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IDB WORKING PAPER SERIES Nº IDB-WP-1047

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Abstract^{*}

The conventional paradigm about development banks is that these institutions exist to target well-identified market failures. However, market failures are not directly observable and can only be ascertained with a suitable learning process. Hence, the question is how do the policymakers know what activities should be promoted, and how do they learn about the obstacles to the creation of new activities? Rather than assuming that the government has arrived at the right list of market failures and uses development banks to close some well-identified market gaps, this paper suggests that development banks can be in charge of identifying these market failures through their loan-screening and lending activities to guide their operations and provide critical inputs for the design of productive development policies. In fact, they can also identify government failures that stand in the way of development and call for needed public inputs. This intelligence role of development banks is similar to the role that modern theories of financial intermediation assign to banks as institutions with a comparative advantage in producing and processing information. However, while private banks focus on information on private returns, development banks would potentially produce and organize information about social returns.

JEL classifications: G21, G28, G14, L32, O25

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1. Introduction

Structural change towards high-productivity activities is the main driver of economic growth. This paper studies how state-owned development financial institutions, development banks for short, can be rethought and redesigned to better help the adoption of productive development policies fostering structural change.

The ups and downs of development banks over time illustrate well the need for rethinking their role to make them an effective tool for economic development. Fifty years ago, development banks were regarded as the centerpiece of a development strategy. By the 1970s, the public sector owned two-thirds of the assets of the largest banks in developing economies, and more than one third of the assets of the largest banks in advanced economies (IDB, 2005).¹ Nevertheless, they were regarded as a mixed blessing. Their leading role back then was associated with key structural changes but also, too many times, with “white elephants,” questionable lending practices, and runaway losses.

In the 1980s, critics started to sound louder. The generalized economic crises that followed the oil shocks of the 1973 and 1979, as well as the 1982 sudden stop in capital inflows to developing economies, led to a sea change in the consensus view on the role of the state in economic development as part of the so-called Washington Consensus. The perception that government failures are more costly than market failures brought many economists and policymakers to the conclusion that public intervention in general, and state ownership of banks in particular, stunted, rather than promoted, financial and economic development.² This change in the view on the role of the state in the economy, together with the fact that all advanced economies and most emerging and developing countries had by then built large and vibrant private financial sectors, led to several waves of bank privatization which greatly reduced the presence of the state in the financial system (it is estimated that 250 financial institutions were privatized between 1987 and 2003).³

¹ In Latin America, for instance, development banks played a central role in the import substitution strategy in the region.

² For a discussion with somewhat contrasting views see Levy Yeyati et al. (2007) and La Porta, López-de-Silanes and Shleifer (2002).

³ In Latin America, the rolls of ALIDE, the association of public banks, shrank from 171 to 73 in that period. Liquidations included major banks in Peru, Mexico, Colombia, Venezuela and Nicaragua among others; many others were downgraded.

However, the subsequent exhaustion and failure of the Washington Consensus as a development strategy led to the concern that the backlash against development banks may have thrown out the baby with the bathwater. With the eruption of the global financial crisis in 2008, there has been an expansion of the role of state-owned banks to counteract the contraction of the private system (World Bank, 2013), sowing the seeds for their resurgence. The current lack of clarity concerning the role of development banks lends high priority to rethinking their role and redesigning their operation to avoid the vices of the past. The resurgence of the debate around a new generation of development banks to advance productive development policies jibes well with recent research on the critical role of public-private collaboration in this regard (Fernández-Arias et al., 2016).

The reality is that development banks do many things, pursuing many objectives but not always with clear purpose. A survey of 90 national development banks in 60 developing and transition economies (de Luna Martínez and Vicente, 2012) found that 53 percent of the institutions covered by the survey have a specific mandate. These specific mandates target the following market niches: agriculture (13 percent of surveyed institutions); small and medium enterprises (12 percent); international trade (9 percent); housing (6 percent); industry and other sectors (6 percent); infrastructure (4 percent); and local governments (3 percent). The remaining 47 percent of surveyed institutions have a general mandate, such as promoting economic development.⁴

However, while only 12 percent of surveyed institutions have a specific target about small and medium enterprises (SMEs), 92 percent responded that they target SMEs. In fact, 60 percent responded that they target large corporations, 55 percent responded that they target individuals and households (versus 6 percent of institutions with a narrow housing finance mandate), and 54 percent responded that they target other state-owned enterprises. With respect to economic sectors, 86 percent of the surveyed institutions lend to the service sector, 84 percent to industry and manufacturing, 83 percent to agriculture, 74 percent to construction, 66 percent to energy, and 65 percent to infrastructure. These data suggest that even institutions with a narrow mandate seem to target different types of borrowers and economic sectors in an ad hoc fashion, without a clear rationale.

⁴ Gutiérrez et al. (2011) cite a 2009 survey by the Business Development Bank of Canada that surveyed 373 development institutions in 92 countries and found that the six most common target sectors for development banks are i) start-ups; ii) SMEs; iii) international trade; iv) housing; v) infrastructure; and vi) agriculture.

Development banks appear ripe for a reform agenda focused on how to fulfill their strategic objective of economic development. Subsidized lending to SMEs may be futile or counterproductive on productivity grounds unless such lending targets young firms that bring innovation and have high-productivity potential (see IDB, 2014). There may be good social or political economy reasons, such as cushioning unemployment or fighting inequality, for lending to traditional agriculture or providing housing credit, and some of these interventions may be well justified by market failures. But providing financial assistance to these activities can, at best, only have limited effect on the major obstacles to structural transformation and the emergence of new highly productive sectors. In this paper, we will focus our attention on the activities of development banks that are designed to have a direct effect on increasing productivity, especially on those that build productive capacities and stimulate positive structural change.

We define development banks as government-owned financial institutions that have the objective of fostering economic or social development by financing activities with high social returns.⁵ As mentioned, we concentrate on activities with a productivity-enhancing objective. Best practices based on this vision of development finance suggest that development banks need to target well-identified market failures, addressing them through financial support at suitably easy terms while making sure that they do not distort markets by unfairly competing with efficient private banks.

While these best practices are well rooted in economic theory, their implementation leads in most cases to mixed and lackluster performance. This paper analyzes what is going wrong. Specifically, it argues that the requirement that development banks only address well-specified market failures implicitly makes the unwarranted assumption that the bank's management (or the bank's principal, i.e., the government) has a good understanding of the existing market failures and knows what is the best way to address them through lending (or other appropriate financial instruments such as guarantees).⁶ In fact, policymakers cannot directly observe and ascertain the market failures that development banks are supposed to address and may easily give the wrong marching orders.

⁵ In this paper we concentrate on development banks and do not consider state-owned financial institutions that operate like private commercial banks and do not have an explicit development mandate. However, the distinction between these two types of institutions is not always clear (de Luna-Martínez and Vicente, 2012)

⁶ In order to simplify the exposition, when specificity is not of the essence, "lending" means any financial support, not necessarily a credit operation.

The successful implementation of the development bank paradigm requires deep knowledge of market failures, especially because economic development requires structural transformation and, in turn, structural transformation requires the creation of new activities which may be impeded by non-observable market failures. How do the bank's decision-makers know what activities should be promoted, how do they learn about the obstacles to the creation of new activities? How do policymakers obtain this information? How does the development bank ensure that projects that commercial lenders choose to reject are worth the risk because of a high social return? How do they know how to calibrate better-than-market inducements, enough to bring in all of the repressed high social return activities that the commercial system leaves aside but making sure that excessively cheap terms do not result in giveaways and wasteful projects? In other words, how does one build a mechanism that enables learning about market failures?

On the bright side, banks have a unique vantage point for observing not only market failures but also government failures, and in this way uncovering the obstacles to firm creation and firm growth. Development banks are institutions that lend themselves to public-private collaboration. They are special because they can learn by lending to firms, and this learning by lending creates complementarities that are important for a development bank as an instrument of economic development. In this paper, we make the case for a new role of development banks that exploits these complementarities between financial assistance and the design of productive development policies. Specifically, we propose that development banks be deployed as an instrument of economic intelligence and play an active role in the design, as well as implementation, of productive development policies. Deeper policy involvement would make development banks more accountable and facilitate the evaluation of their performance on substantive grounds, as opposed to bureaucratic lending targets. This new approach also has implications for the organization of development banks concerning the tradeoff between first-tier and second-tier schemes. Since first-tier banks are in direct contact with clients, they may be better positioned to perform this new role compared to second-tier banks.

In what follows, the paper reviews the traditional *modus operandi* of development banks and elaborates on the new role proposed, discussing some key issues concerning how to set up development banks to be successful and an agenda for institutional reforms of development banks. The analysis is buttressed with the experience of a number of development banks

captured in a survey conducted among eight institutions (seven Latin American institutions and KfW in Germany; Appendix A includes the structured questionnaire and the list of interviews).⁷

2. The Traditional Development Bank

Development banks are financial tools to advance productive development policies. They are predicated on the existence of market failures that public policy can address with financial instruments. At the same time, because of their financial muscle, development banks magnify the unavoidable risks of government failures. In fact, the historical record shows many cases in which development banks misallocated resources to the benefit of connected firms and public-sector white elephants, too often leading to fiscally costly financial bailouts. As a consequence, many countries decided to constrain the activities of their development banks by imposing restrictive mandates and tight financial targets. The objective was to induce these institutions to address market failures with limited waste and risk. However, all too often these constraints yield a timid development bank, one that is financially safe but that, at best, makes a modest substantive contribution, failing to spearhead economic development. How to design strong and sound development banks, that have both muscles to strike decisively and brains to ensure that the blows do not land off the market failures target, remains an important challenge in the reform agenda.

2.1 The Traditional Role: Address Market Failures

In their best version, development banks are effective tools to carry out policies to redress market failures in order to foster high-productivity structural change. In this section we break down the analysis along the triad proposed in IDB (2014) for conducting productive development policies: i) identify market failures, ii) design appropriate instruments to deal with them and iii) build institutions able to carry out the policy effectively.

There are two types of market failures that are usually invoked to justify the existence of development banks: i) financial market distortions constraining the supply of credit in the market, such as those originating in the borrower's inability to commit to making good on future

⁷ Our original intention was to interview 12 banks in Latin America, 2 in emerging market countries outside Latin America, and 2 in advanced economies. However, we were not able to establish contact with all the targeted banks. The interviews were conducted by telephone by Eduardo Fernández-Arias, Ugo Panizza, Gonzalo Rivas, and Sergio Rodríguez Apolinar.

financial promises (time inconsistency) and the corresponding need for elaborate contract enforcement and collateral guarantees, especially in the face of information asymmetries and the resulting problems of moral hazard and adverse selection (Arnott, Greenwald and Stiglitz, 1994); and ii) positive externalities to certain investments that may render socially profitable projects unattractive from the point of view of individual investors.⁸

2.1.1 Financial Market Distortions

The presence of financial market imperfections such as asymmetric information can lead to the curtailment of financial services and to financial systems that are too small. A case in point is credit rationing, which we will use as shorthand for the underprovision of any financial service, including guarantees. In fact, the privileged knowledge of the borrower concerning likely returns and its prospects to pay puts the lender at a disadvantage in the absence of sufficient collateral. In order to limit the risk of bad firms abusing its ignorance, the lender is forced to charge high risk spreads and eventually ration credit (Stiglitz and Weiss, 1981). The end result is that some good projects are priced out of the market. The problems associated with the presence of asymmetric information are often amplified by the presence of weak contract enforcement and poor creditors' rights. In fact, weak enforcement can lead to moral hazard even when there are no informational asymmetries (de la Torre et al., 2007).

Pervasive credit rationing was the main reason why pioneer development economists such as W. Arthur Lewis (1955) and Alexander Gerschenkron (1962) maintained that the State should play a direct role in the banking system. Policymakers in developing and advanced economies seemed to agree with this view and intervened heavily in the financial sector.

However, while credit rationing is a symptom of a problem, the provision of credit is not necessarily a solution unless asymmetric information is reduced and enforcement tightened at the same time. In order to address inefficient credit rationing, development banks must determine what advantage they possess relative to private banks in acquiring information or being able to better enforce loan collection. If there is no advantage, the potential efficiency gain of realizing

⁸ A third market failure that was first explored and documented by Micco and Panizza (2007) and dubbed by Levy Yeyati et al. (2007) the *macroeconomic view* relates to the fact that private banks do not internalize that increasing lending during a recession may stabilize the economy. Therefore, private banks lend too little during economic crises (recent work by Bertay et al., 2012, corroborates the original findings of Micco and Panizza, 2007). This market failure, however, is more of a justification for state-owned commercial banks than for development banks, and we leave it aside from our analysis.

high private project returns from additional lending needs to be weighed against expected public financial losses. Only the best projects would pass this hurdle. This fiscal cost associated with lending beyond market financing puts a premium on devising schemes to select only the projects with the highest returns.

2.1.2 Externalities

Imperfections in the financial system may justify costly state intervention to redress distortions in credit allocation, as in supplementing rationed market credit. At the same time, externalities rendering socially profitable projects unattractive from the point of view of individual investors are market failures associated with real activities that are central to structural transformations, irrespective of imperfections in the financial system. These externalities call for interventions that promote certain investments or the development of certain undertakings, for example pioneering activities from which other passive actors may learn how to make better investment decisions to develop their own profitable and productive firms (pioneering activities such as investing in untested technologies, producing a new product where workers face a steep learning curve or the cost discovery of trial new products that may lead to the revelation of national comparative advantages). While the first-best subsidy-like instrument to promote the desired outcome in these cases is not necessarily associated with credit, cheap credit to finance target activities may be an effective second-best instrument to ensure the desired outcome while ensuring that subsidies are not misused. In that case, the operation of development banks to promote specific activities would be justified on the basis of market failures associated with real activity, rather than with a defective financial system.

Recent work on productive development policies provides useful principles and illustrations about when these vertical policies are justified and how a development bank may support them (IDB, 2014). As an illustration, let us take the case of an important particular case of such externalities that in many cases inspired the creation of development banks: the “Big Push” model first discussed by Rosenstein-Rodan (1961) and formalized by Murphy et al. (1989), which features coordination failures among private agents. Take, for example, the case of the development of a tourist destination whose success requires the concerted construction of hotels and transportation infrastructure. If one component but not the other is built, the project will fail. In this case, there is a low investment equilibrium, in which neither the hotels nor the roads and

airport are built, and a high investment equilibrium in which both are built. A development bank could help coordinate investments by providing a package of financial assistance to all parties involved. It could be argued that such a failure would not require development bank intervention because extending guarantees to each investor would be enough to have both investments take place, and to the extent that the good equilibrium results, the guarantee would expire worthless and could therefore be easily provided by commercial sources. However, it is often the case that the complementary investments are many and not known *ex ante*, and therefore the big push is shaped over time as rupture investments are carried out. Da Rin and Hellmann (2002) show that only large banks with market power can play a catalytic role in a big push model. A big push, therefore, requires either commercial banks with market power or a large state-owned bank that does not aim at maximizing profits.⁹ In this setting a state-owned bank that does not aim to maximize profits can have a catalytic effect without the cost of inefficient monopoly rents.

2.1.3 How to Address Market Failures?

Once the market failure is identified, the development bank needs to solve the technical problem of which instrument best suits the purpose. Within the portfolio of instruments at its disposal, it needs to decide whether it should inject capital by holding equities, lending, or simply extending a guarantee for the beneficiary to look for a loan in the private market. It is important to recognize that guarantees *per se* do not alter the borrower's prospects of repaying and therefore do not reduce overall credit risk but only reallocate it. The guarantee exposes the issuer to financial losses and needs to be priced appropriately, with any below-market price recognized as a financial cost. In deciding which financial instrument to use, development banks need to compare the effectiveness of loans and guarantees with the same financial cost. Effectiveness in this context involves not only the extent to which they remedy the market failure but also the existence of negative side effects, such as the potentially distorting effects their operations would have on private financial markets.

Guarantees tend to be better suited to tackling credit constraints due to low creditworthiness (the first type of market failure), and they are particularly efficient when commercial banks are excessively risk averse and the public guarantor has superior enforcement capacity (or information about collateral value). In this case, a guarantee increases effective

⁹ Da Rin and Hellmann (2002) also point out that conglomerates are an alternative to banks with market power.

market creditworthiness for those borrowers that are uncreditworthy, relaxes a binding credit constraint, and translates into additional private credit to satisfy demand for funding. A guarantee is more valuable to credit-constrained firms with high-return projects, and therefore it allows them to self-select. A cheap loan, on the other hand, tends to benefit all eligible firms uniformly, including those that are not credit rationed, leading to crowding out of private credit and less impact on overall credit. At the same time, a cheap loan is ideal for targeting firms that generate positive spillovers (the second type of market failure) but do not face tight credit constraints impeding borrowing, so that once the cost of capital is low enough to match their private returns, credit will naturally flow at the appropriate scale. This is consistent with Anginer, de la Torre, and Ize (2011), who conclude that the presence of spillovers does not justify, by itself, the extension of a public guarantee.

Because of sound financial regulation based on the fact that banks are deposit-taking institutions and must assure the convertibility of their deposits into cash at a fixed rate, commercial banks do not normally take equity positions in non-financial corporates. However, well-managed supranational development finance institutions (DFIs) like the European Bank for Reconstruction and Development and the International Financial Corporation do take equity positions in many of the projects that they finance. There is no reason why, in principle, a well-managed national development bank could not follow a similar strategy. An intervention in which the development bank is not simply a lender or a guarantor but a full-fledged partner in the venture through equity holdings may be desirable if the distribution of the returns is so skewed that a contract in which the development bank fully shares the upside and the downside has better risk-return properties than a simple loan contract or guarantee, in which the development bank has no participation in the upside. For example, in many venture capital greenfield projects the success rate is less than one in five. Successes do pay for failures because of the outsized returns on the successful project. In these situations, a standard guarantee would not be feasible, as it would be extremely costly.¹⁰ Moreover, since equity acts *de facto* as a guarantee on debt it will tend to crowd in debt financing. In fact, in many developing countries the underdevelopment of equity markets causes a shortage of equity that leads to an excess supply of bank financing: banks are liquid and able to lend but do not find adequately capitalized

¹⁰ A possible alternative is to design a guarantee scheme with some form of participation in the upside.

projects. To mitigate the risk, they demand that firms pledge outside collateral,¹¹ which limits the pool of project sponsors. In addition, equity finance is bound to crowd in debt finance as it acts de facto as a guarantee. In these cases, equity financing may be the most effective way to channel an ex ante subsidy in a private project from a financial viewpoint.

Through equity holding, the national development bank could also play a role in the management of the venture and contribute to it with its expertise. It could also learn much more about the nature of the obstacles that the venture confronts, through its participation in the board and other forms of monitoring that minority ownership entails. Moreover, by taking an equity stake, the development bank could signal the good quality of the venture and have a catalytic effect and favor the entrance of other investors. Clearly, this means that the bank will have to exercise its governance responsibilities as an equity holder, and this may create additional political economy risks, but the experience of the DFIs suggests that it is not only doable¹² but may also even create value. In fact, these institutions have taken equity positions in some of the national development banks as a way not only to provide capital but also to protect the autonomy of these institutions from political meddling.

Whether it is through loan, guarantees, or equity participation, it is clear that the portfolio of instruments available to a development bank may be an imperfect match for what is needed to address the market failure identified. If the most appropriate financial instrument design is acceptable, the last element of the triad is to structure a development bank able to implement the policies soundly, meaning effectively and efficiently. The remainder of this section is devoted to this issue, which has proven to be very hard to tackle.

2.2 Another Impossible Trinity?

The faulty governance issues that led to the discredit of some development banks remain a key obstacle for revamping the role of these institutions. Potential governance failures may harm multiple aspects of performance, such as politically biased eligibility of beneficiaries, careless client screening and pricing, excessive operational costs, and ineffective debt collection, to name

¹¹ Outside collateral is collateral that is not financed by the loan itself as in the case of home mortgages or cars. This is a way to force the firm to pledge additional equity into the project, but it imposes a wealth constraint on potential entrepreneurs.

¹² To dispose of its governance responsibilities without creating political problems the development bank could invest in a private equity fund and leave the active management responsibilities to the fund, as has been done by the International Finance Corporation. However, it is important that this delegation be made compatible with the need to generate the economic intelligence which the bank needs.

a few. To guard against the damage caused by governance failures, the traditional best practices view envisions development banks as financial organizations aimed at dealing with market failures that are explicitly mandated to limit the risk of encroachment into the private financial system and that are constrained to work within a tight financial envelope of fiscal resources to make sure that financial risks are contained. This view encapsulates the successful operation of a development bank according to the three conditions set forth by Gutiérrez et al. (2011): i) there is a well-identified market failure, and financing by a development bank is the most effective way to deal with this particular market failure; ii) lending by the development bank does not crowd out the private sector; and iii) the development bank is financially sustainable, generating sufficient resources to achieve its mandate without being a financial burden for the State.

Establishing the first two conditions in practice may be difficult. For example, assume that we observe a development bank serving a market for which there are no commercial bank suppliers. It is legitimate to ask whether the development bank is filling a gap left by commercial banks or, on the contrary, is the reason why commercial banks do not enter this market. To give a specific example, in Brazil there is a debate on the role of BNDES. Some argue that BNDES plays a useful role in providing long-term credit because commercial banks do not do so. Others suggest that commercial banks do not extend long-term loans because of the dominant and privileged position of BNDES in this segment of the market. In the first case, BNDES is providing needed long-term credit that commercial banks would not provide (presumably because of a market failure). In the second case, BNDES is crowding out commercial banks from providing long-term credit (presumably more efficiently).

A corollary of the first two requirements is that development banks should have appropriate stringent eligibility criteria for financial assistance to minimize crowding out financial markets. In practice, a restrictive mandate related to the market failure identified is often used as a blunt proxy to define eligibility. In this second-best logic, banks with a narrow mandate tend to be preferable to banks with a broad mandate. While a narrow mandate has some costs in terms of flexibility to successfully target market failures, Rudolph (2009) and Scott (2007) maintain that the freedom of broad mandates leads to mission creep, causes bank managers to lose focus and compete with the private sector, and reduces the overall transparency of the institution. Scott (2007) concludes by suggesting that policy mandates should be as narrow and as explicit as possible. At the same time, however, narrow mandates would imply multiple

development banks to address a diversity of market failures, which may limit economies of scale, generate coordination problems, and possibly limit the collection and dissemination of information across different economic sectors.¹³

In any event, once the third condition on financial sustainability is introduced, it becomes problematic to build a successful development bank that satisfies all conditions, even with a well-justified and narrow mandate and no government failures to contend with. The three conditions for a successful development bank tend to contradict each other. In the limit, if the financial sustainability constraint imposed on the development bank means commercial profitability, they generate a virtually impossible trinity.

To see why this is the case, let us start by assuming that the government has properly identified a market failure that creates a financial gap that needs to be filled with financial assistance. The first condition for successful development banking is based on the assumption that financial support under appropriate terms is the best way to redress this particular market failure. The second criterion states that development banks should not crowd out the private system but rather expand overall credit, only operating in markets in which the private financial sector does not operate (or where the supply of commercial credit is below the social optimum). But this expansion, even if partially attained, can only happen if the development bank operates at better-than-market conditions, let us say by offering an interest rate that is below the market rate.¹⁴ To the extent that private financial markets are competitive and lend at fair rates, meaning rates yielding zero economic profit, below-market rate lending would yield capital losses, thus failing the third requirement for successful development banking. In a nutshell, success would be impossible.

There is a caveat, however: under some conditions, lending at below-market rates does not necessarily entail losses to the development bank. One important exception is the case in which the private financial system is not competitive. For example, in poor countries with incipient financial markets, market interest rates can be inefficiently high because commercial banks have monopoly power yielding abnormally high profits. Fair lending by a state-owned bank would entail cheaper loans and may be useful to limit commercial banks' monopoly power. In this case, the development bank would be a state-owned commercial bank whose role would

¹³ For instance, Mexico has seven development banks.

¹⁴ This encompasses cases in which the borrower has no access to credit and therefore the market rate is infinite.

be to foster competition, rather than a development role.¹⁵ In this paper we concentrate on the development role and leave out these considerations.

Another exception that may make the trinity possible is the case in which the development bank has superior screening technologies or better means of enforcing debt contracts than commercial banks, which would make it able to afford lower lending rates. However, it is not clear why a state-owned bank would be better at screening commercial risks. At the same time, while its public nature may endow it with more powerful enforcement tools, the sociopolitical pressures it may feel to be lenient with debtors make it unlikely that these considerations would salvage the trinity.

A more promising alternative is that development banks may be better able to absorb risks and fill some of the gaps left by risk-averse commercial banks.¹⁶ For example, if commercial banks fail to provide long-term credit at reasonable terms because of excessive risk aversion, a development bank better able to bear risk can fill this gap without compromising financial sustainability.¹⁷ Rudolph (2009) suggests that differences in risk aversion may create opportunities for profitable development banks that do not crowd out private banks, especially in countries with underdeveloped financial sectors.

The general conclusion is that it is difficult for a development bank to fulfill a development mandate and be profitable unless the commercial financial system is underdeveloped. While it is clear that the fiscal costs of meeting development objectives need to be minimized, this near-impossible trinity shows that financial self-sufficiency cannot be a condition for successful development banking.

In practice, development banks are often given some financial leeway, but are still required to operate under arbitrary financial targets. For instance, de Luna-Martínez and Vicente (2012) show that there are several banks that are required to avoid accounting losses in order to

¹⁵ The same reasoning applies to situations in which a specific segment of the capital market is underdeveloped. For instance, Petersen and Rajan (1995) found that banks with monopoly power are more likely to lend to new and credit-constrained firms because they will be able to extract rents from the firms' future profits. In this setting, an institution like Canada's CDC, which specializes in lending to new firms but does not maximize profits, can improve access to credit to new entrants without the negative effects of monopoly power.

¹⁶ A justification for lower risk aversion comes from Arrow and Lind (1970), who have shown that in public projects the social cost of the risk tends to zero as the population tends to infinity.

¹⁷ Similarly, a state-owned bank may be able to internalize the financial benefits of a "big push" while competitive private banks may not.

preserve their capital. In this way, capital (adjusted for inflation) is maintained.¹⁸ This laxer form of financial sustainability in an economic sense, that ignores the opportunity cost of the bank capital, allows some limited margin for negative economic profits and makes the trinity possible, albeit barely.

Development banks often receive explicit or implicit subsidies more substantial than a free capital endowment (for a methodological approach see Schreiner and Yaron, 2001). Luna-Martínez and Vicente (2012) found that 40 percent of the institutions included in their survey receive direct government transfers and 64 percent of the surveyed institutions benefit from a government guarantee on their debt. Presumably many other institutions receive less transparent subsidies in terms of tax advantages or access to cheap funding. Looking at the bank's profitability without accounting for these subsidies is a meaningless exercise. While it is easy to adjust profits when institutions receive direct government transfers, accounting for government guarantees and other types of subsidies is a much more difficult exercise that requires detailed information on the bank's sources of funds and a judgment on the social cost of funds. The leeway that these development banks get is often not transparent and involves hidden fiscal costs, which negates financial accountability. A further element muddying the waters is cross-subsidization: a bank with a profitable business line (in which it competes unnecessarily with the private system) could use the profits to produce the financial resources it needs to fulfill its policy mandate. There is also the concern that cross-subsidization may weaken the governance of the development bank (Scott, 2007).

Even in the cases in which the financial resources constraint is not a straitjacket, development banks are often under pressure to obtain better financial results and praised when they succeed in contributing to the fiscal pot. The emphasis on financial performance makes development banks more concerned with financial strength than with the less tangible development mandate.¹⁹ In fact, Holmstrom and Milgrom (1991) show that, in a principal-agent set-up with agents facing multiple tasks and where there are tradeoffs between achieving these tasks, agents will have an incentive to put excessive effort into the task with a clearly measurable

¹⁸ This is the case, for example, of Mexico's Nacional Financiera (NAFIN). In fact, NAFIN's board targets an average zero real rate of return in an accounting sense.

¹⁹ Colby (2013), for instance, claims that BNDES may be too conservative because the development impact of a loan is hard to evaluate but defaults are easy to measure, and employees can be punished for loans that default. Employees end up being too risk averse and, rather than maximizing the Bank's development impact, they maximize its financial health.

outcome and not enough effort into the task with a less clearly measurable outcome. One implication of this result is that when there are tradeoffs between achieving different objectives and at least one of the objectives is difficult to measure, it could be optimal to have limited incentives on all tasks, even on those that are easy to measure. Hence, a development bank which has a target in terms of both financial performance and development mandate may end up privileging the first, easy to measure, objective, possibly at the cost of the second. Imposing tight financial targets on development banks may contain many of the undesirable financial effects of government failures but are blunt devices with detrimental side effects. They may avoid disasters but at the cost of neutering the development bank and eroding its relevance.

Our survey confirms the lack of clarity surrounding the appropriateness of development bank funding, an issue that ought to be decided on technical grounds in a transparent fashion as a fiscal concern. Some of the surveyed banks receive explicit subsidies in terms of government transfers or access to below-market funding, while others only benefit from explicit or implicit government guarantees. None of the surveyed banks provided us with hard data on their dependence on explicit or implicit subsidies. In fact, most interviewed bank managers became defensive when asked about subsidies received. Some claimed that their bank does not receive any subsidy. Others said that the financial benefits (in terms of distributed profits or increase in tax revenues) far outweigh the implicit or explicit subsidy received by the bank, but no one appeared to have conducted an assessment of the value of the subsidy.

2.3 Second-Tier Development Banks

An alternative idea for controlling government failures that avoids imposing a self-defeating financial straitjacket has been the creation of second-tier development banks. Instead of lending to firms as a regular bank, second-tier development banks use commercial banks as intermediaries. They lend to commercial banks for them, in turn, to provide the financial assistance to the final clients. In this way, many of the functions of the traditional (first-tier) development bank that may be subject to government failure, such as biased or careless screening, inefficient lending operations or lax collection, are eliminated.²⁰

²⁰ De Luna-Martínez and Vicente (2012) found that 12 percent of the institutions covered in their survey operate as second-tier institutions, 36 percent as first-tier, and the remaining 52 percent blends first and second-tier operations. Among the banks that are member of the Association of Latin American Development Banks (ALIDE) 47 percent are first-tier, 34 percent second-tier, and the remaining 19 percent are hybrid institutions. However, ALIDE's membership includes many commercial banks.

Along with financial starvation, deference to commercial banks is another way to contain development banks. The wave of privatization mentioned in the introduction also included the restructuring of many development banks from first tier to second tier.²¹ Was this transition from first-tier to second-tier development banks a sound idea? Were the new arrangements carefully crafted to foster the public interest?

The traditional view maintains that second-tier institutions are often preferable to first-tier institutions because the former are less likely to be subject to political influence, are less demanding in terms of risk-evaluation and management skills, and have lower fixed costs as they do not need to be present in the territory with an extensive branch network. There is evidence that second-tier development banks have lower non-performing loans ratios than their first-tier counterparts because commercial banks tend to be more creditworthy than final beneficiaries (de Luna-Martínez and Vicente, 2012, and Gutiérrez et al., 2011). In summary, second-tier arrangements appear to be effective in reducing government failures.

Nevertheless, in the literature there is a debate on the relative merits of first and second-tier institutions, the problem being that in the latter it is more difficult to reach the substantive development objectives of addressing market failures. In order to understand the potential tradeoffs, we need to analyze the differential incentives of public and private sector managers. A good starting point is the Hart, Shleifer and Vishny (1993) analysis of the conditions under which direct state provision of a public service is superior to contracting with private provision. They frame their discussion using a principal-agent model and show that private provision tends to be superior if i) the principal (the state) can write a detailed contract on the characteristics of the good to be provided and ii) if the agent (the private bank manager) has limited opportunities for introducing innovations that, while not violating the contract, can reduce costs by negatively affecting the quality of the good or service. Levy Yeyati, Micco and Panizza (2007) apply the discussion of Hart, Shleifer and Vishny (1993) to the case of banking and conclude that direct provision dominates contracting if and only if the development bank has the capacity to identify projects or sectors that have a high social return and the state cannot write a verifiable detailed contract specifying the corresponding activities for the private bank.²²

²¹ This includes conspicuous examples in Latin America, such as COFIDE in Peru, NAFIN in Mexico and CFN in Ecuador.

²² This formulation abstracts from agency problems within the state. A more detailed analysis would look at how to structure development bank governance in relation to political power.

This analysis suggests that the main disadvantage of second-tier development banks is that these institutions do not get to select the end customers to target the projects with the highest social returns. Commercial banks make that selection and have all the incentives to use cheap public funding to lend to their same low-risk customers, in effect leading to public financing crowding out private financing. Even the best lending guidelines agreed with commercial banks may fail to do a good job in effectively inducing them to make the kind of public-interest lending choices that a development bank intends to make. Furthermore, second-tier development banks need a well-designed system to allocate the subsidized funding they provide across private banks, typically auction mechanisms for banks to compete, so that it fully benefits final borrowers rather than the intermediaries. Our survey confirms the risk that second-tier banks lead to higher interest rates for end customers because intermediary commercial banks capture a share of the subsidy provided by the development bank in their own commercial spread. The dissipation of subsidized funding in the process of intermediation through commercial banks would further reduce the likelihood that additional worthy projects will be funded in the back end.

Some managers of second-tier development banks participating in our survey confirmed that operating in that modality may lead to complex principal-agent problems. They mentioned that first-tier commercial banks may try to appropriate the benefits associated with the cheap financing provided by the second-tier development bank. In two interviews it was mentioned that final borrowers have complained that most of the benefits linked to development bank lending programs accrue to first-tier intermediaries. Finally, in another interview it was said that in the country the capital market is geographically segmented and the bank is only effective in geographical areas where first-tier banks face liquidity shortages. A specific region was mentioned where firms are credit constrained because of lack of collateral but banks have plenty of liquidity. The bank (which does not provide guarantees and therefore cannot solve credit constraints problems) does not have customers in this region and therefore does not have any knowledge of specific challenges facing this region. Things are instead different in other regions where first-tier banks apply for second-tier refinancing and where the second-tier bank can also channel funds to credit-constrained firms because of its close cooperation with credit guarantee agencies.

2.4 Are Traditional Development Banks Working?

The above discussion suggests that the performance of the traditional development bank is poor, or at least unimpressive. Oftentimes, lack of conviction in the role and priorities of development banks leads to containing rather than fostering their activities through narrow mandates, meek deference to commercial banks, and financial starvation. In turn, performance is judged against formal lending goals and arbitrary financial targets rather than development impact. Our survey of eight national development banks based on 11 interviews of current and former authorities, which could be expected to have a rosy view, does not help to change that assessment.

In fact, the survey suggests a short answer: “we don’t know,” in itself a damning finding. In most of the interviews (six out of 11) it was revealed that the corresponding banks do not conduct internal or external evaluations of their activities, and in one case that the evaluations conducted by the bank are useless and they only exist formally because donors requested them. In three of the remaining five interviews the managers described their evaluations as restricted to project-level activities (at least in one case originated at donors’ request). In only two of the 11 interviews was it reported that the banks also attempt to evaluate the overall development impact.

3. Smart Development Banks

One possible reaction to the findings above is to say that, once financial markets develop, we do not really want to insist on relying on development banks and betting more resources on them. Such a response, however, would leave largely unattended enormous development needs calling for strong financial policies. Such a defeatist reaction would spring from accepting that the limitations and vices of the traditional development bank are insurmountable. By contrast, we suggest that development banks should be redesigned to fulfill their promise. In this regard, we propose the upgrading of the traditional development bank to what we term the smart development bank. Smart development banks incorporate a new intelligence role that will strengthen their ability to contribute to substantial development objectives.

3.1 A New Intelligence Role

As mentioned above, the foundational idea that development banks only address well-specified market failures implicitly assumes that the bank’s management has a good understanding of the existing market failures and knows the best way to address them with financial assistance.

However, market failures are not directly observable. This is especially so in relation to the structural transformations at the root of economic development, because they involve the creation of new activities that the market fails to bring about, activities that are below the radar. It is not easy to identify the market failures that can be alleviated with development financing. And yet, the traditional paradigm assumes that the government has a great deal of knowledge on the obstacles to economic development that development agencies are called to remove. Specifically, it implicitly assumes that the government: i) has a list of the market failures that hamper economic growth; ii) can rank these market failures in order to decide how to allocate its scarce resources; and iii) knows the best way (grants, lending, guarantees, equity stake, regulation, public provision of missing inputs, etc.) to address these failures.

How do policymakers know about the obstacles to the creation of new activities and what activities should be promoted? How do they identify when commercial banks fail to provide financial assistance to projects that yield high return and are worth the risk of financing with public resources? And equally important, how can they recognize meritless operations and credibly make the case that the bank should not be pressured to finance them? In this paper we question the premise that policymakers and decision-makers have the required information to give a clear mandate to development banks. This lack of clarity is largely responsible for what are often half-baked mandates and lending programs that mechanically match them without much regard for a serious consideration of their development impact. Evaluations designed to keep development banks accountable are, when they exist, correspondingly shallow and formulaic.

To redress this key knowledge weakness, the Achilles' heel of productive development policies, we make the case for a new intelligence role of development banks that exploits the complementarities between financial assistance and the design of productive development policies. We start from the observation that banks have a unique vantage point to uncover obstacles to firm creation and growth, for discovering not only market but also government failures impeding economic transformation. Banks are special because they can learn about failures in the process of assisting firms. Notwithstanding the value of academic studies and technical expertise in relevant ministries, direct and continuous exposure with the problems that firms face in the real economy is necessary for carrying out successful productive development policies. Interaction with actual and potential entrepreneurs is necessary to learn about what

constrains entrepreneurship from establishing firms. The importance of public-private collaboration for conducting productive development policies is increasingly recognized as a critical factor for success (see Fernández-Arias et al., 2016, for a review of country experiences).

We envisage development banks that are able to analyze potential projects with an eye to finding out what is holding them back and actively looking for solutions such as advocating the alleviation of undue impediments and the provision of needed public inputs as well as searching for additional private investing partners to provide missing inputs to structure a successful investment package. A smart development bank would look at the development impact of such solutions considering their systemic impact on other investors and projects beyond the transaction under its consideration. More generally, we propose that it be deployed as an instrument of economic intelligence and play an active role in the design of national productive development policies as well as their implementation in conjunction with the private sector.

This new intelligence role of development banks is parallel to the informational function of commercial banks. In fact, financial intermediaries exist precisely because credit is an information-intensive activity and information is costly to collect but easy to reproduce (e.g., Leland and Pyle, 1977). Commercial banks accumulate information relevant to project returns and creditworthiness as they evaluate their applications for new loans and observe firms' transactions (based on which they can make decisions to outcompete other banks). Being in direct contact with established firms and fledgling entrepreneurs, commercial banks also have a privileged vantage point for identifying failures and possible solutions to these failures. However, it would be difficult to hijack commercial banks' access to knowledge for this purpose because they do not care about social returns. Furthermore, they can extract profits from keeping the information they acquire in the lending process private and would not be inclined to reveal it. If information is to serve the public interest by discovering high social return opportunities, it will need to be primarily acquired by public entities such as development banks.

It makes sense to bundle lending and research because of the complementarities between the two. Through their screening of applications and lending activities, development banks can gather information on: i) what are the business ventures that the private sector is exploring, ii) what type of inputs (e.g., goods, services, skills) pioneering firms need in order to develop and become viable, iii) what are the bottlenecks that affect specific industries, iv) what are the industries that could benefit from the experiences already acquired in other parts of the economy

and v) what economic activities can generate positive externalities or would benefit from inter-sectorial coordination. Learning opportunities exist not only from borrowing customers, but also when credit applications are not approved. An analysis of the reasons for refusing to fund a particular project can yield valuable information about the conditions under which the project would have been approved, which is a way to identify the main obstacles to the creation of new firms and activities.

Therefore, rather than assume that the government has a list of market failures and uses development banks to close some well-identified market gaps, one can think of an institutional set-up in which the development bank is assigned the job of identifying failures (not only market but also government failures) and proposing possible solutions. In this way, development banks can ask for well-justified mandates and develop effective programs to carry them out. This intelligence role may require a substantial investment in terms of human and physical infrastructure, the creation of a “Chief Learning Officer” and, more generally, a better understanding of what type of capabilities and incentives such a knowledge bank would have to develop. The information collected by the development bank can be used to guide its own operational work and can be transmitted to the government to enable other public interventions, and in this way become an input for the design and implementation of productive development policies. Development banks can become an instrument for the formulation (not only the execution) of public policies aimed at promoting productive development.

For this virtuous cycle to work, the government needs to integrate the smart development bank into its development policy governance structure in order to effectively utilize the intelligence received. Information and analysis of market failures identified need to be channeled to the relevant agencies of the public sector apparatus for their consideration. Importantly, information on government failures need to be followed by an appropriate response in terms of required interventions, such as adjusting regulations or providing some critical infrastructure constraining productive development. In the same way, governments need to give a seat at the policymaking table to development banks producing information and analytical inputs for the design of productive development policies. The value of a smart development bank depends in large part on the ability of the government to put the intelligence produced to good use.

It is important to highlight that a smart development bank not only redresses market failures but, in contrast with the traditional development bank, also contributes to fixing

government failures underlying dysfunctional ecosystems. Identifying a government failure and alerting the relevant public agency would be an important first step, but it may need to be followed by actually lobbying the government for effective solutions. To ensure that the bank's lobbying is not aimed at simply favoring its own operations, it is important that proposals be designed and justified not only to address a particular instantiation of a problem but the whole class of phenomena that would be affected by that type of failure. A smart development bank would also be in an ideal position to minimize the fiscal cost of public inputs or investments required to support worthwhile projects by coordinating public-private collaboration to make sure that private beneficiaries pay their fair share (on account of increased project returns). Fernández-Arias et al (2016) show that apart from fiscal expense, cost recovery is also important as a signal that the social return of the private project, after netting out fiscal costs, is adequate. A smart development bank is in an excellent position to lead the public-private collaboration needed to implement cost recovery.

It is essential that the smart development bank have the incentive to produce quality intelligence and fully report its findings to the government. One way to integrate the development bank into the government decision-making process that provides incentives to report correctly would be to give a ministerial role to the bank's president. There are, however, serious tradeoffs with this strategy of including the development bank in the cabinet. While it would guarantee that the bank's mission is aligned with the government's objectives, it would undermine the bank's independence and increase the risk of political lending.²³ One possibility to mitigate this risk could be to pair the politically appointed manager with an independent supervisory board and evaluation office that are appointed for longer staggered terms so that they do not coincide with the political cycle. In any event, independent evaluation appears important to keep a smart development bank honest.

An intelligence objective opens up new possibilities regarding the financial lending activities of development banks. The bank may want to be involved in certain operations not with the primary objective of filling a market gap but because it is trying to acquire relevant information about market and government failures, irrespective of whether there was a problem of credit under-provision to merit the specific operation. Target activities would be those expected to be rich in information. As a by-product, the experience gained by the national

²³ As documented for Italian and Pakistani public banks by Sapienza (2004) and Khwaja and Mian (2005).

development banks can be useful for the client; the development banks could also provide certain types of consulting services beyond financial assistance.

Moving one step further, if smart development banks are used as discovery agents, as eyes and ears in support of sound productive policies, they can also be a useful instrument for evaluating these policies, checking whether things are going well and taking corrective actions if not. The information available to the smart development bank and the technical expertise within it would make it a suitable institution for the evaluation of the development impact of productive policies. Ideally, this mechanism would generate a virtuous circle in which the information collected by the development bank is translated into policy action, which then generates new information that can be used to fine-tune the policy.

In particular, smart development banks may also engage in lending programs with an eye to experiment and systematically assess results with the purpose of maximizing learning, not necessarily the program's direct effect. Research can obtain valuable ideas not only by observing the bank's lending activities, but also by using the bank balance sheet to experiment and evaluate ideas. Randomized control trials (RCT) are now a standard tool for development economists (Duflo, Kremer and Robinson, 2008) and they have been used to evaluate the impact of microfinance programs (Banerjee et al., 2010; Karlan and Zinman, 2010, 2011). Research so far has been limited to small projects targeted to the poor and the informal sector. There would be much to learn from allowing the bank's research economists to use part of the bank's lending portfolio for conducting larger scale experiments (of course, subject to risk control) that target the formal sector.

3.2 Some Implications for Institutional Redesign

There is increasing recognition that for productive development policies, to a large extent, institutional capability is destiny and needs to be strengthened and safeguarded to have a shot at success (see Cornick et al., 2018). This is particularly true in the case of development banks, whose financial prowess puts them at risk of capture as their checkered experience demonstrates. The establishment of an intelligence role in smart development banks would enable improved institutional redesign. In what follows we analyze the impact of such redesign on enhanced governance and accountability, financial soundness, as well as its implications concerning the tradeoff between first and second-tier arrangements.

3.2.1 Governance and Accountability

Smart development banks need an institutional set up that guarantees that bank management has the ability and incentives to allocate its resources in a way that is consistent with the mandate of gathering information for the formulation of productive development policies and related research activities. What type of performance metric would give managers the right incentives?

The ideal performance evaluation measure needs to be related to the bank's contribution to economic development, both directly through its financial assistance and indirectly through its intelligence and research activities. Operations that are research-based follow a more transparent decision process and make performance more evaluable under this metric. Deeper involvement in policy elaboration on the part of development banks would help focus their performance evaluation on substantive grounds, as opposed to bureaucratic lending targets, loan volume or profitability, as is now often the case. Besides the traditional financial auditing, smart development banks need operational audits carried out by high-level experts to examine the quality of their intelligence activities and the extent to which operations are backed by relevant knowledge. As mentioned, credible external independent evaluations of this kind are key to aligning managers' incentives and protecting the integrity of smart development banks by ensuring that the information produced and reported to the government is unbiased.

There are a number of governance challenges common to all state-owned enterprises that would also apply to smart development banks. Scott (2007) and Rudolph (2009) describe best practices for the management and regulation of state-owned financial institutions. Smart development banks would benefit from adopting most of their suggestions on regulation and supervision, disclosure of information, and rules for board and management appointment and compensation. A challenge that is specific to the new role of development banks discussed in this paper relates to their ability to collect and use information. Does the bank use the information only internally to decide how to allocate credit? Does the bank transmit this information to the government and use it to influence legislation or decisions on public investment, as discussed above? Does the bank disseminate this information to the private sector? A possible answer to these questions is to make public all the knowledge generated within the bank and disseminate knowledge produced by the bank's research department as a way of advancing productive development policies.

One governance advantage of smart development banks is that they can be expected to be more independent of political economy pressures distorting their technical assessments of lending operations. This is not only because of their capacity to shield their operational decisions with demonstrable knowledge but also because smart development banks can attract qualified personnel with well-remunerated stable jobs and meritocratic career paths that are often independent from the political cycle.²⁴ As in the case of central banks, it is important that this potential protection from capture and undue pressure be formalized in legal autonomy.

3.2.2 Financial Discipline

As mentioned in the previous section, development banks need subsidized funding in order to accomplish development objectives, especially as the private financial system matures and economies become more sophisticated. This need for subsidized funding would be even greater in the case of smart development banks, which are in charge of additional non-financial responsibilities. Would they be able to have the required financial discipline not to waste subsidized funding? As mentioned, concerns about the ability of many development banks to be financially disciplined led to the imposition of rigid financial sustainability targets that are often a straitjacket on delivering results. However, the excessive focus on financial returns rather than the development mandate has had the silver lining of demonstrating that these institutions can be managed soundly to achieve set financial targets. Banks endowed with sufficient fiscal resources to deliver more ambitious development results can be expected to stay within the approved financial envelope if managed in the same responsible way, without running the risk of unplanned deficits and fiscal bailouts.

A full-fledged smart development bank will need subsidized funding, that is a certain recurrent mass of fiscal resources. This financial muscle allocated from fiscal revenues may be implemented in a number of ways, such as borrowing public resources at subsidized rates or periodic capital injections. Whatever the method used, the key is to explicitly recognize the fiscal subsidy element, which ought to be transparently planned, approved by fiscal authorities, and executed. At the same time, subsidies being the lifeline of development banks for fulfilling their mandates, commitment to strategic development objectives makes it necessary not to expose subsidy transfers to the vagaries of the annual budget process. Therefore, earmarking of public

²⁴ In this regard, Colby (2013) discusses how the Brazilian Development bank BNDES succeeded in becoming a “silo of bureaucratic efficiency.”

revenues or multi-year capitalizations, contingent on satisfactory performance evaluation, would be beneficial in this case as a commitment device.

Once the subsidy element in the bank's funding is transparently recognized, financial supervision and auditing should proceed on that basis. The development bank would be responsible for not exceeding the financial envelope approved and would demonstrate financial discipline by achieving its targets according to the normal accounting rules and financial regulations. The evaluation of the development bank would center on the degree of development impact it is able to achieve subject to complying with the financial envelope stipulated.

3.2.2 Second-Tier Arrangements Revisited

As shown above, second-tier development banks require well-defined and detailed lending programs to control the first-tier commercial banks through which they operate and the ability to audit their actions effectively. Even abstracting from the agency costs of implementing such an arrangement, this *modus operandi* assumes that the development bank (the principal) has very detailed information on the nature of the market gaps and on the best way to close these gaps. If that assumption is not warranted, as we argue, second-tier arrangements are much less attractive.

This new intelligence role of development banks has implications for the tradeoff between first-tier and second-tier arrangements. Thinking about development banks as intelligence agencies leads to a reassessment of the costs and benefits of specific organizational forms, especially about the relative merits of first and second-tier institutions banks. As first-tier institutions, development banks are in closer contact with the end borrower and, therefore, are better suited to collect information on market and government failures. The new role of development banks discussed in this paper increases the relative advantages of first-tier development banks.

The loss of information implied by second-tier arrangements, which would be critical for smart development banks, is confirmed by our survey of managers of national development banks. When asked about possible trade-offs, most bank managers said that second-tier development banks have an information disadvantage with respect to first-tier banks (as a way to achieve greater efficiency and minimize the politicization of loan authorization and collection).

Only one bank manager said that second-tier banks can collect as much information as first-tier banks. All other respondents suggested that it is harder to collect information when the

bank operates as a second-tier bank. Nevertheless, some bank managers were more pessimistic than others. At one extreme, one manager said that it is impossible to obtain good information from first-tier partners because these private banks are only trying to maximize short-term profits and do not care about the medium and long run. Another manager said that things work well when the development bank cooperates with investment banks in infrastructure financing but that it does not obtain any information when it lends to firms through first tier banks.

Six bank managers were less drastic and said that, when their institutions operate as second-tier banks, they do obtain some information about the ultimate borrowers (see KfW's discussion in Appendix B). However, they admitted that there is a substantial loss of information with respect to first-tier banks. Finally, two bank managers said that they have a good system for sharing hard information with the first-tier banks with which they operate but that, nevertheless, they do lose the soft information that comes from continuous contact with ultimate borrowers.

Of course, there is still a trade-off between first and second-tier arrangements: benefits in terms of information gathering in a first-tier smart development bank might be outweighed by political failures and poor managerial capacity in the public sector. In some circumstances it may be worthwhile to think about mixed institutional arrangements that retain the informational advantage of first-tier arrangements but can address some of these political and managerial failures. In what follows we discuss some ideas for hybrid arrangements.

Problems related to poor risk evaluation and political capture in lending could be attenuated by requiring that first-tier development banks enter into (subsidized) co-financing arrangements with commercial banks, so that they need to find a commercial bank partner to complete an operation. In this way, loan eligibility and pricing would be vetted by the market, thus constraining biased or careless lending.²⁵ Alternatively, the development bank could be required to sell its loans to commercial banks after a pre-specified period of incubation. Such scheme would generate incentives to carefully select these loans (bad loans will reveal their poor quality by being less valuable) and, by exonerating the development bank from the onerous task of collecting loans or enforcing collateral, they could benefit from the superior credit enforcement ability of commercial banks (in certain institutional environments, public banks

²⁵ In fact, one manager in our survey said that co-financing arrangements with private banks are an ideal setting for exploiting the complementarities of public and private sector financial institutions. Armendariz de Aghion (1993) also discusses the merit of co-financing; however, in her model it is the development bank that transfers knowledge to the private bank

may face political obstacles in collecting loans and enforcing collateral). In fact, these have been some of the traditional reasons for privatizing state-owned companies. Privatizing collection in this hybrid structure may solve this problem while retaining the informational value of a first-tier arrangement.

4. How Ready Are Development Banks to Play the New Role?

This section summarizes the results of our survey of managers of eight national development banks, replying either individually or as a group. In the case of group interviews, we considered the prevalent view in each group; in our reporting, we refer to the view expressed in each interview as the view of one manager. In the case of three of the eight development banks we also surveyed past authorities, so that the survey encompassed 11 structured phone interviews or “managers.” The survey focused on the desirability and feasibility of the intelligence role of development banks described in this paper. By and large, responses support the idea that the advancement of an intelligence role in development banks is valuable and promising but needs political and financial backing to make it happen.

Bank managers’ feedback was almost unanimous (10 out of 11) in saying that development banks can be ideal tools for providing economic intelligence of the kind described in this paper. However, only two of the 10 expressing favorable opinions are satisfied with the way their institutions are advancing an intelligence role (BNDES and KfW). They said that their institutions have a structured system for collecting and analyzing information and providing inputs to the design of economic policies (see Appendix B for a discussion of these two cases). This suggests that there is fertile ground to advance in this direction in most development banks.

In fact, of the remaining eight favorable opinions for incorporating an intelligence role that are dissatisfied with the status quo, two managers were drastic: despite agreeing with the ideas discussed in this paper, they stated that their banks do not play any economic intelligence role whatsoever. Both of them said that it was because of lack of resources, but one manager also mentioned that his bank does not have a sufficiently good relationship with the government. According to this particular bank manager, his government is not interested in receiving policy advice from the bank. This manager added that there are no well-established communication channels between the government and the development bank and that some ministries are implementing policies that compete with the activities of the development bank without proper

consultation. Specifically, the government has no idea of what the bank does, and the bank management has no idea of what the government wants from the bank. This manager felt that the government was more of a competitor or an obstacle than a partner.

The other six dissatisfied managers said that intelligence is not collected and organized systematically, and that the transmission of information to the government is done through informal channels. This situation is partly due to lack of resources but also linked to the fact that the bank does not have a clear intelligence mandate and managers feel that they will not be evaluated on the basis of the policy advice they provide. One of these managers said that the bank does have a research department but that the department does not use information generated within the bank. The department's main objective is to inform bank staff and management about research that is conducted outside the bank (in universities, think tanks, international organizations, and central banks). The same manager also said that, while the bank does not collect data, lending decisions are sometimes based on data collected by the national statistics agency. According to this manager, the current system allows the bank to serve established enterprises but is not helpful for identifying new promising enterprises that need seed capital.

The experience of the managers responding that their institutions are doing something concerning an intelligence role offers some interesting insights. One manager said that the bank was in the process of developing a system for collecting and transmitting information to the government. This manager also said that regular consultations with entrepreneurs located in different regions are a good instrument for understanding the challenges faced by both new and well-established firms.²⁶ Many managers said that their banks are trying to have a better grasp of what is happening outside the capital city by holding regional consultations and by having more people in the field. One obstacle to this strategy relates to the fact that the government does not always appreciate the potential long-run benefits of such a policy and may thus penalize bank managers that incur the short-run financial costs associated with decentralization. This is a symptom of a more generalized problem related to the fact that performance evaluations are often based on short-term outcomes.

One manager said that all development banks should have a research department that interacts with the operational departments with the ultimate objective of generating economic intelligence for the bank and the government. When asked about the financing of the research

²⁶ In his view it was important to consult with individual entrepreneurs rather than with entrepreneurial associations.

department, the same manager stated that financing through fiscal transfers would maximize transparency but risk making the research activity subject to political pressure and lead to volatile budgetary resources. This manager concluded that is probably better to finance the research department with the bank's own revenues.

Another manager suggested that there are economies of scale in the design of institutional procedures that would allow development banks to play the intelligence role described in this paper. This manager thought that development banks that operate in different Latin America countries could learn from each other and that the IDB could act as coordinator and lead an initiative aimed at developing systems for collecting information that can be shared and compared across countries. This would be an important regional public good. The manager also said that governments that are skeptical about the role of development banks could become more willing to empower their own development banks if they were exposed to successful experiences in other countries.

In discussing how banks can learn from lending, one manager described a case in which his bank was asked by the government to rescue a cooperative firm that had lost access to credit. At the beginning, this was pure political lending. The only objective of the government was to avoid job losses. However, by working with this cooperative, the bank acquired substantial knowledge about financial challenges that are specific to cooperative firms and this knowledge is now allowing the bank to lend to cooperative firms, which are usually ignored by private banks. In fact, crises seem to increase the leverage of development banks. In another example, a manager mentioned that his bank was able to acquire detailed information about the production process and financial linkage of an important sector of his country's economy only when the sector found itself overexposed to commercial banks and the bank had to step in to rescue both banks and producers. Another manager said that the second-tier bank was able to create a dialogue between farmers, suppliers and first-tier banks which allowed the bank to gain a better understanding of the value chains in the agricultural sector and formulate well-targeted credit lines. This manager said that, at the beginning, the various counterparts were not willing to share information and that the program was successful only because the bank was seen as an impartial institution and because it had some leverage on first-tier banks.

One bank manager stated that there could also be learning from projects that are not financed. For instance, about 30 percent of projects belonging to a specific line of credit (renewable energy sector) that were positively evaluated by an initial feasibility studies ended up not being implemented (hence, not financed). The same manager said that the bank should have tried to understand why these projects were not implemented.

Last but not least, as mentioned before, of the 11 bank managers, there was one who responded that it is not desirable to mix lending with policy advice and that the ideas discussed in this paper are not well suited for his/her bank and for the institutional environment in which the bank operates. The manager said that the information collected and analyzed by the development bank is not different from the type of information collected and analyzed by private banks and that the development bank does not have the mandate or budget to collect and analyze information that go beyond capacity to pay. The manager added that it would not be appropriate to disseminate this type of information to third parties, not even to the government who owns the bank, because close interaction with the government would have more costs than benefits. In particular, the manager thought that closer ties with the government would limit the independence of bank managers, push the bank towards politicized lending, and ultimately lead to large losses for the bank. The same bank manager also mentioned that information does not flow well even within the bank and that it would be difficult to share knowledge with parties outside the bank. While there are informal channels through which bank managers discuss the country's main policy challenges with government officers (both at the national and local level), this particular manager does not think that it would be a good idea to formalize these channels of communication. The manager said that formal policy discussions would lead to political pressures for credit allocation and concluded that credit allocation and dissemination of information should not be mixed.

5. Conclusions

The traditional paradigm of development banks is that these institutions should target market failures that can be addressed with financial assistance at appropriate terms (while abstaining from distorting markets by competing with private banks). In this paper, we argue that the implementation of this paradigm has the fundamental problem of assuming that market failures and the corresponding policy solutions are well-identified, while in practice they are not because

the required learning mechanisms to ascertain them are usually not in place. Our evidence-based analysis shows that, in practice, the paradigm is often undermined by lack of confidence on the bank's ability to redress market failures, leading to containing rather than fostering its activities through narrow and formulaic mandates, deference to commercial banks and starvation of required subsidized funding. In the extreme, development banks are neutered by a financial straitjacket and/or second-tier arrangements are captured by first-tier commercial banks.

In this paper, we argue that a key reason why development banks fail their critical development purpose is lack of clarity on the market failures that need to be addressed. We ask: given that market failures are not observable, how does the government obtain this information? Discovering market failures and how to redress them requires field exposure, public-private collaboration, and a learning mechanism to establish policy. Rather than abandoning the promise of development banks as strategic instruments, we suggest that we should instead rethink development banks and redesign their operations to exploit the complementarities between lending and the design of productive development policies. We propose the establishment of smart development banks.

We start from the observation that first-tier development banks have a unique vantage point for observing market failures and uncovering obstacles to firm creation and firm growth. Like the information discovery function of commercial counterparts, they can learn problems and solutions in the course of financial evaluations and assistance (in their case in connection with high social returns rather than private profits). We propose that development banks be used as an instrument of economic intelligence, transmitting information on market and government failures to relevant agencies and playing an active role in the design (as well as implementation) of national productive development policies. Our survey of development banks strongly suggests that they are ripe for reforms along these lines.

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Table 1. Interviews

Name and title of interviewees	Institution	Date of the Interview
Nicola Angelucci (former President)	BMI (now BANDESAL, El Salvador)	March 18, 2013
Luis Porto (former President)	CND (Uruguay)	March 20, 2013
Mauro Alem (President)	BICE (Argentina)	March 26, 2013
Rosa Ana Saavedra (Manager for Risk Management); Armando Mestas (Manager of Business Areas)	COFIDE (Peru)	April 8, 2013
Adriana Rodríguez (President)	CND (Uruguay)	April 9, 2013
Daniel Schidlowsly (former President)	COFIDE (Peru)	April 16, 2013
Oscar Lindo Fuentes (President)	BANDESAL (El Salvador)	April 22, 2013
João Ferraz (Vice President); Claudio Leal (Manager of the Planning Department); Ana Claudia Alem (Manager of the Research Department)	BNDES (Brazil)	April 25, 2013
Martin Hagen (Chief Financial Sector Economist)	KfW (Germany)	May 2, 2013
Santiago Rojas (President); Mauro Sartori (Vice President for Risk Management); Catalina Ortiz (manager for Innovation and Learning)	Bancoldex (Colombia)	May 3, 2013
Federico Balli (technical coordinator in the Management Office)	NAFIN S. A. (Mexico)	July 3, 2013

Appendix A. Questionnaire

Part 1: About the Bank's possible intelligence role for the design and implementation of productive development policies.

Before going to the issues, let us briefly describe the vision for a potentially new intelligence role of development banks.

The fundamental role of a development bank is to promote development. Traditionally, development banks have promoted development by allocating credit or by providing technical assistance and training to deserving clients. However, these activities are justified under the premise that the government (which sets the mandate of the Bank) or the bank's management (which operationalize this mandate) know well what market failures they should address as the development process evolves and have a good understanding of what is the most efficient way to use their resources in order to address these market failures. But how do the Government and Bank management know? Development banks could be the answer to this question.

Financial intermediaries exist because credit is an information intensive activity. In the same way that commercial banks gather information on creditworthiness and private returns, development banks may be needed to gather information on market failures and social returns. In particular, by interacting with firms through their traditional activities, development banks can gather information on: (i) what type of public inputs existing firms demand to develop a viable national industry; (ii) what are the undue bottlenecks and coordination impediments in a given sector; (iii) what are the sectors that could benefit from the experience already acquired in other sectors; (iv) what economic sectors can generate positive externalities. The information collected by the development bank could then be utilized or transmitted to the government that will then use it to formulate its productive development policy. If development banks are used as eyes and ears in support of productive development policy, they can also be a useful instrument for evaluation, checking whether things are going well or there are problems that need to be corrected. The mechanism would generate a virtuous circle in which the information collected by the development bank is translated into policy action which then generates new information that can be used to fine tune the policy action. In fact, development banks may be even more proactive in

contributing to evaluation and design experimental lending programs with an eye to exploring policy alternatives.

With this new role, development banks would foster development not only by lending but by providing information to policymakers.

Q1 Does the bank have a system for collecting information about borrowers beyond repayment capacity? If so, what type of information does the bank collect? Does the bank proactively seek information about the development bottlenecks and potential of firms and or sectors irrespective of the financial performance of its own lending operations?

Q2 What do you think about this possible new intelligence role of development banks? Do you think it makes sense? Do you think it is feasible? What, in your view, would be the main difficulties in implementing such a role?

Q3 Is your bank already doing something in this direction? If so, can you please describe? Does the bank alert the government about needed reforms or solutions to problems it uncovers with its borrowers? If not, why not? If so, does the Bank do this formally (that is in a structured way) or informally through continuous dialogue with clients and the Government? If the bank is doing this informally, do you think that it would be beneficial to put more structure in what you are already doing?

Q4 Has the information gathered from borrowers led to changes in policies? Is there any industry or activity that would not exist if it were not for information discovered by the bank?

Q5 Let us assume that an intelligence role like the one described above were to become part of the formal mandate of your Bank. How would you operationalize it? In particular, what would be the main challenges for setting up a system for collecting and organizing quantitative and qualitative information? What would be the main challenges of transmitting this type of information to your government? Do you think that implementing such a system would have a large cost in terms of human or financial resources? Would it be financed with the bank's own capital or by an external source (i.e., other Government agency)?

Q6 Do you have any other comment or suggestion about this potential new role of development banks?

Part 2: About the Bank's mandate

Q7: The Vision/Mandate of your bank is XXX (refer to the Vision/Mandate). Do you think that the current activities of the Bank are in line with this mandate? Is there any important activity of the Bank that goes beyond this mandate? If so, can you please describe? Do you think that the Bank should implement new activities or reinforce some of its existing activities in order to better fulfill its mandate?

Q7A (if we did not find an explicit mandate/vision online). Does your bank have an explicit mandate? If so, can you describe it? If your bank does not have a specific mandate what is, in your view, the Bank's main mission. Do you think that the current activities of the Bank are in line with this mission? Is there any important activity of the Bank that goes beyond this mission? If so, can you please describe? Do you think that the Bank should implement new activities or reinforce some of its existing activities in order to better fulfill its mission?

Q8 Who sets the mandate/vision of the Bank? Has the mandate changed over time, how? Does the Bank management have substantial autonomy in implementing this vision/mandate?

Q9 Is the bank's mandate an integral part of a comprehensive strategy for productive development? If so, has the government clearly communicated this strategy to the bank and explained its specific role vis-à-vis other agencies?

Q10 How does the bank make its lending decisions to fulfill its mandate? Does it test the existence of the market failures inspiring the mandate? Does it test the development impact of its operations even if not explicitly required by its mandate? If this is a second-tier bank, does the bank impose lending guidelines that substantially influence the way loans are allocated by the partner first tier bank?

Q11 Does the Bank have a formal or informal system to evaluate whether its activities achieve the objectives set in its mandate. If such a system does exist does it make use of quantitative or qualitative criteria or both? Can you describe these criteria? How does it differ from criteria used by commercial banks, such as profit rates and lending volume?

Part 3: About the Bank's resources

Q12 What is the Bank's main source of funds? Does it pay a market rate for these funds? Does it enjoy a funding advantage relative to market rates (e.g., a public guarantee or cheap public funds)?

Q13 Does the Bank receive implicit subsidies as in implicit public guarantees to cover losses/recapitalize? Does the Bank have a mechanism for keeping track of these subsidies? Can you describe this mechanism? Are these subsidies transparent? Does the Bank enjoy regulatory protection in some of the fields in which it operates?

Q14 If the Bank does receive some form of funding subsidy or enjoys advantages in its operations, can you quantify in terms of its funding rate? Could it survive without this protection? Could it implement all of its activities without this protection? If not, what activities would the Bank have to cut?

Q15 Is there cross-subsidization among the Bank's activities (for instance some of the Bank's activities are, on average profitable and other activities tend to generate losses). If this is the case, what are the profit-making and loss-making activities.

Q16. How do Bank operations differ from that of commercial peers with respect to risk exposure? Is this development cost reflected in the bank's budget? Is there a formal framework to price market risk and define a risk strategy?

Appendix B. The Experiences of BNDES²⁷ and KfW

We now describe the experience of two banks that have put in place a structured way to build economic intelligence and have established formal and informal channels to transmit it to the government as captured in the survey.

²⁷ This survey was conducted before the financial scandals associated with the so-called Operation Car Wash in Brazil became known, so it does not include any discussion about BNDES' situation concerning them. More generally, the survey did not focus on the risks of capture and corruption in development banks. We understand that there is a debate concerning the role of BNDES in corrupt lending despite the fact that it appears to have emerged unscathed in the investigations of Operation Car Wash (Brazilian Monitor of April 29, 2017). The absence of references to the financial scandals in this appendix does not reflect a view on this debate.

The Brazilian development bank BNDES operates at both a first and second-tier level. BNDES gathers economic intelligence by favoring a continuous exchange of information between project managers in the operational departments and the bank's research department.²⁸ The bank has four main operational divisions (Industry, Infrastructure, Trade and Services, and Agriculture) that are further divided into subsectors.²⁹ Within each operational division there is a small research group that is in close contact with the project managers and then reports to the bank's main research department, which collects and aggregates information and disseminates it to the rest of the bank. One channel of information is an internal refereed journal called *BNDES Sectorial*.

To facilitate this exchange of information, BNDES has developed a uniform methodology for evaluating firms' capabilities and tangible and intangible assets that depend on the sector of operation of the ultimate borrower. These evaluations are based on quantitative and qualitative questionnaires and frequent site visits. In order to build quantitative indicators, BNDES has developed sector-specific weights on different capabilities.³⁰ Developing such a methodology required a large initial investment in research capacity, but it has allowed BNDES to have a common language and methodological approach for evaluating different firms and activities and quantifying the challenges faced by different sectors of the Brazilian economy. Research activities are thus conducted in close collaboration between the operational divisions and the research department. BNDES also has a formal network that discusses trends in different sectors and forecasts sector-level investment trends.

Every week the bank receives a large number of financing applications, these applications go through a pre-screening process, and after this first stage are then allocated to specialized department (software infrastructure, etc.) and are subject to a detailed analysis focusing on both creditworthiness and development impact. After the project is approved project officers continue to follow it to check if things are going well and the bank can keep financing the project. In the project evaluation process there are two types of teams that interact. The first team focuses on creditworthiness and tends to be rather conservative. The other team evaluates

²⁸ Project managers are in charge of designing and implementing the individual loans by analyzing the capabilities and assets of each firm that applies for funding and then to follow the loan until its expiration.

²⁹ Industry is divided into six sectors (food and beverages, transport material, mechanism, metallurgy, textile, other) and infrastructure into three sectors (transport, electricity, other).

³⁰ For instance, R&D capabilities carry more weight in high-tech than in the agricultural sector, and access to natural resources carries more weight in the mining sector than in the electronic sector.

the development impact of the project. This operational arrangement leads to a situation in which some projects that would not have been approved on a pure creditworthiness basis are approved for their development impact (and vice versa, if the project generates negative externalities).

BNDES uses this internal intelligence to design and adjust its strategy with the ultimate objective to achieve its government-defined mandate. For instance, the Productive Development Policies (PDP) program implemented by President Lula led BNDES to work closely with the high-tech sector and allowed the Bank to gain a better understanding of what niches are well suited for Brazilian firms. This, in turn, allowed the Bank to fine-tune its lending strategy and provide the government with inputs for the implementation of the PDP program. BNDES also manages some venture capital funds that, besides being profitable, give the bank a unique opportunity to participate in the management of new firms and gain a better understanding of the challenges and opportunities faced by new firms. Along similar lines, BNDES provided key inputs for the design of Plano Brasil Mayor (PBM) implemented by President Dilma Rousseff.

For instance, the government wanted to promote the use of national content in the production of capital goods, and BNDES was able to implement this policy because it had good knowledge of production process and therefore could evaluate the national content of various capital goods. (This does not mean that the government policy is necessarily good, but the bank has the capacity to implement the policy)

When asked whether the structure described above is replicable in smaller development banks, BNDES management replied that size does not really matter and mentioned that most of the research is conducted within the sectorial departments, which often have less than 40 employees. According to BNDES management, the organizational structure is more important than overall size. There is an issue related to the fixed costs involved in creating a system for organizing and analyzing different sources of information, but that system does not necessarily need to be country-specific. Development banks located in different countries could possibly share this fixed cost and learn from existing experiences.

BNDES has both formal and informal channels for communicating with the government. BNDES staff members have a strong reputation in Brazil, and government officers often have informal contacts with BNDES to seek staff opinions and views on a wide variety of policy and technical issues. Bank employees are often consulted by central and local governments not only because their job gives them a privileged vantage point but also because of their technical and

analytical skills. In fact, one bank manager said that the government virtually delegated certain industrial policy tasks to his bank because of organizational advantages linked to the presence of well-qualified staff. At the formal level, BNDES management has seats in various ministerial-level government committees that provide inputs to the design of the Brazilian industrial and economic policy. Specifically, in Brazil industrial policy is organized along 19 sectors (and multiple themes) and BNDES has representatives in each of the 19 competitiveness committees in charge of designing sector-specific policies. Six of those 19 committees are chaired and coordinated by BNDES staff (the other 13 by different ministries).

While operating in an economic and institutional environment that is very different from the one faced by BNDES, the German development bank KfW is also actively engaged in advising the German government on how to achieve its economic development goals.

KfW operates as a second-tier bank. The fact that KfW has no direct contact with the ultimate borrowers does not allow the Bank to collect soft information on its ultimate borrowers. However, KfW has substantial leverage on its first-tier counterparts, and this leverage allows KfW to collect data on all German small and medium enterprises (SMEs) that have accounts with first-tier banks that receive KfW second-tier funding. This dataset covers more than 100,000 SMEs and, besides standard indicators on capacity to pay, includes information that makes it possible to forecast future production and to evaluate some of the constraints faced by German SMEs. In collecting these data, KfW is especially concerned with understanding the constraints faced by firms that want to adopt new technologies. KfW also collects extensive data on start-up firms. KfW is also active in all sectors related to the green economy. This is a sector in which the bank has a vast amount of information due to the fact that KfW is the main market maker in emission trading in Germany.

KfW uses these data to guide its own lending strategy and to provide advice to German policymakers, but it also produces (in cooperation with various German think tanks) periodical reports which are freely available on the bank's website. While KfW's research activity was originally fully financed with the bank's general budget, research now generates a substantial amount of own resources because KfW sells a large number of indicators and analyses that are then sold to the German federal and regional governments and to Eurostat.

There are many channels through which KfW provides inputs to the design and implementation of economic policy in Germany. First, KfW shapes policy by implementing its own mandate. For instance, as KfW has a mandate of promoting the green economy, KfW staff interacts with the government to design policies that focus not only on KfW's financial activities but also on complementary actions that the government can take to promote the green economy. Second, KfW staff and management often support and provide advice to government officers who conduct bilateral negotiations with the private sector. Finally, KfW staff and management participate in advisory meetings with the Ministry of Finance and the regional governments with the specific objective of providing inputs to the design of federal and regional economic policies.