NDBs Receiving Interest Subsidies

Bank	Development stage	Country	Region
Public Investment Development Company	HICs	Lithuania	Europe
Finnvera	HICs	Finland	Europe
Croatian Bank for Reconstruction and Development	HICs	Croatia	Europe
Czech Export Bank	HICs	Czech Republic	Europe
Czech-Moravian Guarantee and Development Bank	HICs	Czech Republic	Europe
MFB Hungarian Development Bank Private Limited Company	HICs	Hungary	Europe
Hungarian Export-Import Bank Plc.	HICs	Hungary	Europe
Bank of the Cook Islands	HICs	Cook Islands	Oceania
Bank for Development and Foreign Economic Affairs	UMICs	Russia	Europe
Indonesia Eximbank	UMICs	Indonesia	Asia
Bank Pembangunan Malay Berhad	UMICs	Malaysia	Asia
Development Bank of Samoa	UMICs	Samoa	Oceania
Fiji Development Bank	UMICs	Fiji	Oceania
Agricultural Bank of Namibia	UMICs	Namibia	Africa
National Bank for Agriculture and Rural Development	UMICs	India	Asia
Agriculture and rural development Bank	UMICs	Ghana	Africa

One important type of government subsidies is interest subsidies, which are usually provided by the government to the NDBs to subsidize earmarked projects that have positive externalities but hardly break even in financial terms. Table 6.4 shows the main characteristics of the NDBs receiving interest subsidies. NDBs from HICs and UMICs are more likely to receive government interest subsidies. Moreover, government subsidies are usually earmarked for certain purposes, and and very few NDBs receive government interest subsidies applied to all their loans.

3. Service fees

Service fees are paid by governments to NDBs in return for professional services. Service fees are another funding source from governments. Table 6.5 shows the 7.41 per cent of NDBs have received service fees from

Table 6.5 NDBs' Access to Service Fees

Classification		Sample size	Service fees	
			Number	Percentage
Full Samples		378	28	7.41%
Development stage	HICs	123	15	12.20%
	UMICs	122	8	6.56%
	LMICs	111	4	3.60%
	LICs	22	1	4.55%
Size	Mega	18	2	11.11%
	Big	44	3	6.82%
	Medium	103	10	9.71%
	Small	192	7	3.65%
	Unknown	21	6	28.57%
Mandate	General	198	17	8.59%
	Trade	42	6	14.29%
	Agriculture and rural development	35	1	2.86%
	SMEs and entrepreneurship	67	4	5.97%
	Housing	22	0	0.00%
	Infrastructure	6	0	0.00%
	Local government	8	0	0.00%

governments. It further reveals that NDBs from HICs, mega, big and medium-sized NDBs, and NDBs promoting trade are more likely to receive services fees from governments.

6.3 International Funding Sources

This section outlines the main features of on-lending and ODA from international sources, namely international organizations and foreign public agencies.

(i) On-lending

On-lending generally refers to loans that NDBs receive from MDBs, aid agencies, or NDBs from more developed countries to be distributed to end beneficiaries. This report classifies on-lending into three types. The first type includes projects in which the government or a government department (e.g., the Ministry of Finance) acts as the borrower and assumes repayment responsibility. The second type consists of projects in which NDBs act as the borrower, assuming repayment responsibility, with the government or a government department (e.g., the Ministry of Finance) providing a guarantee. The third type are projects in which NDBs act as the borrower, assuming the repayment responsibility, with the government or a government department (e.g., Ministry of Finance) not providing guarantees. For those NDBs that reveal the

types of the on-lending, a majority of on-lending is the first and third types, and few falls into the second type.

Table 6.6 shows the empirical patterns of the NDBs that received on-lending. Overall, 8.73 per cent of NDBs have received on-lending. It further reveals that NDBs from LICs and LMICs are more likely to receive on-lending. These banks often find it difficult to obtain adequate funding from domestic sources, and thus are more inclined to access international funds. NDBs with the mandate of supporting local government are more likely to receive on-lending than NDBs with other single mandates.

Table 6.6 NDBs Receiving On-lending

Classification		Number of samples	On-lending	
			Number	Percentage
Full Samples		378	33	8.73%
Development stage	HICs	123	11	8.94%
	UMICs	122	8	6.56%
	LMICs	111	12	10.81%
	LICs	22	2	9.09%
Size	Mega	18	3	16.67%
	Big	44	2	4.55%
	Medium	103	11	10.68%
	Small	192	9	4.69%
	Unknown	21	8	38.10%
Mandate	General	198	19	9.60%
	Trade	42	5	11.90%
	Agriculture and rural development	35	2	5.71%
	SMEs and entrepreneurship	67	3	4.48%
	Housing	22	2	9.09%
	Infrastructure	6	0	0.00%
	Local government	8	2	25.00%

(ii) Official Development Assistance (ODA)

ODA refers to aid from international organizations or donor countries. It consists of grants and concessional loans. Table 6.7 presents the stylized facts of NDBs that receive ODA. Overall, 10.32 percent of DFIs have received ODA. It further shows that NDBs from LICs are more likely to receive ODA. Compared with NDBs with other mandates, NDBs supporting local governments are more likely to obtain ODA.

Table 6.7 National Development Banks Receiving ODA

Classification		Number of samples	ODA	
			Number	Percentage
Full Samples		378	39	10.32%
Development stage	HICs	123	13	10.57%
	UMICs	122	15	12.30%
	LMICs	111	7	6.30%
	LICs	22	4	18.18%
Size	Mega	18	1	5.56%
	Big	44	3	6.82%
	Medium	103	11	10.68%
	Small	192	15	7.81%
	Unknown	21	9	42.86%
Mandate	General	198	20	10.10%
	Trade	42	2	4.76%
	Agriculture and rural development	35	3	8.57%
	SMEs and entrepreneurship	67	8	11.94%
	Housing	22	2	9.09%
	Infrastructure	6	0	0.00%
	Local government	8	3	37.50%

▪ 6.4 Household Deposits

In this section we present the stylized facts of NDBs that receive deposits from households. NDBs may resort to accepting household deposits as a source of funding because they have a mission to enhance financial inclusion, make retail operations feasible, or have limited alternative funding sources. However, NDBs that take household deposits may be prone to liquidity risks and maturity mismatch.

Table 6.8: Household Deposits Taken by NDBs

Classification		Number of household-deposit-taking NDBs	Number of non-household-deposit-taking NDBs	Percentage of household-deposit-taking NDBs
Full samples		108	267	28.8%
Development stage	HICs	14	107	11.57%
	UMICs	46	85	35.11%
	LMICs	37	65	36.27%
	LICs	11	10	52.38%
Size	Mega	4	14	22.22%
	Big	20	24	45.45%
	Medium	30	73	29.13%
	Small	48	142	25.26%
	Unknown	6	14	30%
Mandate	General	60	137	30.46%
	Trade	4	37	9.76%
	Agriculture and rural development	14	21	40%
	SMEs and entrepreneurship	20	46	30.3%
	Housing	10	12	22.22%
	Infrastructure	0	6	0%
	Local government	0	8	0%

Most NDBs do not take household deposits.

Table 6.8 shows that most NDBs do not take household deposits. In particular, NDBs from HICs, mega NDBs, and NDBs whose missions are to finance infrastructure, trade, and local government are least likely to take household deposits. In addition, NDBs from LICs are more likely to take household deposits.

[4] Due to the unavailability of NDB data for total assets, we do not take them into account in our ratio calculations.

VII. Conclusions and Research Prospects

The world is currently witnessing a global renaissance of NDBs. Due to lack of data, few academic studies have been able to systematically examine the funding sources of NDBs. To fill this data gap, the Institute of New Structural Economics at Peking University has established a pilot database on the funding sources of NDBs worldwide.

Based on firsthand data from the database, we present the stylized facts of the funding sources for NDBs worldwide. The key findings are as follows:

- First, public agencies and market actors are the two main sources of funding for NDBs. Governments play a dispensable role in mobilizing funding for NDBs through direct and explicit administrative measures or indirect and implicit market-based means.
- Second, bond issuance is the one of the important funding mechanisms for NDBs, especially in large NDBs and NDBs from HICs and MICs. The government, either through explicit or implicit guarantees, supports NDBs to issue long-term bonds at relatively low prices.
- Third, internal financing and equity financing play a more important role in NDBs than in commercial banks.
- Fourth, the government supports the funding of NDBs mainly through share capital, the establishment of trust funds, government subsidies, service fees, and various other means.
- Fifth, on-lending and ODA from international and foreign public agencies play an important role in funding NDBs in developing countries, especially LICs.
- Sixth, most NDBs do not take household deposits. Though NDBs that take household deposits may be prone to liquidity risks and maturity mismatch, some NDBs especially from LICs take household deposits as they might have limited alternative funding sources.

Building upon the key characteristics of funding sources for NDBs worldwide, we propose the following research questions for future exploration from the perspective of New Structural Economics and encourage scholars who may be interested in this area to conduct further research:

- What is the most appropriate financing structure for NDBs at different stages of development? How do NDBs at different stages of development find the right mix of funding sources from public agencies versus market actors and get the right balance between administrative means and market-based means?
- How does the mandate of NDBs affect its modalities of funding sources?
- How does the financing structure of NDBs affect the maturity of loans, risk appetite, and choice of financial instruments on the asset side?
- Under what conditions can bond-issuing NDBs effectively contribute to the development of domestic capital markets?
- Why do some NDBs issue bonds whereas others not given the similar level of capital market development?
- What determines the price, maturity, liquidity and allocation of bond issuances by NDBs in either domestic or international capital markets?
- What is the optimal risk-sharing mechanism when the government commissions a fund with an NDB?
- To what extent do on-lending and ODA from international and foreign public agencies discourage NDBs from mobilize funds in their own countries?
- Under what circumstances would on-lending denominated in hard currencies from MDBs and foreign NDBs lead to a balance of payment crisis in the host country?
- What are the impacts of taking household deposits on the ability of NDBs to provide long-term and high-risk finance to fulfil their development-oriented mandates?

References

1 Agur, I. “Wholesale bank funding, capital requirements and credit rationing.” Journal of Financial Stability 9, no. 1 (2013): 38–45.

2 Amidu, M., and S. Wolfe. “The Impact of Market Power and Funding Strategy on Bank-Interest Margins.” European Journal of Finance 19, no. 9–10 (2013): 888–908.

3 Ba, Shusong, Longxin Sun and Bangkun Niu. A Study of the Impact of the Commercialization Reform of Policy Banks on the Bond Market [政策性银行商业化改革对债券市场的影响研究 (in Chinese)]. Beijing: Economic Science Press, 2010.

4 Balduzzi, P. and E. V. Thadden. “Financial Markets, Banks’ Cost of Funding, and Firms’ Decisions: Lessons from Two Crises.” Journal of Financial Intermediation 36 (2018):1–15.

5 Craig, B. R., and V. Dinger. “Deposit Market Competition, Wholesale Funding, and Bank Risk.” Journal of Banking and Finance 37, no. 9 (2013): 3605–3622.

6 De Luna Martinez, J. 2017 Survey of National Development Banks. Washington D.C.: World Bank Group. May 2018.

7 Grünbacher,A. Reconstruction and Cold War in Germany: The Kreditanstalt fr Wiederaufbau (1948-1961). Burlington: Ashgate Publishing, 2004.

8 Lin, Justin Yifu. New Structural Economics: A Framework for Rethinking Development and Policy. Washington, D.C.: World Bank, 2012.

9 Lin, Y.-F., X. Sun, and Y. Jiang. “A Preliminary Study of the Theory of Optimal Financial Structure in Economic Development” [经济发展中的最优金融结构理论初探 (in Chinese)], Economic Research Journal, no. 8 (2009).

10 Lin, J.Y., X. Sun, Y. Jiang. “Endowment, Industrial Structure, and Appropriate Financial Structure: A New Structural Economics Perspective.” Journal of Economic Policy Reform, 16, no. 2 (2013): 109–122.

11 Xu, J., X. Ren, and X. Wu. Mapping Development Finance Institutions Worldwide: Definitions, Rationales, and Varieties. New Structural Economics Development Financing Research Report No. 1. 2019.

12 Xu, J., R. Marodon, and X. Ru. Qualification Criteria and Classification of Public Development Banks and Development Finance Institutions. New Structural Economics Development Financing Research Report No. 2. 2020 (forthcoming).

13 Xu, J. “Between Government and Market: Rethinking the Positioning of Developmental Financial Institutions From A New Structural Economics Perspective” [政府与市场之间：新结构经济学视角下重思开发性金融机构的定位 (in Chinese)], Development Finance Research, no. 4 (2017).

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