



# MOBILIZATION OF PRIVATE FINANCE

## BY MULTILATERAL DEVELOPMENT BANKS AND DEVELOPMENT FINANCE INSTITUTIONS

# 2017

**REPORT PUBLISHED JUNE 2018**

This report was prepared by a group of multilateral development banks (MDBs), composed of the African Development Bank (AfDB), the Asian Development Bank (ADB), the Asian Infrastructure Investment Bank (AIIB), the European Bank for Reconstruction and Development (EBRD), the European Investment Bank (EIB), the Islamic Corporation for the Development of the Private Sector (ICD), the Inter-American Development Bank (IDB) and IDB Invest, the International Finance Corporation (IFC), the Islamic Development Bank (IsDB), the Multilateral Investment Guarantee Agency (MIGA), the New Development Bank (NDB) and the World Bank (WB). The findings, interpretations, and conclusions expressed in this work do not necessarily reflect the official views of the MDBs' Boards of Executive Directors, or the governments they represent.

## Contents

Acronyms and Abbreviations .....	4
Introduction .....	6
Overview of MDB/DFI results .....	11
2017 Results .....	11
2017 Infrastructure Mobilization .....	13
Case Studies on Catalyzation .....	15
Appendix A: Disaggregated Data .....	17
All Countries of Operation .....	17
By Institution .....	18
By Income Classification .....	20
By Region .....	28
Appendix B: Case Studies .....	34
ADB: Project Development Monitoring Facility in the Philippines .....	34
AfDB: Trade Finance Program in Ghana .....	40
EBRD: Hospital Facilities Management PPP Program in Turkey .....	47
EIB: Tanzania Backbone Interconnector .....	56
IDB: Panama Canal Expansion .....	63
IFC: Masala Bond Program in India .....	73
IsDB Group: Creating Nouadhibou Free Zone .....	81
WB: Programmatic Budget Support Operations in Vietnam .....	86

## Figures

Figure 1.1. Schematic to measure MDB/DFI Private Direct Mobilization, Private Mobilization and Catalyzation .....	9
Figure 2.1 (left). Total Mobilization.....	11
Figure 2.2 (right). Total Mobilization, low-income and middle-income countries only.....	11
Figure 2.3. Breakdown of Total Private Mobilization by income level.....	12
Figure 2.4. Breakdown of Total Private Mobilization by institution and income level.....	12
Figure 2.5. Breakdown of Total Private Mobilization, by region.....	13
Figure 2.6. Breakdown of Total Private Mobilization into Direct and Indirect Mobilization as percentage of Total Mobilization.....	13
Figure 2.7. Disaggregation of Infrastructure Mobilization in low- and middle-income countries.....	14
Figure 4.1. Turkey’s hospital PPP projects.....	52
Figure 4.2. Turkey’s hospital PPP program: catalyzation effect.....	54
Figure 4.3. Map of construction.....	57
Figure 4.4. Evolution of private gross fixed capital formation—Panama and donor pool.....	69
Figure 4.5. Impacts on private gross fixed capital formation.....	69
Figure 4.6. Place placebo—private gross fixed capital formation .....	70
Figure 4.7. Time placebo—private gross fixed capital formation.....	70
Figure 4.8. Robustness check—Estimating country weights only in pre-training period .....	70
Figure 4.9. Robustness check—Leave one out test .....	71

## Tables

Table 1.1. Participating institutions.....	7
Table 1.2. Definitions.....	8
Table 3.1. All countries of operation—long-term financing.....	17
Table 3.2. All countries of operation—short-term financing.....	17
Table 3.3. All countries of operation—long-term financing.....	18
Table 3.4. Low- and middle-income countries—long-term financing.....	18
Table 3.5. All countries of operation—infrastructure financing.....	19
Table 3.6. Low-income countries—long-term financing.....	20
Table 3.7. Low-income countries—long-term financing by institution.....	20
Table 3.8. Low-income countries—infrastructure financing by institution.....	21
Table 3.9. Low-income countries and least developed countries—long-term financing.....	22
Table 3.10. Low-income countries and least developed countries—long-term financing by institution.....	22

Table 3.11. Low-income countries and least developed countries—infrastructure financing by institution.....	23
Table 3.12. Middle-income countries—long-term financing.....	24
Table 3.13. Middle-income countries—long-term financing by institution.....	24
Table 3.14. Middle-income countries—infrastructure financing by institution.....	25
Table 3.15. High-income countries—long-term financing.....	26
Table 3.16. High-income countries—long-term financing by institution.....	26
Table 3.17. High-income countries—infrastructure financing by institution.....	27
Table 3.18. Africa—long-term financing.....	28
Table 3.19. Africa—long-term financing by institution.....	28
Table 3.20. Asia—long-term financing.....	29
Table 3.21. Asia—long-term financing by institution.....	29
Table 3.22. Europe—long-term financing.....	30
Table 3.23. Europe—long-term financing by institution.....	30
Table 3.24. Latin America and the Caribbean—long-term financing.....	31
Table 3.25. Latin America and the Caribbean—long-term financing by institution.....	31
Table 3.26. Middle East—long-term financing.....	32
Table 3.27. Middle East—long-term financing by institution.....	32
Table 4.1. PDMF-supported PPP awarded projects.....	39
Table 4.2. ADOA development outcome categorization.....	44
Table 4.3. Results .....	46
Table 4.4. Turkey’s hospital PPP program by financing source.....	51
Table 4.5. Construction of donor pool .....	68
Table 4.6. Impacts on Private Gross Fixed Capital Formation .....	69
Table 4.7. Countries in the synthetic control for private gross fixed capital formation .....	69
Table 4.8. Inclusion vs. exclusion criteria.....	77
Table 4.9. Total potential catalyzation estimate of the Masala bond program....	79
Table 4.10. Development indicators.....	84

## Acronyms and Abbreviations

<b>ADB</b>	Asian Development Bank
<b>AfDB</b>	African Development Bank
<b>AIIB</b>	Asian Infrastructure Investment Bank
<b>AP</b>	Availability Payments
<b>AP3F</b>	Asia Pacific Project Preparation Facility
<b>ASEZ</b>	Aqabah Special Economic Zone Authority
<b>AusAID</b>	Australian Agency for International Agency
<b>BDO</b>	Banco de Oro
<b>BIO</b>	Belgian Investment Company for Developing Countries
<b>BOT</b>	Build-Operate-Transfer
<b>BSTDB</b>	Black Sea Trade and Development Bank
<b>CDTA</b>	Capacity Building Technical Assistance
<b>CIDA</b>	Canadian International Development Agency
<b>COP21</b>	Conference of Parties 21
<b>DBFLT</b>	Design-Build-Finance-Lease-Transfer
<b>DBM</b>	Department of Budget and Management
<b>DEG</b>	Deutsche Investitions- und Entwicklungsgesellschaft
<b>DFIs</b>	Development Finance Institutions
<b>DoF</b>	Department of Finance
<b>EBRD</b>	European Bank for Reconstruction and Development
<b>EDFI</b>	European Development Finance Institutions
<b>EIB</b>	European Investment Bank
<b>FDI</b>	Foreign Direct Investment (D & I capital)
<b>FINNFUND</b>	Finnish Fund for Industrial Cooperation Ltd
<b>FM</b>	Facilities Management
<b>FMO</b>	Netherlands Development Finance Company
<b>FPI</b>	Foreign Portfolio Investment
<b>FX</b>	Foreign exchange
<b>GTLF</b>	Global Trade Liquidity Program
<b>HIC</b>	High-income country
<b>HTP</b>	Health Transformation Program
<b>ICBC</b>	Industrial and Commercial Bank of China
<b>ICD</b>	Islamic Corporation for the Development of the Private Sector
<b>IDB</b>	Inter-American Development Bank
<b>IDBG</b>	Inter-American Development Bank Group
<b>IDB Invest</b>	Inter-American Investment Corporation
<b>IFC</b>	International Finance Corporation
<b>IFI</b>	International Financial Institution
<b>IFU</b>	Investeringsfonden for Udviklingslande
<b>IMF</b>	International Monetary Fund
<b>IsDB</b>	Islamic Development Bank
<b>LDC</b>	Least-development country
<b>LIC</b>	Low-income country
<b>MDB</b>	Multilateral Development Bank

<b>MIC</b>	Middle-income country
<b>MIGA</b>	Multilateral Investment Guarantee Agency
<b>MoF</b>	Ministry of Finance
<b>MoH</b>	Ministry of Health
<b>MSME</b>	Micro, Small and Medium Enterprises
<b>NBFC</b>	Non-Banking Financial Company
<b>NCR</b>	National Capital Region
<b>NDB</b>	New Development Bank
<b>NEDA</b>	National Economic Development Authority
<b>NFZA</b>	Nouadhibou Bay Free Zone
<b>Norfund</b>	Norwegian Investment Fund for Developing Countries
<b>OeEB</b>	Oesterreichische Entwicklungsbank AG
<b>PCA</b>	Panama Canal Authority
<b>PCf</b>	Private Co-financing
<b>PDMF</b>	Project Development Monitoring Facility
<b>PPP</b>	Public Private Partnership
<b>PRI</b>	Political Risk Insurance
<b>PRSCs</b>	Poverty Reduction Support Credits
<b>PSD</b>	Private Sector Development
<b>RMC</b>	Regional Member Countries
<b>SBI-BMI</b>	Belgian Corporation for International Investment
<b>SCM</b>	Synthetic Control Method
<b>SDGs</b>	Sustainable Development Goals
<b>SIFEM</b>	Swiss Investment Fund for Emerging Markets
<b>SIMEST</b>	Società Italiana per le Imprese all'Estero
<b>SOCB</b>	State-Owned Commercial Banks
<b>SME</b>	Small and medium enterprise
<b>SOE</b>	State-Owned Enterprise
<b>SOFID</b>	Sociedade para o Financiamento do Desenvolvimento
<b>SEZ</b>	Special Economic Zone
<b>SPs</b>	Service Payments
<b>TA</b>	Technical Assistance
<b>TANESCO</b>	Tanzania Electric Supply Company
<b>TF</b>	Trade Finance
<b>TFLOC</b>	Trade Finance Lines of Credit
<b>VfM</b>	Value for Money
<b>WB</b>	World Bank
<b>WTO</b>	World Trade Organization

## Introduction

### Why we are reporting

In 2015, the global community adopted the 2030 Sustainable Development Agenda and the Sustainable Development Goals (SDGs) that underpin it, and made commitments at the 21st Conference of the Parties to the UN Framework Convention on Climate Change. In July of the same year, the Third International Conference on Financing for Development recognized that the financial resources needed to achieve the SDGs far exceeded current financial flows. Indeed, as explained in a paper prepared for the Conference and endorsed by the World Bank/IMF Development Committee in April 2015,<sup>1</sup> the world needs to move from billions to trillions of dollars of financing to meet the challenge of promoting inclusive, sustainable growth, reducing poverty and inequality, and protecting the planet.

A wide range of stakeholders see a critical role for Multilateral Development Banks (MDBs) and other Development Finance Institutions (DFIs) in blending public and private finance to scale up financing for development. In adopting the Hamburg Principles last year, the G20 welcomed the role of the MDBs in mobilizing and catalyzing private capital and endorsed a target of increasing mobilization by 25 to 35 percent by 2020.

In response, MDBs and bilateral DFIs have taken steps to catalyze more private investment, taking into account quality standards and the risk profile of different markets, as mobilization is generally more difficult in higher risk markets. This includes tapping into larger sources of capital such as pension funds, sovereign wealth funds, and insurance companies. Many do this by leveraging their own capital base by borrowing from capital markets to increase their own ability to finance development. In addition, they catalyze greater private investment through a range of other functions, including: i) helping evaluate and structure high-quality investment projects; ii) helping mitigate real and perceived risk associated with investments that have a positive development impact; iii) mobilizing resources from and co-investing alongside both traditional investors and new sources of commercial financing for development; and iv) developing new financial products to help unlock additional flows.

The leveraging of MDB and DFI balance sheets is reported in each institution's annual financial statements according to accepted financial reporting standards. This report complements these individual financial statements by reporting on amounts mobilized, directly and indirectly,<sup>2</sup> from private investors alongside our investment and advisory operations. This provides a common basis for tracking progress in increasing our contributions towards catalyzing private investment in support of our shared development objectives.

The methodology we have adopted allows us to measure private investment mobilized on a consistent basis by applying common definitions and methodologies. It also enables us to report more fully on our contributions to a range of development priorities, including climate change<sup>3</sup> and infrastructure development. By coordinating measurement and reporting across institutions in this way, we aim to increase transparency and accountability in our work and identify potential gaps that indicate where we could contribute more.



## What we are reporting

This report contains results for *private investment mobilized* and its component parts—*Private Direct Mobilization* and *Private Indirect Mobilization* of our financial products, as well as results of direct transaction advisory services for 2017.

For financial products, we distinguish between long-term finance (tenors of one year or more) and short-term finance, which is typically offered through revolving facilities such as trade finance and working capital facilities. Both types of finance are important to support economic growth, with long-term finance essential for financing fixed capital investment in infrastructure and other sectors, and short-term finance important for supporting the expansion of trade and value chains.

We continue to provide a disaggregation of the results by country income level.<sup>4</sup> This includes a distinction between “low income countries” (LICs)- countries with a GDP below a defined threshold—and “low-income and least-developed countries” (LDCs),<sup>5</sup> which are low-income countries confronting severe structural impediments to sustainable development. In addition, this year’s report also disaggregates by region. We also continue to disaggregate between infrastructure and other sectors.

This year, the group of European Development Finance Institutions (EDFI) adopted the methodology, and 12 out of 15 members of the group contributed their 2017 results to this report. The included members represent 80 percent of combined investment activity of the group. We expect that more of the EDFI group will report 2018 results in next year’s report. We welcome the contribution of additional DFIs to this joint report, reflecting our shared ambition to mobilize more private finance for development.

**Table 1.1. Participating institutions**

Participating MDBs	Participating EDFIs
African Development Bank (AfDB)	Belgian Investment Company for Developing Countries (BIO)
The Asian Development Bank (ADB)	CDC Group PLC
The Asian Infrastructure Investment Bank (AIIB)	Deutsche Investitions- und Entwicklungsgesellschaft mbH (DEG)
The European Bank for Reconstruction and Development (EBRD)	Finnish Fund for Industrial Cooperation Ltd (FINNFUND)
The European Investment Bank (EIB)	Netherlands Development Finance Company (FMO)
The Islamic Corporation for the Development of the Private Sector (ICD)	Investeringsfonden for Udviklingslande (IFU)
The Inter-American Development Bank (IDB) and Inter-American Investment Corporation (IDB Invest)	Norwegian Investment Fund for Developing Countries (Norfund)
The International Finance Corporation (IFC)	Oesterreichische Entwicklungsbank AG (OeEB)
The Islamic Development Bank (IsDB)	Belgian Corporation for International Investment (SBI-BMI)
The Multilateral Investment Guarantee Agency (MIGA)	Swiss Investment Fund for Emerging Markets (SIFEM)
The New Development Bank (NDB)	Società Italiana per le Imprese all’Estero (SIMEST) and Sociedade para o Financiamento do Desenvolvimento (SOFID)
The World Bank (WB)	

We recognize that we also catalyze private investment on a much broader scale through technical advice, support for policy reform, capacity building, demonstration effects, and other activities which trigger an investment response from private investors, or which open new opportunities for private investment. Over the last year, the MDBs have explored ways to measure and report on this broader *private investment catalyzation*. Some of the results of this work are presented through a series of case studies attached to this report. This work has not yet led to convergence on common methods for measuring catalyzation, but we believe that the case studies are illustrative of the larger impacts that MDB and DFI operations have on private investment, beyond what we report as mobilization. These case studies also allow us to explore the impact of upstream advisory and policy work which is not yet included in the mobilization methodology.

We continue to emphasize that these measures of private investment mobilization<sup>6</sup> track the size of financial flows but do not measure their development impact. We measure and report on the development impact of our operations through our established results measurement systems.

### Data Limitations

It is important to note that different measures can be tracked and reported with different degrees of accuracy. Because Private Direct Mobilization involves a transactional relationship between the MDB/DFI and the client, this metric can be

Table 1.2. Definitions

Private Co-Financing/Mobilization	Private Direct Mobilization		
<p>It is the investment made by a private entity, which is defined as a legal entity that is:</p> <ul style="list-style-type: none"> <li>• Carrying out or established for business purposes and</li> <li>• Financially and managerially autonomous from national or local government.</li> </ul> <p>Some public entities that are organized with financial and managerial autonomy are counted as private entities. Other examples include registered commercial banks, insurance companies, sovereign wealth funds and other institutional investors investing primarily on a commercial basis.</p>	<p>It is financing from a private entity on commercial terms due to the active and direct involvement of an MDB leading to commitment. Evidence of active and direct involvement include mandate letters, fees linked to financial commitment or other validated or auditable evidence of an MDB's active and direct role leading to commitment of other private financiers. PDM does not include sponsor financing.</p> <tr> <td data-bbox="142 1841 808 1942"></td> <td data-bbox="812 1841 1474 1942"> <h3 data-bbox="821 1503 1464 1575">Private Indirect Mobilization</h3> <p>It is financing from private entities provided in connection with a specific activity for which an MDB is providing financing, where no MDB is playing an active or direct role that leads to the commitment of the private entity's finance. PIM includes sponsor financing, if the sponsor qualifies as a <i>private entity</i>.</p> </td> </tr>		<h3 data-bbox="821 1503 1464 1575">Private Indirect Mobilization</h3> <p>It is financing from private entities provided in connection with a specific activity for which an MDB is providing financing, where no MDB is playing an active or direct role that leads to the commitment of the private entity's finance. PIM includes sponsor financing, if the sponsor qualifies as a <i>private entity</i>.</p>
	<h3 data-bbox="821 1503 1464 1575">Private Indirect Mobilization</h3> <p>It is financing from private entities provided in connection with a specific activity for which an MDB is providing financing, where no MDB is playing an active or direct role that leads to the commitment of the private entity's finance. PIM includes sponsor financing, if the sponsor qualifies as a <i>private entity</i>.</p>		

Private Direct Mobilization + Private Indirect Mobilization = Private Co-Financing/Mobilization

captured with the greatest accuracy. In some institutions, this metric is audited. Private Indirect Mobilization of an MDB/DFI-supported project or activity may not directly involve the institution in arranging the financing, and therefore measurement relies on voluntary reporting by the client or estimates by the project team. It is therefore more of an estimate, and less accurate. This does not imply that it is less important to measure—indeed, the amounts are potentially larger.

Since the first report, MDBs have strengthened their internal data systems to improve their ability to generate accurate data for this report. The DFIs reporting for the first time this year have not yet had time to address data systems’ needs, so the DFI data is more provisional and does not yet cover Indirect Mobilization for some DFIs.<sup>7</sup> Ten out of 15 DFIs reported their Indirect Mobilization this year, representing 30 percent of combined DFI investment activity in 2017.

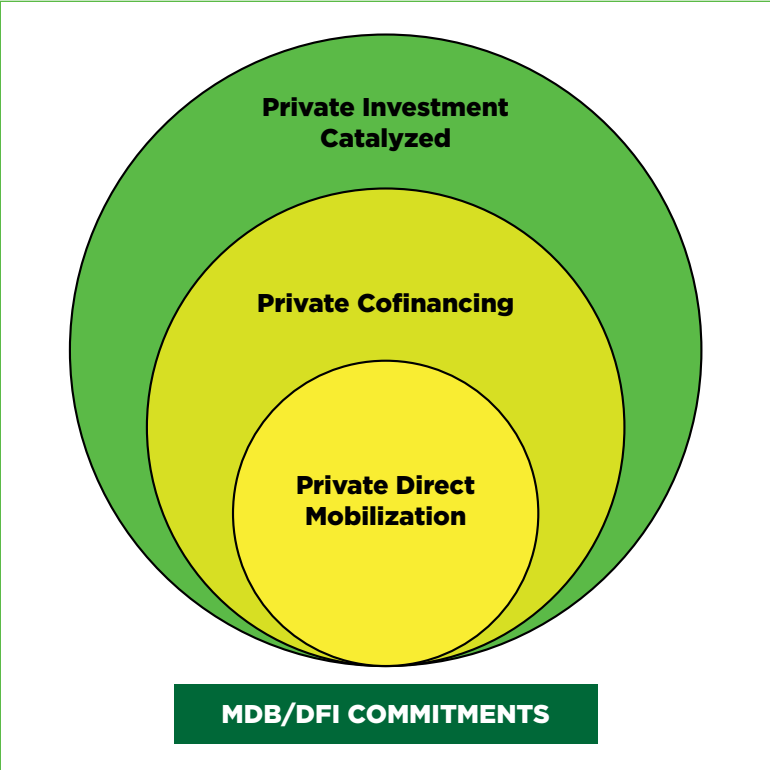
We apply attribution rules proportional to MDB/DFI commitments to a project to avoid double counting of Private Indirect Mobilization where more than one MDB is involved in a transaction. The MDBs exchange information on co-financed projects to enable appropriate attribution and avoid double counting, but current limitations on data systems mean that some double counting may remain in this year’s data. We believe that these amounts do not materially affect the overall results.

There have been fewer opportunities this year to cross-check between MDB and DFI data on co-financed projects to strip out double counting. Again, our judgement is that the amounts involved are not significant relative to the overall mobilization amounts.<sup>8</sup>

We expect that data accuracy will improve with subsequent editions of the report, as participating institutions continue to strengthen internal data systems and processes for identifying double counting. In the meantime, we continue to urge caution in interpreting the data at a very granular level. In the spirit of “billions to trillions,” we believe that the aggregate amounts capture the important story. We therefore do not collect and publish more granular breakdowns of the data. We refer more detailed enquiries to the participating institutions.

Since the accuracy of data capture has evolved between the first and second report, we are not able to distinguish between trends in the underlying mobilization operations and improvements in data accuracy. We therefore urge caution in attaching significance to changes in reported amounts between 2016 and 2017.

Figure 1.1. Schematic to measure MDB/DFI Private Direct Mobilization, Private Mobilization and Catalyzed



## Endnotes

1. AfDB, ADB, EBRD, EIB, IDB, IMF, and the WBG. [From Billions to Trillions: Transforming Development Finance](#). April 2, 2015. Development Committee Discussion Note
2. Per agreed-upon methodology, the sum of Private Direct and Private Indirect Mobilization equals (Total) Private Mobilization.
3. See [Joint Report on Multilateral Development Banks' Climate Finance](#) for reporting on climate-related investments.
4. For the current 2018 fiscal year, low-income economies are defined as those with a GNI per capita, calculated using the World Bank Atlas method, of \$1,005 or less in 2016; lower middle-income economies are those with a GNI per capita between \$1,006 and \$3,955; upper middle-income economies are those with a GNI per capita between \$3,956 and \$12,235; high-income economies are those with a GNI per capita of \$12,236 or more, <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups>.
5. There are currently 47 countries on the list of LDCs which is reviewed every three years by the Committee for Development (CDP).
6. Mobilization and Co-Financing can be used interchangeably. Henceforth, all Mobilization/Co-financing refers to Private Mobilization. This joint report does not feature any Public Mobilization/Co-Financing.
7. DEG and FMO report only Direct Private Mobilization for 2017. Cofides, Proparco and Swedfund look forward to reporting Private Mobilization in subsequent reports.
8. As a point of comparison, IFC reports on eight co-financing projects with participating DFIs for which \$114 million were mobilized indirectly, of which an adjusted \$56 million of Indirect Mobilization falls to the participating DFIs and might therefore be subject to double counting.

## Overview of MDB/DFI results

### 2017 Results

#### Long-Term Financing

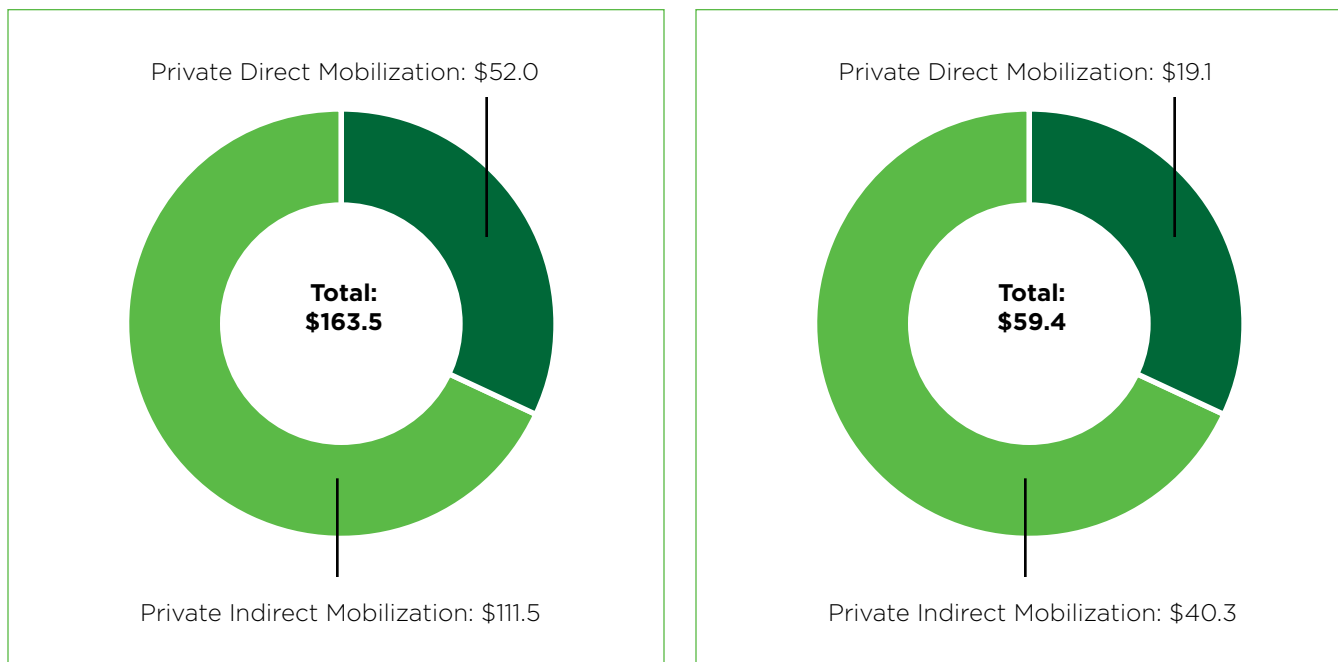
Based on 2017 commitment data,<sup>1</sup> we estimate that the total amount of long-term co-financing mobilized by the MDBs/DFIs from private investors and other institutional investors (including insurance companies, pension funds, and sovereign wealth funds) in all countries of operation was \$163.5 billion.<sup>2</sup> Of this, Private Direct Mobilization is estimated at \$52.0 billion, which is approximately 32 percent of total mobilization (see Figure 2.1).

In low- and middle-income countries only, we estimate the total amount of long-term co-financing amounted to \$59.4 billion, of which 32 percent was mobilized directly and 68 percent was mobilized indirectly (see Figure 2.2).

Of this amount, \$54.1 billion was in middle-income countries and \$5.3 billion

Figure 2.1 (left). Total Mobilization, US\$, billions

Figure 2.2 (right). Total Mobilization, low-income and middle-income countries only, US\$, billions

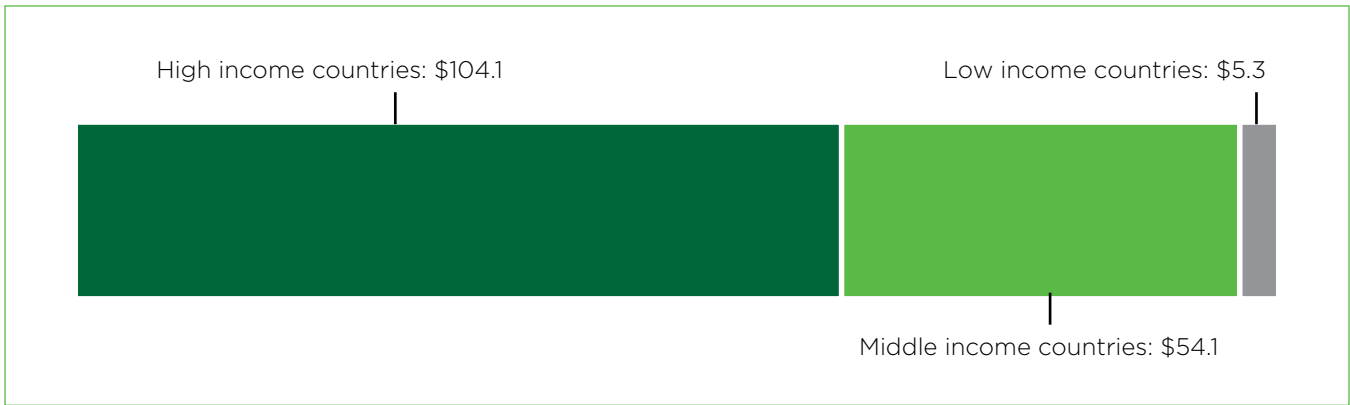


was in low-income countries. Low-income countries and other least developed countries accounted for \$6.0 billion in Private Co-Financing.

Hence, the largest amounts of mobilization were in high-income countries, with relatively little in low-income countries. This reflects the relatively small economies of low-income countries, and the risk appetites of private investors, most of whom have little or no willingness to take low-income country risk. Global and national regulations also limit investors' ability to take low- and middle-income country risk.

Across income classifications, 64 percent of Total Private Mobilization was mobilized in high-income countries (HIC), 33 percent was mobilized in middle-income countries (MIC), and 3 percent in low-income countries (LIC).

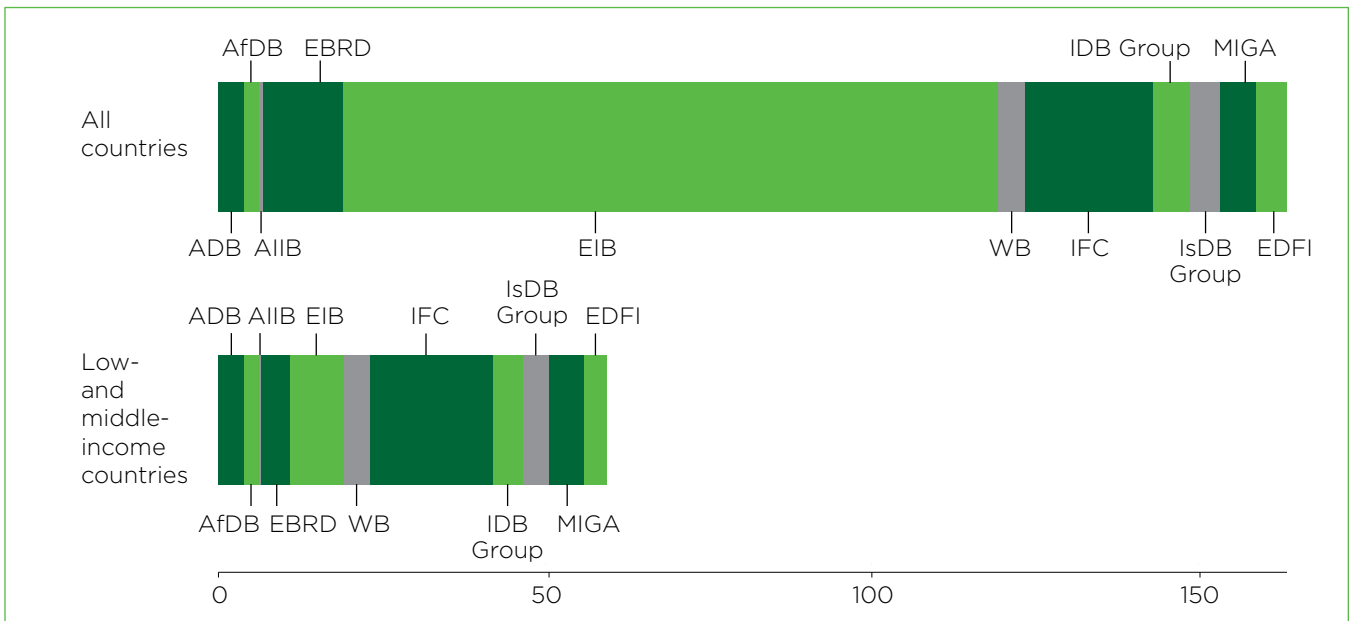
Of the \$163.5 billion Total Private Mobilization, \$158.9 billion was mobilized by MDBs, while the remaining \$4.7 billion was mobilized by the group of DFIs. Figure



**Figure 2.3. Breakdown of Total Private Mobilization by income level, US\$, billions**

2.4 shows the disaggregation of Total Private Mobilization by institution, both for all countries and for low- and middle-income countries only.

Private investment was mobilized for projects in all regions.<sup>3</sup> Of the total \$163.5 billion mobilized in private investment, \$115.5 billion was for projects in Europe; \$16.5 billion in private co-financing was for projects in Asia; \$16.3 billion for projects in Latin America and the Caribbean; and \$14.6 billion for projects in Africa. The Middle East<sup>4</sup> had the lowest absolute amount of Private Investment Mobilization of \$0.7 billion or 0.4 percent of all private co-financing.

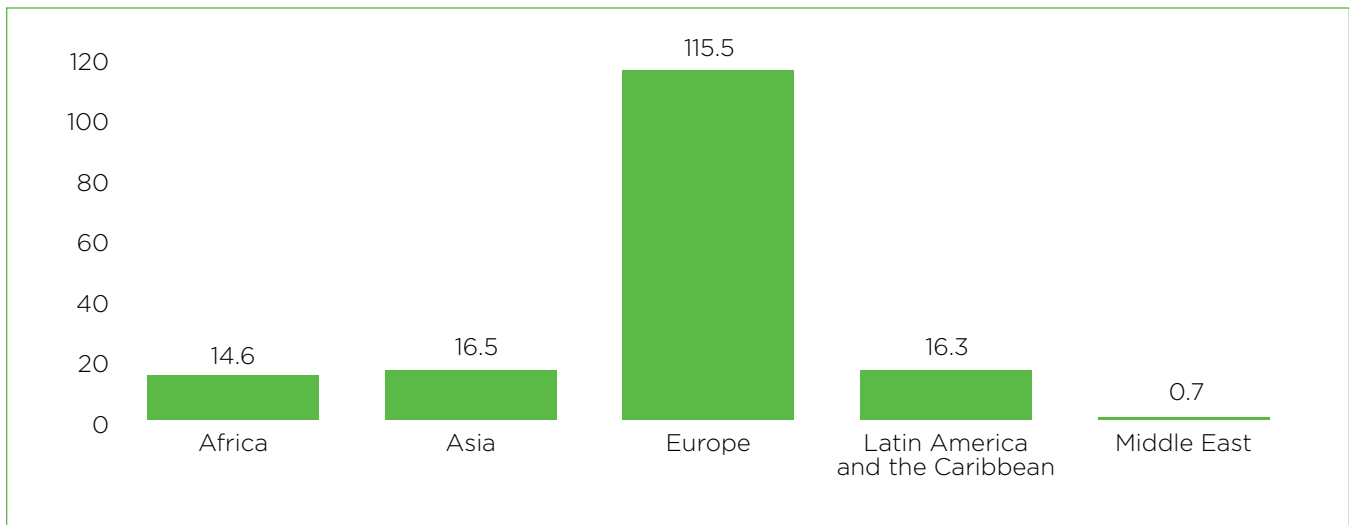


**Figure 2.4. Breakdown of Total Private Mobilization by institution and income level, US\$, billions**

**Short-Term Financing**

The importance of short-term financing to support global trade—known as *trade finance*—is explicitly recognized in the Addis Ababa Action Agenda on Financing for Development as an important means of implementing the Sustainable Development Goals (SDGs).<sup>5</sup> Yet, ADB’s 2017 *Trade Finance Gaps, Growth, and Jobs Survey* estimated a global trade finance gap of \$1.5 trillion.<sup>6</sup> MDB trade finance programs play an important role in reducing market gaps for trade finance.

We estimate the MDBs/DFIs’ Private Direct Mobilization through short-term finance was \$4.2 billion.<sup>7</sup> Mobilization of short-term finance from the private



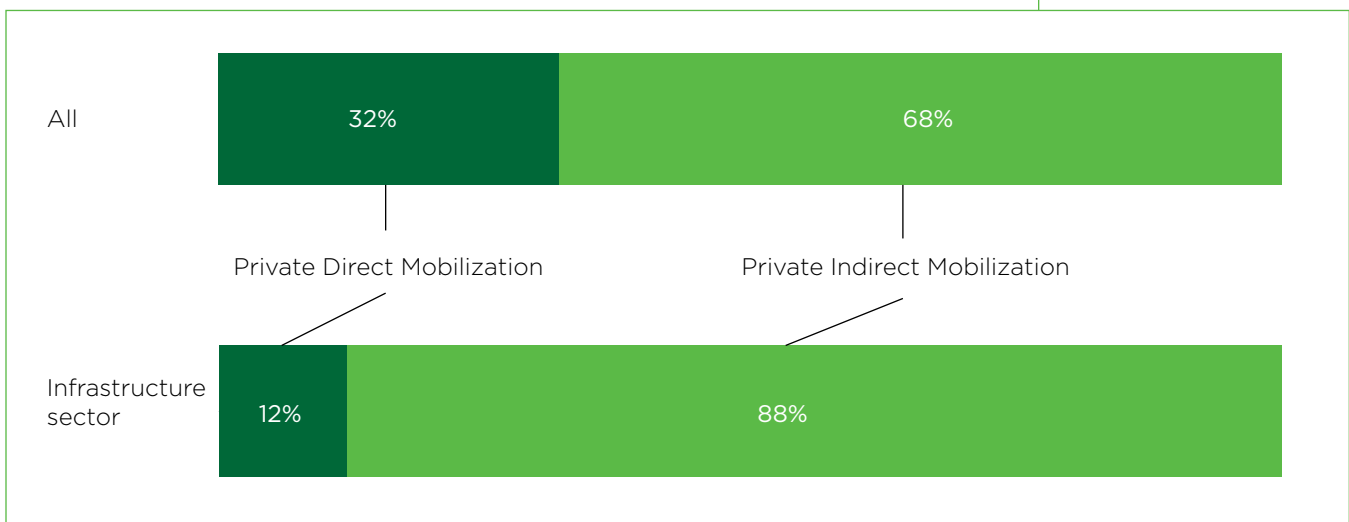
sector was focused on closing market gaps in trade and micro, small and medium enterprises (MSME) finance.

### 2017 Infrastructure Mobilization

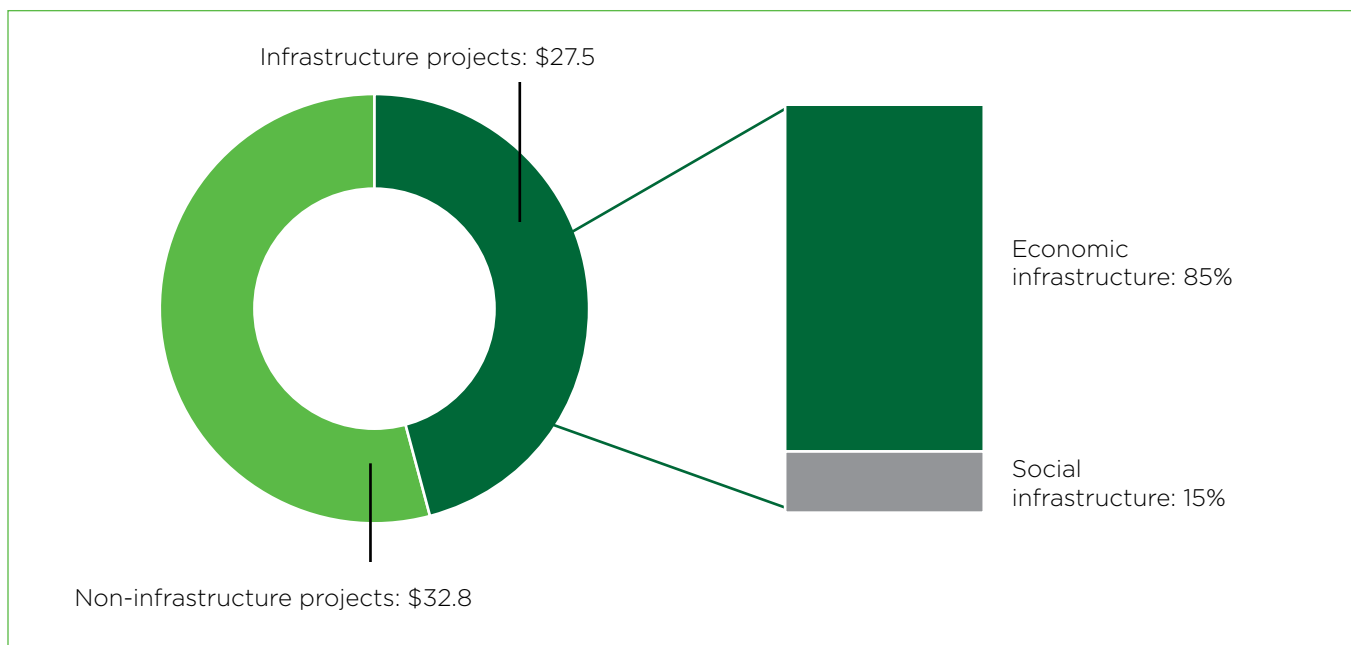
MDB and DFI financing supported investment in a range of sectors. In view of the importance of private financing to meet the enormous infrastructure financing needs of developing countries, we estimate the proportion of total long-term co-financing for infrastructure (including power, water, transportation, telecoms, information technology, and social infrastructure, such as schools and hospitals) in all countries of operation were \$73.3 billion, or 45 percent of all private co-financing. This is a similar level to reported by MDBs for 2016.

**Figure 2.5. Breakdown of Total Private Mobilization, by region, US\$, billions**

**Figure 2.6. Breakdown of Total Private Mobilization into Direct and Indirect Mobilization as percentage of Total Mobilization**



Private Direct Mobilization for infrastructure amounted to \$8.6 billion or 12 percent of all infrastructure private co-financing. This is significantly lower than for all Private Co-Financing, where Direct Mobilization amounts to 32 percent of all co-financing. This reflects the larger amount of Indirect Mobilization involved in infrastructure projects (see Figure 2.6).



**Figure 2.7.**  
**Disaggregation**  
**of Infrastructure**  
**Mobilization in low-**  
**and middle-income**  
**countries, US\$,**  
**billions**

In detail, only 8 percent of infrastructure mobilization stems from private investment in social infrastructure such as schools and hospitals, reflecting the limited extent of private investment in social sectors in most low- and middle-income countries; 92 percent of Private Co-Financing was mobilized from investment in economic infrastructure including power, water, transportation, telecoms and information technology.

In contrast, in low- and middle-income countries, 85 percent of Private Mobilization comes from economic infrastructure and 15 percent of mobilization stems from social infrastructure.

### Endnotes

1. AfDB and IsDB data is based on approvals. NDB did not have operations with private mobilization to report in 2017.
2. All monetary amounts are U.S. dollars unless otherwise indicated.
3. See methodology guide for details.
4. It is to note that the Middle East is the smallest group of countries among all regions defined in this report.
5. [Addis Ababa Action Agenda of the Third International Conference on Financing for Development, 2015.](#)
6. ADB Briefs: *2017 Trade Finance Gaps, Growth, and Job Survey*, <https://www.adb.org/publications/2017-trade-finance-gaps-jobs-survey>.
7. According to the agreed definitions and methodology by the MDB Task Force, the methodology for reporting Private Indirect Mobilization does not apply to the MDBs' Short Term Finance products.



## Case Studies on Catalyzation

Mobilization only captures part of the impact of MDB and DFI work on private investment. It does not capture additional private investment beyond or after MDB supported investment and advisory projects. We also aim to catalyze private investment on a much broader scale through advisory services, support for policy reform, capacity building, demonstration effects, and other activities which trigger an investment response from private investors, or which open new opportunities for private investment. We call these broader effects *private investment catalyzation*. What we measure as *private investment mobilization* is a subset of this, but it does not capture private investment beyond the boundary of the project, or which occurs after the project, or as a consequence of the project.

Such impacts can only be estimated, as part of broader efforts at measuring the impact of MDB work. Each MDB and DFI has its own results measurement system, and there have been substantial efforts to harmonize the approaches and indicators used across the institutions. However, there does not yet exist a common methodology for measuring investment catalyzation.

The Task Force has explored a range of methodologies which could be used but has not yet identified a single approach which would work for the range of different activities undertaken by MDBs that may have catalytic effects. For financing activities of MDBs, there may be scope to estimate multipliers which are related to the amount of the MDB's own commitment. But for non-financing activities, such as policy reform and capacity building, there is no MDB commitment amount to which a multiplier could be applied. And there may be very little relation between the cost of the MDB advisory work and the amount of private investment catalyzed.

The MDB Task Force therefore decided, as a first step, to undertake a series of case studies of MDB activities which clearly had catalytic effects. This effort pilots

### Catalyzation

Measures beyond/after project effects of private financing activities and transaction support activities not measured by mobilization.

It also captures MDB activity not related to private financing/transaction support, including:

- Policy reform/advice to governments with impacts on private investment
- Public financing with impacts on private investment
- Environmental, social and corporate governance effectiveness enhancement activities with impacts on private investment
- Industry standards improvement activities with impacts on private investment
- Project development
- Treasury operations to create financial markets

different approaches to estimating the amount of private investment catalyzed. These case studies have two aims. First, they illustrate the magnitude and type of catalyzation which can occur as a result of MDB activities; and second, they deepen our shared understanding of the different estimation techniques which can be applied to different types of MDB interventions through “learning by doing.” These case studies focus on estimating the amount of private investment catalyzed. They do not discuss the development impacts of the MDB activities. It is hoped that these case studies will both provide a better appreciation of the potential scale of catalytic impacts and suggest some promising approaches to estimating them. The MDBs will review the insights from these case studies in deciding how to take forward efforts to develop a common estimation framework.

The case studies illustrate a range of channels through which MDBs may catalyze private investment. These include:

1. Financing and advice for policy reforms to enable private sector investment
2. Financing for public infrastructure which catalyzes private investment
3. Financing for private infrastructure projects
4. Trade finance
5. Advisory work to bring private investment into public assets and services through PPPs, and to establish a special economic zone (SEZ)
6. Bond issuance and technical assistance to establish a local currency market for non-sovereign bond issuance

In some cases, it is possible to precisely identify follow-on private investments: private investments in the SEZ established in Mauritania, and private local-currency bond issuance in India. In two cases (Panama Canal and Vietnam reform program), MDB-supported activities are large enough to have macro effects at the level of national totals for private fixed capital formation. The Panama case uses a control methodology to compare with and without investment cases. In other cases, intermediate approaches are needed for investment effects which are too diffuse to be identified, but not large enough to be captured in national accounts. Various econometric techniques have been used in these cases, as well as multipliers based on econometric analysis of comparable projects.

Across this range of projects and estimation methods, we can see a wide range of catalyzation effects. Where it is possible to calculate a ratio of the investment catalyzed to the MDB investment, ratios range from 8:1 to 12:1. In the case of advisory engagements or other non-lending activities, it is not meaningful to relate the investment catalyzed to the cost of the investment, but these have large catalyzation amounts associated with them, ranging from \$100 million to \$14 billion. This clearly shows, even without great refinement of the methodology, that MDBs’ effect in catalyzing private investment goes far beyond the direct cost of their advice or the amount of their financing.

## Appendix A: Disaggregated Data

The data contained in this annex disaggregates MDBs' aggregate amount of Direct and Indirect Mobilization from private investors and other institutional investors (including insurance companies, pension funds, and sovereign wealth funds) on a consistent basis. Please refer to the “*Joint MDB Reporting on Private Investment Mobilization: Methodology Reference guide*” ([www.worldbank.org/mdbmobguide](http://www.worldbank.org/mdbmobguide)) for further information and detailed methodologies. The data is disaggregated by country income group (i.e. low-income countries, low-income countries and other least developed countries, middle-income countries, and high-income countries) and by institution, as well as by region. “Low-Income Countries”, “Middle-Income Countries” and “High-Income Countries” are defined using the World Bank Atlas method. “Least Developed Countries” are defined as per United Nations Committee for Development.

### All Countries of Operation

**Table 3.1. All countries of operation—long-term financing**

	Total (US\$, billions)	Of which Infrastructure (US\$, billions)
Direct Mobilization	52.0	8.6
Indirect Mobilization	111.5	64.7
Total Private Mobilization = Co-Financing	163.5	73.3

**Table 3.2. All countries of operation—short-term financing**

	Total (US\$, billions)
Direct Mobilization	4.2

## By Institution

**Table 3.3. All countries of operation—long-term financing**

	PCf (US\$, millions)	PDM (US\$, millions)	PIM (US\$, millions)
ADB	3,927.0	1,168.8	2,758.2
AfDB	2,271.2	474.7	1,796.5
AIIB	560.9	112.1	448.8
EBRD	12,326.6	801.8	11,524.8
EIB	100,236.3	36,776.5	63,458.6
IDB Group <sup>1</sup>	5,735.5	1,923.3	3,812.3
IsDB Group <sup>2</sup>	4,503.5	67.4	4,436.1
World Bank Group	29,284.1	9,605.4	19,678.7
- MIGA	5,635.0	3,704.1	1,930.9
- WB <sup>3</sup>	3,987.5	868.2	3,119.3
- IFC	19,661.6	5,033.1	14,628.5
EDFI	4,687.5	1,067.5	3,620.0
<b>Total</b>	<b>163,531.4</b>	<b>51,997.5</b>	<b>111,533.9</b>

**Table 3.4. Low- and middle-income countries—long-term financing**

	PCf (US\$, millions)	PDM (US\$, millions)	PIM (US\$, millions)
ADB	3,927.0	1,168.8	2,758.2
AfDB	2,267.7	471.9	1,795.7
AIIB	277.8	25.0	252.8
EBRD	4,499.7	664.9	3,834.8
EIB	8,199.6	4,977.1	3,222.5
IDB Group	4,544.1	1,695.0	2,849.1
IsDB Group	4,039.5	67.4	3,972.1
World Bank Group	28,115.9	8,993.8	19,122.0
- MIGA	5,275.2	3,344.3	1,930.9
- WB	3,986.6	868.1	3,118.5
- IFC	18,854.1	4,781.4	14,072.6
EDFI	3,536.3	1,067.5	2,468.8
<b>Total</b>	<b>59,407.6</b>	<b>19,131.5</b>	<b>40,276.1</b>

**Table 3.5. All countries of operation—infrastructure financing**

	PCf (US\$, millions)	PDM (US\$, millions)	PIM (US\$, millions)
<b>ADB</b>	2,925.9	980.4	1,945.5
<b>AfDB</b>	806.0	244.7	561.3
<b>AIIB</b>	560.9	112.1	448.8
<b>EBRD</b>	4,592.8	293.7	4,299.1
<b>EIB</b>	43,747.7	1,146.0	42,601.7
<b>IDB Group</b>	4,749.7	1,159.8	3,590.0
<b>IsDB Group</b>	1,750.7	0.0	1,750.7
<b>World Bank Group</b>	12,792.9	4,074.0	8,718.9
- MIGA	3,303.2	1,412.8	1,890.4
- WB	3,524.2	863.2	2,661.0
- IFC	5,965.5	1,798.0	4,167.5
<b>EDFI</b>	1,339.1	579.0	760.1
<b>Total</b>	<b>73,265.6</b>	<b>8,589.7</b>	<b>64,676.0</b>

### By Income Classification<sup>4</sup>

**Table 3.6. Low-income countries—long-term financing<sup>5</sup>**

	Total (US\$, billions)	Of which Infrastructure (US\$, billions)
Direct Mobilization	1.6	0.8
Indirect Mobilization	3.7	1.3
<b>Total Private Mobilization = Co-Financing</b>	<b>5.3</b>	<b>2.1</b>

**Table 3.7. Low-income countries—long-term financing by institution**

	PCf (US\$, millions)	PDM (US\$, millions)	PIM (US\$, millions)
ADB	0.0	0.0	0.0
AfDB	797.2	100.0	697.2
AIIB	0.0	0.0	0.0
EBRD	N/A	N/A	N/A
EIB	1,808.5	809.5	999.0
IDB Group	0.0	0.0	0.0
IsDB Group	636.4	0.0	636.4
World Bank Group	1,685.1	630.3	1,054.9
-MIGA	107.2	96.9	10.4
-WB	123.5	8.8	114.7
-IFC	1,454.4	524.6	929.8
EDFI	362.8	15.7	347.1
<b>Total</b>	<b>5,290.1</b>	<b>1,555.5</b>	<b>3,734.6</b>

**Table 3.8. Low-income countries—infrastructure financing by institution**

	PCf (US\$, millions)	PDM (US\$, millions)	PIM (US\$, millions)
ADB	0.0	0.0	0.0
AfDB	299.8	0.0	299.8
AIIB	0.0	0.0	0.0
EBRD	N/A	N/A	N/A
EIB	1,205.5	538.6	666.9
IDB Group	0.0	0.0	0.0
IsDB Group	0.0	0.0	0.0
World Bank Group	542.7	266.4	276.5
-MIGA	96.7	86.4	10.4
-WB	82.5	6.2	76.3
-IFC	363.5	173.8	189.8
EDFI	92.2	9.5	82.7
<b>Total</b>	<b>2,140.2</b>	<b>814.3</b>	<b>1,325.8</b>

**Table 3.9. Low-income countries and least developed countries<sup>6</sup>—long-term financing**

	Total (US\$, billions)	Of which Infrastructure (US\$, billions)
Direct Mobilization	1.9	1.0
Indirect Mobilization	4.2	1.6
<b>Total Private Mobilization = Co-Financing</b>	<b>6.0</b>	<b>2.6</b>

**Table 3.10. Low-income countries and least developed countries—long-term financing by institution**

	PCf (US\$, millions)	PDM (US\$, millions)	PIM (US\$, millions)
ADB	0.0	0.0	0.0
AfDB	825.1	120.2	704.8
AIIB	0.0	0.0	0.0
EBRD	N/A	N/A	N/A
EIB	1,808.5	809.5	999.0
IDB Group	0.0	0.0	0.0
IsDB Group	712.4	0.0	712.4
World Bank Group	1,919.6	824.4	1,095.3
-MIGA	492.4	309.4	183.0
-WB	0.0	0.0	0.0
-IFC	1,427.2	515.0	912.3
EDFI	766.4	99.8	666.6
<b>Total</b>	<b>6,032.0</b>	<b>1,853.9</b>	<b>4,178.1</b>



**Table 3.11. Low-income countries and least developed countries—  
infrastructure financing by institution**

	PCf (US\$, millions)	PDM (US\$, millions)	PIM (US\$, millions)
ADB	0.0	0.0	0.0
AfDB	299.9	0.0	299.9
AIIB	0.0	0.0	0.0
EBRD	0.0	0.0	0.0
EIB	1,205.5	538.6	666.9
IDB Group	0.0	0.0	0.0
IsDB Group	0.0	0.0	0.0
World Bank Group	841.7	472.7	369.0
-MIGA	481.9	298.9	183.0
-WB	0.0	0.0	0.0
-IFC	359.8	173.8	186.0
EDFI	254.2	14.5	239.7
<b>Total</b>	<b>2,601.2</b>	<b>1,025.7</b>	<b>1,575.5</b>

**Table 3.12. Middle-income countries<sup>7</sup>—long-term financing**

	Total (US\$, billions)	Of which Infrastructure (US\$, billions)
Direct Mobilization	17.6	6.8
Indirect Mobilization	36.5	18.5
<b>Total Private Mobilization = Co-Financing</b>	<b>54.1</b>	<b>25.3</b>

**Table 3.13. Middle-income countries—long-term financing by institution**

	PCf (US\$, millions)	PDM (US\$, millions)	PIM (US\$, millions)
ADB	3,927.0	1,168.8	2,758.2
AfDB	1,470.5	371.9	1,098.5
AIIB	277.8	25.0	252.8
EBRD	4,499.7	664.9	3,834.8
EIB	6,391.1	4,167.6	2,223.5
IDB Group	4,544.1	1,695.0	2,849.1
IsDB Group	3,403.1	67.0	3,336.0
World Bank Group	26,430.8	8,363.6	18,067.3
-MIGA	5,168.0	3,247.5	1,920.6
-WB	3,863.2	859.3	3,003.9
-IFC	17,399.6	4,256.8	13,142.8
EDFI	3,173.5	1,051.8	2,121.7
<b>Total</b>	<b>54,117.5</b>	<b>17,576.0</b>	<b>36,541.5</b>

**Table 3.14. Middle-income countries—infrastructure financing by institution**

	PCf (US\$, millions)	PDM (US\$, millions)	PIM (US\$, millions)
ADB	2,925.9	980.4	1,945.5
AfDB	506.1	244.7	261.4
AIIB	277.8	25.0	252.8
EBRD	1,690.9	215.8	1,475.2
EIB	1,423.8	6.0	1,417.8
IDB Group	3,558.2	931.5	2,626.7
IsDB Group	1,817.7	67.0	1,750.7
World Bank Group	11,997.2	3,803.7	8,193.5
-MIGA	3,206.5	1,326.4	1,880.1
-WB	3,441.6	857.0	2,584.6
-IFC	5,349.1	1,620.3	3,728.8
EDFI	1,119.5	569.6	550.0
<b>Total</b>	<b>25,317.1</b>	<b>6,843.7</b>	<b>18,473.4</b>

**Table 3.15. High-income countries<sup>a</sup>—long-term financing**

	Total (US\$, billions)	Of which Infrastructure (US\$, billions)
Direct Mobilization	32.9	1.0
Indirect Mobilization	71.3	44.9
<b>Total Private Mobilization = Co-Financing</b>	<b>104.1</b>	<b>45.9</b>

**Table 3.16. High-income countries—long-term financing by institution**

	PCf (US\$, millions)	PDM (US\$, millions)	PIM (US\$, millions)
ADB	0.0	0.0	0.0
AfDB	3.5	2.8	0.8
AIIB	283.1	87.1	196.0
EBRD	7,826.9	136.9	7,690.0
EIB	92,035.5	31,799.4	60,236.0
IDB Group	1,191.5	228.3	963.2
IsDB Group	464.0	0.0	464.0
World Bank Group	1,168.1	611.5	556.6
-MIGA	359.8	359.8	0.0
-WB	0.8	0.1	0.7
-IFC	807.5	251.6	555.9
EDFI	1,151.2	0.0	1,151.2
<b>Total</b>	<b>104,123.8</b>	<b>32,866.0</b>	<b>71,257.8</b>

**Table 3.17. High-income countries—infrastructure financing by institution**

	PCf (US\$, millions)	PDM (US\$, millions)	PIM (US\$, millions)
ADB	0.0	0.0	0.0
AfDB	0.0	0.0	0.0
AIIB	283.1	87.1	196.0
EBRD	2,902.0	78.0	2,824.0
EIB	41,118.4	601.5	40,517.0
IDB Group	1,191.5	228.3	963.2
IsDB Group	0.0	0.0	0.0
World Bank Group	253.1	3.9	249.2
-MIGA	0.0	0.0	0.0
-WB	0.2	0.0	0.2
-IFC	252.9	3.9	249.0
EDFI	127.5	0.0	127.5
<b>Total</b>	<b>45,875.4</b>	<b>998.7</b>	<b>44,876.7</b>

## By Region

**Table 3.18. Africa—long-term financing**

	Total (US\$, billions)
Direct Mobilization	3.7
Indirect Mobilization	10.9
<b>Total Private Mobilization = Co-Financing</b>	<b>14.6</b>

**Table 3.19. Africa—long-term financing by institution**

	PCf (US\$, millions)	PDM (US\$, millions)	PIM (US\$, millions)
ADB	0.0	0.0	0.0
AfDB	2,271.2	474.7	1,796.5
AIIB	0.0	0.0	0.0
EBRD	372.1	1.0	371.0
EIB	2,755.8	1,244.4	1,511.4
IDB Group	0.0	0.0	0.0
IsDB Group	2,200.2	9.4	2,190.8
World Bank Group	5,418.8	1,660.2	3,758.6
-MIGA	1,503.0	766.6	736.4
-WB	156.5	17.5	139.0
-IFC	3,759.3	876.1	2,883.2
EDFI	1,549.2	324.6	1,224.6
<b>Total</b>	<b>14,567.4</b>	<b>3,714.3</b>	<b>10,853.1</b>

**Table 3.20. Asia—long-term financing**

	Total (US\$, billions)
Direct Mobilization	13.1
Indirect Mobilization	3.4
<b>Total Private Mobilization = Co-Financing</b>	<b>16.5</b>

**Table 3.21. Asia—long-term financing by institution**

	PCf (US\$, millions)	PDM (US\$, millions)	PIM (US\$, millions)
ADB	3,927.0	1,168.8	2,758.2
AfDB	0.0	0.0	0.0
AIIB	560.9	112.1	448.8
EBRD	245.3	171.0	74.3
EIB	1,204.3	471.8	732.6
IDB Group	0.0	0.0	0.0
IsDB Group	463.0	30.0	433.0
World Bank Group	9,149.6	1,311.4	7,838.2
-MIGA	358.2	185.6	172.6
-WB	311.5	0.0	311.5
-IFC	8,479.9	1,125.8	7,354.1
EDFI	932.2	137.7	794.5
<b>Total</b>	<b>16,482.3</b>	<b>3,402.8</b>	<b>13,079.5</b>

**Table 3.22. Europe<sup>9</sup>—long-term financing**

	Total (US\$, billions)
Direct Mobilization	37.7
Indirect Mobilization	77.8
<b>Total Private Mobilization = Co-Financing</b>	<b>115.5</b>

**Table 3.23. Europe—long-term financing by institution**

	PCf (US\$, millions)	PDM (US\$, millions)	PIM (US\$, millions)
ADB	0.0	0.0	0.0
AfDB	0.0	0.0	0.0
AIIB	0.0	0.0	0.0
EBRD	11,709.2	629.8	11,079.4
EIB	95,942.0	34,943.9	60,998.1
IDB Group	0.0	0.0	0.0
IsDB Group	1,375.6	28.0	1,347.6
World Bank Group	5,034.7	1,721.1	3,313.7
-MIGA	1,623.7	608.1	1,015.6
-WB	902.1	370.7	531.4
-IFC	2,508.9	742.3	1,766.7
EDFI	1,456.8	419.8	1,037.0
<b>Total</b>	<b>115,518.3</b>	<b>37,742.6</b>	<b>77,775.7</b>



**Table 3.24. Latin America and the Caribbean—long-term financing**

	Total (US\$, billions)
Direct Mobilization	7.1
Indirect Mobilization	9.2
<b>Total Private Mobilization = Co-Financing</b>	<b>16.3</b>

**Table 3.25. Latin America and the Caribbean—long-term financing by institution**

	PCf (US\$, millions)	PDM (US\$, millions)	PIM (US\$, millions)
ADB	0.0	0.0	0.0
AfDB	0.0	0.0	0.0
AIIB	0.0	0.0	0.0
EBRD	N/A	N/A	N/A
EIB	303.8	116.8	187.0
IDB Group	5,735.5	1,923.3	3,812.3
IsDB Group	0.0	0.0	0.0
World Bank Group	9,508.1	4,879.5	4,628.6
-MIGA	2,136.8	2,136.8	0.0
-WB	2,617.4	480.0	2,137.4
-IFC	4,753.9	2,262.7	2,491.2
EDFI	707.8	185.4	522.4
<b>Total</b>	<b>16,255.2</b>	<b>7,104.9</b>	<b>9,150.2</b>

**Table 3.26. Middle East—long-term financing**

	Total (US\$, billions)
Direct Mobilization	0.0
Indirect Mobilization	0.7
<b>Total Private Mobilization = Co-Financing</b>	<b>0.7</b>

**Table 3.27. Middle East—long-term financing by institution**

	PCf (US\$, millions)	PDM (US\$, millions)	PIM (US\$, millions)
ADB	0.0	0.0	0.0
AfDB	0.0	0.0	0.0
AIIB	0.0	0.0	0.0
EBRD	N/A	N/A	N/A
EIB	30.0	0.0	30.0
IDB Group	0.0	0.0	0.0
IsDB Group	465.0	0.0	465.0
World Bank Group	172.9	33.2	139.7
-MIGA	13.4	7.0	6.4
-WB	0.0	0.0	0.0
-IFC	159.5	26.2	133.3
EDFI	41.6	0.0	41.6
<b>Total</b>	<b>709.4</b>	<b>33.2</b>	<b>676.3</b>

## Endnotes

1. IDB Group consists of IDB, IDB Invest and the Multilateral Investment Fund.
2. IsDB Group consists of IsDB, ICD, ITFC and ICIEC.
3. The organizations that constitute the World Bank are as follows: International Bank for Reconstruction and Development (IBRD) and International Development Association (IDA).
4. Henceforth, all Mobilization/Co-Financing refers to long-term financing unless specified otherwise.
5. Low-income economies are defined as those with a GNI per capita, calculated using the World Bank Atlas method, of US\$1,005 or less in 2016.
6. Least Developed Countries (LDCs) are low-income countries confronting severe structural impediments to sustainable development. They are highly vulnerable to economic and environmental shocks and have low levels of human assets. There are currently [47 countries on the list of LDCs](#) which is reviewed every three years by the [Committee for Development \(CDP\)](#).
7. Middle-income economies are those with a GNI per capita, calculated using the World Bank Atlas method, between US\$1,006 and US\$12,235 in 2016.
8. High-income economies are those with a GNI per capita, calculated using the World Bank Atlas method, of \$ 12,236 or more in 2016.
9. Classification by region followed World Bank Group guidelines, when possible.

## Appendix B: Case Studies

Estimated Private  
Catalyzation  
Amount:  
**\$6.3 billion**

### Case Study 1

#### **ADB: Project Development Monitoring Facility in the Philippines<sup>1</sup>**

*The Philippines has been developing its PPP capacity since 1990, when it passed its Build-Operate-Transfer law. With assistance from the Asian Development Bank and donor agencies, the Philippines supported a PPP Center, identified and addressed constraints to PPP development in the country, and strengthened its institutional capacity. The country's PPP Center develops potential PPP projects using international best practice and expertise and has seen its portfolio grow from 11 projects in 2010 to 39 today, with 16 having been awarded with investments of over \$6 billion.*

#### **Context**

**For decades, the Philippine public sector has underinvested in infrastructure development and has failed to keep pace with continued population growth and increasing urbanization.** From 1980–2009, total infrastructure investment in the country averaged 2.1 percent of gross domestic product (GDP), well below the benchmark of the 5 percent of GDP recommended by the World Bank.<sup>2</sup> Investment in infrastructure decreased significantly after the 1997 Asian financial crisis, from a peak of 6 percent of GDP in 1998 to 1 percent in 2002. The decrease in private infrastructure commitments, which coincided with the global decline in private investment in infrastructure, was primarily due to the poor business environment and the inability of the public sector to provide a suitable enabling framework for private operations. Today, its public capital stock is less than half of the average of member states in the Association of Southeast Asian Nations and is one of the lowest compared with its peers in the region. The quality of existing facilities is likewise comparatively poor and consistently ranked low in global surveys of business environment.<sup>3</sup> As a result, inadequate infrastructure has emerged as a major development constraint in the Philippines.

**To address the infrastructure gap, the government of the Philippines plans to increase infrastructure spending and facilitate Public-Private Partnerships (PPPs).** Government recognizes the valuable contribution of the private sector in attaining national development goals through PPPs, which are a key part of the 10-point economic agenda of the current administration. The government has steadily strengthened the legal institutional framework for PPP project preparation and approval.

The Build-Operate-Transfer (BOT) Law was passed in 1990. The Philippines is one of the first developing countries with a BOT law. A BOT Center was eventually established and tasked to promote private sector participation through PPPs at the front lines of national development efforts—not limited to BOT transactions. The Philippines has had successful experience with PPPs in the power sector. However, due to the inadequacy of the enabling policy and its legal and regulatory

frameworks, successful private investment in other infrastructure sectors has been limited. Additional, significant reforms were still necessary.

**The PPP Center was established as an agency of the National Economic Development Authority (NEDA),<sup>4</sup>** the country's central planning agency. However, the government recognized that the PPP Center, created from the former BOT Center, would require greater technical capacity and stronger institutional underpinnings before it could effectively promote and implement PPP projects. Reforms focused on building institutional capacity to develop, bid out, and approve solicited proposals.

## Intervention and Collaboration

An analytical report identified critical bottlenecks in the Philippines' capacity to develop and implement PPPs. A 2010 joint fact-finding mission was conducted by the Asian Development Bank (ADB), the Australian Agency for International Agency (AusAid),<sup>5</sup> and the Canadian International Development Agency (CIDA)<sup>6</sup> to examine the PPP landscape in the country. The resulting report, prepared by ADB, identified the following impediments:

- Weak governance
- Inadequate policy, legal and regulatory frameworks for PPPs
- Weak institutions and low capacity within government to manage PPPs
- Insufficient systems and capacity to develop, prepare and procure bankable PPP projects
- Inability to finance projects and heavy reliance on budgetary allocations, loans and grants

Concurrently, in 2011 the Economist Intelligence Unit released its Asia Infrascopes, a benchmark index and learning tool that assesses economies' readiness and capacity for sustainable, long-term PPP projects. The assessment identified a similar range of issues to the ADB technical assistance report. The Philippines scored 47.1 out of 100, where 100 is the ideal environment for PPP projects, against the Infrascopes index. The Philippines' score was in the same range as Indonesia's (46.1) and Thailand's (45.3); these countries were classified collectively as "emerging" PPP markets.

By the end of 2010, the joint fact-finding mission had reached agreement with the government on a set of actions to strengthen its capacity to successfully develop and implement PPPs.

ADB launched a project, *Strengthening Public-Private Partnerships in the Philippines*, in 2010 (TA 7796-PHI). This capacity building technical assistance (CDTA) consisted of two major components: (i) capacity building of the PPP Center, including improvement of the enabling environment for PPPs; and (ii) funding for preparation and bidding of bankable PPP projects through the Project Development Monitoring Facility (PDMF), using a panel of reputable, international consultants and transactions advisors.

Implementation of the capacity building component was handled by ADB, while implementation of the PDMF component, supported by funding from the Australian Government, was delegated to the PPP Center. The PPP Center and Department of

Finance (DoF) were the implementing agencies, while NEDA acted as the executing agency. In 2011, NEDA established the PDMF Board and oversight structure, which includes the project steering committee and the technical working group. The PDMF Board is composed of NEDA as Chair, DOF, the Department of Budget and Management (DBM), and the PPP Center. In October 2011 the PDMF Board<sup>7</sup> approved the PDMF guidelines which set the policy and implementing guidelines on the use of the PDMF.

Supervision of technical assistance (TA) implementation is closely coordinated with the co-financing partners. Both AusAID and CIDA joined all TA review missions. The PPP Center also convened regular development partner consultation meetings to facilitate broader coordination. The TA also ensured synergy with ADB operations. It supported the implementation of PPP-related policy actions of an ADB policy-based lending program in 2012<sup>8</sup> and a new \$300 million policy-based lending being processed.<sup>9</sup>

**ADB provided \$2 million in funding and administered all funding for the project.** AusAID provided \$22 million, with \$4 million for capacity building and \$18 million for the PDMF. CIDA added \$4.2 million for capacity building. The government counterpart's funding to the PDMF amounted to \$83.9 million as of 2017.

## Results

The CDTA and related initiatives undertaken by various government agencies led to a dramatic improvement in the Philippines' PPP program. Several initiatives undertaken to improve the Philippines' PPP program include:

- Changes to the PPP framework
- Improvement in governance and institutional arrangements
- Greater available of financial resources
- Stronger capacity in the human resources deployed in the PPP program
- Adoption of international good practices in PPP projects.

The country's strong PPP operating environment is illustrated by the Economic Intelligence Unit's 2014 Asia Infrascope report. Classified as an "emerging market" PPP market in 2011, the Philippines finished with a score of 64.6 points (out of 100) and moved up to "developed" PPP market. A key indicator in the 2014 Infrascope is operational maturity, which refers to the country's capacity to plan future infrastructure requirements. The Philippines showed clear improvements in operational maturity. It demonstrated the important connection between political will, improved PPP regulatory frameworks and the number of transactions implemented.

The CDTA helped transform the PPP Center into a dynamic agency serving as the central unit for managing PPP projects. The reform strengthened the project selection, preparation and approval processes as well as the risk allocation framework. Well received by private investors, it has led to the awarding of 16 projects, of which 10 are PDMF-supported (Table 4.1), as well as a respectable pipeline of 23 other national and subnational infrastructure projects ranging from expressways, airports, seaports, water supply, urban rail, flood control, information technology,

and social sector projects (for example, classrooms). The 10 projects secured through the PDMF-supported pipeline, are worth more than 125.32 billion Philippine pesos (\$2.4 billion) of private investment that are either completed or operational, under construction, or under pre-construction stage. The PPP Center, through CDTA, provided support to the government by setting up a sustainable and transparent mechanism for preparing bankable PPP projects ready for bidding. The TA laid the groundwork for good quality project preparation and allowed it to repeat the opportunity for replication.

**A strengthened, well-governed PPP Center, with its ability to consistently and transparently manage projects effectively boosted foreign development investors' confidence and led to increased investment.** In addition to the CDTA, the PPP Center also worked with other development partners such as the World Bank, Infrastructure New South Wales of Australia, and the Japan International Cooperation Agency to enhance knowledge transfer and capacity development. It is also working with the Asia Pacific Project Preparation Facility (AP3F) to implement the Center's Project Information and Management System. The development of the Philippines' PPP program has included the establishment of strong governance mechanisms such as the PPP Governing Board, the overall PPP policy-making body in the country.<sup>10</sup> The PPP Governing Board has, to date, issued some eleven policy guidelines and issuances on various PPP-related topics ranging from value for money analysis and termination payments to managing affected government employees resulting from PPP projects. It also highlighted the roles and responsibilities for the appraisal of PPP projects, bringing in representatives from the key agencies involved within government, and the appropriate division of responsibilities between the implementing agencies, the PPP Center, the Ministry of Finance and the Department of Budget Management to ensure that appropriate checks and balances are in place.

The Project Development and Monitoring Facility (PDMF) is a project preparation facility that assists government implementing agencies develop and bid out PPP projects. Managed by the PPP Center and supported by the ADB CDTA, the PDMF is part of a holistic approach to strengthen the country's PPP program. It is a revolving fund that supports government implementing agencies with the expertise and strategies to prepare PPP projects attractive for private sector participation. The PDMF funds the pre-feasibility and feasibility studies, and other necessary pre-investment activities as well as the transactions advisory services from bidding to financial close. Having such funds available reduces the risk that the project fails because of deficient preparation, structuring or tendering processes. The PDMF ensures that the activities undertaken by government in a PPP project are adequately prepared and funded. Recently, the PDMF expanded its mandate to include funding for probity advisors and transactions advisory support to unsolicited proposal evaluation and the Swiss Challenge process.

The PDMF shoulders the cost of services prior to implementation of PPP projects. Upon successful tendering, the winning bidder is obligated to repay the full cost of project preparation plus a fixed percentage cost recovery fee, equal to 10 percent of the PDMF support or actual cost drawn from the PDMF fund to PPC. To date,

\$17.1 million in repayments have been received from winning bidders and plowed back to the PDMF.

The PDMF appoints reputable international consultants or transaction advisors to conduct pre-investment studies, prepare tender documents, and provide transaction advisory services throughout the bidding process. PDMF selects them through a two-stage process using ADB consultant selection guidelines, which provides the PPP Center with a flexible and efficient approach in selecting transaction advisors for PPP project preparation. It also enables it to attract reputable international firms, raising the quality and credibility of PPP projects offered for bidding. From 15 transaction advisors in 2013, the list has been expanded to 22 consortia in 2018. The PDMF has also formed a panel of 12 independent consulting firms (ICs) and a panel of six probity advisory firms. The list of transaction advisors available include KPMG, CRISIL, Ernst and Young, and Rebel Group. These international reputable consultants give investors confidence in investing in the Philippines' PPP program. The pool gives integrity to the program and it provides an appropriate match to meet the immediate need of the project. Aside from project preparation support, the PDMF also introduced the appointment of a probity adviser for large and complex projects to help ensure probity, fairness, accountability, and transparency in the procurement process. Since the probity advisory services is relatively new, no contract has been awarded to date.

MDBs' definition of catalyzation includes a broader scale through advice, support for policy reform, capacity building, demonstration effects, and other activities which trigger an investment response from private investors, or which open new opportunities for private investment. Through the TA and funding from co-financing partners, the PPP portfolio in the PPP Center has gone from about 11 projects in 2010 to the current 39 projects with total investments of some \$8.2 billion, of which 16 have been awarded with investments of \$6.3 billion. Of the projects awarded the PDMF has supported 10 with investments amounting to over \$2.4 billion. Including the 10 awarded projects, the PDMF has committed a total of almost \$58 million in support of project preparation costs.

Private sector response has been positive. Banco de Oro (BDO), the country's largest bank, launched an overseas debt facility to boost funds for long-term relending to fund big-ticket infrastructure projects under the government's public-private partnership (PPP) program. BDO was highly encouraged by the building up infrastructure both hard (for example airports, ports, roads, and bridges) and soft (such as education or sector-specific skills), with more emphasis on oft-neglected rural areas rather than overly-dominant focus on National Capital Region (NCR)-related projects.

The first PDMF-funded project, the Public-Private Partnership for School Infrastructure Project for \$389 million on build-lease-transfer terms, was awarded in September 2012. The project involved the design, financing, and construction of 9,303 one- and two-story classrooms, including fixture and furniture in various sites in Regions I, III, and IV-A. The implementing agency for the program is the Department of Education (DepEd), and the project supplemented DepEd's program of reducing classroom backlogs. Project is under a Built-Lease-Transfer contract, project cost amounted to 9.89 billion Philippine pesos. All classrooms were



completed and delivered in December 2015. The winning bidders have reimbursed the PDMF the project preparation costs.

### Bottom Line

Assistance from ADB, Australia’s DFAT and Global Affairs Canada has enabled the government to develop a stronger policy, legal, institutional and regulatory environment for PPPs and strengthen the capacity of the PPP Center. International expertise has enabled the Philippines to prepare world-class PPP projects. As a result, it can better promote and support PPP project implementation. Investor confidence has grown, leading to more investment and ultimately better infrastructure serving the country’s people and businesses.

**Table 4.1. PDMF-supported PPP awarded projects**

As of April 30, 2018

No.	Project	Implementing Agency	Project Cost (US\$, millions)
1	PPP for School Infrastructure Project (Phase I)	Department of Education	192.64
2	Automatic Fare Collection System (AFCS) Project	Department of Transportation	33.50
3	PPP for School Infrastructure Project (Phase II)	Department of Education	75.19
4	Mactan-Cebu International Airport (MCIA) Project	Department of Transportation/ Mactan Cebu International Airport Authority	341.25
5	Southwest Integrated Transport Systems (ITS) Project	Department of Transportation	48.69
6	Bulacan Bulk Water Supply Project	Metropolitan Waterworks and Sewerage System	475.46
7	Civil Registry System Information Technology Project (Phase II)	Philippine Statistics Authority	30.91
8	Cavite Laguna Expressway (CALAX) Project	Department of Public Works and Highways	690.11
9	South Integrated Transport System Project (Taguig Integrated Terminal Exchange)	Department of Transportation	101.29
10	NLEX-SLEX Connector Road Project	Department of Public Works and Highways	451.89
<b>Total</b>			<b>2,440.93</b>

\*Exchange Rate: 1 US\$=51.34 PHP

Estimated Private

Catalyzation

Amount:

**\$374 million**

Catalyzation ratio:

**13X**

amount

committed

## Case Study 2

### AfDB: Trade Finance Program in Ghana<sup>11</sup>

*Financial institutions in Ghana, as in much of Africa, face difficulties in accessing finance. Trade finance is particularly challenging owing to its short-term nature and high perceived risks, a problem which impacts regional trade. In 2009, AfDB launched its Trade Finance Initiative, which supported small and medium Ghanaian businesses and provided a demonstration effect for other development finance institutions, ultimately catalyzing \$374 million.*

### Context

#### **Many African financial institutions are constrained by a lack of finance.**

This situation has largely arisen because of a combination of increased risk aversion in international markets and greater regulatory stringency. Those still active in Africa are increasingly selective and prefer to avoid segments that are considered riskier, such as small and medium enterprises (SMEs). Moreover, the short-term nature of trade finance (TF) and the ease of counterparty limit withdrawal—which has made it an easy target for international confirming banks seeking to deleverage their balance sheets—has made it unattractive. Many financial institutions also lack the capacity and expertise to effectively serve the SME sector, which were hardest hit by the 2008–09 financial crisis. Recent studies reveal that SME exporters have been the most affected because they are most dependent on trade credit. Inadequate access to TF constitutes a major obstacle to SME exporters worldwide; developing countries in Africa are particularly affected for the reasons outlined above.

**MDBs can thus play a role in facilitating trade and providing much-needed liquidity support under affordable conditions to mitigate the constraints caused by limited access to trade funding for SMEs and thereby increasing capacity to deepen their TF activities.** Addressing the dearth of TF in African Regional Member Countries (RMCs) will help spur intraregional and cross-border trade which is vital to deepening local value chains, regional integration and economic growth. Strengthening African financial institutions through the provision of TF will also enable them to better support SMEs operating in the tradable goods sector.

In Ghana, SMEs are a key driving force of the economy, accounting for approximately 70 percent of the GDP in 2013, 85 percent of manufacturing employment and a significant part of value chain creation. Despite their prominence in the economy, SMEs remain on the periphery of established commercial banking because they are generally perceived as highly risky due to their weak corporate structure, inadequate credit history and low asset base. The situation in Ghana reflects the pervasive challenges of trade financing for SMEs across the continent.

UniBank Ghana Ltd (UniBank) is a mid-sized Ghanaian bank focusing on providing finance to lower tier SMEs. Beneficiaries of Unibank's facilities comprise mostly lower tier SMEs with annual turnovers of less than \$250,000 and small-sized firms that generally struggle to obtain loans from more traditional commercial banks

due to lack of a requisite formal structure or credit profile. Roughly 55 percent of UniBank's total clients are women. Over 80 percent of its borrowing customers and 33 percent of its loan book are attributable to SMEs.

**However, in 2013, UniBank had very limited access to medium and long-term foreign exchange (FX) funding.** This constrained its capacity to originate FX-denominated TF instruments for its SME clients which it serves on the back of expensively priced local currency deposits. In 2013, traditional sources of TF liquidity were constrained, and major global banks receded to their core markets. In spite of these limitations, UniBank proceeded to intensify efforts to secure credit lines with a number of international banks to boost its TF operations. However, the demand for TF instruments outweighed UniBank's capacity to establish new TF lines in the near term; according to the figures provided by the bank, it had to decline 50 and 35 percent of its LC requests in 2013 and 2014 respectively, due to inadequacy of trade lines to support these requests. The situation forced UniBank to cash cover a sizable portion of its TF transactions against locally sourced deposits, a situation which caused a strain on its liquidity and open FX position. In addition, the bank had to cautiously manage tenor mismatches between its short-term deposits and slightly longer-term TF instruments. In an environment of rising interest rates, the bank borrowed short term funds at exorbitant rates incurring huge refinancing expenses.

### Intervention and Collaboration

**As the global financial crisis started to display reduced risk appetite and trade finance liquidity in Africa, African Governors requested the African Development Bank (AfDB) to engage directly in TF to help offset the collapse in commercial financing within the tradable sector.**

In early 2009, the Bank established its first Trade Finance Initiative (TFI) with an allocation of \$1 billion for short-term Trade Finance Lines of Credit (TFLOC) and for participation in the Global Trade Liquidity Program (GTLP) in cooperation with IFC. The Global Trade Liquidity Program (GTLP) is a temporary crisis response initiative among DFIs and donors (the Participants) to support trade finance in the developing world. The GTLP pools resources from Participants and uses two primary investment structures: (i) a risk-sharing structure whereby funding will be channeled to local trade finance banks through international banks; and (ii) direct dedicated lines of credit to local banks with regional coverage.

**In October 2013, UniBank approached AfDB with a request for a TFLOC to support expansion of their TF activities which have thus far, largely supported Ghanaian SMEs.** This was the Bank's second TFLOC intervention in Ghana following approval of a similar facility for UT Bank by the Board in May 2013. Separately, EIB also supported the same financial institution with an additional loan of €10 million. For this case, AfDB's role was to provide a \$15 million TFLOC for a tenor of three years to support the funding of export-import activity of Ghanaian SMEs and indigenous firms operating within the tradable goods sector.

The ultimate beneficiaries of the facility are Ghanaian SMEs. The TFLOC was used solely for the finance of various forms of trade-related transactions including pre-export, post shipment, imports, warehouse receipts, diversified payment obligations, import substitution and other forms of supply and value chain finance. The facility has financed trade related businesses such as soft commodity exports as well as the importation of raw materials, intermediate goods and items of critical benefit to the local economy including upcoming businesses involved in NTE (non-traditional export) products such as cashew and yam currently benefitting from financing from UniBank. This intervention enhanced UniBank's capacity to finance trade transactions for SMEs and local firms by providing critical liquidity and readily accessible FX to support their international supply chain financing and export-import transactions. The Bank relies on UniBank's credit appraisal procedures to select and originate eligible transactions which conform to the terms and conditions of the TFLOC. The TFLOC provides a demonstration effect that will send a positive signal to other DFIs, international banks and potential investors to avail TF lines to the bank.

The TFLOC is governed by a loan agreement between AfDB and UniBank. This loan agreement includes the responsibilities of each party, covenants, representations and warranties that specify inter alia, the responsibilities of each party, conditions precedent to disbursement and the mode of disbursement. The loan agreement defines transactions eligible for financing under this TFLOC, the Borrower's repayment terms, frequency and scope of utilization reporting requirements and other terms and conditions customary for this type of transaction. All transactions are expected to adhere strictly to the AfDB's E&S policies and the AfDB's Exclusion List as it relates to trade finance.

UniBank is required to furnish the Bank with periodic reports on the utilization of the facility, including details and scope of transactions financed as well as developmental outcomes. The Bank undertakes annual supervision missions to UniBank to ascertain proper deployment of funds, verify submitted reports, and assess compliance with loan conditions, including all covenants. The Bank's rules on project completion reports and ex-post evaluation apply. Further, reporting requirements are stipulated in the loan agreement.

UniBank's credit appraisal process is tailored for flexibility to accommodate the particulars and time sensitive nature of SME financing. Flexibility and speed of delivery are critical components in both TF and SME lending. This is because in both cases business opportunities usually have very short lead times. Hence, the ability to respond expediently is therefore central to UniBank's success with SMEs.

As such, credit applications are originated by relationship managers upon receipt of a formal request from the client. Applications are then forwarded to a team of business support analysts within the business unit to provide first level review before being transmitted to the credit risk management department for final review and assessment where the credit is either (i) rejected or (ii) recommended for approval and notified to the relevant authority.

## Results

As of May 2017, the entirety of the TFLOC funds of \$15 million had been fully utilized. The beneficiaries of the TFLOC are operating across a diverse range of sectors including telecommunications; construction and manufacturing. Site visits undertaken during the supervision mission as well as interactions with the management of the beneficiary companies, demonstrated that there was a clear need for funding and UniBank provided timely support to purchase equipment and materials required for business operations.

The UniBank TFLOC was largely disbursed in 2016 and thus will serve as the baseline for the development outcome indicators. As the result, a total of 26.86 million Ghanaian cedis (approximately \$6.4 million) in additional taxes was generated in 2016 while 438.94 million Ghanaian cedis (approximately \$104 million) was generated in sales revenues (see annex for additional details). A total of 1,035 jobs were attributed to this intervention of which 279 were comprised of women, thus indicating strong job creation, tax revenue generation, and gender empowerment.

There are also a few compelling stories of development impact from the loans extended under the facility. For instance, one of the SMEs which started out as a retail outlet for refurbished telephone sets was nurtured by Unibank and has now transitioned into the local assembly and production of handsets, creating over 180 new jobs. One of the two women-owned enterprises in the portfolio is making impressive inroads in the telecoms Infrastructure space with aspirations to venture into renewable energy production soon. Additionally, another SME, using reverse osmosis water treatment plant, is producing affordable potable water for the lower income segment of the market.

### Private Sector Mobilization and Catalyzation

**For this project, the estimated total private investment to be catalyzed over the project life (three years) is \$373.7 million.** Of this figure, the AfDB's contribution was \$199.35 million, illustrating a private sector catalytic multiplier effect of 13.29x. While IFC is very active in the Ghanaian financial sector, supporting banks such as Zenith and CalBank, we have limited our analysis to direct DFI support (EIB and AfDB) for Unibank and its associated catalytic effects. In short, AfDB and its fellow DFIs were able to create positive multiplier effects through their TFLOC, which allowed the clients of Unibank to become more profitable, and hence re-invest in and expand their businesses as well as increase employment, gender empowerment, tax revenue contribution, GDP growth, and enhanced supply chain linkages.

Our model includes the following assumptions: Private Direct Mobilization amounted to \$18 million; MDB interventions provided comfort to responsAbility, an asset manager for developmental investments, to avail an \$18 million LOC to Unibank in 2015; Indirect Mobilization is equal to \$90 million (we assume that Unibank's clients who received the on-lending provided their own equity to fund their projects, to an amount matching the amount of loan received). In terms of the additional financial catalytic effect, we estimate that the trade finance portfolio expanded by \$90 million. We calculated this by assuming that the revolving \$15

million line of credit over three years with an average repayment of six months would result in a total of \$90 million of additional trade finance capacity. We assumed that the private sector demonstration effect is zero as there were no additional flows originating from the private sector, except for the responsibility LOC already captured by the Private Direct Mobilization figure. Lastly, we calculated business success (retained earnings of \$1.3 million) using a 50 percent dividend payout ratio which means that 50 percent of profits will be re-invested in the business for a lending margin of 3 percent. Further, the business success formula is equal to: Total Loan Turnover x Unibank Lending Margin x (1-Industry Payout ratio) totaling \$1.3 million.

### Bottom Line

AfDB's Trade Finance Initiative successfully supported small and medium Ghanaian businesses and provided a demonstration effect for other development finance institutions that catalyzed \$374 million. Although the model is based on this specific case study and cannot be applied to other Bank interventions without further customization and modelling, the findings could be used to complement the development outcomes scorecard to provide an overall picture of the development outcomes expected from a transaction.

### Annex 1: Catalytic Effect Estimation Model Technical Note

#### Model inputs

The model is calibrated to take as input elements the expectations expressed by the project team during appraisal. For the sake of our analysis, we will break down the additionality and development outcome results on our case study into three categories: financial impact, economic impact and extra-financial impact (Fig. 1). As we are trying to estimate the financial Investment catalyzed, only the elements falling into the financial “catalytic” effect would be integrated in our model (as Additional Financial Catalytic Effect), using the following formula:

Private Investment Catalyzed = Private Direct Mobilization + Private Indirect Mobilization + Additional Financial Catalytic Effect<sup>12</sup>

**Table 4.2. ADOA development outcome categorization**

Financial Catalytic effect	Economic catalytic effect	Extra-Financial catalytic effect
Trade Portfolio Extension	Macroeconomic resilience	Gender & Social effects
Private Sector Demonstration Effect	Households benefits	Environmental effects
Business Success	Infrastructure	
	Government	

## List of model parameters

**AfDB Commitment:** The project involves the provision of a \$15 million Trade Finance Line of Credit (TF-LOC) to Unibank Ghana Limited from AfDB.

**Additional MDB Commitment:** AfDB's facility was to provide comfort to international banks to avail more trade lines essentially acting as a catalyst in mobilizing resources. Unibank contracted additional loans for a total of \$13.12 million (European Investment Bank in 2015).

**Trade Portfolio Extension:** Unibank provided short-term facilities to its clients, with an average maturity of six months, thus representing \$90 million of loan value extended to Unibank clients over three years with AfDB \$15 Million facility (\$15 million X 36/6).

**Private Direct Mobilization:** This parameter captures financing from a private entity on commercial terms due to the active and direct involvement of an MDB. In our case, this was zero.

**Private Indirect Mobilization:** Project sponsor are expected to contribute an amount equivalent to the loan value received from Unibank to complete their projects, i.e. \$ 90 million; In other words, total cost of projects financed by Unibank is expected to be twice the value of the loan granted to clients (project sponsors). In addition, MDB interventions provided comfort to responsibility to avail a \$18 million line of credit to Unibank in 2015.

**Private Sector Demonstration effect:** There is no evidence of additional flows from private sector to support the project.

**Unibank Lending margin:** The lending margin expected on the utilization of the TF facility is estimated at 300 basis points.

**Industry Payout Ratio:** For the sake of the analysis, we will assume a dividend payout ratio of 50 percent, i.e. 50 percent of profit available for distribution is re-invested.

**Business Success:** Business success is measured as the additional investment capacity generated by the TF loan, based on the following formula: Business success = Total Loan Turnover X Unibank Lending margin X (1-Industry Payout Ratio).

**Table 4.3. Results, US\$, thousands**

	Ex-Ante Indicators
	Project Life Estimate
<b>MDB Commitment</b>	<b>28,120</b>
AfDB Commitment	15,000
Additional MDB Commitment	13,120
<b>Private Investment Catalyzed by AfDB Commitment</b>	<b>199,350</b>
Private Direct Mobilization	0
Private Indirect Mobilization	108,000
Additional Financial Catalytic Effect	91,350
Trade Finance Portfolio Expansion	90,000
Private Sector Demonstration Effect	0
Business Success (Increase in Retained earnings)	1,350
<b>AfDB “Multiplier” Effect:</b>	<b>13.29x</b>
<b>Private Investment Catalyzed by other MDBs Commitment (Applying AfDB Multiplier)</b>	<b>174,364.8</b>
<b>Total Private Investment Catalyzed (AfDB+ other MDBs)</b>	<b>373,714.8</b>

As per the model, the expected total private investment to be catalyzed over the project life (three years) is **\$373.714 million**.

Private investment catalyzed by AfDB only is **\$199.350 million**.

AfDB multiplier of **13.29x** is computed by dividing the private investment catalyzed by AfDB intervention by the total amount committed by AfDB.

Private investment catalyzed by EIB is estimated to **\$174.365 million** by applying the AfDB multiplier, if EIB intervention will have the same effect as AfDB's.

#### **Limitations:**

The model is based on the specific case studied and could not be rolled-out to other type of instrument/financing of the Bank without additional adaptation and modelling.

The model is based on ex-ante (expected) figures, and not on realized ex-post data.

The model is only capturing the financial catalytic effect. Economic and extra-financial catalytic effects are not integrated. The model result could be used in complement of the ADOA scorecard to give an overall picture of the development outcome expected from a particular transaction.



### Case Study 3

#### EBRD: Hospital Facilities Management PPP Program in Turkey<sup>13</sup>

Turkey is pursuing a health care public-private partnership program comprising multiple projects as part of a broader effort to transform its healthcare sector. The European Bank for Reconstruction and Development (EBRD) has been the lead multilateral development bank supporting this initiative, along with the World Bank Group and others. EBRD has approved a framework of €950 million in support of Turkey's hospital facilities management program for up to 10 sub-projects.

#### Context

Facilities Management (FM) has evolved into a comprehensive set of business functions that focus on optimizing productivity and deriving the maximum value from an asset. On a day-to-day level, effective FM provides a safe and efficient working environment. At a corporate level, it contributes to the delivery of strategic and operational objectives.

**The increasingly rising expectations for high-quality public service delivery coupled with the need to drive down costs and improve productivity has encouraged many public organizations to seek out more innovative, sustainable and cost-effective approaches to delivering FM services.** Over time this has led to the need for modernizing the way in which public infrastructure and services are delivered. One approach is outsourcing FM service delivery to the private sector. Outsourcing FM service allows the public entity to focus on the provision of the public service while the FM provider focuses on providing the best working environment for that goal to be met.

It is important to highlight that while PPPs are not the right solution in every case, they can provide many benefits if applied appropriately to the right projects. Benefits of FM PPP relative to traditional procurement methods include:

- **Whole life cost consideration:** Implementation of FM services through PPP facilitates 'whole life cost' approach that takes account not only of the cost of constructing and maintaining the building but also the optimization of operational efficiency.
- **Access to private sector expertise:** PPPs allow the public sector to benefit from the introduction of private sector technology and innovation thus providing services to the public through improved FM processes.
- **Budgetary discipline:** Under PPP, repairs, maintenance of facilities as well as other facility operational costs can be estimated with increased certainty at the outset of projects, thus allowing the public sector to have a longer-term visibility of spending commitments and ensuring that this infrastructure and related services are properly maintained over the entire life cycle of the contract period.
- **Commercial approach to public service delivery:** PPPs help the public sector develop a more disciplined and commercial approach to infrastructure development and operation, whilst allowing the public sector to retain strategic control of the overall project and service.

Estimated Private  
Catalyzation  
Amount:  
**\$8.3 billion**

- **Structured and comprehensive risk management approach:** The PPP process requires a detailed analysis of project risks at the outset. Examination of risks by both the public and private sectors means that cost estimates are robust and investment decisions are based on better information.
- **Innovation:** Specifying outputs, rather than prescribing inputs, provides a wider opportunity for private sector innovation.
- **Focus on service delivery:** Allows a procuring authority to enter into a long-term contract for services to be delivered as and when required. PPP Contractor Management is then focused on the service to be delivered without having to consider other objectives or constraints that are typical in the public-sector context.
- **Access to private sector funding:** The use of PPP enables the public to deliver services and infrastructure without the need for the initial capital investment that would be needed under traditional procurement.
- **Accountability:** Contracting Authority payments are conditional on the PPP Contractor providing the specified outputs at the agreed quality, quantity, and timeframe.
- **Better Value for Money:** suitably structured PPP projects have the potential to deliver better value for money compared with that of equivalent services procured conventionally.

### **Turkey's Policy Decision**

**Turkey's hospital infrastructure sector, organized by the Ministry of Health (MoH), needed to modernize its hospital infrastructure to bring it up to international standards.** The Health Transformation Program (HTP), which has been implemented by the government of Turkey with World Bank Group support since 2003, has set Turkey's health sector on the path for a thorough overhaul. Along with making regulatory and policy reforms, the HTP identified the need to better align health services with population needs and to upgrade the infrastructure and technology in a large share of public hospitals. Stretching over the past couple of decades (with preparations dating back to the 1990s), the health sector has taken a journey from a fragmented and inefficient system that offered access that was patchy at best and that often left the poorest underserved, to one that is substantially modernized and universally accessible.

**Initially, the HTP relied exclusively on public borrowing and domestic financing, but during the journey it found alternative ways of leveraging public funds by attracting foreign private investment,** which sped up progress and lowered costs along the way. At first, the focus was on universal health insurance coverage and defragmentation of the health sector. This effort involved providing financing and technical support for a white paper for the sector. That white paper, among many reforms, led to a consolidation of the provision of public health care services under one authority and restructured the financing under the newly created SSI. During the 2003–13 project period, WB loans of around \$135 million supported the HTP through a series of Adaptable Program Loans and Public-Sector Development Policy Loans. Although that amount was a minor share of a much larger and more costly initiative, it helped the government lay the foundation for a restructuring effort that could attract further investment.

Following this phase of support, Turkey's MoH made a major policy decision to deliver new hospitals through the PPP mode, adapting the UK PFI model closely. In 2013, just prior to the commencement of the new PPP Hospital program, only 20 percent of beds managed by MoH were deemed "qualified" beds per international standards. MoH thus sought to replace old and obsolete facilities and existing beds with modern facilities offering qualified beds. It was calculated that more than 90,000 new hospital beds were needed over the period from 2010 to 2023, according to MoH's analysis. Provision of hospital beds in Turkey was calculated at 2.5 beds per 1,000 people in 2011, almost half of the OECD average of 4.8 beds. Under a strategy approved by the Turkish government, a key metric for hospital design standards is the average square meters per bed. The hospital space per bed, at just 55 square meters on average, was targeted to be set at approximately 175 square meters per bed in line with international benchmarks.

By 2014, important policy decisions on delivering these improvements were adopted and beginning to be implemented. To meet the growing demand for higher quality hospital services, the Turkish government planned investments by both the public and private sectors for the delivery of the new hospital bed capacity by 2023. All clinical services were slated to be continued to be delivered by the public sector through MoH.

**By 2014, the Turkish government's PPP program had already commenced from a procurement standpoint, with 17 tenders finalized** (that is, commercial close was reached) using the facilities management PPP structure, while the remaining were in various stages of feasibility study preparation or early tendering. These new hospitals are organized as so-called "integrated campuses" ranging in size from approximately 600 beds to 3,000. Total beds under this Program are 50,000 beds of which 20,000 are the replacement and modernizing of existing beds, while bringing on an additional 30,000 beds for long-term care patients (not hospital in-patient beds).

The focus of the Program was modernization and the corresponding hospital infrastructure was to be constructed, managed and maintained by private concessionaires under facilities management PPPs, while clinical services would remain the responsibility of MoH and be delivered directly by MoH staff (e.g., doctors, nurses, etc. employed in the state civil service). After further refinements in the planning process within MoH and Turkish Treasury, 29 new hospital facilities with approximately 42,000 high-quality hospital beds at a total investment cost of up to €14 billion are planned as PPPs. In support, in August 2015, WB also approved a \$134 million sovereign loan to Turkey in which one component provided technical support to the Ministry of Health in the management of PPP projects. As of March 2018, nine Hospitals (with a total bed capacity of 13,462 beds) have reached financial close with a total investment cost of €5.4 billion.

### **Turkey's Hospital PPP FM Contractual Structure**

The Program was conceived of for hospital facilities management PPPs to be structured as Design-Build-Finance-Lease-Transfer (DBFLT) contracts running 3+25 years for facilities management only (hard and soft facilities), excluding clinical

services, which remain the sole responsibility of MoH. Under these PPPs, the concessionaires provide facilities management services for the hospital, while the provision of clinical services will remain with MoH. Hence post completion, the concessionaire receives quarterly Availability Payments (APs) from MoH in consideration for the hospital building and facilities as well as monthly Service Payments (SPs) for the various support services rendered as part of facilities management (cleaning, catering, laundry, waste, parking, imaging, laboratories and sterilization).

## Intervention and Collaboration

### Lead MDB Role and Roles of partner MDBs (2014–2017)

For this ambitious program, EBRD was the lead MDB, with partnering roles amongst the International Financial Institutions (IFIs), including IFC, the European Investment Bank (EIB), the Black Sea Trade and Development Bank (BSTDB), the Islamic Development Bank (IsDB), MIGA, and the World Bank, as described below.

In September 2014, EBRD approved a Framework of €600 million (and Framework Extension of an additional €350 million approved in January 2017) in support of Turkey’s hospital facilities management PPP Program for financing up to 10 sub-projects covering up to €950 million debt or equity for EBRD’s own account in the form of senior loans and one stand-by subordinated liquidity facility. Signings were projected to occur between 2014 and 2018. Debt sub-projects under the Framework included a B loan portion to be syndicated to international banks or parallel commercial loans underwritten by a strong cohort of Turkish and international banks. The original EBRD Framework was extended in response to strong demand.

To date, EBRD has closed financing for nine PPPs within the program for €722 million. The following table presents the breakdown in participation in financing across the various types of financial entities involved the program to date.

In total, 46 percent of total program financing came from the private sector (commercial banks, bond investors a sponsor equity), while 53 percent was provided by IFIs, DFIs and state-owned banks. Aside from EBRD, the IFIs (IFC, BSTDB, IsDB, and EIB) provided 19 percent of the total financing to date while the DFIs contributed 20 percent, aligning themselves as behind specific sponsors in their roles as Export Credit Agencies. Moving to private investment, commercial banks (in the form of B loans under syndication to EBRD, or as Parallel loans) provided 22 percent of the total. The Elazig PPP was unique in that it was structured as a capital markets transaction, with institutional investors as bond holders (4 percent of the total). Finally, sponsor equity amounted to 22 percent of the total program costs.



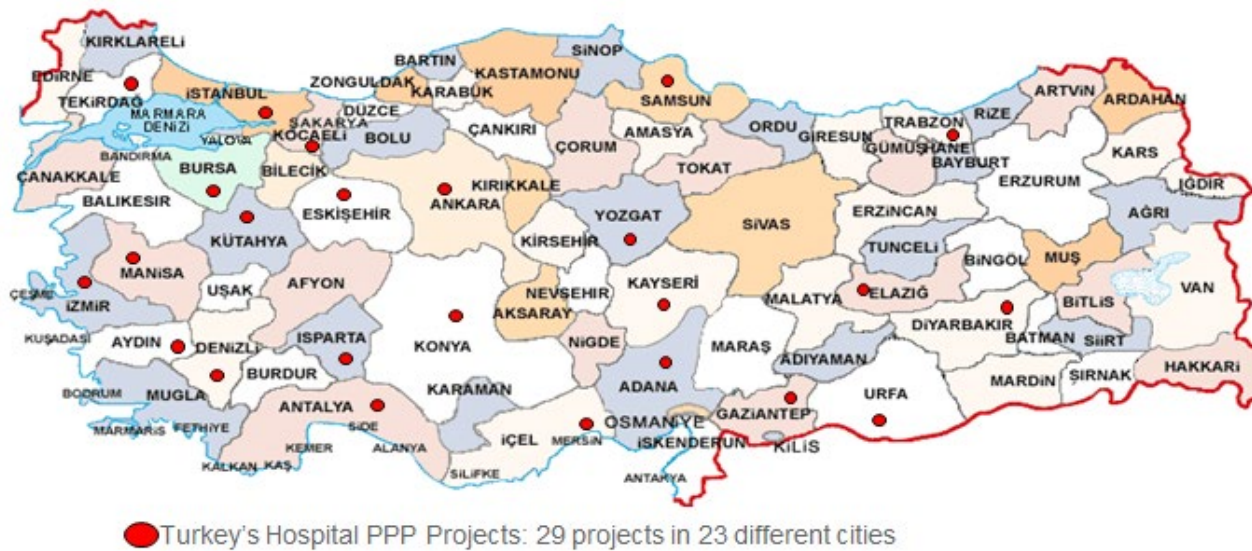


Figure 4.1. Turkey's hospital PPP projects

### Instrument Selection: Why did the MDBs provide this particular type of support?

As mentioned, the World Bank began a technical assistance program in [2006] which provided the MoH with a framework for thinking about how to structure and organize the healthcare sector, from both a public-sector perspective (service provision, infrastructure planning, quality, etc.) as well as the role of the private sector in the form of PPPs. EBRD's PPP Framework built on the previous World Bank technical assistance support, opening its own broad-ranging policy dialogue in MoH since 2013 concerning not only the drafting of the PPP agreement for the hospital facilities management projects but also the need to justify MoH's PPP approach using a rigorous and standardized VfM analysis. The issues of the importance of creating institutional capacity within MoH to monitor the PPP contractors was also emphasized by EBRD with the MoH. These areas are critical to the success of any PPP program, as evidenced by the experience to date in more mature PPP markets, such as the United Kingdom, Western Europe, Canada and Australia. This focus on project preparation, PPP justification and monitoring are strategic, because they helped MoH provide an intellectual grounding of its PPP choice and preserve the promised VfM offered by the private sector at tender through strict monitoring during the operational phase.

IFC has also played an important role in the hospital PPP program, approving loan and bond financing between the period from December 2014 to December 2016. In addition to approving long-term (up to 18-year tenors) loans, the IFC Treasury provided interest rate hedging for some of the DFIs and acted as an anchor investor in the Elazig PPP bond issuance. Along with EBRD, IFC worked diligently with sponsors, advisors and lenders, while also marshalling support from World Bank Group's PPP Advisory, WB health specialists, and MIGA. Finally, IFC worked with EBRD to create the first bankable project agreement that acted as a template for all PPPs to follow in the sector.

**The EBRD's commitment was also strategic on a broader level.** Social infrastructure PPPs (including hospital infrastructure, schools, universities,

dormitories and public buildings) represent about one-third of all new PPPs coming onto the market worldwide. Furthermore, this market segment is also the fastest growing of all PPP types. Driving this trend is, on the one hand, a need to modernize ageing assets managed by public authorities, and, on the other, the recognition that well-structured and monitored PPPs can deliver significant value versus the alternative traditional public-sector procurement approach. The EBRD therefore carried out economic analysis to confirm the validity and affordability of the availability payments for the hospital PPPs, which was determined to peak at approximately 7 percent of total MoH annual budgets during the availability payment period.

## Results

### **Role in Catalyzation of Private Capital: Why was the MDB catalytic?**

The EBRD, in partnership with IFI and DFI partners, played a critical role during the launch phase of the Program, being instrumental to the closing of the first round of PPPs, while leaving it to private sector investors to finance the rest of the Program once the viability and replicability have been established. The Program was supported by several other IFIs, including World Bank (through earlier Technical Assistance), with Political Risk Insurance (PRI) guarantees from MIGA, and financing from IFC, IsDB, BSTDB, and EIB.

MIGA's PRI guarantees were applied to six of the PPPs closed to date and covers three areas: i) currency transfer/conversion restrictions; ii) expropriations, and iii) breach of contract from the government. PRI was provided to:

- Elazig Hospital, as part of the Risk Mitigation Scheme product (see below)
- Bursa Hospital, to commercial lenders
- Adana Hospital, to sponsor Meridiam
- Elazig Hospital, to sponsor Meridiam
- Bursa Hospital, to sponsor Meridiam, and
- Gazientep Hospital, to KIAMCO fund (includes Samsung Life Insurance).

MIGA's provision of PRI has been widely viewed as beneficial and of great importance to providing additional back-stopping of this social infrastructure PPP program built around the commitment of the MoH to make timely availability payments over a 20+ year period.

IFC mobilized a portion of the DFIs (DEG and Proparco) under a Master Cooperation Agreement; used its MCPP Infrastructure and B loans arrangement; and mobilized a portion of MIGA's PRI support to achieve an overall leveraging ratio of two times its "own account" financing.

The Turkish Hospital PPP program is based on the FM PPP model to attract private financing to improve the quality of health care infrastructure. For the nine hospital PPPs which have reached financial close to date, the total project value was €5.4 billion, of which IFIs, DFIs and state banks financed €2.9 billion, compared with €2.5 billion by commercial banks, institutional investors and sponsor equity. The following table presents, with regard to the PPPs closed to date, with EBRD acting as lead IFI, the amount of Direct Private Sector Mobilization versus catalyzed private sector capital resulting from IFI involvement. In addition, with 29

new hospital PPPs included in the overall program, the total amounts of eventual catalyzation is also estimated.

Turkey's Hospital PPP Programme: Catalysation Effect																				
Currency: in Euro millions (as of 10/04/18)																				
Category	EBRD	IFIs				DFIs / ECAs									Institutional investors (bondholders)	Commercial banks		Sponsor Equity	Total project cost	% of total project cost
		IFC	BSTDB	IsDB	EIB	ICD	DBoA	DEG	SACE	OPIC	EDC	KTIC	KEXIM	ICBC		Syndicated (B-Loan)	Parallel			
<b>TOTAL ACTIVITY FINANCING</b>																				
																		Total		
Own Account (Lead IFI)	722.1																	722.1	13.4%	
Private Direct Mobilisation														208.5	590.9			799.4	14.8%	
Private Indirect Mobilisation (incl. sponsor equity)																496.5	1,160.3	1656.8	30.8%	
Public Direct Mobilisation		345.0	160.0	242.5	270.0													1017.5	18.9%	
Public Co-financing						25.0	30.0	80.0	125.0	431.7	114.4	141.0	142.0	98.0				1187.1	22.1%	
Catalysation of Private Financing (completion of remaining 20 PPPs in Phase 1) <sup>4</sup>																		7062.8		

4) Assumes same proportion of private vs. public as in first 9 PPPs

**Figure 4.2. Turkey's hospital PPP program: catalyzation effect**

The table presents the breakdown of mobilization by category for PPPs closed to date using IFI financing, as per the definitions determined in the MDB Mobilization Task Force. Given the success of the PPP model for hospitals currently established in Turkey, it is likely that the remaining 20 hospitals under Phase 1 will be implemented using the same approach. These additional hospital PPPs can be rightly considered to be catalyzed by the MDBs. If we assume an average of hospital size and cost in line with the first nine PPPs, the analysis shows that the catalyzation effect for future private financing over the full course of the Phase 1 will be €7.1 billion (\$8.2 billion). When viewed strictly from EBRD's lead role perspective, the leveraging ratio of the catalytic effect will be 10:1; when taking all MDB support (including EBRD) together, the leveraging ratio of the catalytic effect will be 4:1.

**The success of the Program was dependent on implementation of best practice PPP contract design so that projects could attract the necessary private sector investment.** During 2012 and 2013, EBRD and IFC worked closely with MoH and the various sponsors to refine the PPP contracts for the first sub-projects (Adana and Etlik), resolving bankability issues and paving the way for the rest of the framework Program to reach financial closure. This work was built on a foundation provided by the World Bank during the 2000s provided through Technical Assistance. It is also very likely that the number of sponsors and commercial banks entering the PPP market for hospitals found comfort in the broad level of IFI (including MIGA), as well as DFI, support provided.

**Further Innovation using the Capital Markets:** Finally, after several PPPs had closed using debt financing, for the Elazig Hospital PPP, which closed on December 2016, EBRD and MIGA developed a joint risk mitigation solution to help crowd-in institutional investors in emerging market infrastructure. This used an innovative stand-by facility to de-risk a greenfield bond issuance by the sponsor, Meridian and Ronessans, on the capital markets.



## Bottom Line

This project was a landmark social infrastructure PPP, resulting in Turkey's first "green and social bond," aligning with the Conference of Parties 21 (COP21) global commitment to support emerging countries' Sustainable Development Goals, and the first project to feature credit enhancement provided by EBRD and MIGA. It has the potential to be replicated across similar emerging markets contexts, and this type of product is now being actively discussed by private sector sponsors, governments, and IFIs more generally.

Estimated Private  
Catalyzation  
Amount:  
**\$108 million**

## Case Study 4

### EIB: Tanzania Backbone Interconnector<sup>14</sup>

*The supply of power in Tanzania has not kept pace with economic development. The Tanzania Electric Supply Company—TANESCO—teamed up with the European Investment Bank (EIB) and several other multilateral development banks (MDBs) for a \$228 million operation to enable better power distribution across regions, improve reliability of power supply, and enhance integration into regional power pools.*

### Context

Tanzania is a fast-growing African economy. The population has been growing at an average rate of 3.1 percent and GDP per capita has been increasing rapidly, at an annual rate between 4 and 10 percent since 2010.

**The existing energy supply has proved to be inadequate to keep pace with the current economic progress of the country.** Indeed, the lack of modern energy services, both in terms of access and quality of electricity, is a critical bottleneck holding back an acceleration of economic growth and job creation.

The World Bank's Enterprise Survey,<sup>15</sup> conducted in 2013, finds that 54 percent of the overall interviewed firms identified electricity as the key constraint for enterprise development in Tanzania (the share rises to 67 and 88 percent considering medium and large firms respectively). The lack of a steady energy supply forces firms to rely on self-generated electricity through backup generators even though the average cost of such electricity is roughly three times higher than the price per kilowatt hour purchased from the public grid.<sup>16</sup>

**Although the household electrification level has increased significantly in the last five years, it is still low compared to peers, especially in rural areas and in the north of the country.** In 2016, the percentage of households connected to electricity amounted to 32.8 percent but the share in the northern regions was considerably lower (Geita 14 percent, Simiyu 11.5 percent, Shinyange 12.8 percent).

The electricity demand from both households and enterprises due to increasing industrialization is expected to grow by 7.9 percent over the next decade. In order to meet this demand, the Government is planning to increase Tanzania's generation capacity to 10,000 megawatts by 2025. In line with the ESI Reform Strategy of the Government of Tanzania, the percentage of households connected to electricity should increase to 50 percent by 2025, and 75 percent by 2033.

Electricity generation, transmission and distribution in Tanzania relies heavily on a single state-owned enterprise. The Tanzania Electric Supply Company (TANESCO) produces and distributes some 98 percent of electricity. In 2016, the total installed capacity was 1,357 megawatts. Tanzania also imports some power from its neighbors (Uganda, 10 megawatts; Zambia, 5 megawatts; and Kenya, 1 megawatt). Most of the hydroelectric installed capacity is generated in the mountainous central Tanzania, and most thermal capacity largely from gas off the Tanzanian costs generated along the coast.

Electricity supply across the country is uneven and reflects regional disparities. The current electricity supply in the Northern regions, mainly provided from the Nyakato Diesel Power Station, no longer matches the increasing demand for energy by households and enterprises. This presents a critical constraint to economic development in these regions of Tanzania.

**Intervention and Collaboration**

To enhance access to electricity in the North of Tanzania, TANESCO teamed up with several international financiers—including the AfDB, EIB, and IDA—for a \$228 million operation. The deliverable was a 667 kilometers double circuit transmission overhead line from Iringa over Dodoma and Singida to Shinyanga. The 400 kilovolts line would be operated at 220 kilovolts until a voltage upgrade, scheduled for 2020. The construction started in 2010 and was completed in 2016. The line was energized on January 1, 2017. The partners and co-financiers divided responsibility for different segments of the operation. AfDB and JICA supported the 217-kilometer, 400-kilovolts double-circuit transmission lines between Dodoma and Singida. The World Bank supported the 225-kilometer, 400-kilovolts double-circuit transmission lines between Iringa and Dodoma; and EIB supported the 225-kilometer, 40kilovolts double-circuit transmission lines between Singida and Shinyanga. Korea Exim focused on the construction of the substations in the cities of Iringa, Dodoma, Singida, and Shinyanga. The World Bank also supported consulting services that covered the design and construction supervision for all lots and the capacity building to TANESCO.

Figure 4.3. Map of construction



## Results

**The project is expected to enable better power distribution across regions, improve reliability of power supply and enhance integration into regional power pools.** More specifically, it will: (i) increase the availability of power in the north by increasing capacity from 200 to 1200 megawatts, transferring hydropower, generated in the south, to the north-western and northern regions, (ii) improve the reliability of power supply and reduce the number of outages; and (iii) better integrate Tanzania into regional power pools, as a backbone in the regional transmission corridor between Ethiopia, Kenya, Tanzania, and Zambia.

Outputs and outcomes reflect the scope and nature of the operation in terms of kilometers of transmission line constructed, capacity load increase, and more. The construction of the transmission line has created jobs, and some are needed afterwards to operate the line. Beyond direct job creation and income generation, which arise from enhanced connectivity of households in the Northern provinces, the project will also generate additional social benefits. However, such indirect and induced effects are typically beyond the project scope and difficult to quantify. Four impact channels can be identified: integration, price, quality (and with it indirect price), and climate.

### Integration

**The project is part of a larger effort to better integrate Tanzania into the regional power pool.** In the future, it could become an important transmission link between the South African Power Pool and the envisaged East African Power Pool. Regional integration increases the resilience of power systems to major power disruption and enables them to exploit cross-border price arbitrage opportunities resulting from different generation mixes. Indeed, the transmission line as a national backbone of the power grid will allow further integration across Tanzania, for example the planned transmission line to Arusha, or a further integration to the south.

### Price

The increase in supply to the northern regions will likely not translate into lower electricity prices. Moreover, although the project may improve the current use of the existing generation capacity and therefore lead to an overall reduction of generation cost, this is not automatically reflected in the tariffs. The tariff levels do not follow the evolution of the national energy demand and supply. Instead they are periodically adjusted by the state-owned power utility TANESCO after the approval of the Energy and Water Utilities Regulatory Authority (EWURA) according to considerations that are not entirely of economic nature.

### Quality

The third channel is the improved quality of electricity supply. Even if electricity tariffs are set exogenously, there is still an effect on households and enterprises via fewer outages, less use of expensive backup generators and less need for expansive backup capacity. For instance, the project is expected to decrease the number of power outages due to malfunctions in the subsystem from 30 to four.

This is significant as the annual total time of production lost in a year due to power outages amounts to some 25 days.<sup>17</sup> Due to the high number of outages and their long duration, many industries have been negatively affected through production losses or investments in more costly backup generation capacity. A more stable supply may reduce such losses, decrease the costs of, or avoid the costs of backup generation capacity.

The unit cost per kilowatt hour from backup generated electricity in Tanzania is estimated at two to three times that of the public grid electricity. Forty-three percent of firms own a backup generator, producing some 24 percent of needed electricity. The decrease in the number and length of the outages will allow firms to rely less on the electricity produced by the backup generators leading to an overall reduction of the total annual costs of electricity which in 2013 represented around 16 percent of the overall costs.<sup>18</sup> The lower electricity expenditure will make production more competitive. This could unlock the potential of new industries and the expansion of existing industries, especially those most affected by outages, such as agro-processing and minerals mining, and other more energy intensive branches of industry.

The effects would differ according to firms' size as well as across regions. The share of firms with less than 10 employees owning a backup generator is only 23 percent, but it rises above 66 percent for firms with more than 250 employees. The same pattern is observed for the percentage of self-generated electricity. Micro firms tend not to rely on private electricity due to the remarkably higher costs and entry barrier capacity (only 3.5 percent of the electricity consumed comes from backup generators). On the other hand, big firms are forced to rely more heavily on self-generated electricity in order to reduce the losses due to power outages (around 29 percent of the electricity consumed comes from backup generators).<sup>19</sup>

### **Climate**

In addition to the effects above, the project is expected to have a positive impact on climate change mitigation due to the reduced use of back-up generators. To this purpose, we can rely on the Carbon Footprint methodology developed by the EIB. Tanzania's emission grid factor at medium voltage amounts to 303 tCO<sub>2</sub>/GWh<sup>20</sup> while the emission factor of diesel engines typically used for back-up falls in the range 606–663 tCO<sub>2</sub>/GWh. Considering the decrease in the quantity of self-generated electricity valued at the difference between the two emission factors it could be possible to compute the reduction in emissions over 20 years.

### **Economic analysis**

All four above mentioned channels are likely to demonstrate a larger impact on Tanzania's economy than the direct effects of the operation reflect. All four can contribute to private sector catalyzation to some extent. However, at this stage it would be speculative to claim that the construction of the line from Iringa to Shinyanga is, for instance, responsible for the deployment of future transmission lines.<sup>21</sup> The effect of integration is uncertain and thus escapes reasonable quantification. Similarly, given that the tariff-setting process for electricity does not rely on

economics alone, in the absence of a basis for estimation, one cannot assume that the reduction in transmission costs and increased supply to the northern regions will have an effect on electricity price.

On climate impact it is difficult to assess ex ante to what extent the positive effect of a reduced use of diesel generators could be offset by the increase in competitiveness and output. Hence, only the quality channel is used to provide a basis for private investment catalyzation. Quantifying the project's impact on growth and jobs, and private investment catalyzed requires going beyond the direct effects and considering interlinkages in the economy, shifts in competitiveness, etc. In practice, two approaches seem useful: an econometric approach and a macro-modelling/multiplier approach.<sup>22</sup>

### **Econometric approach**

To evaluate the extent to which reliability of power supply and firm characteristics affect the decision to generate electricity in-house, one can apply a statistical method. Following the methodology in a paper by Steinbuck and Foster, a so-called probit model is used, based on the 2013 World Bank's Enterprise Survey data for Tanzania, taking as dependent variable a dummy for backup generator ownership.<sup>23</sup> The marginal effects of the model can be utilized to assess to what extent a qualitative improvement in electricity supply (measured as the number of days of power outages) affects generator ownership.

**The results show that the reduction of cumulative power outages that are linked to malfunctions in the subsystem from seven to four days would significantly reduce the share of firms owning a backup generator.**

In 2013 the proportion of self-generated electricity accounted for approximately 24 percent of all electricity consumed in northern Tanzania. Based on this finding, it is possible to quantify the decrease in enterprises' expenditures due to the increase in power reliability using the estimated unit cost per kWh purchased from public grid as well as of own electricity in 2013 (respectively \$0.13 and \$0.41): Tanzanian firms will be able to reduce their costs by approximately 5 percent simply by relying more heavily on public electricity.

Over 20 years, this would result in cost savings of \$12 million for existing firms in northern Tanzania. This assumes that energy demand is similar to today's with no expansion of production. However, these savings in production costs would also enhance the competitiveness of the affected enterprises. Such shift in competitiveness goes beyond the indirect costs savings. This could further motivate economic expansion of existing industries and/or contribute to the creation of new industries.

### **Modelling and multiplier approach**

To estimate the broader economic impact, and with it the extent of private sector catalyzation, a modelling approach or a simpler derivative of some form of multiplier are required. This means using existing models and econometric studies because it is practically impossible to trace all the forward and backward linkages in the economy of a single project, even ex post. Typically, the availability of models and multipliers is limited as most focus on increases in power generation capacity, and

less on transmission projects and quality improvements. Where they are available, in general, they do not account for project specifics but rather take the project costs as the input variable. This narrows down the list of viable models and existing studies that could be applied here. The results should be read in that context.

While acknowledging the methodological constraints, it is possible to derive a simple, indicative multiplier from the relevant existing literature,<sup>24</sup> in order to quantify the amount of private investment catalyzed in this case. The value of the multiplier obviously changes according to the type of investment and the country considered. Previous case studies focusing on investments in power infrastructure in developing countries suggest a range of 2.3 and 4.

The lower bound is based on the multiplier methodology developed by the IFC in 2015. To compute the effects on the economy of additional power availability, the share of each industry in the total power consumption is computed in the social accounting matrix (SAM) of each country. These shares are multiplied by the additional power supply to the domestic economy emanating from each industry. The result provides an estimate of the dollar value of the additional power use in each industry. This additional power consumption is divided by the direct electricity requirement coefficient of each industry to calculate the change in the output of the industry under consideration. The IFC applied this methodology in order to evaluate the impact of the increase in power supply from a power plant built in 2007 in Bangladesh on the manufacturing sector. The amount of the additional annual power supply available for the use in the economy was \$78.4 million and the increment in value-added (GDP) due to the increase in power supplied was estimated to be \$176 million.

On the other hand, the upper bound comes from the case study conducted in Uganda by Steward Redqueen. Between December 2015 and June 2016, Steward Redqueen developed and applied a methodology to evaluate the economic impact of improvements in the electric power sector in Uganda for CDC Group. The composite methodology developed in this research project consisted several elements: a survey of 119 companies that focused on the relationship between firm output, productivity and electricity usage, an analysis of the observed changes in power outages using data from Umeme, the electricity distribution company, the construction of an electricity price model based on the observed current supply and demand situation in Uganda and, finally, the construction of an economic input-output model with which the effect of outage time and electricity price changes on GDP and employment can be quantified.

From 2011 until 2014 the large increase in power provision of the project led to a decrease in the electricity outage time from 28 hours per month to 12 hours per month on average. The reduction of outage time is estimated to account for 2.6 percent, or about one fifth, of the cumulative real economic growth of 12.2 percent over that period and to have created around 201,600 jobs (1.4 percent of the labor force).

More such studies are forthcoming, and broader economic modelling exercises are ongoing but are not yet available for the purposes of this exercise. Considering the total project cost of the Tanzania Backbone Interconnector, \$228 million, the

associated value added is estimated at between \$524 million (lower bound) and \$912 million (upper point). In the absence of more substantial evidence, and due to closer proximity of the project nature to the IFC approach the lower bound is used. In order to determine the investment catalyzed by the private sector, only the private investment share of the value added is considered relevant, which, at some 20.8 percent,<sup>25</sup> yields private investment catalyzation between \$108 million (lower bound) to \$190 million (upper bound).

### Bottom Line

The construction of a double-circuit backbone transmission interconnection between Iringa and Shinyanga is a telling example of how public investment can catalyze private investments. While the project itself has no direct project related Private Investment Mobilization—resources came from public institutions and the state-owned utility company—such a project can have a significant catalytic effect in terms of value added and private investment though indirect and induced effects, in this case exemplified through de facto lower energy costs for firms in the northern regions of Tanzania.

**The analysis has also revealed several challenges, namely in quantifying catalyzation.** While it is reasonable to construct a clear narrative for various channels of impact, quantifying such effects is more challenging. Available data for the specific region is scarce and methodologies that could inform such an exercise remain limited. Consistent models that could help estimate economic effects in a project and country specific context are only now being developed and discussions are ongoing on the applicability and accuracy. More work will be needed to further refine such approaches. All such caveats are relevant for the discussion of the results presented here. The results should not be seen as an exact number but rather as a way to provide a sense of scope and highlight the methodological approaches to quantify catalyzation.

On a best effort basis, based on reasonable assumption, a first estimate of private investment catalyzation has been computed—but should be read with the necessary caveats.



## Case Study 5

### IDB: Panama Canal Expansion<sup>26</sup>

*In the mid-2000s, Panama estimated it would rapidly lose market share of international shipping traffic within a decade due to the increased number of ships too large to pass through the Panama Canal. A significant and costly canal expansion project was approved in 2006 that would double the Canal's capacity by increasing the size of existing channels and expanding and adding locks, among other measures. Nearly half the project was financed by the Inter-American Development Bank and four other development institutions. The expanded Canal opened in 2016, and is estimated to have already catalyzed almost \$47 billion in private investment in Panama between 2006 and 2015, more than eight times the project cost.*

### Context

The Panama Canal is one of the world's crucial water ways, connecting the Atlantic and Pacific Oceans.<sup>27</sup> For Panama, the Canal is at the center of its economic activity, accounting for almost 2 percent of GDP in direct contributions to the state from the Panama Canal Authority (PCA).<sup>28</sup>

**In 2006 it was anticipated that 37 percent of the world's container ships would be too large to pass through the Canal within five years, and thus a failure to expand it would result in a significant loss of market share for Panama.** The maximum sustainable capacity of the Canal, prior to the expansion, was estimated at 340 million PC/UMS tons per year and it was anticipated that this capacity would be reached between 2009 and 2012.<sup>29</sup> Given this context, the PCA undertook a series of feasibility studies, and an expansion project was approved by national referendum in October 2006. The expansion project was initiated in 2007 and completed in 2016.

The Canal expansion was expected to provide important benefits to Panama, as well as to support increased world trade. More specifically, it was expected to bring a significant increase in funds provided to the government of Panama and increase employment. In addition, increased canal traffic was expected to boost export growth, to induce investments in canal and non-canal related industries and services, and to provide the basis for a sustainable and positive overall economic impact in the country.

### Intervention and collaboration

The main objective of the expansion project was to double the capacity of the Canal by increasing the width and depth of lanes to allow larger ships to pass. More specifically, the project involved:

1. The widening and deepening of existing navigational channels
2. The expansion of two new flights of locks built parallel to, and operated in addition to, existing locks: one east of the existing Gatun locks (Atlantic side), and one southwest of the Miraflores locks (Pacific side), each supported by approach channels

Estimated Private  
Catalyzation  
Amount:  
**\$47 billion**

Catalyzation  
Ratio:  
**8.5X**  
project cost.

3. The deepening of Gatun Lake and the raising of its maximum water level, which allow the expanded canal to operate without constructing new reservoirs

The project was designed to allow for an anticipated growth in traffic from 280 million PC/UMS tons in 2005 to nearly 510 million PC/UMS tons in 2025. The expanded Canal has a maximum sustainable capacity of about 600 million PC/UMS tons per year. The project was expected to open in October 2014, but that was delayed to June 2016 due to cost overruns and construction glitches.

In 2017, the cost of the third set of locks project was estimated at \$5.51 billion.<sup>30</sup> Of the total amount, \$2.3 billion (44 percent) was external financing and \$3.21 billion (58 percent) was funded by PCA with internal resources. The external financing package, signed December 2008, includes loans from the following institutions: (1) Japan Bank for International Cooperation, \$800 million (35 percent); (2) European Investment Bank, \$500 million (22 percent); (3) Inter-American Development Bank, \$400 million (17 percent); (4) Corporación Andina de Fomento, \$300 million (13 percent); and (5) International Finance Corporation, \$300 million (13 percent).

Prior to loan approval, the IDB supported the government of Panama and the PCA in the development and evaluation of alternatives for Canal expansion. In the mid-1990s the IDB financed environmental and social studies designed to identify the potential of the inter-oceanic region of the Canal Watershed. Later, IDB supported the PCA in preparing a sustainable development strategy for the Canal Watershed and provided technical cooperation funds to support efforts to measure and quantify the potential benefits of Canal expansion to Panama.

The Panama Canal expansion is a remarkable accomplishment not only for Panama but also globally. For Panama, it has been the largest infrastructure project in the country since the Canal's opening in 1914. Total project costs estimated in 2006 accounted for 30 percent of the country's GDP that year. This outstanding investment was expected to be transformational by bringing a major boost to Panama's income and economic activity. In addition, it has proven to be catalytic by inducing investments in canal and non-canal related industries and services. Worldwide, the expanded Canal provides the world's shippers, retailers, manufacturers, and consumers with greater shipping options, better maritime service, enhanced logistics, and supply-chain reliability. Moreover, it improves connectivity between Asia and the eastern coasts of North and South America.

## Results

**Tackling attribution is key to quantify the extent to which private financing results from the development impact of an intervention or investment.** This case study implements a synthetic control method to estimate catalyzation effects. *The methodology used to obtain results and the robustness tests conducted is discussed in detail in Annex 1.*

Overall our results indicate that, between 2006 and 2015, there was an increase of \$46.6 billion in private gross fixed capital formation in Panama that can be attributed to the canal expansion announcement. This is approximately 8.5 times the size of total project investment (\$5.5 billion)<sup>31</sup> and can be considered the overall

catalyzation effect. Putting these numbers into perspective, it is important to keep in mind that infrastructure investments have one of the highest multiplier effects (Bivens, 2014), but that there is also some variation in the multipliers that have been estimated in the literature and they are sensitive to the timeframe of analysis.<sup>32</sup> For the Panama Canal case, the short-term catalyzation effects (between 1 to 3 years after the announcement) are around 1.4 and medium-term catalyzation effects (5 years after the announcement) are around 2.2.<sup>33</sup>

A more detailed analysis of investment data in Panama shows that the participation of private gross fixed capital formation increased from around 18 percent of GDP, on average in the pre-treatment period (1990–2005), to 30 percent of GDP, on average, in the post-announcement period (2006–2016). Moreover, the participation of foreign direct investment in GDP also increased from 6 percent in the first period to 9 percent after 2006 (The World Bank, 2018). If we look at the trends in the composition of foreign investment, we see that the largest increases between 2011 and 2015 have been observed in commercial activities, transport and logistics, and hotels and restaurants (Secretaria de Estado y Comercio 2016, 2017). Considering aggregated country investment data with private sector participation, there are important increases in energy, transport, and telecom, but the largest growth between the two periods (a more than 100 percent increase) corresponds to the energy sector (The World Bank, 2018).

## Bottom Line

The Panama Canal expansion project provides evidence that an infrastructure project financed in part or in whole by multilateral development banks and other institutions has been highly effective in catalyzing private investment. The \$5.5 billion Canal expansion project, of which 44 percent financed was by development institutions, catalyzed over \$46 billion in additional private investment into a wide range of industries in Panama. It is important to keep in mind that, given the availability of data, these results measure only anticipation effect and do not include catalytic effects that could have been generated after the opening of the expanded canal. Moreover, the Panama Canal project has proven to be quite unique, not only due to the large amount of finance involved but also due to the strategic nature of the project. Therefore, catalyzation estimations might vary across types of projects and countries.

## Annex 1: Methodology

### 1. Synthetic control method

One of the main challenges in quantifying private capital catalyzation<sup>34</sup> is attribution. Any increase in private investment that results from the development impact of an activity and that is beyond the boundaries of direct project financing can be difficult to quantify and to causally attribute to the intervention. To overcome this problem, we implement a Synthetic Control Method (SCM), which is a data driven approach that allows to construct a suitable comparison

group that can reproduce the counterfactual trajectory that Panama would have experienced in the absence of the canal expansion project (Abadie, Diamond, and Hainmueller, 2010).

Motivated by comparative case study research, the key idea behind SCM is to obtain a weighted average of control units (i.e. countries) that can best approximate the evolution of Panama's private investment prior to the announcement of the canal expansion. This combination of units should provide a better comparison for Panama than a single country alone. Following the intuition used in structural break analysis for time series data, we exploit the formal announcement of the expansion project given by the referendum in October of 2006. Our hypothesis is that this event is sufficiently relevant to change private sector expectations and thus investment decisions. Catalyzation effects are then estimated as the differences observed between Panama's private investment values () and its synthetic version after 2006:

$$\hat{\tau}_{pt} = Y_{pt} - \sum_{i=1}^j w_j^* Y_{jt}$$

Where, weights ( $w_j$ ) add up to one and are chosen to minimize the differences in some pre-treatment covariates  $X_m$ , such that  $\sum_{m=1}^k v_m (X_{im} - X_{om})^2 W$ . Where is a weight that reflects the relative importance given to the  $m$ -th variable when measuring the discrepancy between  $X_{im} - X_{om} W$ . This weight is relevant as the synthetic control should closely reproduce the values of variables that have large predictive power on the outcome of interest.

## 2. Data and donor pool construction

We use worldwide country-level data from 1990 to 2016 extracted from the World Development Indicators (The World Bank, 2018)<sup>35</sup> and the World Economic Outlook (WEO) (International Monetary Fund, 2018)<sup>36</sup> database. Our main outcome of interest is Private Gross Fixed Capital Formation at PPP US\$, which is used as a proxy of private investment, and measures the value of acquisitions of new or existing fixed assets by the private sector *less* disposals of fixed assets. As covariates or predictors of the outcome of interest, we include data on: public gross fixed capital formation, GDP per capita, population, trade openness, variations in the exchange rate, consumption, interest rate, and the average of the pre-treatment period value of private gross fixed capital formation.

To construct the donor pool and minimize bias, we keep in the sample only emerging countries as Panama, and countries that have a port, according to the 2008 AAPA's World Port Ranking,<sup>37</sup> or countries that are financial centers, considering the 2013 Global Financial Centers Index, which is the year when Panama entered this group. We also exclude all countries with less than 10 observations between 1990 and 2006, both for outcome and/or control variables.

### 3. Results

Figure 4.4 reports the evolution of private gross fixed capital formation for Panama and the donor pool of countries before implementing the SCM. In both cases, we see an increasing trend, with a larger positive slope for the donor group. Figure 4.5 and table 4.6 present the main results, showing that synthetic Panama (composed by the countries reported in Table 4.7 with its respective weights) mimics very closely the trajectory of private investment in real Panama prior to the canal expansion announcement. After 2006, a divergent trend is evident suggesting that private sector investment responded quite quickly and positively to the prospect of having an expanded canal. There is a small downward trend in investment for Panama in 2009, probably due to the financial crisis,<sup>38</sup> but after that the increase in private investment is quite remarkable.<sup>39</sup>

Two placebo tests are conducted to rule out the possibility that the results obtained are driven entirely by chance.<sup>40</sup> First, we examine how often we would obtain results in the same order of magnitude if we had chosen another treated country at random instead of Panama. As observed in Figure 4.6, after multiple permutations, the largest effect that we get is always for Panama. Second, we apply the SCM assuming that the expansion announcement happened in a different year to 2006. If there is a divergent trend starting in other years this would be an indication that our results were obtained by chance and cannot be attributable to the expansion announcement. As reported in Figure 4.7, the only divergent trend appears in 2006 and nothing is observed in the prior five years.

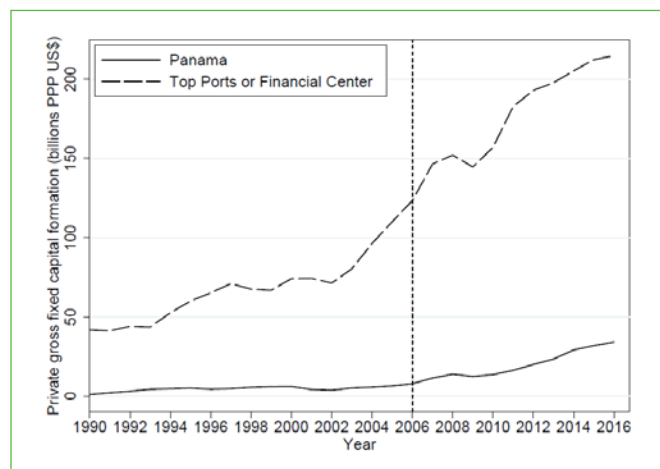
Finally, we run two robustness checks to test the sensitivity of our main results to changes in the country and covariate weights  $w$  and  $v$ , respectively. First, we apply a cross-validation technique that divides the pretreatment period into a training and a validity period. Using predictors measured in the training period, we select the weights such that the resulting synthetic control minimizes the root mean square prediction error (RMSPE)<sup>41</sup> over the validation period. Results are reported in Figure 4.8 for different definitions of the training and validation period and in all cases the results remain unchanged. Second, we iteratively re-estimate the baseline model omitting in each iteration one of the countries that received a positive weight, as reported in Table 4.7. This helps to evaluate to what extent results may be driven by any particular control country. Figure 4.9 shows that regardless of the country that is excluded the main results are still observed.

Table 4.5. Construction of donor pool

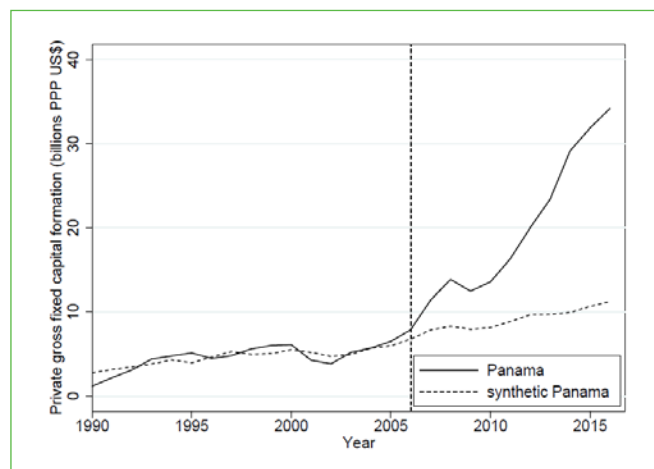
Country	Financial Centre	Port	Country	Financial Centre	Port
<b>Europe &amp; Central Asia</b>			<b>Sub-Saharan Africa</b>		
Albania	0	0	Botswana	0	0
Armenia	0	0	Burundi	0	0
Azerbaijan	0	0	Cameroon	0	0
Bulgaria	0	0	Congo, Rep.	0	0
Moldova	0	0	Equatorial Guinea	0	0
Poland	1	0	Gabon	0	0
Romania	0	1	Gambia, The	0	0
Russian Federation	1	1	Kenya	0	0
Turkey	1	1	Lesotho	0	0
Ukraine	0	1	Mauritius	1	0
<b>Latin America &amp; Caribbean</b>			Mozambique	0	0
Argentina	1	1	Namibia	0	0
Bahamas, The	1	0	Nigeria	0	0
Belize	0	0	Rwanda	0	0
Bolivia	0	0	Sierra Leone	0	0
Brazil	1	1	South Africa	1	1
Chile	0	1	Swaziland	0	0
Costa Rica	0	1	Tanzania	0	0
Dominican Republic	0	0	Uganda	0	0
Ecuador	0	1	<b>Middle East &amp; North Africa</b>		
El Salvador	0	0	Algeria	0	0
Haiti	0	0	Egypt, Arab Rep.	0	1
Honduras	0	0	Lebanon	0	1
Mexico	1	1	Morocco	0	0
Panama	1	1	<b>South Asia</b>		
Paraguay	0	0	Bangladesh	0	1
Peru	0	1	India	1	1
Trinidad and Tobago	0	0	Sri Lanka	0	1
Uruguay	0	1	<b>East Asia &amp; Pacific</b>		
Venezuela, RB	0	1	Malaysia	1	1
			Philippines	1	1
			Thailand	1	1
			Vietnam	0	1

Note: The table reports the list of countries that have at least 10 observations in the pre-treatment period (1990-2005) across the covariates used for the SCM analysis: public gross fixed capital formation, GDP per capita, population, trade openness, variations in the exchange rate, consumption, interest rate, and private gross fixed capital formation. We also highlight the countries that have ports or are considered financial centers and that are the ones in the donor pool.

**Figure 4.4. Evolution of private gross fixed capital formation—Panama and donor pool**



**Figure 4.5. Impacts on private gross fixed capital formation**



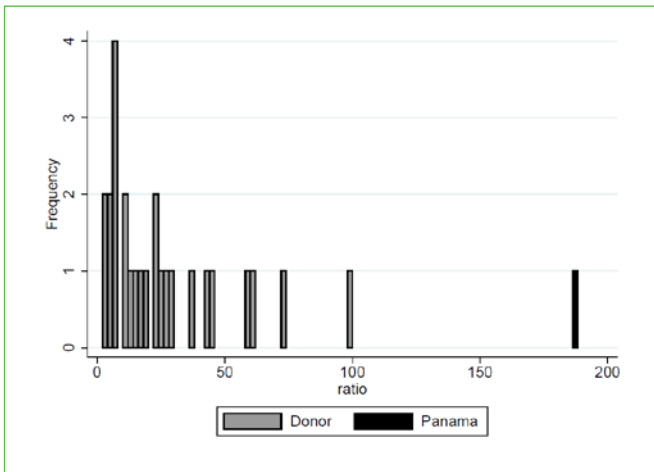
**Table 4.6. Impacts on Private Gross Fixed Capital Formation**

Year	Synthetic	Panama	Effect US\$ PPP	Effect Current US\$
2006	7.82	7.90	0.08	0.04
2007	8.57	11.43	2.86	1.32
2008	9.02	13.87	4.85	2.37
2009	8.67	12.47	3.80	1.97
2010	10.21	13.59	3.38	1.77
2011	11.88	16.34	4.46	2.44
2012	14.50	20.03	5.53	3.16
2013	15.31	23.44	8.12	4.81
2014	15.19	29.16	13.97	8.41
2015	15.34	31.88	16.54	9.87
2016	16.63	34.21	17.58	10.45

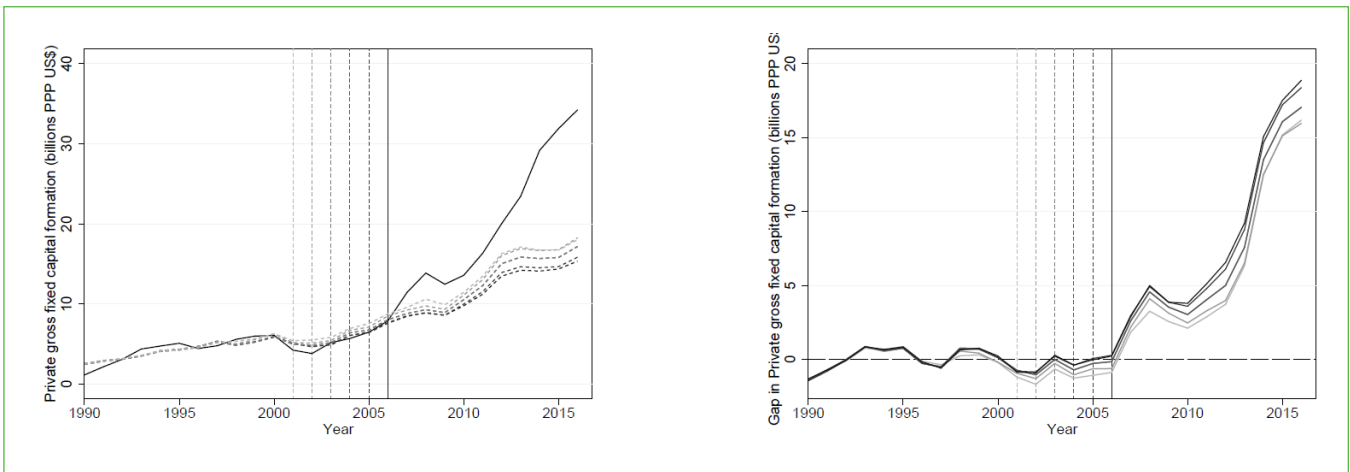
**Table 4.7. Countries in the synthetic control for private gross fixed capital formation**

Country	Financial Centre
The Bahamas	0.09
Sri Lanka	0.202
Mauritius	0.693
Malaysia	0.015

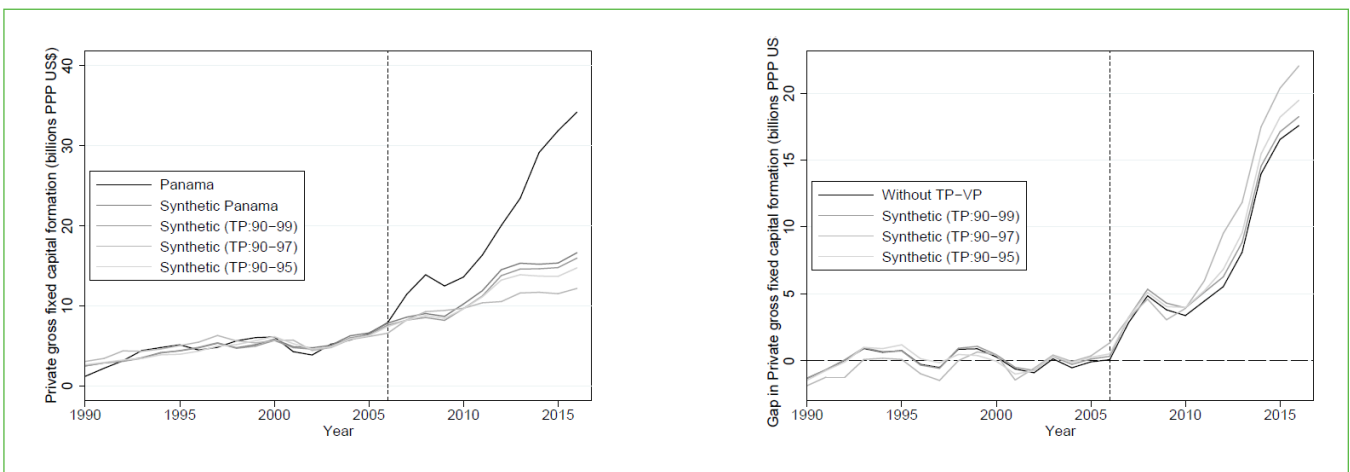
**Figure 4.6. Place placebo—private gross fixed capital formation**  
*(Post/pre-canal expansion announcement mean square prediction error)*



**Figure 4.7. Time placebo—private gross fixed capital formation**

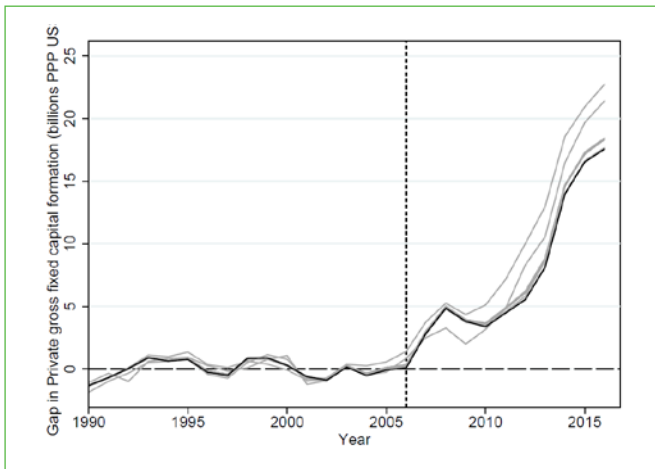


**Figure 4.8. Robustness check—Estimating country weights only in pre-training period**  
*(Private Gross Fixed Capital Formation)*





**Figure 4.9. Robustness check—Leave one out test**  
(Private Gross Fixed Capital Formation)



## References

- Abadie A., A. Diamond, and J. Hainmueller. 2010. “Synthetic Control Methods for Comparative Case Studies: Estimating the Effects of California’s Tobacco Control Program.” *Journal of the American Statistical Association* 105 (490).
- Abadie A., A. Diamond, and J. Hainmueller. 2015. “Comparative Politics and the Synthetic Control Method.” *American Journal of Political Science* 59(2):495-510.
- Bivens, J. 2011. “Method Memo on Estimating the Jobs Impact of Various Policy Changes.” Economic Policy Institute. <http://www.epi.org/publication/methodologyestimating-jobs-impact/>
- Bivens, J. 2014. “The short- and long-term impact of infrastructure investments on employment and economic activity in the U.S. economy.” Economic Policy Institute, EPI Briefing Paper # 374.
- Damm, D., S. Lerman, E. Lerner-Lam, and J. Young. 1980. “Response of Urban Real Estate Values in Anticipation of the Washington Metro.” *Journal of Transport Economics and Policy* 14 (3): 315-336.
- Harjunen, O. 2018 “Metro investment and the housing market anticipation effect.” Working Papers 2018: Urban Research and Statistics, Aalto University, Helsinki.
- IDB. 2006. “PN-L1032 : Corporate Loan to ACP to Support the Panama Canal Expansion Program.” March. Inter-American Development Bank, Washington, D.C.
- International Monetary Fund. 2018. “World Economic Outlook.” Washington, D.C. <https://www.imf.org/external/pubs/ft/weo/2017/02/weodata/index.aspx>.
- Leduc, S. and D. Wilson. 2013 “Roads to prosperity or bridges to nowhere? Theory and evidence on the impact of public infrastructure investment.” *NBER Macroeconomics Annual* 2012 (27). Daron Acemoglu, Jonathan Parker, and Michael Woodford, Editors. University of Chicago Press.

- McMillen, D. P. and J. McDonald. 2004. “Reaction of House Prices to a New Rapid Transit Line: Chicago’s Midway Line, 1983–1999.” *Real Estate Economics* 32: 463–486.
- Secretaría de Estado de Comercio. 2016. “Informe Económico y Comercial: Panamá.” Oficina Económica y Comercial de España en Panamá. Abril.
- Secretaría de Estado de Comercio. 2017. “Informe Económico y Comercial: Panamá.” Oficina Económica y Comercial de España en Panamá. Septiembre.
- The World Bank. 2018. “World Development Indicators.” Washington, D.C. <http://data.worldbank.org/data-catalog/world-development-indicators>

## Case Study 6

### IFC: Masala Bond Program in India<sup>42</sup>

*With the Indian rupee subject to capital outflows and the decisions of foreign central banks, the Indian government looked to support capital market development in rupees, both onshore and offshore. IFC worked with India to launch a program to issue rupee-denominated bonds. The program catalyzed a large inflow of capital from private institutional investors residing offshore.*

### Context

In 2013, IFC held a series of discussions with the government of India to develop solutions for deepening Indian capital markets. The solutions aimed to expand the participation of foreign institutional investors in Indian markets, both onshore and offshore, as well as allow a larger base of Indian corporate borrowers to access diverse funding options, beyond what was available in the market.

This was in the context of the Indian economy's growing investment requirements, and a challenging economic backdrop. India's investment requirements at the time were estimated at \$4.7 trillion over a five-year period, to achieve average growth of 7 percent per annum.<sup>43</sup> The public banking sector was expected to be constrained in long term financing due to regulations.<sup>44</sup> The Indian Rupee had depreciated due to the U.S. Federal Reserve's tapering of its quantitative easing program and large capital outflows.<sup>45</sup>

In response, IFC worked with the Indian government to develop the "Offshore Rupee bond program or Masala Bond program" and the "Onshore Bond Program or Maharaja Bond program." The initial \$1 billion Masala bond program was jointly announced by IFC and the Indian government in 2013 during the World Bank Group Annual Meetings, signaling a strong buy-in from the Indian government. The primary focus was to signal and demonstrate that there was international institutional investor demand for rupee exposure and therefore a viable demand for rupees as an alternative source of local currency funding for both Indian and international entities.

The purpose of IFC's intervention was to create a mechanism to channel foreign institutional investment flows into the Indian economy. During that same timeframe, IFC had committed to invest \$1.4 billion in India in strategic priority areas. However, the purpose of the intervention went beyond providing affordable financing for IFC projects. An additional objective was to create an AAA yield curve that could be used as a benchmark for future issuances, both in onshore and offshore markets, thus sustaining the market beyond the initial intervention. And the intervention also aimed to demonstrate new financing options for the Indian government and Indian corporates, as opposed to raising U.S. dollars in offshore capital markets and assuming the associated currency risks.

Prior to the IFC program, there were other attempts by multilateral development banks (MDBs) to raise Indian rupees in offshore markets. The Inter-American Development Bank Group (IDBG) raised more than \$275 million equivalent,<sup>46</sup> helping

Estimated Private  
Catalyzation  
Amount:  
**\$6.2 billion**

to demonstrate the potential of offshore bonds as an affordable source of funding. The European Bank for Reconstruction and Development (EBRD) has consistently issued Indian Rupee-denominated bonds in the international markets for over 10 years, with 73 issues over the period for approximately \$2 billion. These offshore issuances were primarily arbitrage-driven, providing hard currency financing after swapping rupees offshore. IFC's large program size and high-profile issuances, on the other hand, were designed to not only raise rupee financing offshore for various maturities, but also route the proceeds into investments in India through the Foreign Portfolio Investment (FPI) route.

Subsequently, other MDB issuances added depth to the market. The Asian Development Bank (ADB) issued a \$50 million 3-year bond in August 2014, which added depth to the short-end of the yield curve<sup>47</sup> (ADB listed a total of \$360 million to date). There is also potential for new development banks, such as the New Development Bank (NDB), to become involved in the market.<sup>48</sup>

IFC's additionality lies primarily in developing an innovative instrument and market that did not exist prior to its intervention. Prior to the intervention, it had been difficult for this market to develop, due to:

1. The lack of a benchmark yield curve, thereby increasing the uncertainty around the depth of this market
2. Issuances were short-term, driven by arbitrage opportunities
3. The reluctance of Indian authorities to cede control over the rupees traded outside the border
4. The inability of Indian corporates to issue bonds not only due to regulatory restrictions but also an unproven track record of issuances in the offshore market and bringing proceeds onshore
5. The fact that an alternative source of hedging—cross currency swaps—was available for several investors in the onshore market.

### Intervention and Collaboration

**IFC chose a capital market instrument as its impact was deemed to be catalytic for the Indian economy, and for a wide range of Indian corporates.** While Indian authorities have implemented significant capital market reforms since the nineties, the growth in capital markets has not caught on to levels achieved by neighboring countries.<sup>49</sup> This left Indian corporates, particularly those with long-term financing needs, squeezed for financing and highly dependent on bank lending.

The Masala bond program is designed to allow Indian entities to issue rupee-denominated bonds in offshore markets, without assuming any of the currency risk. The bonds would be settled in U.S. dollars or other hard currencies such as the Japanese yen or the euro, as per the prevailing market exchange rate at settlement.

This allows Indian entities to access a diverse base of institutional investors, beyond local and foreign portfolio investors, that they would not reach otherwise. Moreover, the program was expected to expand the type of borrowers who are able to access foreign investors in India, to include medium-sized corporates.<sup>50</sup> Listing

in offshore markets would offer them higher visibility and diversification. It could, however, come at a cost due to withholding taxes (borne by issuers), as well as other issuance and compliance costs.

From the perspective of international institutional investors, the Masala bond program provides exposure to the Indian economy and the Indian rupee. While at the time of the first issuances the Indian economy was facing an economic slowdown, it still offered robust and diverse investment opportunities, as well as a more stable currency relative to other emerging markets. This was particularly true given the low investment yields in other markets at similar risk levels, and the presence of suitable hedges for the rupee.

Investors gain this exposure without the complications of obtaining local licenses and dealing with quotas for foreign investors in domestic bond markets. It also allows them to leverage against the bond to improve returns, the freedom of multi-currency settlement, and the ability to hedge foreign exchange exposure. From a taxation perspective, the Masala bonds are exempt from capital gain taxes and have a reduced withholding tax on interest income of 5 percent, versus 20 percent.<sup>51</sup>

**IFC developed an implementation plan built on three pillars:** First, a massive IFC investment program to signal IFC's confidence in the Indian economy and support for the bond market. Second, a multiple-tranche issuances at varying maturities (3 to 15 years) to build a yield curve, setting a pricing benchmark. This included a Green Masala bond and a bond sold in the Uridashi market to Japanese retail investors. The shorter-term maturities also created sufficient liquidity in the secondary market, allowing investors to manage their exposure. And third, a follow-up onshore bond program, which, albeit small, served to increase the liquidity in the market. Despite the strong implementation plan, market participants suggest that more regular issuances could have added to the liquidity of the offshore market.<sup>52</sup>

At the time of the introduction of the instrument, Indian corporates wishing to access international investors essentially had few options besides selling debt to FPIs. The Masala bond program provided a viable financing option to a wider range of borrowers. For example, borrowers that faced lower access to bank lending, borrowers with lower credit quality who could not afford the costs of medium-term note programs, and borrowers who could not afford to hedge the currency risk inherent in accessing hard currency External Commercial Borrowings (ECBs). In fact, the Reserve Bank of India attributes the decline in recourse to the ECBs in the first half of 2016 to a number of factors, including issuers resorting to raising funds through Masala bonds instead.<sup>53</sup>

**Both the Indian government and the Reserve Bank have been keen to develop other sources of financing for Indian corporates beyond traditional bank lending.**<sup>54</sup> Since 2007, banks were becoming highly stretched with bank lending as a percentage of GDP, reaching 52 percent in 2011–12.<sup>55</sup> However, the corporate debt market remained very small relative to the size of the economy. The market grew from 5 percent of GDP in 2012 to 15 percent in 2017, versus 40 percent or more in Malaysia, for example,<sup>56</sup> and was dominated by large and quasi-sovereign companies. In fact, bonds constituted less than 4 percent of the

sources of financing for Indian corporates in 2010–11, versus 14 percent for equity and 18 percent for bank lending.<sup>57</sup>

**The specific design of IFC’s intervention, with a large program size and multiple tranches, was necessary to build a yield curve that would allow the market to continue beyond IFC’s direct support.** The program’s first phase consisted of a \$1 billion issuance across several tranches with three-, five-, and seven-year maturities. In October 2014, the Indian government approved Phase II, which consisted of a \$2 billion program, and IFC proceeded to issue an additional \$1.75 billion and extended the yield curve to 15 years. In April 2018, the Indian government has agreed to remove the limit on IFC Masala Bond Issuance.

Following a stream of issuances by highly-rated Indian corporates and quasi-sovereign entities, other entities that could not access traditional sources of financing began participating. Non-Banking Financial Companies (NBFCs) such as Indiabulls Housing Finance, HDFC, and many others, whose revenue streams were rupee-denominated and which faced restricted access to banks, issued Masala bonds.<sup>58</sup>

Following these issuances, which helped increase the supply of capital, IFC worked with sub-investment grade issuers to expand the market. In 2017, IFC supported Shriram Transport Finance Company Limited (Fitch Rating BB+), a provider of financing for pre-owned commercial vehicles in rural India, in issuing a Masala bond. IFC also acted as an anchor investor with \$50 million, and further mobilized \$150 million. This support is particularly important as it allows private investment to flow into sectors that do not receive sufficient investor attention, but that have a major impact on the economy, such as small and medium enterprise finance. IFC has since purchased Masala bonds issued by Fullerton India and helped HDFC extend their yield curve by purchasing their longest tenor Masala Bond at the time.

IFC’s success in implementing the program eventually led the Reserve Bank to issue guidelines on offshore bond issuances, formalizing the market and providing it with a regulatory framework. The guidelines included specific restrictions on end-use of proceeds, as well as minimum original maturity periods, ensuring that the instrument would be used for channeling foreign investments into productive and non-speculative sectors of the Indian economy (for example, not into real estate investments).

However, Indian authorities have also been very prudent in managing potential negative impacts and ensuring that no speculative flows and arbitrage opportunities could destabilize the economy. In July 2017, the authorities briefly suspended further issuances of Masala bonds as foreign holdings of corporate debt exceeded legal limits. On one hand, this demonstrates the success of establishing the Masala market as a reliable source of raising rupee financing. On the other hand, it could result in excessive borrowing by Indian corporates so regulators prefer to control the expansion of the market. While some of the restrictions have been necessary, they were seen as an obstacle to further market development.<sup>59</sup> These restrictions also create a de-facto cap on the catalyzation potential of a capital market product such as the Masala bond.

## Results

**We consider the Masala bond program to be catalytic, as it introduced new sources of financing to Indian corporates beyond IFC’s total activity financing.** The fact that the Reserve Bank permitted other Indian corporates to issue Masala bonds highlights the demonstration effect of the program beyond IFC’s balance sheet financing. It ensures that any future use of the instrument will lead to inflows of institutional investments to the economy, without direct or indirect IFC involvement as issuer or anchor investor.

### Offshore Masala Issuances

We estimate that offshore Masala bonds issuances catalyzed approximately \$6.2 billion from private institutional investors residing offshore. We analyzed all Masala bond issuances on both the London Stock Exchange and the Singapore Stock Exchange, including the maturity, coupon, and use of proceeds from each issuance. We calculated the total amount of private capital catalyzed as a result of IFC’s intervention, using the criteria below:

**Table 4.8. Inclusion vs. exclusion criteria**

Inclusion vs. Exclusion Criteria	Reason
Initial IFC issuances are excluded. Any subsequent IFC issuances or issuances by clients where IFC was an anchor investor are included (excluding IFC anchor investment).	Based on the assumption that the initial issuances are part of the core activity itself, financed through IFC own account.
Issuances from other MDBs that were used solely as internal funding mechanisms are excluded.	Based on the assumption that the proceeds did not flow back into the Indian economy, but potentially to projects in other economies and hence cannot be counted as private investment catalyzed into the country that is the focus on the MDB activity.
Any bond with end-use proceeds involving refinancing of loans is excluded.	Our calculations attempt to measure new financing flowing into the economy outside of the narrow scope of the MDB activity. Any financing focused on internal corporate restructuring is thus excluded.
Proceeds from issuances of quasi-sovereign entities are included in our calculations.	Based on the assumption that any use of proceeds by these entities will be invested in the Indian economy.
Issuances raised via private placement are included in our calculations.	Based on the assumption that any use of proceeds raised via private placements would still be invested in the Indian economy.

To date, 12 entities issued Masala bonds following IFC’s initial issuances in 2013-2014, including Indian private and quasi-sovereign corporates, as well as one non-Indian sovereign entity. These issuances totaled 298,636 million rupees, or the equivalent of \$4.59 billion. We add to this estimate all non-inaugural IFC issuances, totaling Rs 98,520 million, or the equivalent of \$1.57 billion.

### Onshore Maharaja Issuances

**Previous IFC evaluations have shown that the Masala bond program raised the interest of international investors in increasing their rupee exposure.**<sup>60</sup> This led international investors to explore obtaining authorizations to invest in onshore corporate bond markets. To capture the catalyzation potential of the increased interest, we consider the institutional money flowing into the Indian economy via the Maharaja bond program as part of the catalyzation effect of the Masala bond program. The Maharaja bond program attracted almost \$100 million through its inaugural tranches, with long tenors (20+ years) for financing infrastructure projects, with \$50 million equivalent coming from foreign portfolio investors. It has the potential to continue attracting institutional money flow given its large size (\$5 billion).

### Potential size of Masala Bonds market<sup>61</sup>

The growth of the Masala bond market has not yet reached its full potential and could continue to grow if regulatory constraints are further eased. These constraints were put in place by the Indian authorities to prevent speculation. The results of this are: i) Indian banks have not participated very actively in buying issuances due to regulatory caps; ii) maturities were not allowed to go below three years (and in some cases and for issuances of certain sizes, five years), deterring investors not keen on taking a long-term rupee exposure; and iii) taxation concerns due to the 5 percent withholding taxes.<sup>62</sup> Moreover, liquidity concerns also weighed on the development of the market given the irregularity of issuances.

Accordingly, we attempt to forecast the potential growth of the market if certain regulatory and market issues are resolved to obtain a more accurate estimate of the catalyzation potential of the instrument. To do so, we compare the Masala Bonds market to more established offshore bond markets such as the Chinese Dim Sum bond market. The comparison should be treated with caution given major differences between the two markets. These include that the Government of China's objective was primarily to internationalize the Chinese renminbi through offshore renminbi-denominated instruments, which was not a policy objective for the Indian authorities when they formalized the Masala bond market.<sup>63</sup> Another key difference is that the launch of the Panda bond market (renminbi-denominated bonds traded onshore by non-Chinese entities) in 2014, as well as other market conditions and policy measures, have led to a significant decline in the size of the Dim Sum market starting in late 2016.

**Nevertheless, the comparison suggests that the Masala bond market size could increase to almost four times its current size, to \$25 billion.** The total current outstanding value of the Masala bond market as of September 2017 is approximately \$6.8 billion, implying 0.3 percent of India's GDP. The highest total outstanding value for the Dim Sum market was in 2015 when it reached approximately \$117 billion (\$62 billion issued during the year),<sup>64</sup> or 1.1 percent of GDP. Assuming the same market capitalization-to-GDP ratio, this could imply a market size of about \$25.0 billion, or almost four times the current market size, increasing to \$35.5 billion by 2020.



## Bottom Line

The Masala Bond program created an offshore rupee bond market and introduced new sources of financing for Indian corporates, deepening India’s capital markets. We estimate that offshore Masala bonds issuances catalyzed approximately \$6.2 billion from private institutional investors residing offshore, and the potential size for the Masala bond market is estimated at four times the current size.

## Annex 1: Catalyzation Estimate

Table 1 adds all estimates for the catalyzation potential of the Masala bond program. Please note that the only number we claim for catalyzation is the \$6.16 billion catalyzed directly through actual IFC and Indian corporate issuances. The two other numbers (potential issuances via the Maharaja bond program and the potential size of Masala bond market) represent our estimate of the potential size if certain policies and market conditions were in place.

**Table 4.9. Total potential catalyzation estimate of the Masala bond program, US\$, millions**

	Catalyzation Estimate
<i>IFC non-inaugural Masala bond issuances</i>	1,574
<i>Indian corporates Masala bond issuances</i>	4,587
<b>Private capital catalyzed through offshore issuances</b>	<b>6,161</b>
Potential issuances via Maharaja bond program	4,900
Potential size of Masala bond market	25,000
<b>Total potential catalyzation estimate</b>	<b>36,061</b>

## References

- Acharya, Amarendra. 2011. “Corporate Bond Markets in India: Issues and Challenges.” Reserve Bank of India Occasional Papers 32 (3).
- Anmol Chopra. 2017. “Masala Bonds: A Viable Option for Capital: Starved Indian Public Sector Banks.” *The Journal of Emerging Trends in Economics and Management Sciences*.
- Asia Securities Industry and Financial Markets Association. 2017. “India’s Debt Markets: The Way Forward.”
- B S Rathi. 2016. “Introduction to Masala Bonds.” Sumedha Fiscal Services.
- Chaudhari, Kanad, Raje, Mennal, Singh, Charan. 2014. “Corporate Bond Markets in India: A Study and Policy Recommendations.” Indian Institute of Management – Bangalore.

- Ganguly, Bidisha. 2014. "Investment Requirements in India 2014-15 to 2018-19." Confederation of Indian Industry.
- Hughes, Jennifer. 2017. "Pandas take bite out of Hong Kong dim sum bond market." Financial Times, September 4.
- International Finance Corporation (IFC). 2017. "An Evaluation of IFC Treasury's Local Currency and Capital Markets Development Program." IFC.
- International Finance Corporation (IFC). 2017. "Creating Markets: IFC's Masala and Maharaja Bond Programs."
- International Finance Corporation (IFC). 2017. "Masala Bond Program – Nurturing a Local Currency Bond Market." EM Compass Note 30.
- International Monetary Fund (IMF). 2013. "India 2013 Article IV Consultation – Staff Report."
- Kohli, Renu, Pravakar Sahoo, and M. Shuheb Khan. 2017. "Developing India's Off-shore Local Currency Bond Market: Lessons from Emerging Countries." Indian Council for Research on International Economic Relations.
- London Stock Exchange (LSE). 2015. India Masala Bond Roundtable.
- London Stock Exchange (LSE). "Accessing the Global Markets Through London." 2017. LSE Presentation.
- Mundy, Simon. 2017. "Foreign investors tuck into India's masala bonds." Financial Times. July 27.
- Reserve Bank of India. 2013. "Financial Stability Report."
- Reserve Bank of India. 2016. "Monetary Policy Report."

## Case Study 7

### IsDB Group: Creating Nouadhibou Free Zone<sup>65</sup>

*Enjoying some of the richest fisheries in the world among other advantages, Mauritania's second city was not reaping the rewards of its many natural endowments. The city needed assistance in creating a compelling regulatory, financial, and IT environment to attract entrepreneurial and technical expertise and investment. The IsDBG stepped in to help.*

### Context

**In 2009, Mauritania decided to transform Nouadhibou, its second largest city, into a center of economic attractiveness to serve as locomotive for the development of the rest of the country.** Due to its geographic position, multi-functionality, and natural endowments, Nouadhibou was an ideal site for the expansion of the fishing, oil and gas, and tourism industries. As a result, Mauritanian authorities agreed to set up ad-hoc development zones under special regimes allocated to the creation of industrial, commercial, and seaport and airport services.

Through an advisory and technical assistance engagement started in 2011, ICD, the private sector arm of the Islamic Development Bank Group, was at the forefront of the development of the Nouadhibou Bay free zone. It coordinated the legal and institutional framework for the zone, as well as the supervision of feasibility studies. A ministerial committee endorsed the outcome of the technical recommendations and adopted the project as a development priority for the national economy. In 2012 the parliament declared the Bay as a free zone, which was subsequently inaugurated in 2013. The zone succeeded in attracting many local and foreign firms, and the total investment catalyzed stood at around \$268 million by the end of 2017.

In continuation of this project, between 2014 and 2017, ICD has been supporting the Nouadhibou Free Zone Authority (NFZA) with a capacity building program. The program consists of providing the Authority with an organizational structure, financial management processes, and IT systems aligned on international best practices, as well as training activities for the core staff. The objective is to enable NFZA to deliver its mandate in terms of planning, developing, and administering a world class Free zone. The program is executed in the form of a technical exchange and knowledge transfer program between NFZA and Aqabah Special Economic Zone Authority (ASEZ) in Jordan under a reverse linkage modality supported by the Islamic Development Bank as well as other donors.

### Mauritanian Economy in 2009

In 2009, Mauritania ranked as the 29th largest country in terms of land area, and 183rd country in terms of total GDP (PPP), which stood at around \$6.5 billion. The iron, mining, and construction sectors have been the main drivers of the Mauritanian economy thanks to strong Chinese demand, as well as public investments focused on major public works (roads and airports).

Estimated Private  
Catalyzation  
Amount:  
**\$268 million**

In general, European countries remained the main economic partners of Mauritania, with 48 percent of imports coming from the region, and Asian countries were the main destination for Mauritanian exports, with a 57 percent share. Minerals and metallic products led exports to other countries, followed by fishery products. With more than 700 km of coastline along one of the world's most fish abundant seas, fisheries represented 10 percent of GDP and 25 percent of exports. In 2009, Mauritania needed to improve its business environment and regulatory framework to attract investors to diversify its economy, and to effectively utilize its natural resources.

### *Fisheries Sector*

The waters off Mauritania's coast are among the world's richest fishing waters with over 500 fish species, only 100 of which are commercialized. 2009 estimates indicated a maximum sustainable fishing capacity of 1.7 million tons per year, of which less than 1 million tons was caught and only approximately 150,000 tons were landed in Mauritania. The balance—and by far the majority—was caught by foreign industrial boats and directly exported. The value of fishing in Mauritanian waters was estimated at approximately \$3 billion in 2009.

Despite its large share of Mauritania's economy, the fishing sector has not been well integrated into the national economy and its contribution to GDP has been declining. Oriented toward export markets and only able to collect license fees from foreign operators who bring little value to the economy, the Mauritanian production system lacked diversification and processing capability. In a context where more than 25 percent of Mauritanians are unemployed, the fishing industry—notably small-scale fishing and fish processing activities—was seen by public authorities as a major solution to unemployment, showcasing the need for additional economic activity. The fishing sector employed less than 40,000 nationals in Mauritania, compared to 450,000 employees in neighboring Morocco, with comparable fishing volume.

### **Intervention and Collaboration**

In 2009, Mauritania needed to develop an enabling environment and attract the necessary know-how and investment, both of which are critical to its economy and employment. The country required an action plan to create a compelling context for attracting and capturing a critical mass of entrepreneurial and technical expertise, investment, and commitment in the most suitable location to reform the fishing industry. In this regard, developing a Special Economic Zone (SEZ) would offer the country enormous potential to develop an enabling environment to promote its fisheries sector in a sustainable manner. In addition, the SEZ would enable the country to take a more proactive position in international trade, reduce poverty, and improve food security.

Thanks to its location, history, favorable natural attributes, and existing fishing activities, the Port of Nouadhibou represented an excellent option to examine the feasibility of creating such a Special Economic Zone. In fact, Nouadhibou was the main Mauritanian fishing harbor for both commercial and small-scale fleets. The fishing and related activities at Nouadhibou provided sustainable employment for

30,000 people. In addition, the main iron ore export terminals and other facilities, including an international airport, were among the existing notable features of the region. In 2010, the Mauritanian Government approached ICD and requested its support to build a Special Economic Zone in Nouadhibou. The city was an important pillar of the Mauritanian economy, and in 2010 the government developed a 2035 Vision for Nouadhibou.

**The key purpose of ICD's involvement in developing the Special Economic Zone in Nouadhibou was to serve as a readily accessible sounding board for the project's structure and commercial viability, and to catalyze long-term financing.** The Mauritanian Government entrusted ICD to significantly improve the credibility of the project and provide greater assurance and comfort for the other providers of long-term finance, investors, particularly in the context of perceived political risks. For this purpose, ICD was involved in the project at an early stage and has become an important component of the market-sounding activity.

The plan for the Nouadhibou Industrial Zone (NIZ) prepared by ICD was designed to promote the development of environmentally friendly industry through private public partnerships (PPP). Goals of the plan were to raise the NIZ to a level competitive with the best regional economic zones, and to meet Mauritania's environmental and other standards. The work program for this project was divided into four major components: 1) Project Development; 2) Regulatory Advisory; 3) Implementation Support; and 4) Financial Advisory.

- **Project Development:** For this pillar, ICD enlisted the cooperation of government agencies, strategic partners, business associations, and DFIs to prepare the business model, development strategy, scope of activities, and market and value propositions of the zone. Based on an evaluation of three different development models, the Government of Mauritania opted for an integrated SEZ approach, which envisioned a mixed-use and integrated special economic zone comprising an Industrial Fishing Zone, in addition to an extended area spanning the Nouadhibou Bay and the City of Nouadhibou. The mixed activities included fishing, commerce, mining, services, construction, and tourism. However, as for the project's main sectorial focus, the fishing sector and other related cluster activities are prioritized.
- **Regulatory Advisory:** ICD has involved all concerned parties including the central government, the local government, potential SEZ developers, SEZ operators, and SEZ users to develop an investment-friendly regulatory environment for the zone. Accordingly, four set of policy framework and guidelines were prepared to improve the competitiveness of the zone. These were: a PPP framework, a regulatory framework, an institutional framework, and an incentives framework.
- **Implementation Support:** The development and enhancement of the institutional and human capacity of the SEZ is central to the zone development strategy. Therefore, ICD identified Aqabah SEZ (ASEZA) in Jordan, which is a regional center of excellence, as the potential provider of know-how and

expertise under the tripartite memorandum of understanding, signed by the ICD, ASEZA, and Nouadhibou SEZ. The purpose of this twinning program was to transfer best business practices in organization design, human resources management, financial planning, performance evaluation, revenue enhancement and IT skills.

- **Financial Advisory:** The fisheries sector was envisioned to be at the heart of the Nouadhibou SEZ. Studies conducted by ICD indicated that the lack of sufficient cold storage facilities with international standards and efficient handling capabilities constituted the weakest link in the fishery value chain. Hence, ICD helped the Mauritanian Government prepare a feasibility study for setting up a cold storage facility for the zone which included: 1) comprehensive market analysis, b) legal review of the project, c) preliminary design, technical requirements and operations, 4) market sounding for financing.

### Results

The main purpose of this project was to contribute to the efforts of the Government of Mauritania to create a conducive business environment in Mauritania by setting up a Special Economic Zone in Nouadhibou City on the country's western coast. After the successful completion of the project, the Nouadhibou SEZ was launched in June 2013 with a vision to be an economic pole for the national economy, a trade logistical hub, and a commercial gateway for the export of fishery and mineral products.

Table 4.10.  
Development  
indicators

Development Indicators		Before (2010)	End of 2017
1	Investments Catalyzed in the SEZ (\$)	No data	\$268 Million
2	# Firms established in the NFZ	26	155
3	# jobs	No data	1734 direct jobs
4	Share of females (%) among the workforce in the SEZ	Less than 20%	30%
5	Price of goods. Example of Cement (\$/Ton)	174	110
6	Client Days of Training Provided to SMEs in the SEZ	No data	450 days
7	Investment Climate Reforms Implemented (Number of Favorable Laws for SEZ)	No data	4 reforms
8	Fresh Fish Exports from the SEZ (ton)	936 tons	Available data 1,274 tons in 2016 1.087 tons in 2017
9	# of Training Days	No data	383 Working Days

The Nouadhibou SEZ attracted several local and foreign investors. By the end of 2017, 155 firms had been established in the zone, and the total investments catalyzed stood at around \$268 million. These firms created 1,734 jobs, and the share of females among the workforce stood at 30 percent.

In addition to the above, the following two initiatives are expected to pave the way for catalyzing additional financing for the companies operating in the zone.

- **Setting up One-Stop Shop:** A one-stop shop has been set up to reduce bureaucracy and to improve operational efficiencies. Thanks to the establishment of the one-stop shop to manage investor relations, the required time for company registration decreased from one month to one day. The IT system played a significant role in this improvement along with the consolidation of all government agencies involved in company registration and investment licensing under one roof.
- **Cold-Storage Facility:** A feasibility study has been conducted to establish a large-scale fishery development company specialized in developing and operating cold storage facilities in the port of Nouadhibou, with the goal of increasing the country's storage capacity. The goals of the new company will include the construction and operation of storage and cooling facilities. Its role would be further expanded to include co-developing and operating the industrial zone planned for the fishery in the north of the Nouadhibou port. The company will be structured as a joint venture between SONID (the investment arm of Nouadhibou Authority), private sponsors including value chain players in the supply-buy side (such as fishing companies), and potentially international DFIs.

## Bottom Line

Mauritania's second largest city, Nouadhibou, enjoys multiple natural endowments conducive to robust economic activity. Yet the city did not match its potential. The Islamic Development Bank Group helped Mauritania create a world class economic free zone in the coastal city, one that could attract foreign know-how and investment. Project development and financial and regulatory advisory were critical to the effort. The Zone was launched in 2013 and within four years attracted 155 firms and catalyzed some \$268 million in private investment.

Estimated Private  
Catalyzation  
Amount:  
**\$14.3 billion**

## Case Study 8

### WB: Programmatic Budget Support Operations in Vietnam<sup>66</sup>

*From 2001 to 2015, the World Bank and several development banks and donors supported Vietnam's plan to transition toward an equitable, market-oriented economy. The Bank engaged in a series of programmatic budget support operations amounting to over \$1.6 billion. The reforms boosted Vietnam's private sector and helped deepen integration of the country with the rest of the world. By accelerating reform implementation, the Bank support is estimated, inter alia, to have catalyzed \$14.3 billion from foreign direct investment (FDI) and private investment (\$6.8 billion in FDI and \$7.5 billion in private investment), while also increasing per capita income, private sector employment, and credit to the private sector.*

### Context

**In the mid-1980s, Vietnam, a one-party socialist state, embarked on a comprehensive reform program designed to create a more market-oriented economy.** A series of market-oriented reforms in industry, trade, and agriculture were introduced in 1986. The collapse of the Soviet Union hastened the pace of reform, and authorities intensified monetary, banking, and structural reforms, setting the stage for substantial trade and investment liberalization. The reform agenda has largely been sustained since that period. As a result, the country posted impressive economic and social results, with average annual real GDP growth of 7.4 percent during the 1990s, in addition to major progress in poverty, health, and education.

### Intervention and Collaboration

Beginning in 2001, the Bank engaged with Vietnam on a wide-ranging policy dialogue and provided a package of analytical services and financing to facilitate policy reforms. Over a span of ten years (2001 to 2012) the Bank provided Vietnam with over \$1.6 billion in financing through ten budget support operations (called Poverty Reduction Support Credits or PRSCs). These programmatic, multi-sector operations comprised of four broad areas of engagement: (1) private sector development through greater competition, both domestic, through state-owned enterprise (SOE) reforms, and external, through trade reforms and WTO accession; (2) social inclusion; (3) natural resource management; and (4) modern governance. The Asian Development Bank (ADB) was actively engaged in many of the reforms and provided parallel financing, as well as technical assistance, and funded projects focused on post-WTO support, trade facilitation, making markets work better for the poor, small and medium enterprise (SME) development, public-private partnerships (PPPs), and SOE reforms.

**The PRSC directly contributed to catalyzing private sector investment in Vietnam.** The operations promoted greater internal and external competition



and improved efficiency and resource allocation in the economy. Reforms that were particularly catalytic in helping the country transition to a market economy are those related to improvements of the regulatory framework for private sector development, international trade integration (especially WTO accession), SOEs, and the banking sector.<sup>67</sup>

**Private sector development (PSD) reforms focused on improving the investment climate.** Reforms included simplifying and shortening business registration, promoting investment and enterprise through legislation, and promoting SME development through revised regulations. These reforms improved Vietnam’s global competitiveness ranking markedly. Vietnam jumped from the bottom 20 percent of countries in the 2001 World Economic Forum’s Global Competitiveness Index to the top 40 percent in 2015.<sup>68</sup> Similarly, in the World Bank’s Doing Business ranking, the “Starting a Business” component shows that Vietnam’s Distance-to-Frontier (DTF)—i.e., how far the country was in this indicator compared to the best country—jumped from 66.1 in 2004 to 79.2 in 2015. Empirical evidence for ASEAN countries have shown that a host country’s business regulatory framework is one of the most influential determinants of the magnitude of FDI inflows (Vogiatzoglou, Klimis, 2016; Corcoran and Gillanders, 2015). Combined with complementary reforms such as those to trade, SOEs, and finance, this led to a surge in private sector enterprises, from virtually none in 1990, to 40,000 in 1999, and 650,000 in 2015 (World Bank, 2016).

**Trade reforms were mostly guided by Vietnam’s goal of WTO accession.** To respond to the ASEAN Free Trade Agreement and to prepare for the WTO accession, Vietnam in 1995 initiated a series of reforms. In 2003 the authorities decided to accede to the WTO as early as possible. Considering this, WB, IFC, ADB, and donors supported the implementation of reforms that helped meet Vietnam WTO accession commitments. The specific policy reforms supported by the PRSC series included the elimination of quota restrictions and issuing regulations and laws to foster WTO accession (for example, customs and intellectual property law, and harmonization of health and safety standards). These reforms paved the way for Vietnam’s 2007 WTO accession and markedly improved trade competitiveness.

Reforms related to SOEs included a narrowing of the list of sectors for exclusive state ownership, adoption and implementation of restructuring/transformation plans for SOEs, strengthening the mechanisms for equitization and governance of SOEs, and the disclosure of performance, budgets, final accounts, and fiscal risks of SOEs. Successive rounds of restructuring, liquidation, divestment and equitization drove the number of enterprises fully owned by the state from over 12,000 in 1989 to fewer than 750 in 2014 (World Bank, 2016). This, along with PSD reforms, provided the necessary space for the private sector to strive.

Key banking sector reforms focused on strengthening banking practices, regulation, and supervision of state-owned commercial banks (SOCBs) to align them with international standards or practices. These included plans to resolve nonperforming loans, public disclosure of financial statements, increased equity stakes allowed for foreign investors, a revised law on Credit Institutions to provide profit orientation

and full autonomy to SOCBs, a revised central bank law, strengthening the central bank's credit information center development of a credit bureau, and creation of a stock exchange in line with international principles.

### Results<sup>69</sup>

Estimates provided below are indicative as attribution is particularly challenging given the array of reforms (e.g., how the PRSC accelerated reforms or their quality), shocks, and partners during the period.

**From a macroeconomic perspective, performance under the PRSC series has been robust, especially in parts of the economy supported by the reforms.** Real GDP growth averaged 6.8 percent per year during from 2001 to 2015. The 2001-2007 pre-WTO accession period saw average real GDP growth of 7.7 percent. From 2008 to 2015, notwithstanding the impact of a muted global economy following the global financial crisis, Vietnam managed to post average real GDP growth of 5.9 percent, with growth accelerating toward the end of that period (to 6.7 percent in 2015). Growth was also increasingly driven by the private sector. For example, while gross fixed capital formation was broadly stable as a share of GDP from 2001 to 2015, the private sector share grew strongly. Similarly, FDI and exports boomed during the PRSC period, as detailed below. As noted by IEG (2010) in their analysis of Vietnam's first PRSC series, the strong links between export growth, the growth of private sector investment and employment, and the growth of infrastructure services suggest that the reforms supported by the PRSC have played an important role in achieving these aggregates.

**PRSC-era trade integration reforms transformed Vietnam into one of the world's most integrated economies, generating large benefits in terms of trade and income per capita.** Vietnam is now among the world's most open economies. Its world export and import market shares rose roughly fivefold over the last 15 years. Export growth has been particularly strong in labor-intensive manufacturing of apparel, footwear, and electronics. Exports grew more than tenfold from 2001 to 2015 (Hanh, 2011).<sup>70</sup> Hanh (2011) using an augmented gravity model and a panel data set covering bilateral trade and FDI between Vietnam and its 17 most important partner countries over the period 1990-2008 finds that WTO accession indirectly encouraged Vietnam's exports through the FDI channel. Improvements to the efficiency of trading across borders such as lower monetary or time costs of customs clearance, has been shown to significantly improve trade (e.g., Hummels and Schaur, 2013; Volpe Martincus et al., 2015). In turn, increases in trade boost per-capita income, with a 1 percent increase in trade associated with more than a one-half percent rise in per-capita income in economies that facilitate firm entry (Freund and Bolaky, 2008), as observed in Vietnam during 2003-15: exports grew by 705 percent while GNI per capita rose by 290 percent.

Sustained reforms to boost international trade, including through WTO accession, led to a surge in FDI in Vietnam. FDI expanded from 3.8 percent of GDP in 2001 to 6.2 percent of GDP in 2015, with average inflows reaching 6.9 percent of GDP from 2007 to 2015.

The catalytic role of the prospect, and then actual WTO accession on the surge in FDI that Vietnam is well documented in the literature. For example, Hanh (2011) finds that WTO accession has a significantly positive effect on Vietnam's inward FDI. Dollar (2002), prior to the 2003 commitment to accelerate WTO accession, projected that FDI (and growth) would taper from the robust growth witnessed in the 1990s unless the country's weak infrastructure of international integration is addressed—which is precisely what PRSC-supported reforms successfully tackled.

**The PRSC played an important role in Vietnam meeting its commitments for WTO accession, and catalyzed an estimated \$6.8 billion in FDI.** Merchandise exports grew from 41 percent of GDP at the beginning of the PRSC period to 61 percent by the end, with the share of the private sector in non-oil exports growing from 44 percent to 77 percent. All quantitative restrictions were eliminated and WTO accession was achieved in 2007. The extent to which the PRSC series (and the engagement of other MDBs) accelerated Vietnam's accession is difficult to ascertain but nonetheless critical to estimating its catalyzation impact. The WTO accession process lasted for 11 years (1995–2007).

If the PRSC series accelerated this process by three years, it would have catalyzed \$6.8 billion through this acceleration.<sup>71</sup>

**Through its impact on private sector development the PRSC is estimated to have catalyzed \$7.5 billion in private investment.** Evidence at both the macro and micro levels confirm that there has been a major reallocation of production resources—both labor and capital—to private sector enterprises. These have absorbed a growing share of banking sector credit and have been prime job creators. As a result, not only was overall real GDP growth strong but it became increasingly private sector driven. The non-state sector—including household, private, collective, and foreign-owned enterprises—on average contributed about 70 percent of Vietnam's growth during 2010–2015. Private companies now contribute more than 50 percent of GDP and create over 60 percent of all new jobs (World Bank, 2016). In terms of investment, while gross fixed capital formation was broadly stable as a share of GDP from 2001 to 2015, the private sector share grew strongly, from 8.0 to 12.6 percent of GDP between 2001 and 2015. Domestic private investment (excluding FDI) grew from a 2000–2002 annual average of 8.4 percent of GDP, to 13.9 percent of GDP during 2003–2015. Assuming the PRSC series accelerated the reform process that led to this surge by three years, then the total amount of private investment catalyzed by the PRSC is \$7.5 billion.<sup>72</sup>

**PRSC-supported reforms led to a rapid boom in total credit to the private sector.** Credit to the private sector jumped almost 25-fold during 2001–2015.<sup>73</sup> The extent to which the PRSC series (and the engagement of other MDBs) accelerated Vietnam's surge in credit to the private sector is difficult to ascertain as it is not clear, for example, whether some reforms would not have occurred without the PRSC or whether the PRSC simply improved the quality or pace of those reforms. Assuming the PRSC series accelerated reforms by three years then the total amount of credit to the private sector generated through this acceleration is \$62.5 billion.<sup>74</sup> This amount drops to \$38.5 billion and \$17.9 billion in case of an acceleration of two or one years, respectively.

## Bottom Line

The Bank, in conjunction with IFC, MIGA, and other multilateral development banks, embarked in 2001 on a multipronged program to assist Vietnam's efforts to move to a more market-based economy, with greater space for private enterprise and easier entry for firms. Components of the program included private sector development through greater competition, SOE and trade reforms, support for WTO accession, social inclusion, natural resource management, and modern governance. The program helped Vietnam accede to the WTO and catalyzed \$6.8 billion in foreign direct investment and \$7.5 billion in private investment over the 2001–2015 period.

## References

- Ayyagari, M., P. Juarros, M.S. Martinez Peria, and S. Singh. 2016. "Access to Finance and Job Growth." World Bank Policy Research Working Paper No 7604.
- Corcoran, A. and R. Gillanders. 2015. "Foreign Direct Investment and the Ease of Doing Business." *Weltwirtschaftliches Archiv* 151(1): 103-126.
- Dollar, D. 2002. "Reform, Growth, and Poverty in Vietnam." World Bank, Washington DC.
- G20-IFA Working Group. 2017. "Principles of MDBs' strategy for crowding-in Private Sector Finance for growth and sustainable development."
- Freund, C. and B. Bolaky. 2008. "Trade, Regulations, and Income." *Journal of Development Economics* 87(2): 309-321.
- Giannetti, C. and N. Jentzsch. 2013. "Credit Reporting, Financial Intermediation and Identification Systems: International Evidence." *Journal of International Money and Finance* 33: 60-80.
- Hanh, Pham Thi Hong. 2011. "[Does WTO Accession Matter for the Dynamics of Foreign Direct Investment and Trade? Vietnam's New Evidence.](#)" *Economics of Transition* 19(2): 255-285.
- Hummels, D. and G. Schaur. 2013. "Time as a Trade Barrier." *American Economic Review* 103(7): 2935-2959.
- Grawe, Roger. 2010. "Poverty Reduction Support Credits: Vietnam Country Study," IEG Working Paper 2010/9.
- Martinez Peria, M.S. and S. Singh. 2014. "The Impact of Credit Information Sharing Reforms on Firm Financing," World Bank Policy Research Working Paper No. 7013, Washington DC.
- Vogiatzoglou, K. 2016. "Ease of Doing Business and FDI Inflows in ASEAN." *Journal of Southeast Asian Economies* 33(3): 343-63.

Volpe M., C. Jerónimo Carballo; and A. Graziano. 2015. “Customs.” *Journal of International Economics* 96(1): 119-37.

World Bank. 2016. “Sustaining Success: Priorities for Inclusive and Sustainable Growth.” *Vietnam Systematic Country Diagnostic*, Washington DC.

## Endnotes

1. This case study was prepared by the staff of ADB, which is solely responsible for its content.
2. World Bank. 2005. *Philippines: Meeting Infrastructure Challenges*. Manila.
3. ADB. 2017. *Scaling Up Infrastructure Investment in the Philippines: Role of Public-Private Partnership and Issues*. Manila.
4. Executive Order 8 dated 9 September 2010.
5. Australian Agency for International Development (AusAID) is the Australian Government agency responsible for managing Australia’s overseas aid program until 2013. On November 1, 2013, its work was integrated into the Department of Foreign Affairs and Trade (DFAT), which since that time has responsibility for the Australian Aid program.
6. The Canadian International Development Agency (CIDA) was a federal Canadian organization that administered foreign aid programs in developing countries. The agency was merged into the Department of Foreign Affairs in 2013 and was renamed “Global Affairs Canada” in 2015.
7. The PDMF Board was renamed the PDMF Committee in May 2013 and carries that name to this date.
8. ADB. 2012. Report and Recommendation of the President to the Board of Directors: Proposed Programmatic Approach and Policy-Based Loan for Subprogram 1—Republic of the Philippines: Increasing Competitiveness for Inclusive Growth Program. Manila.
9. Expanding Private Participation in Infrastructure (EPPPI) Subprogram 2.
10. Executive Order 136 dated 28 May 2013.
11. This case study was prepared by the staff of AfDB, which is solely responsible for its content.
12. The financial catalytic effect is derived from the development outcome expected synthesized in the ADOA note. Those expectations are set-up ex-ante and monitored ex-post during supervision missions.
13. This case study was prepared by the staff of EBRD, which is solely responsible for its content.
14. This case study was prepared by the staff of EIB, which is solely responsible for its content.
15. World Bank Group Enterprise Surveys, Tanzania. 2013. <http://www.enterprisesurveys.org/data/exploreconomies/2013/tanzania>.
16. Steinbuks and Foster (2009: When do firms generate? Evidence on in-house electricity supply in Africa) estimated the average cost per kWh of own electricity to be \$0.29 whereas the price for kWh purchased from public grid amounted to \$0.09 using data for Tanzania from the World Bank’s Enterprise Survey conducted in 2006. A more recent case study in Uganda (Steward
17. See World Bank’s Enterprise Survey.
18. The World Bank’s Enterprise Survey provided data regarding the total annual costs for labor, raw materials, fuel electricity, machineries, lands, buildings and other costs of production of the interviewed firms. It is possible then to compute the share of cost for electricity over the total annual costs sustained by the enterprise.
19. Micro firms represent 40 percent of the interviewed sample by the World Bank in Tanzania while large firms about 3 percent.
20. European Investment Bank. 2014. Methodologies for the Assessment of Project GHG Emissions and Emission Variations, Version 10.1. [http://www.eib.org/attachments/strategies/eib\\_project\\_carbon\\_footprint\\_methodologies\\_en.pdf](http://www.eib.org/attachments/strategies/eib_project_carbon_footprint_methodologies_en.pdf).
21. TANESCO future transmission network will include ongoing projects of a 220-kilovolt line from Makambako to Songea; a 132-kilovolt line from Moshi to Arusha; a 132-kilovolt line along the Dar ring (Ubungo-Kurasin-Mbagala-G’mboto-Kipawa). Other projects at inception stages include a 400-kilovolt transmission line from Dar es Salaam to Arusha via Chalinze and Tanga; a 400-kilovolt line from Singida to Arusha; a 400-kilovolt line along Nyakanazi-Kigoma-Mpanda-Sumbawanga; a 400-kilovolt line from Mbeya to Sumbawanga; a 400-kilovolt line from Iringa to Mbeya; a 400-kilovolt line from Mtwara to Songea; a 220-kilovolt line from Bulyanhulu to Geita; a 220-kilovolt line from Geita to Nyakanazi; a 220-kilovolt line from Kibaha to Bagamoyo; and a 220-kilovolt line from Ruhudji to Kisada.
22. Some relevant literature to consider: Lassana Cissokho and Abdoulaye Seck 2013. Electric power outages and the productivity of small and medium enterprises in Senegal. Beenstock, M., Goldin, E., Haitovsky, Y., 1997. The cost of power outages in the business and public sectors in Israel: revealed preference vs. subjective valuations. *The Energy Journal* 18 (2), 39–61. Caves, D.W., Herriges, J.A., Windle, R.J., 1992. The cost of electric power interruptions in the industrial sector: estimates derived from interruptible service programs. *Land Economics* 68 (1), 49–61. Grainger, C.A., and Zhang, F., 2017. The Impact of Electricity Shortages on Firm Productivity: Evidence from Pakistan. Policy Research Working Paper; No. 8130. World Bank, Washington, DC. Foster, V., Steinbuks, J., 2009. Paying the price for unreliable power Supplies: In-House generation of electricity by firms in Africa. World Bank Policy Research Paper 4913. April. Kessides,

- C., 1993. *The Contributions of Infrastructure to Economic Development: A Review of Experience and Policy Implications*. World Bank Discussion Paper 213. Washington, DC.
- Oseni, M.O. and Pollitt, M.G. 2015. A firm-level analysis of outage loss differentials and self-generation: Evidence from African business enterprises, *Energy Economics*, 52, Part B, 277–286.
- Lee, K.S., Anas, A., 1992. *Impacts of Infrastructure Deficiencies on Nigerian Manufacturing: Private Alternatives and Policy Options*. Infrastructure and Urban Development Department Report 98. World Bank, Washington, DC.
- Andersen, T.B., and Dalgaard C.-J., 2013. Power outages and economic growth in Africa, *Energy Economics* 38, 19–23.
- Vasconcelos, P.S. and Tapia Carpio, L.G., 2014. Estimating the economic costs of electricity deficit using input–output analysis: the case of Brazil, *Applied Economics*, 47 (9), 916–927.
- Mayer I. and Sommer, M.W., 2014. *Employment Effects of Renewable Energy Supply A Meta Analysis*, WIFO Policy Paper no 12.
23. Steinbuks, J. and Foster V. 2010. “When do firms generate? Evidence on in-house electricity supply in Africa,” *Energy Economics*, 32 (3), 505–514. Steinbuks and Foster estimated the marginal cost of own-generation from information about acquisition and running cost of in-house generating capacity and from data on the frequency of power outages. The results suggested that in most of the countries of Africa, the average cost of self-generated electricity was significantly higher than the cost of electricity from the public grid. The major exceptions were the countries in which fuel was heavily subsidized (e.g. Algeria and Eritrea). We apply the same econometric method to the data provided by the World Bank’s Enterprise Survey conducted in 2013 in Tanzania.
24. IFC. 2015. *Power Sector Economic Multiplier Tool: Estimating the Broad Impacts of Power Sector Projects*. Steward Redqueen. 2016. *The Link between Renewable Energy and Jobs*. Steward Redqueen. 2016. *The Link Between Power & Jobs in Uganda*.
25. See IMF Country Report 18/11. United Republic of Tanzania: Seventh Review under the Policy Support Instrument. January 2018.
26. This case study was prepared by Maria Laura Lanzalot, Alessandro Maffioli, Rodolfo Stucchi, and Patricia Yañez-Pagans. For questions and more information please contact [patriciaya@iadb.org](mailto:patriciaya@iadb.org).
27. In 2007, the total amount of cargo transported through the Panama Canal was 312 million tons, representing 5 percent of the world seaborne trade (IDB, 2006).
28. Information corresponds to 2016, considering the 2016 GDP of \$55,188 million reported by the World Development Indicators and the contributions to the National Treasury reported by the Panama Canal Authority of US\$ 1,013 million in 2016.
29. The Panama Canal/Universal Measurement System (PC/UMS) is based on net tonnage, modified for Panama Canal purposes. PC/UMS is based on a mathematical formula to calculate a vessel’s total volume; one PC/UMS net ton is equivalent to 100 cubic feet of capacity.
30. Information extracted from the Completion Report. Common Terms Agreement among Autoridad del Canal de Panama and Credit Facility Lenders (2017). The original project cost was estimated to be \$5.25 billion.
31. We convert results presented in US\$ PPP values to US\$ using the PPP exchange rate reported for Panama by WEO for 2007–2016. The total impacts are equal to US\$ 81 PPP and total project investment in PPP values is \$9.254 billion PPP.
32. For infrastructure spending in the US a GDP multiplier effect between 1.6 to 1.8 is reported by Bivens (2011). A more recent study by Leduc and Wilson (2015) reports a multiplier of 2 for highway investments in the US, but highlights the large heterogeneity observed in effects according to the time horizon used in the analysis. They obtain a short-term or impact multiplier of 3 and a long-run multiplier of 8 when considering six to eight years out.
33. We also compute catalyzation figures for Gross Domestic Product (GDP) and obtain even larger effects. The overall multiplier is 16 for the period 2006–2016. The short-term multiplier is 2 and the medium-term is 4.
34. Private capital calyztion is defined as private financing that results from the development impact of an activity, or multiple activities. These flows could come because of an improved investment climate (which lowers levels of risk and costs to the private sector), better infrastructure, improved business environment, or similar changes. Includes private cofinancing.
35. World Bank database (<https://datacatalog.worldbank.org/dataset/world-development-indicators>).
36. International Monetary Fund (<https://www.imf.org/external/pubs/ft/weo/2017/02/weodata/index.aspx>).
37. This ranking reports the top 125 ports in the port, covering 53 countries.
38. Despite the financial crisis in 2009, the Panama economy reported a growth rate of 3.9 percent that year. Moreover, between 2006 and 2011 Panama exhibit an average growth of 8.9 percent.
39. An extension of this work, explores impacts of the Panama Canal expansion on GDP and GDP per capita finding robust positive effects as well. Results are reported in the annex.
40. Check Abadie, Diamond, and Hainmueller (2010) for more details on this approach.
41. The RMSPE measures lack of fit between the path of the outcome variable for any particular country and its synthetic counterpart. The cross-validation technique is similar to minimizing out-of-sample prediction error. We convert results presented in US\$ PPP values to US\$ using the PPP exchange rate reported for Panama by WEO for 2007–2016. The total impacts are equal to US\$81 PPP and total project investment in PPP values is US\$ 9.254 billion PPP.
42. This case study was prepared by the staff of IFC, which is solely responsible for its content.
43. Ganguly, Bidisha. “Investment Requirements in India 2014–15 to 2018–19.” 2014. Confederation of Indian Industry.
44. “Financial Stability Report.” 2013. Reserve Bank of India.
45. “Masala Bond Program – Nurturing a Local Currency Bond Market.” 2017. EM Compass Note 30. IFC
46. “Accessing the Global Markets Through London.” 2017. London Stock Exchange Presentation.

47. “An Evaluation of IFC Treasury’s Local Currency and Capital Markets Development Program.” 2017. IFC.
48. Kohli, Renu, Pravakar Sahoo, and M. Shuheb Khan. 2017. “Developing India’s Offshore Local Currency Bond Market: Lessons from Emerging Countries.” Indian Council for Research on International Economic Relations.
49. “India’s Debt Markets: The Way Forward.” 2017. Asia Securities Industry and Financial Markets Association.
50. Ibid
51. Ibid
52. An Evaluation of IFC Treasury’s Local Currency and Capital Markets Development Program.” 2017. IFC.
53. “Monetary Policy Report.” 2016. Reserve Bank of India.
54. Mundy, Simon. 2017. “Foreign investors tuck into India’s masala bonds.” Financial Times. July 27.
55. Acharya, Amarendra. 2011. “Corporate Bond Markets in India: Issues and Challenges.” Reserve Bank of India Occasional Papers 32 (3).
56. “India’s Debt Markets: The Way Forward.” 2017. Asia Securities Industry and Financial Markets Association.
57. Chaudhari, Kanad, Raje, Mennal, Singh, Charan, “Corporate Bond Markets in India: A Study and Policy Recommendations.” 2014. Indian Institute of Management—Bangalore.
58. Kohli et al. 2017.
59. “India’s Debt Markets: The Way Forward.” 2017. Asia Securities Industry and Financial Markets Association.
60. “An Evaluation of IFC Treasury’s Local Currency and Capital Markets Development Program.” 2017. IFC.
61. For this section, we use an approach based on the one used by Anmol Chopra from the Reserve Bank of India in the paper “Masala Bonds: A Viable Option for Capital: Starved Indian Public Sector Banks,” published in *The Journal of Emerging Trends in Economics and Management Sciences* (2017) and introduce some adjustments to estimate a potential market size for the Masala Bonds.
62. Kohli. et. al. 2017.
63. India Masala Bond Roundtable. 2015. London Stock Exchange.
64. Hughes, Jennifer. 2017. “Pandas take bite out of Hong Kong dim sum bond market.” Financial Times, September 4.
65. This case study was prepared by the staff of IsDB Group, which is solely responsible for its content.
66. This case study was prepared by the staff of the World Bank, which is solely responsible for its content.
67. Other reform areas supported by these PRSCs, such as public finance management reforms, also contributed to a de-risking of the economy, but their contribution to catalyzation is difficult to identify. Given these identification challenges, the PRSC catalyzation estimate is limited to the above-mentioned direct reforms.
68. Vietnam’s GCI ranking moved from 60th out of 75 countries in 2001, to 56th out of 140 countries in 2015.
69. As defined by the G20-IFA WG (2017), private investment catalyzed is defined as private sector financing that results from the development impact of an activity, or multiple of activities of an MDB. The amount of PIC includes investments made as a result of an operation up to three years after it is completed. In the Vietnam case, the end of implementation of the PRSC 10 operation was 2012, so PIC mobilized from 2001 to 2015 are included in our estimates.
70. From \$15 billion (46.2 percent of GDP) to \$162.1 (84.6 percent of GDP).
71. Estimated using a difference in average FDI inflows between 2000–2002—the pre-accession and pre-PRSC period—and 2007–2015 (the post-accession period), i.e., 2.7 percentage points of GDP (= 6.9 – 4.3 percent of GDP). This estimate assumes that, had WTO accession been delayed from 2007 to 2010, FDI inflows during those years would have remained at the average of pre-WTO accession (as a ratio of GDP).
72. Estimated by the difference in total private investment between 2000–2002—the pre-PRSC period—and 2003–2015 (the PRSC period), i.e., 5.4 percentage points of GDP (= 13.9 – 8.4 percent of GDP).
73. From \$7.4 billion in 2001 (22.7 percent of GDP) to \$181.3 billion in 2015 (94.7 percent of GDP).
74. This estimate is calculated using the difference in credit to the private sector (in percent of GDP) between 2000–02 and 2003–15, i.e., 42.5 percentage points of GDP (= 68.0 – 22.9 percent of GDP).

