Development Banks contribution to long term financing

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Abstract

This paper discusses the role of development banks (DBs) in long-term financing for economies, as well as their importance in economic development. The varying theories on the State's intervention in the credit market are analyzed, especially the post-Keynesian approach, which is the basis for the study. Also a general panorama of DBs in the world is presented, highlighting their specific characteristics and the segments to which they most provide support. To illustrate the importance of such institutions, a more detailed analysis focuses on four large national DBs, covering both qualitative and quantitative aspects.

Introduction

The crisis of 2008-2009 showed that qualified public financial institutions are of utmost importance in times of slowdown of private credit, as they prevent an abrupt decrease in funding. Financial situations of extreme gravity demanded immediate and effective actions: the success of the performance of development banks (DBs) from developed and developing countries was due to the fact that they are institutions already consolidated with extensive experience. This finding has made timely the discussion on the role of DBs, which are often considered exotic "beings' typical of developing countries and of incomplete financial markets, in the world economy.

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This study aims to examine the contribution of DBs for the long term funding in national economies and, consequently, its importance for the economic development. We intend to demonstrate that the role of Development Banks is relevant in countries at various development stages, both at the moments of stability and at the moments of crisis.

For that, the article will be divided into five parts, including this introduction and the conclusion. In the following section, a brief theoretical discussion on which to base the analysis will be presented. In the third one, the contribution of the BDs for the development will be discussed, with emphasis on their acting scope. In the penultimate section, a comparative analysis of four prominent international DBs, focusing on their core competencies, areas of operation and financial performance will be held.

Theoretical framework

There are several definitions of DB in the literature[1]. Overall, these concepts are close to each other. This study considers development banks the financial or banking institutions which are controlled by the government and have: (i) an operating mandate in market segments or specific sectors which generate significant socioeconomic impacts; or (ii) a wide mandate to provide financing to the socioeconomic development of a determined region. The existence of public banks in the financial system, as well as their objectives and ways of action, has always been the subject of academic debate among those who defend the institutions and those who are against them. The BDs are inserted in this context. These banks gained more notoriety with the countercyclical role during the international financial crisis in 2008. In spite of the fact that many studious defend the existence of the BDs, there are still controversies and criticisms remaining in the debate.

Despite its size and importance to the economies, little academic research has been conducted on the role of development banks.[2] Most of the literature related to the issue has a broader scope, seeking to identify the general role of

[1] For example, see Luna-Martinez and Vicente (2012), and UN-DESA (2005).
[2] See Luna-Martínez and Vicente (2012).

the financial system on economic growth. One can point three main groups of approaches to the topic: (i) one of historical / institutional character; and (ii) two associated to the economic theory (the financial repression and credit rationing).

The historical / institutional approach emphasizes the difference between financial structures among countries and throughout time.[3] It does not advocate a single optimal financial structure to be applied as a general model. The financial system should develop according to the needs of each country. Based on that, Zysman (1983) classified three preferential types of financial structures: (i) with predominance of the capital market as a source of financing for development; (ii) based on public credit; e (iii) based on private bank credit.

According to the financial "repression" approach, based on the assumption of competitive markets, the market is fully capable of adjusting towards the more favorable conditions for the whole economic system.[4] This adjustment is warranted by the flexibility of interest rates.

In this view, any government intervention, be it in direct control of interest rates in the economy, or by the existence of public financial institutions, is doomed. The reason is that the government intervention would lead to a level of interest rate inferior to the balance rate, which would prevent the efficient market adjustment and the development of private financial institutions.

This approach is based on the theory of loanable funds, according to which the financial system is only an intermediary between savers (suppliers of resources) and investors (demanders of funds). The interest rates below the equilibrium level would lead to an insufficient level of savings to finance investments in the economy. In other words, in this case, the lack of investment financing would not be related to a matter of quantity, but rather to a question of price. If the market can adjust freely, the "price" of resources given by the interest rate will be such that there will be no lack of funds (read savings) to finance investment.

[3] Gerschenkron (1973), for example, emphasized the advantages of delay: late industrialization countries could learn from the experiences of mature developing countries, establishing more appropriate financial structures for accelerating the development process.
[4] See Gurley and Shaw (1955); McKinnon (1973); and Shaw (1973).

With this approach, no intervention in the free operation of the market would be justified.

On the other hand, the approach of credit rationing describes a situation in which, even when agents are willing to pay a higher interest rate to get the funds to finance their investments, banks may refuse to offer financing. In other words, in this case there would be an issue of restricted amounts and not of "price" (interest) misfits. In this perspective, the approach of credit rationing justifies the existence of development banks, which would supply the necessary credit to investment, unavailable in the private financing system. However, in addressing the rationing of credit, there can still be two schools of economic thought distinguished: a new Keynesian and post-Keynesian[5].

The new Keynesian approach is associated to the theory of market failures.[6] The credit rationing occurs due to a malfunction of the financial markets, caused by imperfect information or information asymmetry. In other words, information asymmetry prevents the financial market to function efficiently. The idea is that the borrowers (entrepreneurs seeking loans) have more information on the expected return of their projects than the lenders (banks) . Thus, in the event that there is a greater demand for credit than the supply, the adjustment would not be done by increasing interest rates.

Banks understand that a higher rate of interest would select riskier projects, excluding safer ones: the situation is known as adverse selection. According to this interpretation, in the credit market, entrepreneurs who accept to pay the higher interest rates are not the ones whose projects provide the highest expected return for the banks, since they are more prone to risk, and because of that, have greater probability of bankruptcy. For this reason, banks restrict their credit supply to a level compatible with the optimal interest rate that maximizes its expected profit, even if there remains an excess demand in the market. Even in the existence of contingency contracts between borrowers and lenders, the problem is reduced, but not eliminated, and still entrepreneurs with no favorable history of relationship with banks may be harmed, even if they have good projects. Also, higher interest rates tend to attract the more

[5] See Hermann (2011) and Maia (2009).

[6] See Mankiw (1991); Stiglitz (1990; 1993); Stiglitz e Weiss (1981; 1983).

adventurous borrowers who are willing to take higher risks: the phenomenon of moral hazard.

The post-Keynesian school, in turn, is linked to the concept of monetary economy, marked by the existence of fundamental or strong uncertainty.[7] This concept differs from risk, since the strong uncertainty is not calculable. For clarity, take the example of craps: when making a bet, when rolling the dice, it is known beforehand the possibility of a hit, which is one in six, considering that the dice has six faces. That means that, in this case, the risks of missing a deal are fully calculable. However, when the object is a monetary economy in which historical time evolving prevails, with no possibility of return to an earlier moment in time, what exists is not risk, but strong uncertainty. This happens due to the lack of available information about all the economic facts that may occur in the future.

Given the lag between the moment of an economic decision and of its results, agents act according to the expectations they form on their future earnings. Once an agent takes a decision in the present that proves unsuccessful in the future, there will be concrete losses that cannot be reversed, considering that the agent cannot return to the past to change his decision, since the historical time is irreversible.

Uncertainty is present in all economic decisions, but affects them differently according to the passage of time involved in each economic event. For example, production decisions regarding short-term are less complex and therefore are taken routinely taking the past as a good approximation. Investment decisions, in turn, are more complex.

The investment decisions are based on an array of options for applying the capital in which different types of assets are classified taking into account their expected profitability and liquidity.[8] At one end there is the currency that is the asset with a higher level of liquidity and profitability null. At the other extreme we find capital goods (machinery and equipment), which generate a high level of

[7] See Bertocco (2007); Davidson (2000); Glickman (1994); Lawson (1985).

[8] Post Keynesians are based on the application of capital theory presented in Keynes (1936), chapter 17. See also Carvalho (1997); Keynes (1939).

profitability, but are the most illiquid assets. Between money and capital goods, there is a series of assets which generates increasing profitability while decreasing the level of liquidity.

The agents will demand investment goods if the expected profits are high enough to compensate for their high level of illiquidity because, if the earning expectations are frustrated, there will be a high cost of conversion of capital assets into currency. Even if they are able to sell capital goods, certainly they will not be able to recover the initial cost of purchasing these assets. This same reasoning can be done in relation to other assets with intermediate levels of profitability and liquidity.

It is worth noting that the fact that at times the agents prefer to hold currency instead of other assets does not point to the existence of money illusion. There is full awareness that currency does not generate income. Nevertheless, in an environment marked by considerable uncertainty, the allocation of resources in other assets presents possibilities for greater loss than holding cash, given its relative lower liquidity when compared to it. The yields from other assets consist precisely in compensation for the lower degree of liquidity in relation to the currency.

This preference for liquidity is not restricted only to investors, but also applies to banks, the responsible ones for the supply of credit in the economy.[9] And, at this point, it is important to emphasize that there may be lack of credit for investment even when there are well-developed national and international financial systems. That is, the importance of the DBs goes far beyond the question of "market failure" that defends the existence of incomplete financial systems. Given the uncertainty about the future, depending on the characteristics of the new sectors / projects that require resources, banks can offer no credit, even if the financial system is fully developed.

Therefore, the existence of the DBs is justified by the existence of sectors / investment projects that require funding, but inspire high uncertainty as to their

[9] For the debate on preference for liquidity, see Bibow (2005); Carvalho (1999; 2007); Keynes (1937a; 1937b; Kregel (1988); Paula (1998); Wray (2009; 2010).

future success. Because of that, they are rejected by the private financial system which prefers sectors / investment projects whose expected outputs are less uncertain. They are highly complex and often expensive sectors / projects, requiring sophisticated expertise in their evaluation, which can generate positive impacts across the economy (positive externalities) and / or in which prevail social returns over private returns. Among those who inspire greater uncertainty we can mention: infrastructure, technological innovation, support to micro, small and medium enterprises (MSMEs), microcredit, and economic projects environmentally and socially responsible - such as developing alternative energy sources and other initiatives of the "green economy". This kind of situation is observable in both developed countries and developing ones and can occur in times of economic stability.

The possibility of lack of credit worsens in times of economic crises. Evidence shows that the behavior of the financial system is pro-cyclical: in crisis situations, the supply of credit decreases more than it expands in stages of economic growth. In moments of confidence crisis about the trends of the economy, the preference for liquidity increases significantly. Therefore, the credit becomes more expensive, scarce and concentrated in times of greater macroeconomic instability, exactly when refinancing mechanisms and financial support are needed the most. This deepens instability and prevents many investment projects, setting the situation of "financial fragility".[10] In such cases, public development banks play an important countercyclical role, providing resources for the financing of investment projects at a time of stagnation in private credit.

According to the minskyan hypothesis of financial fragility, in the phases of stability and economic growth, there is a tendency for agents to wish to apply their resources and investments in riskier assets. This can happen either voluntarily as well as involuntarily, ie, following a herd behavior guided by the collective optimism.

Specifically in the case of banks, the moments of economic growth are accompanied by the growth of good expectations about the financial solvency of

[10] See Kregel (1997); Minsky (1982; 1986); Crotty(2011) and Findley and Williams (1985).

borrowers. This is explained by the impact of optimism on estimates of future revenues by banks on their financial commitments, ie, lower risks and higher profitability of its applications are expected. Also, credit applicants make more positive assessments of the payments history. Thus, banks tend to reduce their preference for liquidity, which makes them raise their credit supply. However, this process causes a reduction of the banks margin of safety, as banks attribute decreasing risk to their borrowers, thus creating a tendency to over-indebtedness and the underestimation of risk, which is aggravated by the ratio of competition in the banking market, as even conservative banks need to raise their credit supply to avoid losing market share.

As expectations are becoming increasingly less conservative in the economy, banks and businesses are increasingly assuming more aggressive financial positions, making their financial stability be dependent on the achievement of expected revenue streams.

An important argument, finally, for the performance of public DBs is the need for financial autonomy so that the most disadvantaged countries can implement development policies.[11] These policies consist of stimuli directly targeted at promoting investment in strategic but still infant sectors, high-intensity sectors in research and development or already developed companies in the country but not internationalized. However, financial markets are insufficient, and fiscal resources of the government to fund them - tax revenue and debt - are limited. For this reason, the DBs play a fundamental role in funding these initiatives, since they may resort to more diversified sources of funding, such as raising domestic savings, voluntary or compulsory, credit taken at other banks (public, private or foreign) and reinvestment of operating surplus. Through diversification of funding sources, the DBs enjoy greater autonomy in resource allocation, ie, they do not compete for resources for alternative purposes as it occurs with the public budget. This article takes as basis the post-Keynesian approach which we consider more appropriate for understanding the actions of DBs in the international economy. As we intend to demonstrate, the role of DBs

[11] Ver Hermann (2010; 2011).

is relevant in countries at various stages of development, both in times of stability and in times of economic crises.

About Development Banks

The DBs appeared worldwide in the 1940s, because of the global postwar reconstruction and the need of credit for small and medium sized industries. Since then, the DBs have a historical importance in the economic growth of many countries, including the developed ones. Analyzing a sample of 11 institutions from several countries between the years 2011 and 2012, the added asset value reached U.S. $ 3.24 trillion [12]. This section will give an explanation of the role of DBs in the economic development of countries.

During the course of the 2008 crisis, DBs had outstanding performance in many countries, through a countercyclical role that was able to alleviate the shortage of liquidity in the credit market. After this period, they came out strengthened, raising interest of some countries in the creation of these institutions.

However, the importance of the performance of DBs is not justified only in times of crisis. Their existence in a permanent basis is crucial, given the dynamism of the development process. Their "missions" and goals change over time, reflecting different stages of development of the countries. In developing nations, such as Brazil and China, the DBs perform a broader role by financing projects in different sectors of the economy. But even in developed economies, where there has been significant progress of the various productive sectors and of the private long-term financing market, the action of DBs remains fundamental. Confrontation with new economic, social and environmental challenges arises both for developing countries as well as for the more advanced economies.

The DBs may differ as to: (i) the structure of ownership (wholly or partly public), (ii) the focus of activity (limited or broad), (iii) forms of funding (first or second-tier), (iv) financing costs, (v) the regulatory environment which they are subject

[12] Based on the authors' research in the annual reports of various institutions.

to, (vi) corporate governance, and (vii) the size, the portfolio of loans and financial performance.

For example, Luna-Martinez and Vicente (2012) conducted a survey which included ninety institutions and classified DBs by type of mandate, arriving at the result indicated in Table 1.

Table 1: Mandate of the DBs according to research by the World Bank (2012).

Wide	47%
Specific	53%
Agriculture	13%
MSME	12%
Foreign Trade	9%
Residential	6%
Infrastructure	4%
Local Government	3%
Industry and others	6%

Source: Luna-Martínez and Vicente (2012).

When observing their performance in a historical perspective, although there is no single format for DBs, it is possible to identify common features in their activities.

Throughout the various stages of development, these institutions are supporting expansion productive capacity to meet the market segments for which the private financial system does not provide adequate tools for long-term financing. In large measure, these segments correspond to those that generate positive externalities and, therefore, are characterized by presenting relevant social returns. Among those niches, we can highlight: the infrastructure (especially the segments associated with energy generation and social infrastructure); technological innovation, support to MSMEs; microcredit and environmentally and socially responsible economic projects. Also, in times of economic crises, the DBs play an important countercyclical role, contributing to systemic stability.

In infrastructure, high capital requirement, the specificities of certain projects, the externalities, the maturity term of the investment, among other factors, make it difficult not only to assess and finance the project, but also to make it

economically viable and attractive to the private sector. The availability of credit to this sector is crucial to the economic growth of a country and to the welfare of its population.

Some countries have managed to involve private agents in long-term financing of infrastructure, either through private banks or through the capital market. Others, however, needed public institutions to foster this credit market, either due to institutional, political, historical, economic difficulties, or even because of the need to create mechanisms that meet the urgent need for growth.

Even in countries where private agents are active in infrastructure financing, some segments deal with difficulties in accessing credit: for example, those related to social and urban infrastructure, which generate even more visible positive externalities. Another problem that was noted in the 2008 financial crisis is the need for continued investment in infrastructure in a high and stable level regardless of the economic scene.

Study by LSE Growth Commission (2013) recommended to the British government to set up a bank to fund infrastructure, since investments in this sector are stationary in the country.

> *An Infrastructure Bank (IB) to facilitate the provision of stable, long-term, predictable, mostly private sector finance for infrastructure. There are good theoretical reasons for the creation of such a bank: it can help to overcome key market failures in capital markets in a direct and constructive way. In particular, it can help to reduce policy risk and, through partnerships, to structure finance in a way that mitigates and shares risk efficiently. This will require a whole range of financial instruments including equity and structured guarantees* [LSE Growth Commission (2013, p. 25)].

The DBs also stand out in supporting innovation projects. Besides increasing the competitiveness of enterprises, many investments in innovation, such as research in the health sector, transcend the economic interest and generate positive externalities for society. The funding of public institutions is crucial since innovation projects are subject to greater uncertainty as to their results and, therefore, often have limited access to private credit. Supporting environmentally sustainable projects, in turn, also becomes increasingly important. At this point, innovation and environmental sustainability have a

relevant intersection, since the search for greater energy / environmental efficiency tends to result in innovations in both products and processes.

Since the performance of the DBs aims to complement the private financial system, an important contribution is stimulating the development of innovative and sustainable long-term financial industry. The DBs use various instruments to achieve this goal, such as: (i) participation in long-term funds, (ii) investment in companies through venture capital, (iii) securitization, (iv) shareholding in companies and in the fixed income market, and (v) joint financing to share project risks.

The investment through venture capital is an important tool by which DBs can stimulate the capital market and the maturation of MSMEs, especially for innovative companies. Through private equity, institutions leverage the development of an established company, enabling its growth and strengthening its capital structure with the subsequent IPO. With venture capital, they reach MSMEs and also innovative companies.

It is noteworthy that the supported segments may change in the passage of time in accordance with the development of the credit market in a country. There are also cases in which the institution can file for a temporary role, which can be combined with the private sector, with the aim of developing a credit market niche and create mechanisms and scale for the action of private banks. In this case, the DB assumes a part of the risk related to the entrance in the segment, reducing the risk of future entrants from the private sector.

Institutions play a role that goes beyond financing a certain segment with limited access to credit. There is a concern in making the results overflow beyond the corporate gain, being appropriated by society in some way. They use to be a fundamental instrument of the industrial policy of countries, either operating in strategic sectors for socio-economic development or helping governments in the implementation of public policies. The main goal is not profit maximization, but rather the promotion of social welfare and economic development. For this reason, monitoring the implementation and progress of projects is critical to the fulfillment of the conditions stipulated in the loan agreement.

In addition to ongoing activities in the pursuit of economic and social development, the DBs also affect the preservation of economic stability. The 2008 Crisis rekindled their importance in the financial system, raising its countercyclical role in the credit market. In a time of severe credit crunch in the private financial system, countries which had DBs used these institutions to cushion or even compensate for the fall in credit in the private market, avoiding a greater drop in aggregate demand. We can observe in Figure 1 that, among some institutions, the default behavior was a significant rise in the rate of growth of the loan portfolio in 2008 and 2009. The exception was the Bankengruppe KfW (Germany), whose growth in the loan portfolio concentrated in 2010 and 2011, due to the European crisis. The German DB even made emergency loans to Greece.

The importance of the DBs in promoting economic stability was highlighted by the Conference Board of Canada, which showed the need for prior existence of DBs for countercyclical action in times of crisis. This feature was dubbed "The Sleeping Beauty":

> *Once a financial crisis hits, it is too late for governments to create institutional capacity to provide fall-back credit support. The institutions must already exist, with a clear operate mandate, experienced professional staff, and the financial capacity to respond to the financial needs and ramp-up their operations when the private market fails* [Conference Board of Canada (2010, p. 1)].

This shows an important lesson for countries that do not have this kind of institution or decided to create it in post-crisis: maintaining an active DB is not an option, but a rule for those countries which want to maintain a stable financial system, healthy and vigilant to inefficiencies in the credit market.

Figure 1: Growth of the loan portfolio of selected DBs (%)

Figure 1A: Brazilian Development Bank (BNDES) – Brazil

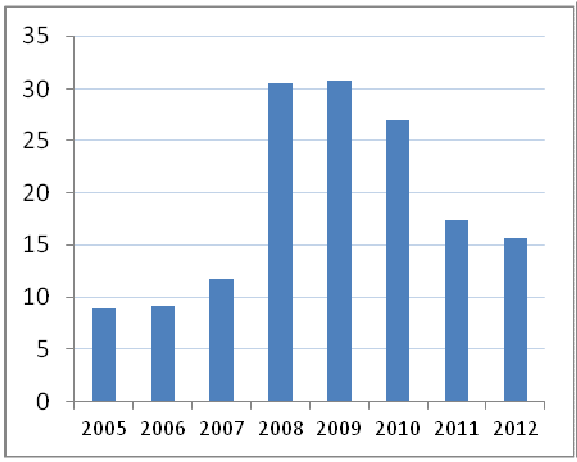


Figure 1B: China Development Bank (CDB) – China

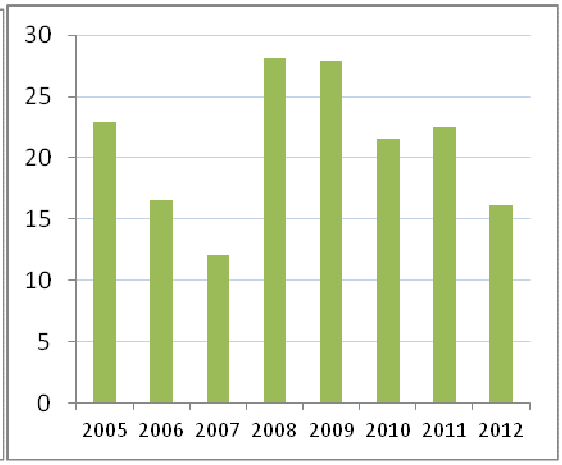


Figure 1C: Business Development Bank of Canada (BDC) – Canada

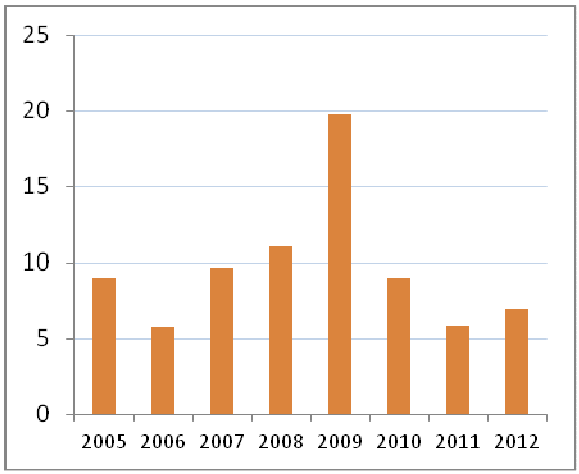
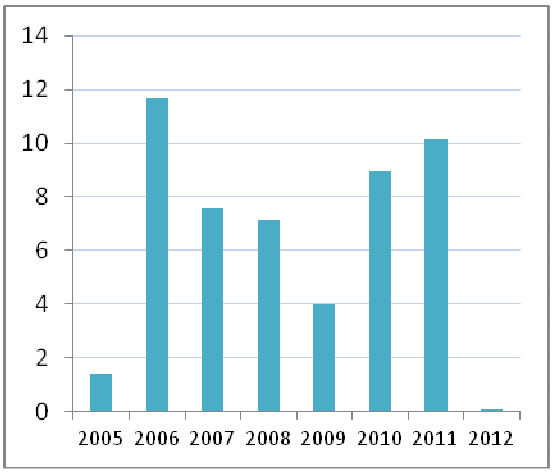


Figure 1D: KfW – Germany



Source: Annual reports of the institutions.

Note: In the case of the BDC, the fiscal year is different and covers the period between April this year and March next year. For purposes of comparative analysis, we considered for each year the value at the end of March the following year.

Four international experiences compared

As important as the big picture of the DBs is to observe some specific cases, comparing certain aspects. The structure of long-term financing differs among different countries, as well as the political characteristics and the economic environments in which they act. To analyze the involvement of the institutions in national economies is critical to understand the role that each one had in the development process and the preservation of economic stability.

In this article, the sample of DBs analyzed is more restricted and was selected according to the characteristics of institutions, trying to compare banks with some similarities. The DBs chosen fund several segments / sectors and are historically important in countries they operate. Table 2 summarizes the qualitative characteristics of some DBs relevant in their countries, according to the annual reports of banks.

Table 2: Characteristics of selected DBs

	China Development Bank (CDB)	KfW Bankengruppe (KfW)	BNDES	Japan Finance Corporation (JFC)
	China	Germany	Brazil	Japan
Government Control	100%	100%	100%	100%
Sectors and Clients	Broad	Broad	Broad	Broad
Lending Model	First/Second-tier	First/Second-tier*	First/Second-tier	First/Second-tier
Regulation equal to private?	No	No	Yes	No
Council with independent members?	Yes	Yes	Yes	Yes
Year founded	**1994**	**1948**	**1952**	**2008****

Source: Annual reports of the institutions.(2012).
* KfW uses direct loans only in international operations.
** The JFC resulted from the integration of four institutions: National Life Finance Corporation (NLFC) - Microcredit - founded in 1949 under the name of People's Finance Corporation, Agriculture, Forestry and Fisheries Finance Corporation (AFC), founded in 1953, Japan Finance Corporation for Small and Medium Enterprise (JASME), founded in 1953, and the export credit division of the Japan Bank for International Cooperation (JBIC), founded in 1950. However, in April 2012, JBIC separated from the JFC.

The four selected DBs have very similar characteristics, as they are all controlled by the government, work with various clients in various industries, and have councils that allow the participation of independent members.

A significant difference, however, can be verified in the regulation of the DBs. The BNDES is the only one regulated by the same institution that supervises the private banks. The KfW and the JFC are directly regulated by the ministries and the CBD by the central government. In spite of this, all these banks try to follow some rules that guide the private sector, especially those relating to the Basel Accord. The KfW voluntarily applies some rules of the German Banking Act, including the capital requirement. The CBD accompanies their levels of capital requirements based on Commercial Banks Capital Adequacy Management Guidelines.

This aspect must be interpreted carefully. To submit the institution to the regulations and supervision identical to the one of the private sector banks,

despite it may induce to a good financial performance in the institutions, can bring negative consequences. An example is the requirement of minimum capital referred to in the Basel Accord for riskier loans, which are generally the niche in which a DB must act. This requirement may induce the institutions to lend more to companies with low risk, reducing the funding for the segments / sectors that really need it. Therefore, although it is important to keep the DBs levels of security in their operations, to link them to strict rules may limit their ability to finance. This point, however, requires a more detailed discussion, which is not part of the scope of this work.

Another factor verified is that the KfW, the BNDES and the JFC grant loans with different interest rates to certain segments. In China's case, it was not possible to reach this conclusion because of the lack of information in the annual reports. With respect to the funding of institutions, it can be concluded that the CBD and the KfW mostly use proceeds from the issuance of bonds in the market, while the JFC and the BNDES finance themselves by means of fiscal resources.

Another important aspect are the segments supported by institutions. In general, the four DBs support the same segments, with slight differences (Table 3). It is remarkable that, in some cases, niches not supported by these institutions are funded by another DB with specific expertise. Some examples will be presented in the next paragraphs.

The financing of MSMEs, innovation, internationalization and the green economy, in addition to operations in the capital market, is present in all the institutions studied. In relation to green economy, it is worth mentioning the pioneering spirit of the KfW, which has supported this initiative since the 1950s. In spite of the fact that all of them work in these sectors, each DB does it differently, depending on the characteristics of the credit market in each country and the degree of economic development.

Table 3: Segments supported by selected DBs

	CDB (China)	KfW (Germany)	BNDES (Brazil)	JFC (Japan)
MSME	X	X	X	X
Agriculture	X		X	X
Infrastructure	X	X	X	
Exports		X	X	
Innovation	X	X	X	X
Green Economy	X	X	X	X
Internationalization	X	X	X	X
Capital Markets	X	X	X	X
International Financial Cooperation	X	X		

Source: Source: Annual reports of the institutions (2012).

Concerning agriculture, only the KfW does not finance the sector. However, Germany has another DB at the national level, the Rentenbank, which operates in the agricultural sector.

Loans for infrastructure are not present only in the JFC. However, there is a governance structure in Japan that allows the JFC to inject fiscal resources in other institutions in order to finance, among other sectors, the infrastructure in the event of natural disasters[13].

It is worth noting that, historically, the support to infrastructure via DB in some countries changed depending on the stage of development. In Japan, the Development Bank of Japan (DBJ)[14] had historical importance in the financing of infrastructure, but with the development of the private credit market for this sector, the need for public resources decreased.

In the case of Germany, the KfW's participation was crucial to the development of German national infrastructure, as in the case of post-war reconstruction and in the modernization of East Germany. However, with the development of the private long-term credit to this sector, the use of instruments of public funding

[13] Development Bank of Japan Inc. (DBJ) and The Shoko Chukin Bank Ltd.

[14] The DBJ still works as DB, but is being privatized. Even after the privatization, the bank can be a funding provider (using fiscal resources) for measures in extraordinary events (crisis or natural disasters) or in specific cases related to the development of sustainable products (Low Carbon Investment Promotion Act), to industrial revitalization and to innovation (Industrial Revitalization Act), with the purpose of increasing the competitiveness of Japan's industry.

for major national infrastructure projects declined. Between 2006 and 2009, public funding for infrastructure accounted for only about 30% of the total funded, leaving most of it on the responsibility of the private sector [Wagenvoort, Nicola and Kappeler (2010)]. This allowed the German bank to refocus its domestic operations in this segment to municipal and social infrastructure (urban structure, energy efficiency of buildings, schools, hospitals, kindergartens, etc.) and to infrastructure for renewable energy.[15]

In turn, the support to exports is not checked in the CBD and in the JFC. However, China and Japan have other DBs that operate in this segment. In China's case, the CBD was created in 1994, in a scenario of reformulation of the financial system in which two DBs were founded: the Agricultural Development Bank and the Export-Import Bank of China, this being responsible for supporting the exports and imports. In Japan, the Japan Bank for International Cooperation (JBIC), which was a subsidiary of JFC between October 2008 and March 2012, operates in internationalization and funds the exports segment.

In international operations, the KfW and the CDB play an important role in stimulating international financial cooperation and promoting socioeconomic development in developing countries. The KfW has two subsidiaries that operate overseas financing private companies that invest in socially and environmentally sustainable projects, providing consulting services for combating poverty and protecting the environment. On the other hand, the CDB is responsible for funding projects in other countries in order to promote national interests. Besides seeking markets for Chinese companies, the policy of the DB overseas aims to ensure the supply of certain inputs at low cost, expand their industries looking for greater competitiveness and invest in local infrastructure through Chinese companies.[16]

In Japan, although the JFC does not act in the international financial cooperation, the Japan International Cooperation Agency (JICA) operates in

[15] After the nuclear accident in Fukushima (Japan), Germany established in 2011, a plan aimed at transforming the country's energy matrix. The KfW will play a key role in this process, by funding, besides energy efficiency, offshore wind farms to be built.

[16] The CDB formed in 2007, the China-Africa Development Fund (largest Chinese equity fund investing in Africa), in order to finance Chinese and African companies.

this segment. Historically, this role was of the JBIC, but there was a reorganization of the DBs system in Japan in 2008, and the operations of international cooperation were transferred to JICA, leaving only a product that does not condition the JBIC loans to exports / imports of Japanese products or to the firm being Japanese[17].

It is important to note that Table 3 summarized the segments supported by these DBs today. As important as the branches financed, is the focus of each institution. Even supporting many niches, the institution may choose a particular niche that will be prioritized under certain circumstances. In this case, the choice can be made via prioritization of budget, reduction in financing costs, among other ways.

To illustrate the importance of these institutions, it is essential to evaluate some indicators and also highlight their relevance in the economy in which they operate. Analyzing the quantitative aspect, we highlight the assets of the DBs studied (Table 4). They had, in 2012, assets exceeding $ 300 billion. Together, the assets of all those DBs accounted for about $ 2.5 trillion.

Despite the goal of a DB is not profit maximization, having financial sustainability is fundamental for the bank to have the resources to fulfill its mandate. For that, an appropriate risk management portfolio is of utmost importance. We must note that it is normal that in some segments there is higher delinquency than in others, so be careful when comparing DBs who work in different niches. Banks with a broader mandate have the advantage of being able to compose their portfolio with enterprises of different sectors, segments and sizes, which creates conditions for a balance in their loan portfolio to compensate for probable losses in vulnerable sectors.

According to Luna-Martinez and Vicente (2012), only 14% of DBs in the world lost money in 2009. Among the institutions studied here, only the JFC experienced loss, which is justified by the recency of the institution and the costly process of integrating several other DBs. In the case of profitability indicators, we highlight the CBD and the BNDES, with return on assets (ROA) and return on equity (ROE) higher than those of other banks. Regarding the

[17] United loans. Available in: <http://www.jbic.go.jp/en/finance/untied-loan/index.html>.

non-performing loans ratio, the BNDES, the KfW and the CBD have a percentage lower than 0.50%, showing the concern of these banks with the risk management of their credit portfolios.

Despite the growth of the credit portfolio of many DBs, it can be noticed among the institutions a major concern with risk management and governance. Indeed, according to Luna-Martinez and Vicente (2012), 88% of the institutions reported have units of risk management.

Table 4: Structure and financial performance of selected DBs – 2012

	CDB (China)	KfW (Germany)	BNDES (Brazil)	JFC (Japan)
Assets (US$ millions)	1,191,597	657,347	367,825	318,401
Loan Portfolio (US$ millions)	1,016,969	526,401	254,019	272,426
Net Profits (US$ millions)	9,995	3,063	3,009	(3,585)
Non-performing loans ratio* (%)	0.30	0.21	0.06	2.98
Return on assets (%)	0.92	0.47	0.90	(1.13)
Return on Equity (%)	13.37	11.52	12.50	(6.84)
Number of employees	8,038	5,190	2,853	7,361

Source: Annual Reports (2012).

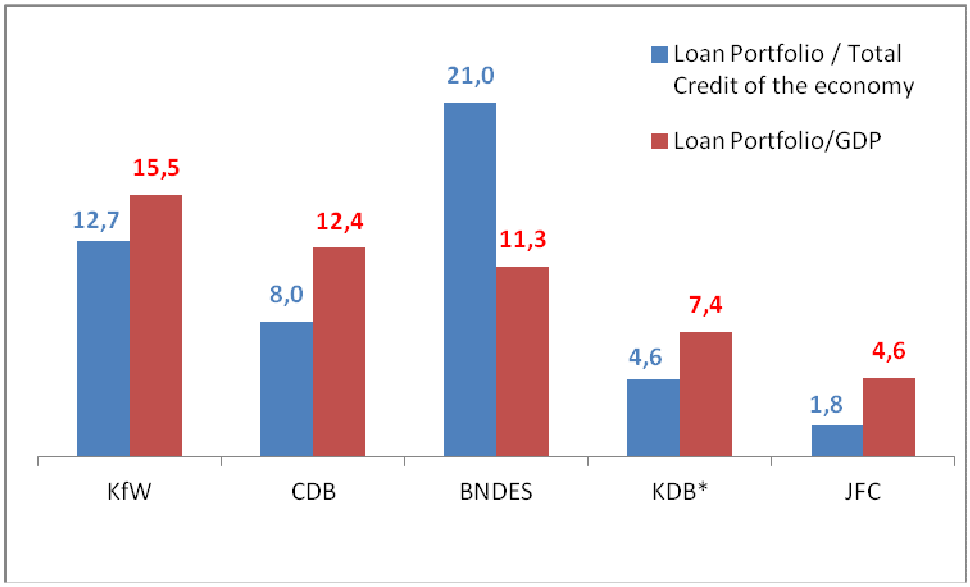
Notes (1) Data calculated on the average exchange rate for 2012. (2) values considered in accounting standards of International Financial Reporting Standard (IFRS). For Japan, which has a different fiscal year, we used the annual report of March 2013.

* The concepts may differ among countries. Calculated for the KfW and the JFC considering similar criteria to the BNDES. The JFC data are from March 2012.

These four DBs are fundamental in their economies. When considering the participation of the portfolios of the institutions in the Gross Domestic Product (GDP), their participation is relevant: three of the largest national DBs (the CBD, the BNDES and the KfW) have a portfolio of credit superior to 10% of the GDP of their countries, particularly the KfW, with 15.5% (Figure 2)[18]. Also, by observing the trajectory of participation of the credit portfolio of economies in GDP (Figure 3), it is possible to point out the growing importance of these institutions. In ten years, the KfW increased its share by 4.4 percentage points (pp), the CBD by 4.3 pp and the BNDES by 3.0 pp.

[18] It was considered credits to other countries, when they occurred, because it's not possible remove them from the total. However, the share of these credits on the total is very small.

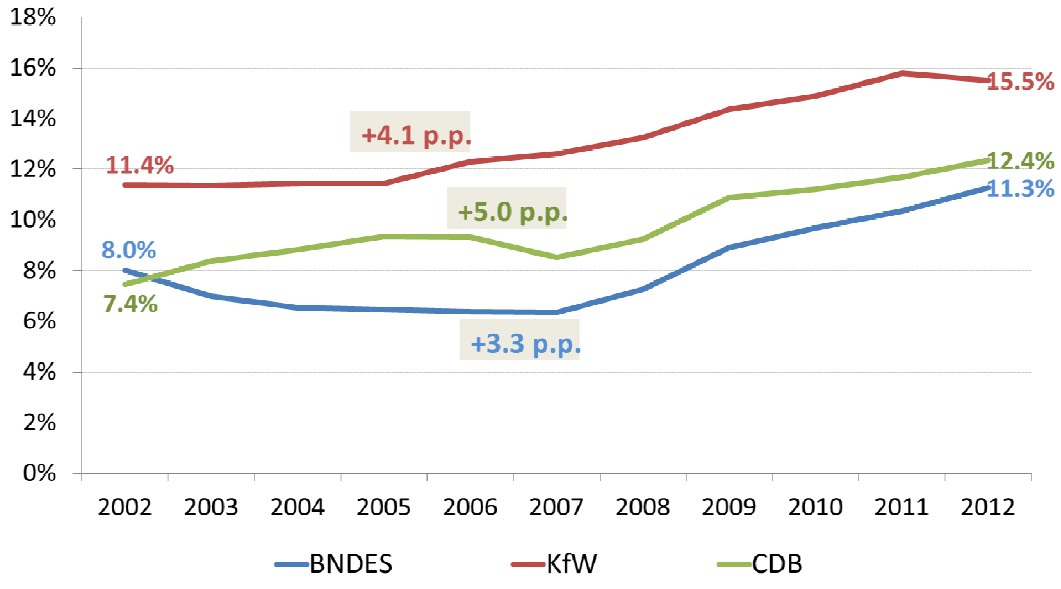
Figure 2: Importance of selected DBs in their countries economy (%)



Source: Institution Annual Reports (2012), FMI, Banco Central do Brasil, The Institute of International Finance (IIF), World Bank and German Council of Economic Experts.

* Korea Development Bank. The institution was in process of privatization; however, the new government is reviewing the process with the objective of selling only some assets and keeping the KDB as a public development bank.

Figure 3: Loan portfolio/GDP of selected DBs



Sources: Institutions annual reports (2012) and International Monetary Fund.

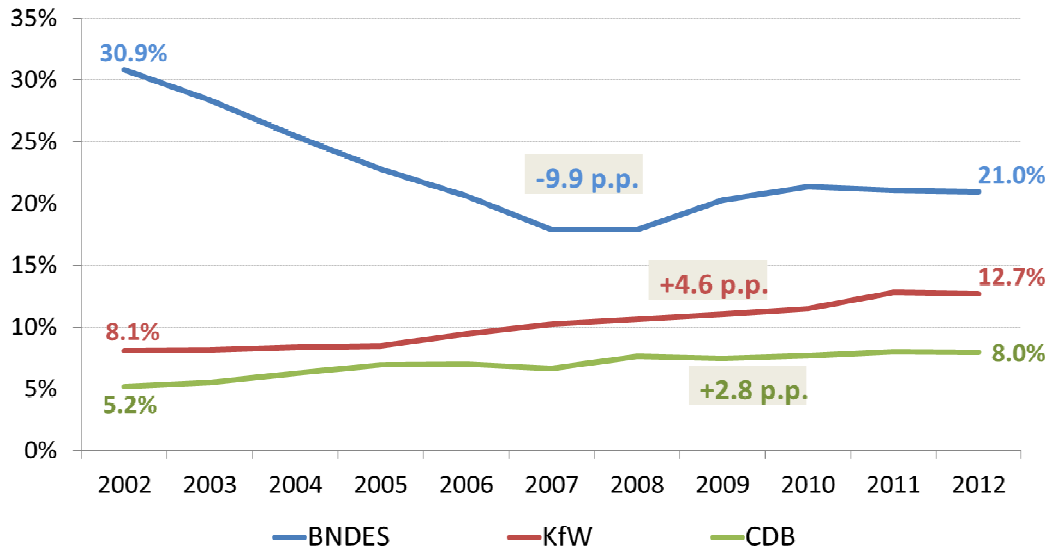
A striking difference, however, is the participation of the credit portfolio of the four banks in total credit, in each country. In percentage we can note the high participation of BNDES. In 2012, the BNDES credit portfolio accounted for 21% of the total stock of credit. That's because the credit / GDP ratio in the country is far below the world standards: most developed nations have a credit relationship / GDP exceeding 100%, in Brazil, the proportion was 53.8% in 2012. In other words, it is not the BNDES participation in the economy which is high, but rather that the credit market is limited. It is noteworthy, however, that there is a significant downward trend: the Bank's participation, which was 30.9% in 2002, fell to 21.0% in 2012 (Figure 4).[19]

From 2002 until the 2008 financial crisis, private banks had been expanding at higher rates. However, from the crisis, it was necessary for public banks, including BNDES, to increase their funding because of the decline in private credit. This movement shows the evolution of the credit market in Brazil, with the reduced participation of the Bank in favor of other financial agents. Contrarily to what happened with the BNDES, between 2002 and 2012, the KfW and the CBD increased their share in total credit of their countries, from 8.1% to 12.7% and from 5.2% to 8.0% respectively (Figure 4).

In sum, this section has demonstrated, through four cases, that the DBs are important parts in the economic development of the country, working in relevant sectors that are often unable to get support in the private credit market. Moreover, even with the task of ensuring social returns in the first place, institutions can remain financially healthy, maintaining their sustainability in the long term.

[19] The values of the credit portfolio from the BNDES on the total stock of credit may differ from the amounts recorded in the Central Bank of Brazil for methodological issues. This difference, however, has become increasingly smaller over time with the growth of the credit stock in economy. The option to use the balance of the credit portfolio recorded by the BNDES, rather than the one registered in the Central Bank, was a result of concern in applying the same methodology for all banks.

Figure 4: Loan Portfolio / total stock of credit in the economy



Sources: Institutions Annual Reports (2012), Banco Central do Brasil, IIF and German Council of Economic Experts.

Conclusions

The crisis of 2008-2009 showed that qualified public financial institutions are important in times of slowdown in private credit because they prevent an abrupt decrease in financing investment. Delicate financial situations demanded immediate and efficient actions: the success of the performance of development banks (DBs) in developed and developing countries was due to the fact that they were already consolidated institutions with extensive experience.

The DBs are essential to support policies and development strategies and are very common in many countries in different stages of development. However, there is no single role model. BDs may differ as to: (i) the structure of ownership (fully or partially public), (ii) the focus of activity (limited or broad), (iii) forms of funding (first or second-tier), (iv) financing costs, (v) the regulatory environment which are subject to, (vi) corporate governance, and (vii) the size, the credit portfolios and the financial performance.

The evidences in this article show that DBs are active and fundamental in developed economies as well as in those in development. When considering the participation of the portfolios of institutions in the GDP, the performance is relevant: three of the largest national DBs (the CDB, the BNDES and the KfW)

have a credit portfolio superior to 10% of the GDP of their countries, especially the KfW. with 15.5%.

The performance of the DBs on a permanent basis is important taking into account the dynamism of the development process. Their "missions" and goals change over time, reflecting different development stages of the countries. In developing nations, such as Brazil and China, the DBs have a more comprehensive performance, financing projects in different sectors of the economy. But even in developed economies, in which there has already been significant progress of the various productive sectors, the action of DBs remains essential – as proven by the importance of the KfW in Germany. Moreover, the confronting of new economic, social and environmental challenges arises both for developing countries and for the more advanced economies - and DBs are valuable instruments in each case.

Thus, the importance of DBs goes far beyond the question of "market failure" that defends the existence of incomplete financial systems. Given the uncertainty, depending on the characteristics of the new segments that need to be supported, there can be no private financing system willing to offer the necessary credit. And this problem continues even though there are well-developed national and international financial systems. The support of DBs is justified because they are highly complex segments, which require sophisticated expertise for assessment, generate positive impacts across the economy (positive externalities) and / or in which prevail social returns over private returns. Among those that inspire greater uncertainty we may cite: infrastructure, technological innovation, support to micro, small and medium enterprises; microcredit; and environmentally and socially responsible economic projects (such as the development of alternative energy sources and other initiatives of the "green economy").

It is noteworthy that, despite the importance of financial performance for maintaining the activities, the DB should not have the financial income as a measure of its results. The maximization of social welfare and economic development are primary objectives of a DB. These are necessary tools for economic development and the stability of the financial system. Therefore, the

coexistence of these institutions with the various private agents is crucial to maintain an innovative and resilient financial system.

Thus, far from being exotic "beings" of underdeveloped economies, the DBs are essential public instruments and partners of the private financing system. They are, therefore, key gears in a financial system that seeks a sustainable and dynamic economy face to the challenges that are imposed to each country.

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