

Mobilizing Private Capital for the Sustainable Development Goals

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Abstract

This paper summarizes evidence on financial instruments and regulatory approaches to spur private investment in pursuit of the 2030 Sustainable Development Goals. Starting from a theoretical framework demonstrating that raising the marginal product of capital is the key to crowding in private investment, it uses Robert Merton's functional approach to financial intermediation to assess the track record and prospects for five types of instruments/regulatory approaches: guarantees, public-private partnerships, syndicated loans, sustainable financial contracts, and climate

and banking regulations and policies. Despite considerable gains in the amount of private investment mobilized by these vehicles, the volumes still fall short of the trillions of dollars estimated to be necessary to achieve the Sustainable Development Goals. Efforts to share relevant data, encourage more academic research, and publicize and demonstrate the effectiveness of these approaches, much of which is already being undertaken by the World Bank and other multilateral development banks, could be crucial to scale up private capital mobilization.

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Mobilizing Private Capital for the Sustainable Development Goals Summary

At the simplest level, private capital mobilization is about leveraging development finance from governments and multilateral development banks to attract much larger amounts of private capital for investments for sustainable development. This paper summarizes the theory, evidence and prospects of the regulatory approaches and financial instruments for mobilizing private capital, and assesses their potential for mobilizing enough money to achieve the SDGs.

The theoretical framework shows that the way to crowd in private investment is to raise the marginal product of capital (MPK). The potential for increasing MPK is higher if (a) government capital investments increase returns to private investment or, in simpler terms, the government has the capacity to identify and implement a promising pipeline of projects; and (b) government capital is scarce relative to private capital. Perhaps the most important theoretical implication is that PCM potential is smaller in low-income countries as compared with emerging economies, since private capital is scarcer relative to government capital in poorer countries than in more developed economies. The available evidence supports this insight: a dollar of MDB finance results in about 50 cents of private investment in low-income economies, but nearly a dollar in emerging markets.

The paper uses a functional approach to financial intermediation pioneered by Merton (1995) to assess the potential of five instruments to increase capital's marginal productivity: guarantees, public-private partnerships, syndicated loans, sustainable finance contracts, and climate policies and banking regulation. The findings of note:

- *Guarantees*: While they are about 5 percent of MDB finance, they account for nearly half of the total private capital mobilization by MDBs. One reason for this is that Basel rules do not require banks to set aside capital for loans insured by MIGA guarantees against non-honoring. But guarantees will remain small relative to the finances needed to meet the ambitious climate and development goals being considered by developed and developing countries.
- *Public-private partnerships*: Investments in PPPs are large compared with those covered by guarantees, and are likely to be for investments such as infrastructure and digitalization that are most likely to increase the MPK and crowd-in private capital. PPP volumes are higher in countries with better regulatory regimes, suggesting that MDB participation would be more desirable in weaker settings. But the evidence indicates that the IFC-supported PPPs are more likely to be found in countries with a better investment climate.
- *Syndicated loans*: PCM potential appears to be the greatest for syndicated loans: MDBs have mobilized an average of 7 dollars in bank loans for every dollar they have invested. Loan volumes have grown rapidly since the late 1990s, with one in ten deals including MDBs. The favored sectors are finance, manufacturing, and infrastructure; the last would be most likely to increase the marginal productivity of capital. Encouragingly, syndicates

that include an MDB tend to lend to creditors in higher risk countries, and MDB participation tends to increase the number of lenders and the maturity of subsequent loans from syndicates.

- *Sustainable finance.* This consists both of GSS bonds and Sustainability-Linked (SL) debt; the former are earmarked for projects labeled green, social or sustainable while the latter is linked more loosely to ESG outcomes. Despite the cumulative issuances adding up to \$6 trillion in 2022, the evidence indicates low effectiveness both due to low green premia and greenwashing due to the absence of international standards. SL bonds have become more popular in sovereign bond markets, but global standards, reliable measurement, and an unwillingness in emerging markets to accept contracts that involve an increase in interest rates—a coupon step-up—if the sustainability target is not met remain serious obstacles to the development of this asset class.
- *Climate policies and banking regulations.* These include co-funding programs –credit subsidies and guarantees– and prudential regulation to encourage banks to shift their lending towards low-carbon activities. A major challenge for policy makers is how to define and monitor green lending without hindering access to finance or distorting credit supply. For example, banks may prioritize safer borrowers to avoid costly capital provisions, even if their projects lack social or environmental benefits. More broadly, a robust green policy framework at the national level appears to be a prerequisite for banks to actively engage in these programs.

In conclusion, four limitations of private capital mobilization initiatives should be kept in mind:

- *Unrealistic mobilization targets.* A failure to mobilize the trillions of dollars considered necessary to finance climate and other development goals should be seen as distinct from the general failure to mobilize additional private capital. PCM efforts have been judged harshly in large part because of their failure to meet what was, in retrospect, an unrealistic goal.
- *Weak project pipelines.* The pipeline of projects in developing countries that can noticeably raise the marginal product of capital to attract private investment is growing, but it is still small even in developing countries that have maintained reasonable rates of economic growth. Until this pipeline becomes bigger, expectations of mobilizing trillions of dollars of private capital for development projects will not be realized.
- *Limited MDB influence.* Of the instruments discussed in this paper, the World Bank Group and other MDBs have the most direct influence over public-private partnerships, guarantees, and syndicated loans. But these instruments are much smaller in scale than sustainable financial contracts and policies and regulations to promote green and other sustainability goals over which the MDBs at best exercise an indirect influence.
- *Additionality.* Demonstrating that projects have crowded-in private capital to countries that would not have otherwise received it remains a challenge for the instruments discussed in this paper. Research on private capital mobilization to this point has come largely from the policy community. Greater academic research holds promise for demonstrating additionality.

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JEL Codes: G10 Financial Markets General; G11 Portfolio Choice, Investment Decisions; H54 Infrastructures, Other Public Investment and Capital Stock; O1 Economic Development; O19 International Linkages to Development, Role of International Organizations

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Assessments indicate that public capital will be far from sufficient to meet sustainable development goals.¹ Governments and multilateral development banks (MDBs) therefore hope to crowd in private capital via financial structures that incentivize sustainable investments.² This paper develops a stylized theoretical framework for understanding how MDB-supported investment, and public investment more generally, can attract additional private investment by raising the marginal product of capital. To mobilize that private capital, however, requires financial structures (contracts and platforms) that augment financial intermediation. Drawing on Merton’s functional approach to financial intermediation (Merton, 1995), the paper then describes how these structures can crowd in private capital for sustainable investment by pooling funds for large-scale investment, mitigating asymmetric information and incentive problems faced by private investors, managing uncertainty and controlling project risk, and facilitating the transfer of economic resources (geographically and across sectors). The paper then discusses five specific types of financial structures that can mobilize private capital for investments – guarantees, public-private partnerships (PPPs), syndicated loans, sustainable financial contracts, and climate and banking policies – highlighting academic literature in those areas, the amount of private capital mobilized to date, and the challenges in scaling up those structures to mobilize more private capital for investment. The paper closes with an overall assessment of how successful efforts to mobilize private capital have been thus far and offers suggestions about the types of investment projects and financial structures that hold the most promise for crowding in private capital going forward in furtherance of sustainable development goals.

¹ See, e.g., World Bank (2023), Bhattacharya et al. (2022), Le Houerou and Lankes (2023), and Dachicourt (2022). Under a business-as-usual scenario, World Bank (2023) estimates that the financing gap for achieving development and climate goals will be \$3.5 trillion annually by 2030. Unmet needs for global infrastructure investment have been estimated at \$3.3 trillion per year through 2030 (McKinsey Global Institute, 2016; Arezki et al., 2017).

² MDB Task Force on Private Finance on Private Finance Catalyztion, 2017.

1. Private Capital Mobilization, Catalyzation, and Growth

At the simplest level, private capital mobilization is about leveraging development finance (from governments and MDBs) to attract much larger pools of private capital for investments that help achieve the 2030 Sustainable Development Goals (SDGs). A key issue – particularly for environmentally-related SDGs – is uninternalized externalities, which imply that private entities lack sufficient incentive to invest in such activities. This makes it very challenging, and perhaps inefficient, for financial support instruments to overcome both environmental externalities as well as conventional financial market failures.

With respect to MDBs, mobilization refers specifically to private financing that is associated with a specific project or activity and can be either direct or indirect (Box 1). Direct mobilization occurs when the active and direct involvement of an MDB leads to the commitment of private financing on commercial terms. Examples include World Bank Group guarantees and political risk insurance extended through MIGA or the short-term private capital mobilized by IFC to provide liquidity support for trade finance, distressed assets recovery, microfinance, and commodity financing (World Bank, 2020). Indirect mobilization occurs when private finance is extended in connection with an activity where an MDB is providing financing, but where no MDB has actively sought the commitment of finance from private entities. World Bank investment lending is an example.

Box 1. Private Capital Mobilization: World Bank Group Definitions

Private Capital Mobilized: Financing that is explicitly associated with a project or activity which can be documented from project/activity records (MDB Task Force on Private Finance Catalyzation, 2016).³

³ See “Mobilization of Private Finance by Multilateral Development Banks: 2016 Joint Report,” MDB Task Force on Private Finance Catalyzation. <http://documents.worldbank.org/curated/en/860721492635844277/pdf/114433REVISED-11p-MDB-Joint-Report-Mobilization-Jul-21.pdf>

- **Direct** - Financing from private entities on commercial terms because of the active and direct involvement of an MDB leading to commitment of funds (World Bank Group, 2020).
- **Indirect** – Financing from private entities made available in connection with a specific activity for which an MDB is providing financing but where no MDB is playing an active or direct role that leads to commitment of finance from a private entity (World Bank Group, 2020).

Private Capital Catalyzed: Additional private investment that occurs as a result of MDB-financed interventions but is not directly associated with the project or activity itself and is not extended under a specific co-financing arrangement (Chelsky and Kraay, 2017).

A related but distinct concept is private capital catalyzation, which is private investment that is brought about by an MDB-financed intervention but is not directly associated with an MDB project or activity. This refers to additional private finance that comes after a project is completed or due to upstream support for its enabling environment (Chelsky and Kraay, 2017). Private investment in gas stations and other retail outlets along a road that was financed through an MDB intervention would be a prototypical example of private capital catalyzation.

Direct mobilization, indirect mobilization, and catalyzation all involve ‘crowding in’ of private capital, which implies that private finance is allocated to projects that would not receive it in the absence of the MDB intervention. All three therefore entail additionality. As defined in World Bank (2020), “Financial additionality means contributions beyond what is already available in the market and not crowding out the private sector.” Since all three concepts capture additional private finance that could contribute to the achievement of the SDGs, all are discussed in this paper. Although we distinguish between mobilization and catalyzation in the stylized theoretical analysis that follows, later in the paper we sometimes refer to both mobilization and catalyzation efforts using the broader term “private capital mobilization” or PCM for ease of exposition.

Because broad-based, inclusive growth is central to achievement of most of the 2030 SDGs, we rely on a stylized macroeconomic theoretical framework developed by Chelsky and Kraay (2017) to illustrate how public investment can crowd in private capital for sustainable investment by increasing the marginal product of capital. It builds from a simple production function:

$$(1) \quad Y = F(A, K, G, H)$$

where Y is GDP; K , G and H are private, government, and human capital, respectively; and A is a productivity shifter, reflecting total factor productivity (TFP). Private capital satisfies a first-order condition that equates its marginal product to a required rate of return:

$$(2) \quad MPK = \frac{\partial F(A, K, G, H)}{\partial K} = r + \delta$$

In short, the private sector invests capital so that the return to an additional unit of it equals the cost of capital (r) plus depreciation (δ). The intuition underlying the crowd-in of private capital is that MDB-financed interventions shift the marginal product of private capital, MPK , upwards, thereby affecting the incentives of the private sector to invest. This done by increasing the level of TFP, A , government capital, G , or human capital, H .

As the marginal product of private capital increases, private investment increases until private capital reaches a new higher level where equation (2) holds again. If total MDB-financed interventions are denoted $X = X_A + X_G + X_H$, where X_A is the portion that raises productivity, X_G is the portion that increases government capital, and X_H is the portion that increases human capital, the first-order condition in equation (2) is differentiated as follows:

$$(3) \quad \frac{\partial MPK}{\partial A} \frac{\partial A}{\partial X_A} dX_A + \frac{\partial MPK}{\partial G} \frac{\partial G}{\partial X_G} dX_G + \frac{\partial MPK}{\partial H} \frac{\partial H}{\partial X_H} dX_H + \frac{\partial MPK}{\partial K} dK = 0$$

The first three terms on the left-hand side of equation (3) summarize the effect of MDB-financed activities on the marginal product of private capital, via productivity, higher

government capital, and higher human capital, respectively, and are expected to be positive. The last term summarizes the effect of additional private capital on the marginal product of private capital, which is negative in the presence of diminishing returns to private capital because an increase in private capital drives down the return to private capital. Along the first-order condition in Equation (2), these effects must balance to zero. This implies that the larger is the positive effect of MDB-financed interventions on productivity, government capital and human capital, the larger will be the induced increase in private capital required to restore the equality in Equation (2). Therefore, within this framework, *identifying projects that increase A and/or H, and the elasticity of output with respect to A and/or H*, is crucial for crowding in private investment, an insight which carries through much of the discussion in this paper.

To calibrate how much private investment MDB-financed activities typically catalyze using readily available data sources, Chelsky and Kraay (2017) rely on a standard Cobb-Douglas production function of the form:

$$(4) Y = AK^\alpha G^\beta H^\gamma$$

Substituting this functional form into Equation (3) and re-arranging terms yields the following more tractable and intuitive expression:

$$(5) \frac{K}{A} \frac{\partial A}{\partial X_A} dX_A + \beta \frac{K}{G} \frac{\partial G}{\partial X_G} dX_G + \gamma \frac{K}{H} \frac{\partial H}{\partial X_H} dX_H = (1 - \alpha)dK$$

An advantage of this expression is that the response of the marginal product of capital to increases in the factors of production depends only on their respective elasticities with respect to output: α , β , and γ . Chelsky and Kraay (2017) show that under the assumptions that (1) $\frac{\partial G}{\partial X_G} = 1$, meaning an additional dollar of MDB-financed investment in government capital increases the government capital stock by one dollar, and (2) that when MDBs choose their portfolio of

projects in a country they equalize the marginal product of their interventions across activities, Equation (5) reduces to:

$$(6) \frac{dK}{dX} = \frac{\beta}{1-\alpha} \frac{K}{G}$$

If there are no diminishing returns to private capital (i.e., $\alpha=0$), one additional dollar of MDB-financed government capital therefore raises the marginal product of private capital by $\beta \frac{K}{G}$, which implies effects are larger when the output elasticity of government capital, β , is large and when government capital is scarce relative to private capital (i.e., when $\frac{K}{G}$ is large). In practice, there are diminishing returns to capital, and thus α determines the rate at which those diminishing returns set in.

Drawing on cross-country data on government and private capital stocks for $\frac{K}{G}$ and estimates of β and α from the literature, Chelsky and Kraay (2017) use Equation (6) to estimate that one dollar of MDB-financed activities catalyzes between 0.28 and 0.80 dollars of private investment in low-income countries (where private capital tends to be scarce relative to government capital, and thus $\frac{K}{G}$ is smaller) and between 0.42 and 1.2 dollars of private investment in emerging markets. Since many observers have argued that the amount of government capital is far from sufficient to meet the SDGs, these estimates suggest that private capital catalyzation, while not negligible, will fall far short of what is necessary.

This is not to argue that the catalyzation of private capital is modest in all contexts, or that the rate has not increased (or is not increasing) due to greater focus on achieving the SDGs. Moreover, the calibration exercise in Chelsky and Kraay (2017) focuses on private capital catalyzation, rather than on direct and indirect private capital mobilization, both of which may

mobilize substantially more funds for investment than through catalyzation. But it is to say that based on an analytically sound approach and the best available data, the amount of private capital catalyzed by public investment is likely to be much lower than will be needed to meet the 2030 SDGs. The upshot is that private capital mobilization efforts will need to be scaled up dramatically to meet those needs, which implies that crowding in private capital for investment projects that best support inclusive growth will be crucial. This stylized framework indicates that investments that increase productivity and/or human capital hold the most potential for unlocking these growth benefits by raising the marginal product of capital. To identify and fund such projects will likely require non-standard approaches to financial intermediation, as discussed in the next section.

2. PCM and the Functional Approach to Financial Intermediation

Why would private investors want to invest in these projects and what assurances are there that this money will be allocated to projects with the largest sustainable growth benefits? A practical approach is to evaluate how financial structures intended to crowd in private capital for sustainable investment affect the functioning of financial systems. Robert Merton's classic functional approach to financial intermediation "takes as given the economic functions performed by financial intermediaries and asks what is the best institutional structure to perform those functions." (Merton, 1995, p. 23) He identifies six key functions that financial systems should perform (Box 2). In the context of private capital mobilization, it is not so much institutional structures, but rather the structure of financial contracts, investment vehicles and platforms, and regulations that are crucial to incentivize sustainable investments. Of those six functions, such structures are likely to offer benefits in four areas: pooling funds for large-scale

investment; transferring economic resources across geographic areas and sectors; managing uncertainty and controlling risk; and mitigating asymmetric information and incentive problems.

Box 2. A Functional Approach to Financial Intermediation

Function 1: Payments

A financial system provides a payments system for the exchange of goods and services.

Function 2: Pooling of Funds

A financial system provides a mechanism for the pooling of funds to undertake large-scale indivisible enterprise.

Function 3: Resource Transfer

A financial system provides a way to transfer economic resources through time and across geographic regions and industries.

Function 4: Coping with Risk and Uncertainty

A financial system provides a way to manage uncertainty and control risk.

Function 5: Pricing

A financial system provides price information that helps coordinate decentralized decision making in various sectors of the economy.

Function 6: Asymmetric Information and Incentive Problems

A financial system provides a way to deal with asymmetric and incentive problems when one party to a financial transaction has information that the other party does not.

Source: Merton (1995).

As noted, PCM involves ‘crowding in’ of private capital to projects that would not receive it in the absence of MDB interventions (i.e., additionality). While each of the five structures discussed below offers potential benefits for mobilizing private finance across multiple functions, some are better suited to specific functions than others. For example, public-private partnerships are well suited to pooling funds for large-scale investment, while guarantees can be beneficial for managing uncertainty and controlling risk. Syndicated loans can be viewed as beneficial for both pooling funds and addressing both asymmetric information and uncertainty/risk. Sustainable financial contracts may be especially effective in mitigating asymmetric information and incentive problems. Finally, climate and banking regulations and policies can exert influence on the transfer of economic resources across geographic areas and sectors.

The foregoing discussion assumes that investment projects that lead to sustainable growth exist, and that the key issue is to design financial structures that draw private finance to them. Realistically, though, projects that offer large benefits in terms of productivity gains and/or human capital development have been challenging to identify and develop. Further developing the limited pipeline of investable projects that could lead to large gains in sustainable growth is therefore a theme that runs throughout the discussion of specific financial structures that follows.

3. Guarantees

Although MDBs were established with a mandate to use both loans and guarantees in support of development of their client countries, it was not until the 1980s that they began offering guarantees (Humphrey and Prizzon, 2014). MDBs currently provide a variety of guarantee instruments that cover political and credit risks. In terms of the functional approach to financial intermediation, guarantees enable private investors to cope with risk and uncertainty by mitigating policy risks and improving the risk-adjusted profile of investments (Pereira dos Santos and Kearney 2018; World Bank 2020). Specifically, they can mitigate political risk and risks with respect to obligations due from government, political sub-divisions, or government-owned entities to private investors and to foreign public entities on cross-border projects. In general, this mitigation “is of a partial nature and aims to promote balanced risk allocation between government and private investors, or between public entities in cross-border projects.”

(<https://www.worldbank.org/en/programs/guarantees-program#1>) While MIGA is the arm of the World Bank Group that is best known for guarantee issuance, guarantees are flexible and adaptable to multiple contractual structures, and are often combined with other World Bank Group instruments, including from IFC and the IBRD.⁴

⁴ Again, see <https://www.worldbank.org/en/programs/guarantees-program#1>. As an example, IFC’s partial credit guarantees are a credit enhancement mechanism for debt instruments (bonds and loans), which provide an

MIGA provides two types of risk mitigation, political risk insurance (PRI) and credit enhancement cover. PRI can be used to cover four types of non-commercial risks (transfer restriction and currency inconvertibility; expropriation; war and civil disturbance; and breach of contract) to support cross-border or foreign investments by private sector entities in developing countries (World Bank, 2022a). MIGA's credit enhancement cover insures against the risk of non-honoring (NH) of sovereign (or sub-sovereign) financial obligations or of those of state-owned enterprises, and thus protects a lender (or investor) against a failure of those entities to make a payment when due.⁵ The primary beneficiaries of these instruments have been commercial lenders that provide loans to these public entities for infrastructure and other investments.⁶ Under this coverage, if a borrowing entity fails to pay any installment covered by the guarantee, MIGA will pay the lender within six months of the date of loss, without the need for arbitration proceedings. This coverage is only applicable in situations where the obligation is unconditional and not subject to defenses.

MIGA introduced its NH products (one for sovereign and sub-sovereign financial obligations ("NHSFO"), the other for financial obligations of state-owned enterprises ("NHFO-SOE")) in 2009 and 2013, respectively, to grow its business and complement its PRI products, for which demand had fallen since private and public insurers and other multilateral insurers began offering comprehensive cover to insure against commercial, credit and political risks after the 1997 Asian currency crisis (World Bank, 2022a, 2022b). From the perspective of the lender

irrevocable promise by IFC to pay principal and/or interest up to a pre-determined amount. (<https://ppp.worldbank.org/public-private-partnership/library/ifc-partial-credit-guarantees>)

⁵ <https://thedocs.worldbank.org/en/doc/937151507314975553-0340022017/render/productnotemigacreditenhancementnhfo201605.pdf>

⁶ <https://www.miga.org/product/non-honoring-financial-obligations>

(or investor), a key advantage of the NH products over PRI is that they do not require an arbitral award or court judgment for payment of a claim. Moreover, NH products are comprehensive in that they insure against any failure by a public borrower to meet its payment obligations, regardless of cause. As a result, from the perspective of the issuer (MIGA), NH products “present a greater risk of potential financial loss, capital impairment, or both, than PRI does” (World Bank, 2022a).

NH products have enabled MIGA to increase its volume of guarantees. Between 2011 and 2019, MIGA issued \$11.3 billion of insurance using NH products covering 34 projects in 14 countries (World Bank, 2022a). NH insurance now comprises over a third of MIGA’s gross exposure and about a third of its guarantee amounts issued. But because of the greater financial risk posed by NH products, MIGA has found it challenging to use them to support its recent strategic focus areas: International Development Association (IDA) countries and Africa, post-conflict countries, and the financing of complex projects (World Bank, 2022a). More specifically, wider use of MIGA’s NH insurance is limited by the sovereign credit risk requirement (BB- or higher rating) for that product (World Bank, 2022b).

While the sovereign credit risk requirement addresses legitimate concerns about minimizing risk of financial loss and capital impairment for MIGA, it also creates a tension between its financial health and its ability to deploy NH products in challenging environments, one of which the institution itself has acknowledged:

“Early in the history of the NH product MIGA provided to the Board of Executive Directors its plan to use the political risk insurance (PRI) product rather than the NH product to serve IDA and FCS countries....MIGA put forward clearly what it saw as the benefits of the NH product and indicated that the NH product would support investments in middle-income countries.” (MIGA response to IEG Meso-Evaluation of NH Products, World Bank 2022a, p. xv)

Moreover, IEG has pointed out that the lowering of MIGA’s sovereign credit rating eligibility for NH products to B+, or even B, would not necessarily expand NH coverage substantially because many of the IDA and fragile and conflict-affected situation (FCS) countries in those rating grades are also so-called heavily indebted poor countries that may not be able to service additional debt.

Like other instruments for private capital mobilization, efforts to scale up guarantees in challenging development contexts have met with limited success: “IFC and MIGA have not been able to scale up their business volumes in FCS, despite the introduction of new instruments and modalities for advisory and investment support to FCS countries.”⁷ (World Bank, 2022b) Also similar to other efforts and instruments to mobilize private capital in challenging contexts, “MIGA’s business model in FCS depends largely on the demand for PRI and non-honoring products, which is driven by the supply of foreign investments. Its business model allows little scope for creating markets or developing projects, as MIGA’s product depends on demand from investors or financiers for risk mitigation.” (World Bank, 2022b, p. x) Thus, the limited pipeline of investable projects that have high development-impact potential also limits the use of guarantees.

NH guarantees enabled the gross volume of MIGA’s guarantee business to grow by 11.9% percent annually from 2011 to 2019 (World Bank, 2022a, p. xviii), and among Berne Union Insurance Committee members (comprised of MIGA, other multilateral institutions, export credit agencies (‘ECAs’) and other private insurers), MIGA issued 8% of the new

⁷ For MIGA, these include special PRI programs such as its Small Investment Program (SIP), which was designed to provide streamlined support to small, less complex projects. World Bank (2022b) reports, however, the SIP has not been used since FY17. For FCS countries, MIGA also added instruments such as its multi-country Conflict-Affected and Fragile Economies Facility in 2013 and, since 2017, its \$500 million Guarantee Facility to support the IDA-IFC-MIGA Private Sector Window (which we discuss below).

sovereign nonpayment coverage (known as state obligation insurance) from 2010 to 2018. Private insurers accounted for nearly 80 percent of the state obligation insurance issued by Berne Union members during this period, which averaged roughly \$15 billion per year (World Bank 2022a, p. 12). And, while guarantees are only 5 percent of MDB operations, they account for 45 percent of their total private resource mobilization according to private estimates (Pereira dos Santos and Kearney, 2018). The result is that, despite impressive growth in the volume of guarantees in recent years, those volumes are in the tens of billions of dollars, falling far short of the trillions estimated to be necessary to achieve the SDGs.

There is no doubt that lenders (and other investors) have benefitted from the de-risking of investments that guarantees provide and, in the case of NH products, the comprehensiveness of cover and the absence of formal arbitration in cases of nonpayment. Moreover, under the Basel II and III frameworks for bank regulation, lending banks do not have to set aside capital against the loan amount insured by a MIGA NH guarantee. Zero risk weighting for loans that have NH guarantees have also, therefore, made them more attractive to private lenders. For these reasons, guarantees and NH products, in particular, can be viewed as ‘crowding in’ private investment. And indeed, under World Bank definitions, “MIGA activities through its political risk insurance and nonhonoring of financial obligations guarantee instruments directly mobilize private capital” (World Bank, 2020, p. 9).

While guarantees can therefore be viewed as crowding in private capital in the strict sense that a particular loan and its terms would have been different, or perhaps, would not have occurred absent the guarantee, this does not imply that the guaranteed loan amount represents full additionality. One of the earliest academic studies of MIGA guarantees highlights the difficulties inherent in conducting counter-factual analysis:

“For these transactions, it is difficult to assess whether these projects would have received the necessary finance without the partial risk guarantee and, if so, at what rates. At the same time, it may be difficult to determine whether the contractual risk premium overstates or understates the underlying risk. For these reasons, this paper does not examine in any way the contractual terms of the concluded partial risk guarantee deals.” (Huizinga, 1999)

Instead, Huizinga (1999) focused on a sample of World Bank partial credit guarantees, reasoning that these are hybrid instruments composed of sovereign debt (payments excluded from the World Bank guarantee) and World Bank obligations (payments covered by the guarantee). This made it possible to decompose or “strip” these transactions, and to calculate credit terms separately for the two parts. After stripping, the interest rates on the sovereign part of these transactions were compared to other sovereign interest rates for the same country. To the extent that they were lower, it would have indicated that World Bank involvement provided synergies in improving credit terms on the credit not covered by the World Bank guarantee. The analysis did not uncover evidence of such synergies. While this might be an unfairly strict test for additionality, it again underscores the difficulty in designing credible counter-factual tests to understand the amount and the quality of private investment that is crowded in by guarantees. To assess additionality systematically, an analysis of how MIGA’s guarantees differ from those of ECAs and private insurance providers could be a useful initial step. To go back to the theoretical framework in Section 1, one could check, for example, whether MIGA’s guarantees are more likely to be used to support investments that hold the most potential for raising the marginal product of capital (such as in infrastructure and digitalization) and thus increasing productivity and growth rates, than those of other providers.

4. Public-Private Partnerships

Public-private partnerships encompass a diverse set of contractual structures in which private sector actors collaborate with public sector entities. Although there is not a universally

accepted definition of PPPs, many organizations have defined them in their reports as long-term contracts between a private party and a government agency for providing a public asset or service, in which the private party bears significant risk and management responsibility (World Bank Group, 2014; International Monetary Fund, 2004; Organization for Economic Cooperation and Development, 2008).⁸ These arrangements usually bundle design, construction, and maintenance of facilities, and often their operation, and contain performance-based elements with private capital at stake (World Bank Group, 2014, p. vii). Because these are large, complex contracts, multiple types of World Bank Group instruments and interventions can be used to support PPPs including advisory services, guarantees, and upstream policy interventions for sector reform and to improve the enabling environment.

In terms of Merton’s functional approach to financial intermediation, these features imply that PPPs are well suited to pooling funds for large investment (because they incorporate public and private funds by design) and for coping with risk because they enable the public and private sectors to bear risks more efficiently. To the extent that they involve guarantees, PPPs can help private investors cope with uncertainty as well. Similarly, upstream sector reform efforts undertaken in conjunction with PPPs can be helpful in curtailing risk and uncertainty. Finally, advisory services can be helpful in designing contract structures that resolve information asymmetries and incentive problems between the public sector and private investors. For example, IFC “takes full responsibility for technical due diligence, preparation of financial structuring options, [and] assisting clients in carrying out competitive tender

⁸ Others have defined PPPs as “forms of cooperation between public authorities and the world of business which aim to ensure the funding, construction, renovation, management or maintenance of an infrastructure or provision of a service,” (European Commission, 2004) or as involving “a contract between a public sector authority and a private party/consortium to provide a public project or service. Incentive structures and the sharing of risks depend on the specific contract” (Inderst, 2020).

process[es]/negotiated deal[s]” under its transaction advisory work in PPP projects (World Bank 2020, p. 139).

These advantages explain why use of PPPs has been widespread across developing countries. For example, data from the World Bank Private Participation in Infrastructure (WBPI) database indicate that 134 developing countries implemented new PPPs in infrastructure between 2002 and 2011. Beyond infrastructure investments (which includes those in transport, energy, water and waste, telecommunications, and digital networks), PPPs have “increasingly moved into the provision of ‘social infrastructure,’ such as schools, hospitals, and health services,” (World Bank Group, 2014, p. 10), though infrastructure projects continue to dwarf those for social infrastructure in total volume (Inderst, 2020).⁹

Overall, PPP investments averaged \$30 billion per year in developing countries from 2002-2006 and \$79 billion per year from 2007 to 2011 (World Bank Group 2014, p. 10). The report accompanying the 2022 update of the WBPI data noted that “The recovery of PPI that began after the COVID-19 pandemic has continued into 2022. In total, private sector investment commitments reached US\$91.7 billion across 263 projects, equivalent to 0.25 percent of the GDP of all low- and middle-income countries” (World Bank, 2022c). While volumes have grown and total investment via PPPs is large relative to guarantees (though smaller than syndicated loans, as discussed below), they too fall far short of the trillions estimated to be necessary to achieve the SDGs. On the other hand, PPPs have been much more focused on the types of investments most likely to raise the marginal product of capital (those with high ‘A’ or ‘H’ in the stylized theoretical framework in section 1) than other financial structures discussed

⁹ For example, Inderst (2020) cites a PwC (2015) study which estimated that 15% of global infrastructure spending in 2012 was in health and education. World Bank Group (2014) estimated that PPPs contributed 15%-20% of infrastructure investment in developing economies (from 2002 to 2011) based on calculations using WBPI data.

here because they are for economic infrastructure (high A projects) and, increasingly, for social infrastructure (high H projects).

A recent empirical study of 9,121 PPPs in 107 developing countries from 1997 to 2017 shows how the size of these investment projects is associated with contract features, the institutional and enabling environment in a country, and MDB involvement in the transaction/partnership (Fleta-Asín and Munoz, 2023). Specifically, regarding contract features, investment volumes are higher when the private partner takes on more risk and greater responsibilities, and when the contract is awarded through a competitive method. Regarding the financial instruments themselves, guarantees and loans are associated with larger PPP sizes. In terms of the enabling environment, open, business-friendly economies where property rights are well-established (and enforced) attract larger PPP investment volumes. A better institutional environment, as reflected in control of corruption, political stability, regulatory quality, and well-established rule of law, is also associated with larger PPP investment sizes. Finally, MDB involvement is associated with larger PPP investments.

While significant associations from such a comprehensive database of PPPs are instructive, they cannot be used to predict outcomes from transplanting preferred contractual features and financial instruments to less suitable institutional/enabling environments because those associations are driven by non-random selection into better environments. While, to our knowledge, no sound counter-factual analysis of the drivers of PPP investment volumes has yet been undertaken, Fleta Asín and Munoz (2023) find that MDB support is more strongly associated with PPP investment size in weaker economic and institutional environments. Given the large number of interactions between MDB involvement and other explanatory variables in the models in that paper (see, e.g., Fleta Asín and Munoz, 2023, Tables 6-8), it is difficult for us

to assess how much (and why) MDB involvement affects the size of investments supported by PPPs.

The patterns are, however, interesting in light of historical discussions within the World Bank. For example, IEG noted that “IFC-supported PPPs are often located in countries with already well-established enabling environments, and less in emerging nascent countries” and therefore encouraged IFC to take on more ‘smart risk’ in countries that had a limited experience in implementing PPPs because they would, “set an important demonstration effect and show that private participation is possible even in less tested regulatory regimes – increasing IFC additionality and developmental footprint.” (World Bank Group, 2014, p. x) Like the discussion of guarantees above (and, indeed, because guarantees are important components in large PPPs), there is an inherent tension between the credit rating for World Bank financial instruments and their application in challenging environments.

The foregoing discussion, particularly of factors associated with larger PPP investment size, helps frame the challenges for dramatically increasing PPPs as a vehicle for crowding in private investment. Like other financial approaches to crowding in private capital investment, most notably guarantees and syndicated loans, a limited pipeline of bankable projects inhibits more widespread use of PPPs. Given their complexity, the lack of local skills and resources for the preparation of projects and a pipeline poses an especially serious limitation for PPPs across most World Bank-supported countries, despite substantial capacity building efforts (World Bank Group, 2014, p. v). Moreover, the successful implementation of PPPs is tied closely to the effectiveness of upstream sector reform programs undertaken by the World Bank. While Country Partnership and Country Assistance Strategies have typically embedded PPPs in sector reform programs, IEG’s assessment was that upstream sector reform efforts through 2014 had failed in

almost half of the cases because of the complexity and political implications of the reform processes (World Bank Group, 2014, p. v).

Moreover, sector reform efforts tended to focus on an incomplete set of constraints. Governance issues, regulatory failures, and inadequate sector structure tended to be addressed systematically, while government strategic decision-making capabilities, the fiscal implications of PPPs, and political economy factors including government commitment were not (World Bank Group, 2014, p. viii). Finally, because existing monitoring and evaluation systems, particularly those of IFC, measure mainly the operational aspects of a PPP that are relevant to cash flow (such as the number of people that obtained access to infrastructure), data and methods to measure whether expanded access is pro-poor, the quality of service delivery, and the fiscal effects of PPPs has been limited. In short, the pipeline of investable projects and partially successful complementary sector reforms continue to limit the use of PPPs in challenging contexts, and demonstration of pro-poor impacts and the quality of service delivery have lagged due to lack of data and measurement.

5. Syndicated Loans

Syndicated loans are provided by a group of lenders that share risk by pooling together capital and can therefore be viewed as beneficial for both pooling funds and addressing both asymmetric information and uncertainty/risk. Specifically with respect to syndicates that include MDB participation, private creditors may be willing to co-invest to take advantage of an MDB's technical expertise, monitoring capacity, and better knowledge of the country-sector, and thus mitigate information asymmetries and manage risk (Broccolini et al., 2021; Chelsky, Morel, and Kabir 2013; Ratha 2001; Gurría, Volcker, and Birdsall 2001). To the extent that those private

investors would not have participated in the loan without MDB involvement, MDB participation crowds in private investment and thus provides financial additionality.

Because these are large loans, borrowers (particularly those in emerging markets and developing economies) typically find syndicated loans to be less costly than raising a similar amount of funding through bond issuance and multiple bilateral loan agreements (Gurara et al., 2020; Santos and Winton, 2008; Godlewski and Weill, 2008).¹⁰ They can also provide finance to firms that are unable to tap bond markets at all and, more generally, can help diversify firms' sources of external finance. For private creditors, participation in a syndicate with an MDB allows them to generate fee income, diversify their exposures to specific borrowers and countries, and make loans in markets where they lack origination capabilities (Sufi 2007; Haselmann and Wachtel, 2011).

Given the advantages that syndicated loans offer to borrowers and lenders, it is not surprising that their use is widespread. Based on a dataset of roughly 20,000 syndicated loans to emerging markets and developing economies originated from 1994 to 2015, annual volumes grew from about \$100 billion USD (2009) in the late 1990s to hover around \$200 billion USD (2009) from 2006 to 2014, despite a dip during the global financial crisis (GFC) in 2008-2009 (Gurara, Presbitero, and Sarmiento, 2020). Within that sample, about 10 percent of the loan deals had at least one MDB in the loan syndicate. While these numbers are large, they fall far short of the trillions of dollars in annual financing that sources estimate are needed to achieve the SDGs.¹¹

¹⁰ For one of the most comprehensive samples used to study syndicated loans, the median loan size was \$65 million 2009 USD (Gurara, Presbitero, and Sarmiento, 2020).

¹¹ See estimates listed in footnote 1 of this paper.

Because loans with MDB participation represent only about 10 percent of total syndicated loan volume, and the financing needs to achieve the SDGs are so large, researchers have examined how MDB participation affects the allocation of funds through syndicates and whether such participation can crowd in additional private funding via syndicates that do not include an MDB, perhaps through demonstration effects. In terms of allocation of funds, in the large dataset described above, syndicates with MDB participation were more likely to lend to borrowers located in countries with high credit and financial risk than others (Gurara, Presbitero, and Sarmiento, 2020). Controlling for other relevant factors that could affect loan terms, those loans tend to carry higher borrowing costs and longer maturities. These patterns are consistent with the notion that MDB participation enables syndicates to finance risky projects that may not have been financed by the private sector alone.

However, rigorously demonstrating that syndicates with MDB participation crowd in additional private credit has been more challenging. The earliest research efforts used country-level data to test for a positive relationship between past multilateral lending and current private capital flows, and results were mixed. For example, Rodrik (1995) did not find a significant relationship while Dasgupta and Ratha (2000) and Ratha (2001) did. Because of its granularity, loan-level data has made it easier to isolate the relationships between MDB participation and subsequent private bank lending and the terms of those loans. Even with loan-level data, however, the key empirical challenge is selection bias and the endogeneity of MDB lending (Carter, Van Sijpe, and Calel, 2018). Recent analysis using a comprehensive dataset of syndicated loans very similar to the one described above therefore controls for a large set of fixed effects – at the country, year, country-sector, country-year, and sector-year levels – to absorb all time-varying country- and sector-specific factors that could drive MDB and private

sector lending (Broccolini et al., 2021).¹² The findings indicate that MDB participation in syndicated loans to a country-sector has a significant positive effect on future bank inflows to that country-sector: MDBs can mobilize about seven dollars in bank credit over a three-year period for each dollar they invest in a syndicated loan. Moreover, MDB participation in a syndicate significantly increases the number of lenders and average maturity of subsequent syndicated loans to that country-sector.

While these patterns are encouraging, and the estimates of private credit mobilization are large, we note two caveats. First, syndicated loans can be made to a firm, a large project, or a sovereign government,¹³ and so the flow of such lending depends heavily on identifying viable investment projects (or firms or governments that have such projects) in challenging economic environments. So, even if one were to take the private capital mobilization effects from recent studies at face value, scaling up syndicated lending would require a much larger pipeline of investment projects. Given the limited resources and staff devoted to syndicated lending in MDBs, this would be difficult and if marginal projects were increasingly added to the MDB syndication portfolio, it seems likely that private capital mobilization rates would decline.

Second, most syndicated loans, including those with MDB participation, are to the finance, infrastructure, and manufacturing sectors. While infrastructure investment needs are large, and such investments are crucial for achieving the SDGs because they are known to yield large productivity gains and high social rates of return (Arezki et al., 2017), MDB participation

¹² In Broccolini et al. (2021), the maintained assumption is that “[T]here are no unobservable factors that vary over time within each country-sector pair and are also correlated with changes in the MDB dummy variable.....that is...all the time-changing characteristics of country-sector pairs that cannot be observed are uncorrelated with the presence of syndicated loans involving MDBs.” (p. 530). Not all observers are convinced that nonrandom selection and endogeneity of MDB lending can be adequately addressed through fixed effects (see, e.g., Chelsky and Kraay, 2017).

¹³ See <https://www.investopedia.com/terms/s/syndicatedloan.asp>.

in syndicated lending has no significant effect on the number of lenders or size of subsequent private sector loans when the analysis is restricted only to loans to this sector (Broccolini et al., 2021). This is unfortunate because it implies that MDB participation in syndicates does not mobilize private capital for future investment in the sector that is arguably most likely to produce large sustainable growth benefits in line with the framework laid out in section 1. This pattern could arise because infrastructure projects are inherently complex, and could be hard to duplicate in other contexts, and thus demonstration effects are limited. Demonstration effects may be stronger for the finance and manufacturing sectors, where the relationship between MDB participation in syndicates and subsequent private syndicated lending was stronger, though financial additionality may be harder to establish for those investments. In short, more research on scaling up and duplicating syndicated lending for infrastructure, and on demonstrating financial additionality for MDB participation in syndicates that lend to sectors such as finance and manufacturing, is warranted.

6. Sustainable Financial Contracts

Capital markets more generally play a crucial role in facilitating the transfer of resources across geographic areas and sectors, and they have increasingly responded to the challenge of climate change in recent years. Specifically, sustainable financial contracts are emerging as an important vehicle for crowding in private investment towards climate-friendly investments that have high growth payoffs, and thus could be an especially important tool for achieving many of the SDGs. The sustainable finance market (including bonds, funds, and voluntary carbon markets) had surpassed \$6 trillion by 2022 (UNCTAD, 2023). For reference, this figure is comparable to the yearly financing needs to support the green transition globally (IMF, 2023),

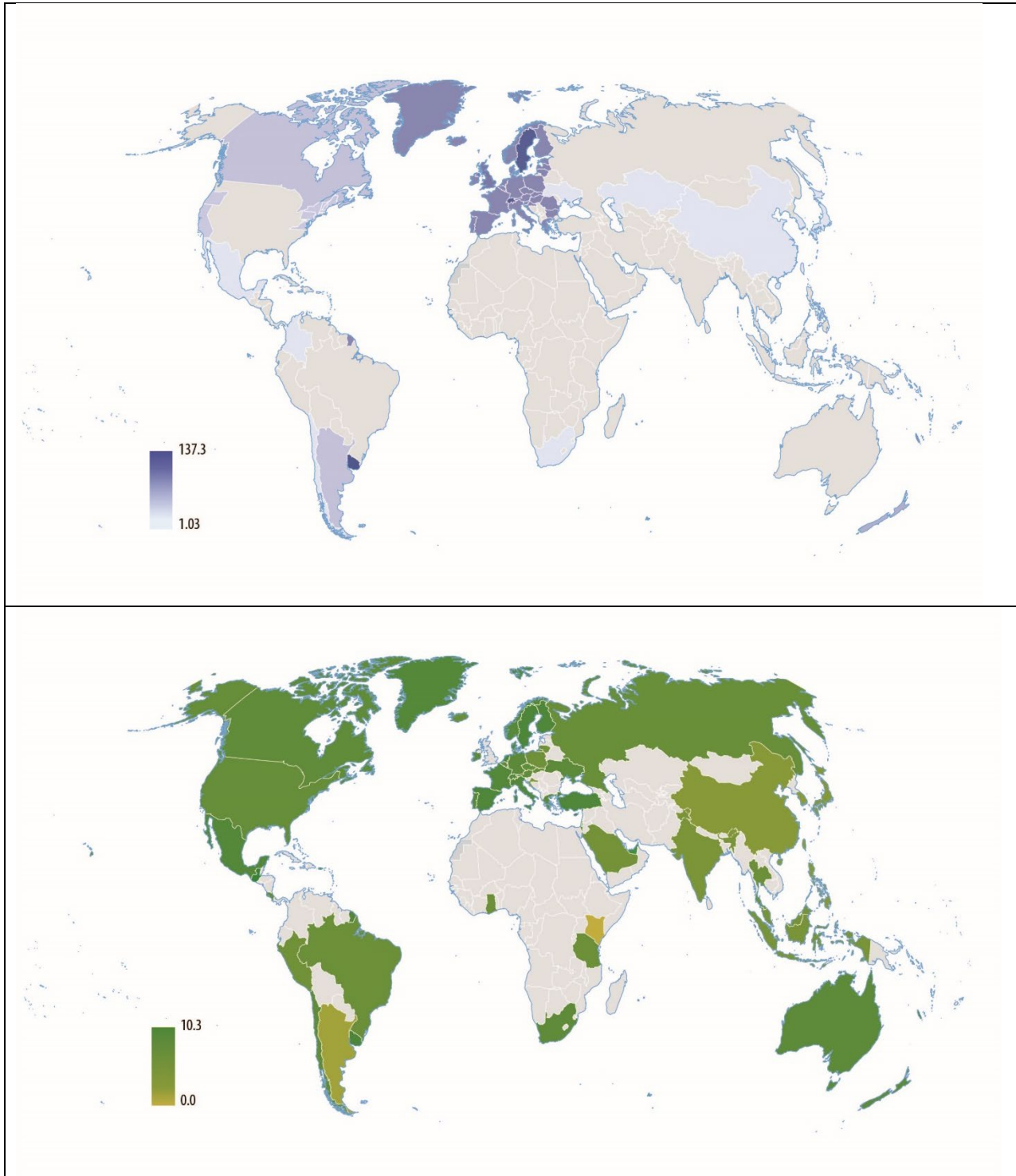
and far larger than the developed countries' pledge of \$100 billion per year to support climate action in developing countries (which, despite the moderate sum, has still not been fulfilled).

The sustainable debt market is the largest across the asset classes and is the reference market for financing long-term, capital-intensive projects to enable the green transition. Supranationals initiated this market and remain the predominant group of issuers.¹⁴ Financial and non-financial corporates in the United States, France, and Germany have also issued a large share of the cumulative volume. However, in recent years, the market has expanded rapidly driven by issuances from Asia and the Pacific and Latin America. In 2022, despite the inflationary pressure which reduced bond issuances across the globe, China increased sustainable bond issuances surpassing Germany and the United States for the first time (Amundi Asset Management and IFC, 2023).

The expanding volume and extended geographic reach into economies with limited regulatory oversight (see Figure 1) suggest that these markets can also address regulatory frictions in response to investors' concerns about environmental impacts (see Allen, Barbalau and Zeni, 2023). However, the sustainability market continues to face a challenge in demonstrating the actual level of additionality achieved through market issuances, as opposed to the mitigation outcomes facilitated solely by regulatory policies.

¹⁴ By supranational we refer to “a multinational union or association in which member countries cede authority and sovereignty on at least some internal matters to the group, whose decisions are binding on its members.” <https://www.investopedia.com/terms/s/supranational.asp>

Figure 1 – carbon pricing regulation (\$/co2, in blue) vs sustainable debt (% of total debt, in green)



The first map shows carbon prices in \$ per ton of Carbon Dioxide (co2) equivalent as obtained from the World Bank Carbon Pricing Dashboard (https://carbonpricingdashboard.worldbank.org/map_data). The second map

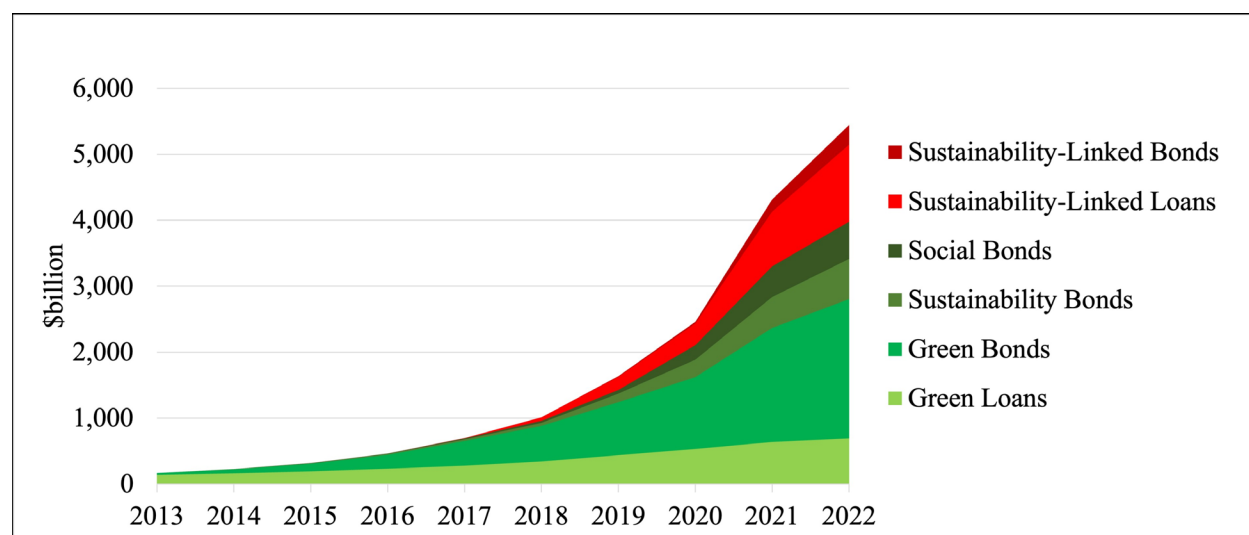
shows sustainable debt issuances in percentages of total debt issuances over the same years as obtained from Bloomberg.

Ensuring additionality requires two critical elements: a proactive allocation of resources through the design of securities explicitly focused on additionality, and a thorough post-issuance monitoring process to prevent 'greenwashing' practices.¹⁵ In response to these challenges, the market is undergoing a transition from a voluntary framework to a more regulated approach. Furthermore, there is an evolving proliferation of product offerings that address distinct market frictions and segments.

The market for sustainable debt can be divided into two broad categories (red and green groups in Figure 2). The first category includes Green, Social, and Sustainable (GSS) bonds and loans. The second (more recent) category includes Sustainability-Linked (SL) bonds and loans. GSS contracts can be classified as “labeled” debt contracts which earmark proceeds for a particular project which has been assigned a green, social, or sustainable (i.e., a mix of green and social) label according to a reference taxonomy. SL contracts are more flexible, result-based contracts which do not earmark proceeds for specific projects but instead make the security payoff contingent on the issuer’s achievement of a sustainability performance target. The two categories of contracts currently co-exist in the sustainable debt market and seem to capture different issuance groups across various geographical areas as described below.

¹⁵ Greenwashing is “the act of providing the public or investors with misleading or outright false information about the environmental impact of a company’s products and operations.”
<https://www.investopedia.com/terms/g/greenwashing.asp>

Figure 2 – Cumulative sustainable debt issuances



Cumulative issuance volume in \$ billions by contract type as obtained by Bloomberg.

6.1 Labeled Bonds: Simplicity and Versatility

The sustainable debt market began with, and is still largely dominated by, GSS contracts. These so-called labeled instruments constrain the borrower’s investment choices to predetermined projects which align with a sustainable taxonomy, verified through a “use of proceeds” constraint. This verification mechanism reduces a moral hazard friction, enabling the flow of funds from investors with sustainable preferences to profit-maximizing firms with sustainable investment opportunities. Verifiable commitment to a use of proceeds constraint allows borrowers to monetize sustainable preferences by obtaining more favorable interest rates (the so-called *green premium*). Because GSS bonds and loans can be readily adapted to existing financing structures, they can carry out the same financial functions as standard instruments issued by the firms while correcting an incentive problem generated by the environmental externality.

These contract features have been particularly attractive for banks which are the single largest issuers of green bonds worldwide. Green bonds are typically of very high credit quality and

therefore do not increase the banks' overall riskiness. Furthermore, they are typically associated with a broader environmental strategy whereby banks reduce lending to polluting sectors (Fatica et al., 2021). Green bonds issued by banks become loans to non-financial firms for investments in taxonomy-aligned projects. Securitization is also becoming increasingly popular, with banks issuing green asset-backed securities (ABS) which could be packages of mortgages for energy efficient building renovations, or loans for purchases of electric vehicles, or loans to SMEs for the installation of solar panels.

Despite their growing popularity, evidence suggests that GSS bonds have so far been issued at a small or virtually zero green premium (Flammer 2021; Larcker and Watts 2020), which potentially reflects skepticism about the additionality introduced by these contracts because these projects would have been undertaken anyway. Further criticisms include the afore-mentioned concerns about greenwashing because the strictness of the use of proceeds constraint and the definition of green projects varies widely across geographical areas. Moreover, these project-based contracts may encourage strategic behavior on the part of large polluters which use them to advertise (and monetize) green behavior on one side of their business while expanding their fossil-fuel capacity on the other.

Taxonomy and Standards

The lack of a unified framework for sustainable standards and taxonomies, especially in emerging markets, is a major hurdle for international investors which increases screening costs and ultimately reduces the volume of funds. The Chinese market, for example, does not officially adhere to the same issuance guidelines as most corporates and supranationals across Europe and the United States (the so-called Green, Social, and Sustainability Bonds Principles put forth by

the International Capital Market Association or ICMA).¹⁶ While the ICMA guidelines mandate a 100% constraint on the use of proceeds to labeled projects, in China the issuer must adhere to a 70% use of proceeds constraint, which drops to 50% if the issuer is a state-owned enterprise. Even more importantly, the Chinese taxonomy also classifies as green projects those that increase the capacity of fossil fuels, such as “Green Coal Use/Green Oil Use” projects.¹⁷

Standardization of sustainable finance taxonomies globally is needed to foster comparability, increase transparency, and provide regulatory consistency. The World Bank institutions, particularly the IFC, is working actively to support issuers and investors in developed and emerging markets to promote integrity in the green bond market through its role chairing the executive committee of the ICMA Green, Social, and Sustainability Bond Principles.

Strategic Issuances

Beyond banks, popular issuers of green bonds are large utilities that produce electricity using multiple energy sources, which use these contracts to finance, for example, the installation of renewable energy capacity. In this context, issuance of green bonds could become detrimental from an environmental perspective to the extent that its documented positive spillover effect on the firm’s valuation decreases its borrowing costs across *both* brown and green investments (Baulkaran 2019; Flammer 2021; Wang et al. 2020). Theoretically, in the presence of segmented markets and pro-environmental preferences, a firm could increase its value by separating its capital structure into a green and a brown component (see Allen and Gale, 1988). And in practice, there have been cases of sellers of green bonds increasing their brown businesses,

¹⁶ See the IMCA *Climate Transition Finance Handbook 2023* at: <https://www.icmagroup.org/sustainable-finance/the-principles-guidelines-and-handbooks/climate-transition-finance-handbook/>

¹⁷ For a detailed description of the taxonomy, see <https://www.oecd-ilibrary.org/sites/5abe80e9-en/index.html?itemId=/content/component/5abe80e9-en#tablegrp-d1e10987>.

especially in the Asia Pacific region (Lee, 2021). Despite these well-known concerns, rigorous research into the detrimental effects of these issuances is still lacking.

6.2 Result-Based Bonds: Flexibility and Additionality

Except for large utilities, use of proceeds bonds and loans are much less popular among non-financial corporates. The use of proceeds constraint is particularly rigid for entities that operate in hard-to-abate sectors such as cement, steel, and basic chemicals, where the pathways to decarbonization are only beginning to be established and often still rely on untested technologies. For these entities, the SL structure has been more suitable as a financing vehicle. SL contracts began to emerge in 2018 in the form of loans to non-financial energy intensive corporates operating in the industrial and materials sectors. The intrinsic structure of SL contracts addresses shortfalls associated with the use of proceeds framework regarding (lack of) additionality because they are designed to link the financial subsidy to the issuer's overall sustainable performance *against baseline performance in the absence* of this financing instrument.

Sovereign Debt Issuers

An advantage of the outcome-based design is that it allows issuers to align their decarbonization paths with those outlined under the Paris agreement, while not constraining the funds raised to specific projects. For this, SL bonds have recently become popular in sovereign emerging markets. Sovereign bonds—representing almost 40 percent of the \$100 trillion global bond market—are the largest asset class in many institutional investors' portfolios and are one of the key instruments for channeling capital to emerging markets and developing economies.

As a recent World Bank report points out, SL sovereign debt may offer an innovative set of tools to halt capital flow reversals stemming from unexpected events such as the global

pandemic and the recent inflationary pressures (Flugge et al., 2021). SL debt instruments lower borrowing costs by unlocking new sources of capital for emerging and developing markets, especially when paired with credit enhancement that lowers the credit risk of such instruments (such as guarantees, as discussed above). In 2022, issuances from Chile and Uruguay demonstrated proof of concept for SL sovereign financing, and a surge of these bonds was expected in 2023 (Heng, 2023). However, the corporate and sovereign markets for SL financing are currently experiencing a slowdown amid mounting doubts that issuers can credibly select the right targets and appropriate sustainable metrics. IFC research has also pointed out loopholes related to late target dates and callable options embedded in many of the corporate bonds (Ul-Haq and Doumbia, 2022).

The measurement challenge is central to the development of this asset class. Indeed, while the use of proceeds framework relies on public financial and accounting reports, which are easily verifiable, the SL targets are based on non-financial metrics that are self-reported by issuers. The World Bank is therefore actively providing its technical assistance in writing these contracts and establishing the appropriate metrics and targets (Wang et al., 2023). There is an obvious trade-off between specifying a slack target (low hanging fruit) and targets that are too ambitious, and which therefore increase the risk of paying a higher price on debt if a sustainability target is missed. This risk is particularly costly for sovereign issuances from emerging and developing economies, where debt management offices are mandated to raise funds at the lowest possible cost, and some are therefore not willing to accept a potential pre-determined increase in interest payments that comes into effect if the issuer is unable to achieve sustainability performance targets (a so-called coupon step-up).

Finally, largely due to their regulatory treatment, banks have been slow to adopt SL contracts, a situation which this is unlikely to change in the foreseeable future (Wass, 2023). The instrument is currently ineligible in meeting banks' minimum requirements for own funds and eligible liabilities because the coupon step-up can be considered an incentive to redeem the bond early. In a 2021 report on potential additional Tier 1 capital instruments, the European Banking Authority raised concern over SL bonds, saying that a step-up and/or fees based on missing certain sustainability targets or other performance targets "should not be allowed or encouraged".¹⁸ In credit rating assessments of banks and insurers, SLBs are also not accepted as equity (or equity-like assets). Overall, however, as the market develops from nascent and piecemeal to a consolidated infrastructure, contracts could transition into more efficient versions that achieve additionality and avoid greenwashing.

Our theoretical framework in section 1 focused on identifying investments with high growth impacts to raise the marginal product of capital and thus crowd in private investment. As noted, identifying such projects is itself quite challenging and, while we take no strong position on these issues here, layering on sustainability objectives cannot make that challenge any easier. Indeed, observers have long commented on inherent tensions in achieving certain SDGs, noting, for example, that the "targets for economic growth and industrialisation are extremely likely to lead to greater levels of energy demand, water use and greenhouse gas emissions" (Georgeson and Maslin, 2014).¹⁹ At the same time, a recent analysis finds that SDG targets are not in conflict

¹⁸ The report can be found at:

https://www.eba.europa.eu/sites/default/documents/files/document_library/Publications/Reports/2023/1061234/Report%20on%20merged%20AT1%20and%20MREL.pdf

¹⁹ Campbell (1996) characterized public planning as a conflict between economic growth, environmental protection, and social justice. For discussion of the trade-offs, synergies and contradictions related to the SDGs, see Nilsson et al. (2016), Fuso Nerini et al. (2018), and Hickel (2019). For an analysis of how conflicting goals, for example between growth and environmental protection, are handled by local authorities in practice, see Oseland and Haarstad (2022).

if the global objective is to limit the temperature increase to 1.5°C (Dzebo and Shawoo, 2023, p. 4). And there are certain types of investments, for example, those in renewable energy infrastructure, that could be prime candidates for achieving sustainability and growth objectives simultaneously. However, concerns about (lack of) additionality and greenwashing discussed here underscore the challenges of achieving these sustainability objectives on their own. The worst outcomes would involve investments with little growth potential that achieve neither additionality nor sustainability objectives.

7. Climate Policies and Green Lending through Private Banks

A central objective of climate policy is the reduction of carbon emissions, either by promoting renewable energies and increasing energy efficiency, or by imposing restrictions on activities contributing to greenhouse gas (GHG) emissions. In this section, we examine banking sector initiatives with the potential to direct capital towards low-carbon activities. We discuss their scope, main limitations, and examine their potential impact.

7.1 Policies in Credit Markets

In the banking sector, policies to mobilize private capital can be broadly categorized in two types: (i) co-funding programs which include loan subsidies and credit guarantees; and (ii) prudential regulation.

Loan Subsidies

A common intervention, frequently led by national development banks, is to provide funds targeting strategic sectors; for example, to finance environmentally friendly projects, such as renewable energy or energy-efficient upgrades. These programs use public resources to subsidize the provision of credit by lowering the funding costs for lenders. In turn, banks are tasked with allocating credit, with the condition that the funds are used for specific loan types

and economic activities outlined by the program. The rationale for these interventions is that under perfect competition, banks price loans at marginal cost, and a reduction of funding costs should lower the interest rate for the final borrower. Public resources are channeled to borrowers in the form of more affordable loans, perhaps indirectly mobilizing private capital as banks can extend additional credit and services to these firms.

When lenders have market power, however, the transmission of the subsidy to borrowers is weakened, as banks only partially reduce the interest rate for their clients. Furthermore, banks may capture a portion of the subsidy by raising the prices of other products and services offered to recipients of government-funded loans (Ornelas et al., 2019). Overall, in concentrated banking industries where banks exert market power, which characterizes banking sectors in many World Bank client countries, loan subsidies are less effective in enhancing access to finance and mobilizing private capital.

Credit Guarantees

These financial instruments cover a portion of lenders' potential losses in the event of borrower default. By de-risking the lending of private banks from these investments, loan guarantees aim to expand the credit supply to low-carbon activities from borrowers that might otherwise be considered too risky. The extent to which loan guarantees can mobilize private capital depends on the elasticity of credit supply. If credit supply for green investments is inelastic, these instruments will not result in additional private lending. Instead, loan guarantees will act as a subsidy for banks by reimbursing them on their losses, potentially encouraging excessive risk-taking and crowding out private financing (Bachas et al., 2021).

The evidence on the impact of credit guarantees is mixed. While some research suggests that more generous loan guarantees successfully boost bank lending (Bachas et al., 2021), other

studies have shown that, instead of mobilizing private capital, firms that obtain guaranteed loans with a bank reduce their share and amount of private credit with the same lender (Jimenez et al., 2022). Moreover, private banks channel government loan programs mostly to larger firms with established credit (Humphries et al., 2020), and when these loans reach smaller firms, they do so on less favorable terms (Chodorow-Reich et al., 2022). There is also an extensive literature indicating that some banks are more likely to lend to politically connected borrowers (Shleifer and Vishny, 1994; Khwaja and Mian, 2005; Faccio, 2006), which further limits the additionality provided by the co-funding arrangements discussed in this section. Overall, the effectiveness of these programs depends crucially on their design, objectives, and how they interact with the incentives of lenders (Riding et al., 2007).

Prudential Regulation

Green regulatory policies employ both macro and micro-prudential regulation to encourage banks to shift their lending portfolios towards low-carbon sectors and technologies, for instance by requiring lenders to hold more prudential capital for high-carbon assets (the ‘Dirty Penalizing Factor’) or lowering capital requirements for green-related assets (the ‘Green Supporting Factor’). Evidence on the (intended and unintended) consequences of green prudential measures is limited. Miguel et al. (2022) study the effects of a policy in Brazil requiring larger banks to allocate sufficient internal capital to cover for socio-environmental risks in their portfolio. Those banks reallocated credit away from firms in exposed sectors, with small borrowers and long-term projects experiencing the greatest contraction in financing. However, smaller banks, which were not subject the policy change, increased their lending to exposed sectors, thus substantially reducing any climate benefits stemming from the policy.

A major overall challenge for policy makers is how to define and monitor green lending. Credit interventions that rely on green taxonomies based on industry and borrower location can impact the flow of economic resources across sectors and geographic regions. However, such policies may divert capital away from brown sectors, potentially limiting firms' ability to fund critical green innovations. For green taxonomies at the project level or lending interventions linked to green outcomes, monitoring becomes more complex. Without proper monitoring, banks may select safer borrowers to avoid costly capital provisions, even if their projects do not have the most significant environmental impact. Similarly, banks may allocate loan subsidies or guarantees to firms and activities from which they obtain more profit, rather than those that deliver the largest social or environmental benefits.

7.2 Measuring Policy Effectiveness

Climate interventions in the banking sector can yield diverse outcomes in different contexts and may inadvertently affect the non-targeted population or the market itself. To determine whether climate policies are achieving their intended impact on capital mobilization and green investments, as well as to correct other unintended effects, rigorous research is essential.

Three key elements can greatly improve research aimed at understanding the effectiveness of green climate policies. The first is a solid knowledge of the intervention, including information on its objectives, rules, scale (e.g., whether nationwide or focused on certain banks or regions), and the targeted population. Detailed information about the context helps identify the subjects and behaviors that the policy expects to influence as well as the key outcomes of interest.

The second key element, which will depend on the context of the intervention and the data available, is a research plan. An example of such plan is an impact evaluation that identifies a treatment group (i.e., a set of subjects affected by the policy) and a valid counterfactual group (i.e., a group of subjects that prior to the policy are statistically comparable to the treated group but that were not affected by the policy).

The third element is data. In the case of green banking sector interventions, granular information (e.g., data at the loan level) can help determine if the mechanism intended by the policy – a change in the credit conditions of subjects – is functioning. Such granularity also helps identify if changes in credit conditions are more pronounced for certain loan types and firms. Information on firms' real outcomes (from firms' yearly balance sheets, the tax authority, or energy companies) can then be used to answer if, by changing subjects' credit conditions, the policy achieved its intended objective at the micro level. Combining granular data with more aggregate data (at the bank or market level) can also aid in understanding the extent to which such policies attract additional private capital or have spillover effects on other subjects or markets.

7.3 Scaling up Green Lending

While the banking sector policies discussed above have the potential to mobilize private capital, a country's overall green policy framework is likely to play the more important role. As noted at the outset of the paper, private entities often have insufficient incentive to invest in SDG-related activities because they do not internalize potential positive externalities. Traditional climate policies and removal of fossil fuel subsidies, therefore, are highly likely have a more powerful galvanizing effect on private finance than financial interventions. A recent review of the literature on sustainable banking recognizes these realities:

“[C]redit constraints may influence investment in low-carbon technologies if such investments also have a positive effect on firm profitability (that is, increased energy efficiency goes hand in hand with increased overall efficiency), if firm managers follow a broader objective set than just profit maximisation, and/or if managers make green investments in response to or in anticipation of climate regulation.” (De Haas, 2023)

Whether banks choose to fund green projects will ultimately depend heavily on the profitability of these activities. In countries where authorities show a strong commitment to support the transition to a low-carbon economy, green projects could be more likely to succeed, making banks more inclined to extend credit. On the other hand, in a strengthened overall policy framework, banks might be more inclined to shift capital away from carbon-intensive activities, which carry inherent risks and could be less profitable. In line with the first of these arguments, Demirguc-Kunt et al. (2023) find that global banks with high environmental standards expand their presence in countries that strengthen their climate policies. Similarly, Kacperczyk and Peydró (2022) document that after the Paris Agreement, banks with commitments to carbon neutrality reallocated credit away from polluting firms.

Another concern about climate policies is that, because they are mostly designed and introduced by national authorities, their uneven implementation across countries can lead to regulatory arbitrage. Thus, banks from countries with strict regulations might engage in cross-border activities in places with weaker rules (Benincasa et al., 2021; Laeven and Popov, 2023). Rather than suggesting a policy failure, however, evidence of regulatory arbitrage underscores the need for more coordination across jurisdictions to increase the effectiveness of climate-related actions, and proper regulatory oversight that is difficult to bypass.

More generally, market discipline and a robust policy framework can play a pivotal role in shaping the behavior of banks. Increasing awareness of climate risks among both individuals and institutional investors in capital markets has also led to a greater emphasis on sustainability

(Krueger et al., 2020). In turn, banks that rely on security issuances may be more inclined to signal a “green image” compared to those dependent on retail deposits. Furthermore, large banks, which are often subject to more stringent regulatory oversight and greater media scrutiny, may be more inclined to commit to environmental sustainability. Whether these preferences are transformed into actions that mobilize capital towards green projects depends critically on the presence of a well-defined policy framework that strongly supports green investments and innovation.

Finally, we note that, of the five instruments/approaches discussed in this paper, the World Bank and other MDBs have the least direct influence on the two that have the greatest potential for mobilizing private investment on a scale sufficient to achieve the SDGs, sustainable debt contracts and climate and banking policies and regulations that promote green lending.

8. Discussion and Conclusions

Some observers view the efforts to mobilize private capital to achieve the SDGs as disappointing:

“So far, such efforts, while going in the right direction, have had meager results – certainly in terms of aggregate financial flows. The current landscape is fragmented, has failed to produce major breakthroughs, and does not invite rapid replication or scaling...It is important to acknowledge that it is not lack of finance *per se* that is the stumbling block, but rather the combination of finance, incentives, and investable propositions.” (Le Houérou and Lankes, 2023, p. 11)

Our view is that failure to mobilize the trillions estimated necessary is different, and should be distinguished from, an overall failure to mobilize additional private capital. In much the same way that microfinance was deemed a failure by some because it did not lift billions out of poverty,²⁰ so too have private capital mobilization efforts been judged harshly, at least in tone,

²⁰ See, e.g., discussion in Hartarska and Cull (2023), chapter 1, and Cull and Hartarska, 2023. “Why Microfinance Still Matters to Development.” *Global dev* June 21. <https://globaldev.blog/why-microfinance-still-matters-to-development/>

because of their failure to meet what was, in retrospect, an unrealistic goal. And, in much the same way that microfinance has been, and continues to be, successful in providing affordable financial products to low-income households throughout the developing world, so too will private capital mobilization efforts continue to yield increasing development benefits.

Based on our review of the academic and policy literature on private capital mobilization, we draw the following conclusions.

- Public capital is insufficient to meet the needs of the SDGs, and despite successes in mobilizing more private capital for investment, the total public and mobilized private capital are far less than the estimated needs.
- The pipeline of investments that have high growth potential, and thus can crowd in private investment by raising the marginal product of capital, is growing but still limited.
- Of the financial instruments/approaches discussed in this paper, the World Bank and other MDBs have the most direct influence over guarantees, public-private partnerships, and syndicated loans which are smaller in scale than sustainable financial contracts and climate and banking policies and regulations that promote green lending, and thus arguably have greater potential for mobilizing private investment on a scale sufficient to support the SDGs.
- Demonstrating additionality – meaning the ‘crowding in’ of private capital to projects that would not otherwise have received it – remains a major challenge for each of the instruments/approaches discussed here.
- Research on private capital mobilization to this point, especially with respect to guarantees, public-private partnerships, and syndicated lending, has emanated largely from the policy rather than the academic community. While academic research is scant, it likely holds the most promise for demonstrating additionality.

And based on those conclusions, we offer the following (hopefully helpful) recommendations.

- **Select** investments that have the most potential to spur broad-based growth. Investments in infrastructure and digital development are promising candidates, and World Bank institutions have expertise in crafting public-private partnerships, often facilitated by guarantees and syndicated loans. Renewable energy investments could both provide growth benefits and support climate-related SDGs.

- **Experiment** with different financial structures and approaches involving multiple World Bank institutions to better tailor them to client needs, especially in challenging contexts. IEG’s evaluation shows that projects with domestic investor participation, MDB involvement, and World Bank–IFC–MIGA collaboration have better PCM project outcomes than others, especially in the energy sector (World Bank, 2020). The World Bank’s IDA-IFC-MIGA Private Sector Window (PSW) is one innovative financial mechanism to support investment in IDA-only and Fragile and Conflict-affected Situations (FCS) countries. Since its inception in 2018-2019, its use has grown steadily, providing cumulative funding of \$3.8 billion and demonstrating the viability of PCM approaches in the most challenging contexts.²¹
- **Promote** successful World Bank (and other MDB) efforts to mobilize private capital widely, while also learning from and being transparent about less successful efforts. Because the PCM efforts of MDBs cannot generate trillions of dollars of private sector investment on their own, demonstration effects could be crucial to enable the private sector to undertake such projects without MDB involvement. Promoting PCM experiences could also help generate greater academic interest in the topic, producing valuable research insights and rigorous tests for additionality. In this regard, the World Bank Private Sector Investment Lab, and its initial sectoral focus on renewable energy and energy infrastructure, is a welcome innovation for promoting interest in and housing knowledge on PCM.²²
- **Share** relevant data and experiences with PCM. This, too, would help encourage more academic research on these topics. Again, the Private Sector Investment Lab would appear to be a natural repository for such data and knowledge. As noted above, because MDB participation in syndicated lending and public-private partnerships is well documented in global datasets, there is emerging empirical research in those areas. In contrast, to our knowledge, systematic information on MDB guarantees is not as readily available.
- **Dive** deeply to study the effects of a subset of projects. The monitoring and evaluation frameworks should be built into these projects while they are being designed. Attention should be paid to the types of data that must be collected to demonstrate the effects of projects on gender and poverty outcomes, which will often require representative household surveys. To identify the causal effects of such projects, approaches such as staggered program roll-outs and randomized controlled trials (RCTs) could be considered.
- **Design** upstream policy interventions for sector reform and to improve the enabling environment to complement PCM investments. This should be done intentionally and in

²¹ See <https://ida.worldbank.org/en/financing/ida-private-sector-window/what-is-ida-private-sector-window>

²² See <https://www.worldbank.org/en/news/press-release/2023/06/22/world-bank-group-intensifies-focus-on-private-sector-launches-effort-to-scale-investment-in-emerging-markets>

the earliest stages of project design. To achieve their growth potential, some of these investments could be complemented by efforts to spur gains in human capital. Recent evidence has shown, for example, that gains in digital payments usage during the COVID-19 pandemic were larger not only for countries with better connectivity (as reflected in access to electricity and internet usage), but also those with better-educated populations (Cull et al., 2023).

- ***Participate*** in global fora and policy discussions on frameworks for regulating and monitoring sustainable financial instruments, climate policies, and bank regulation and supervision. While the World Bank has less direct influence in these areas, its advisory work can assist countries in designing their policies and regulations and, in global fora, can ensure that the interests of client countries are taken into consideration so that policies and regulations facilitate, rather than undermine, their efforts to mobilize private capital to meet the SDGs.

Finally, we acknowledge that there have been multiple recommendations to change the structure, organization, and responsibilities of the World Bank institutions and those of other MDBs to foster greater private capital mobilization. For example, Arezki et al. (2017) propose a reformulation of PPPs for infrastructure investment as partnerships between four actors – a private concession operator, a government agency, a development bank, and long-term institutional investors – in which development banks become ‘originate-and-distribute’ banks for these projects, while Le Houérou and Lankes (2023) recommend unifying policies with respect to PCM across the World Bank institutions and offer specific suggestions for adjusting the operations of each of the institutions. While a detailed assessment of these proposals is beyond the scope of this paper, we note simply that organizational changes on their own are unlikely to achieve the intended result – unless they are complemented by efforts to select more investment projects that spur growth by raising the marginal product of capital and to address the underlying concerns that keep private investors from identifying and pursuing such investments, in line with Merton’s functional theory of financial intermediation.

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