



# **Policy Note: Infrastructure Finance in Armenia**

December 2017

## **CURRENCY EQUIVALENTS**

(Exchange Rate Effective as May 5, 2017)

Currency Unit = Armenia Dram (AMD)

USD1.00 = 484.77 Armenian Dram

## **ARMENIA GOVERNMENT FISCAL YEAR**

January 1 – December 31

## **Glossary of Acronyms**

AP:	Availability Payment
AUM:	Assets under Management
CBA:	Central Bank of Armenia
CSI:	Center for Strategic Initiatives
DFA:	Development Foundation of Armenia
DFI:	Development Finance Institution
DMO:	Debt Management Office (under the Ministry of Finance)
ENA:	Electricity Networks of Armenia
FVS:	Financial Viability Support
GFCF:	Gross Fixed Capital Formation
LT:	Long Term (maturities of 5 years and beyond)
MEDI:	Ministry of Economic Development and Investments
MoF:	Ministry of Finance
MLT:	Medium and Long Term (maturities of 1 year and beyond)
MT:	Medium Term (maturities between 1 year and 5 years)
PIM:	Public Investment Management
PPP:	Public Private Partnership
SOE:	State-Owned Enterprise
VGF:	Viability Gap Fund

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## **Preface**

At the invitation of the Armenian authorities, the World Bank prepared this policy note assessing the environment for commercial financing of infrastructure in Armenia and advising on policies to expand its volume and enhance its quality. The task team consisted of Brett E. Coleman (Task Team Leader, Senior Financial Sector Specialist), Arnaud Dornel (Lead Financial Sector Specialist, Long-Term Finance & Risk Management), and Ali Alkhalfan (Financial Sector Specialist), with the support of Nasreen Chudry Bhuller (Program Assistant). The report benefited from inputs provided by Clive Harris (Practice Manager, PPP), Jana Krajcovicova (Private Sector Specialist, Investment Climate), Arsen Nasaryan (Senior Private Sector Specialist), Gayane Mkrtchyan (Private Sector Specialist), Arman Barkhudaryan (IFC, Country Officer for Armenia), and Kim Tae-Yoon (Consultant). The peer reviewers were Albert Amos (Senior Financial Sector Specialist), and an energy-sector team consisting of Arthur Kochnakyan (Senior Energy Specialist), Abdulaziz Faghi (Senior Energy Specialist), Emil Zalinyan (Energy Specialist), and Almuneda Merino (Senior Energy Specialist).

The team would like to thank the Central Bank of Armenia, the Ministry of Finance, the Ministry of Economic Development and Investments, the Ministry of Transport Communication and Information Technologies, the Ministry of Energy Infrastructure and Natural Resources, the Center for Strategic Initiatives, other government officials, and representatives of the financial sector, private investors, the Asian Development Bank, the European Bank for Reconstruction and Development, and Agence Française de Développement for their generous cooperation with the team. The main findings of the report were discussed during a roundtable senior representatives of the government and multilateral partners, which was organized by the Central Bank in June 2017.

## Executive Summary

- i. In order to sustain economic growth, Armenia needs to invest in infrastructure – much of this on a commercial basis given the limited fiscal space available and high level of public debt.** Indicatively assuming investment needs of USD 150-200 per capita typical of lower-middle income countries (in the absence of bottom-up, sector-specific estimates), Armenia could require annual expenditure of USD 450-600 million in energy, transport, telecommunication, water, and sanitation (not counting investment in regional connectivity projects).
- ii. The private sector has actively participated in infrastructure investment in Armenia, notably by way of divestiture, concessions, lease, and management contracts.** Significant transactions include the concession of Yerevan’s Zvartnots international airport, management of the country’s water supply systems by a private operator on a lease basis, distribution of electricity licensed to privately-owned Electric Networks of Armenia, privatization of the Vorotan 405 MW hydro cascade, and outsourcing of Yerevan’s municipal waste collection. New projects under consideration by the government on a PPP basis include stretches of the North-South Road Corridor Project, renewable-energy projects such as a 55 MW solar plant expected to be tendered in the coming months, and projects in health care and municipal services.
- iii. Beyond direct state funding from current tax revenues, infrastructure investment can be commercially financed through a mix of (a) public finance (borrowing guaranteed by the state), (b) corporate finance (loans to corporate borrowers), (c) project finance (loans to project companies repaid from future cash flows).** Project finance is suitable for large commercial infrastructure projects requiring long maturities, but so far has seldom been used to finance infrastructure projects in Armenia. Extrapolating from experience in peer countries, Armenia could indicatively aim to close half a dozen infrastructure project finance transactions in the next ten years, each worth USD 100-300 million.
- iv. Armenia could formulate an overall infrastructure investment and finance program in conjunction with international donors in accordance with a “cascade” approach.** This entails, successively: (i) identifying whether parts of an infrastructure development program can be financed on commercial terms; (ii) when commercial financing is not viable, undertake upstream reforms to strengthen policies, regulations, institutions and capacity; (iii) if reforms are not sufficient, explore the possibility of deploying concessional and public resources to strengthen the bankability of priority investments; and finally (iv) where commercial financing is not feasible despite sector reform and risk mitigation, mobilize public and concessional resources. Armenia’s infrastructure finance agenda touches upon three key dimensions: (a) the origination of an abundant, mature pipeline of bankable infrastructure projects, (b) a business climate conducive to commercial investment in infrastructure, and (c) the availability of long-term financing for infrastructure projects
- v. The country needs to systematize its pipeline of infrastructure projects and strengthen the origination of transactions.** Upstream in the project origination process, the country should adopt a more explicit Public Investment Management (PIM) framework to prioritize infrastructure projects based on economic and financial strength. Projects exhibiting value for money can then be matched with potential PPP structures with the assistance of a PPP Unit that would help line ministries identify, evaluate and tender prospective PPP project; bring these projects to market for financing; and coordinate across agencies. In view of prevailing budget constraints, technical assistance funding should be sought to establish a Project

Preparation Facility allowing relevant agencies to hire top-notch advisors (initially, early-stage advisors to help develop a bankable pipeline; and subsequently, transaction advisors to bring mature deals to market).

- vi. **The existing regulatory framework needs to incorporate specific provisions for PPPs, and practices need to be improved.** In the absence of an explicit PPP framework, transactions in Armenia are implemented under broader laws, such as the Public Procurement Law (2011). Although the law favors competitive bidding, in practice most PPP transactions in Armenia have been sourced through unsolicited proposals and direct negotiation. Direct negotiation (also known as sole-source procurement) may be justifiable when few bidders are interested or qualified, but it significantly increases the risk of political interference and needs specific procedures to ensure that the process is fair, efficient, and protects public interest. In order to attract the interest of a broader range of international investors and financiers for future transactions, the practices for the tender, evaluation, and award of PPP projects should be kept strictly open and transparent. Separately, the country needs to expand the number of credit-worthy infrastructure obligors able to raise funds on commercial terms both directly as issuers, and indirectly as contractual counterparts underpinning project finance transactions.
- vii. **Going forward, financing from multilateral and bilateral sources will need to be complemented by other sources, notably international and domestic commercial banks.** Most infrastructure finance transactions in Armenia to date have been arranged by multilateral partners - IFC, EBRD, and ADB, at times associated with Germany's DEG, Netherland's FMO, or France's AFD. International banks have considerable global expertise in structuring project financings. In view of the country's sub-investment grade sovereign credit rating (B+ by Fitch, B1 by Moody's), their prerequisites typically include (a) mitigation of country risk - either through risk transfer instruments (export credit, MIGA, World Bank guarantee, etc.), and (b) clientele interest i.e., participation of a core strategic client as project sponsor.
- viii. **Local banks have increased long-term lending in recent years, but still only have limited involvement in infrastructure finance.** Their loan portfolio amounts to only USD 220 million equivalent (lending to the energy sector includes micro hydro and renewable power plants, with maturities up to 5-7 years). Reasons for this include: (a) a reluctance to assume credit or reputation risk on obligors whose business model hinge on political patronage; (b) credit methodologies emphasizing past financial results and availability of collateral rather than future cash flows; (c) a lack of familiarity with project and structured finance; (d) the relatively small size of individual domestic banks; (e) the absence of a local syndicated loan market; and (f) a high cost of funds and lending interest rates. Public policies can be formulated to address these issues and facilitate intermediation by the domestic banking system. Over time, additional sources of domestic long-term liquidity, including the bond market, can be developed to supplement the loan market. Given the modest size of domestic financial institutions and their relatively limited experience and appetite for structured finance, in practice domestic lending may be best developed in the form of domestic tranches in larger transactions arranged by experienced international lenders such as the IFC.
- ix. **Should Armenia establish a scheme dedicated to infrastructure finance?** Internationally, states have attempted various types of interventions in support of infrastructure finance. First, the state may support priority projects that are economically viable, but whose financial returns are not high enough, or are sufficiently predictable, to attract the interest of private sector investors. Such schemes, involving financial viability support (FVS), are generally incorporated in the host country's PPP framework, and can take different forms, such viability gap funds (VGF) and availability payment (AP) schemes. Other types of state intervention aim to facilitate commercial lending to financially viable projects. State support to financial intermediation can be through either a "secondary" or a "primary" route. Secondary (wholesale)

schemes foster lending from domestic financial institutions by providing them long-term liquidity or sharing risk on transactions. The primary or (retail) approach involves direct lending to commercial infrastructure obligors, through a dedicated institution.

- x. **Given the size of the economy, and the dearth of bankable projects, priority should be given to assessing the feasibility of financial viability support, and possibly “wholesale” financial sector interventions, rather than “retail” interventions.** In order to avoid governance pitfalls, any such scheme if established would need a clear mandate addressing well-identified market gaps, highly professional and independent management, a very robust governance framework, and strict financial supervision.



## Key recommendations to develop infrastructure finance in Armenia

Recommendations	Entities
<b>Pipeline of well-prepared projects able to attract commercial financing</b>	
<p>Adopt a more an explicit Public Investment Management (PIM) framework to help optimize the use of scarce public budget resources by prioritizing infrastructure projects based on (i) economic and financial strength,. (ii) ultimate funding sources (general taxpayer, sector revenues, user charges); and (iii) the catalytic impact (multiplier effect) that state support or investment in these projects may have in facilitating commercial infrastructure finance..</p>	<p>MEDI, in close cooperation with MoF, CSI, and line ministries.</p>
<p>Hire early-stage financial advisors (in addition to technical advisors) to i) conduct a preliminary bankability review of pilot PPP projects (based on available project information, taking into account the structuring and financing experience for similar projects in comparable countries), and ii) flesh out a broader pipeline of infrastructure projects potentially suitable for commercial financing. The scope of work should include an assessment of the type and extent of government support required; potential fiscal impacts of the projects, and related contingent liabilities to be assumed by the state.</p>	<p>CSI and line ministries in close cooperation with MoF, and MEDI</p>
<p>Establish a PPP unit to help line ministries and implementing agencies identify, evaluate and tender prospective PPP project; select and supervise transaction advisors; bring projects to market for financing; build implementation capacity and facilitate coordination across government agencies, and improve communication with international investors and financiers.</p> <p>The PPP unit should publish and continuously update the pipeline of infrastructure PPP projects being developed and brought to market in Armenia, including the indicative amount, maturity stage (e.g. feasibility study, approvals, pre-qualification, tendering, award, construction, completion), as well as the financing sources for PPP projects that have reached financial close.</p>	<p>MoF, MEDI, CSI</p> <p>CSI in close cooperation with line ministries</p>
<p>Seek technical assistance and funding from international donor agencies to establish a Project Preparation Facility allowing relevant agencies to hire top-notch advisors (initially, early-stage advisors to help develop a bankable pipeline; and subsequently, transaction advisors to bring mature deals to market).</p>	<p>MoF, CSI</p>
<p>Systematically identify, monitor and record financial commitments, risks and contingent liabilities incurred by state authorities as a result of infrastructure financings.</p> <p>Going forward, proactively involve the Ministry of Finance in the PPP evaluation and decision-making cycle, notably for assessing fiscal affordability, risks, and contingent liabilities that would be incurred by the state as a result of contemplated transactions.</p>	<p>MoF supported by CSI</p>
<b>Conducive investment climate for infrastructure</b>	
<p>Examine the legal, regulatory, and institutional framework to determine further reforms needed at national or sector level to attract private investment. The regulatory framework could more precisely define PPP types, clarify the institutional structure, and address the</p>	<p>MEDI, in close cooperation</p>

procurement process, evaluation criteria, term, ownership, risks, termination, security over the assets, dispute resolution, etc.	with CSI and MoF
Ensure that all PPP transactions without exception are evaluated and awarded on a fully open and transparent basis, in order to avoid any perception of political interference in the PPP process. Competitive bidding should remain the primary procurement route, and specific procedures need to be developed to handle exceptional cases of procurement requiring direct negotiation.	All ministries and contracting agencies
Improve the investor protection framework, de jure and de facto, by updating the Investment Law (1994) to align it with Armenia's international investment treaty obligations, and by ensuring its consistent enforcement.  Complete the diagnostic, design, and implement a Systematic Investor Response Mechanism (SIRM) enabling Armenia to identify, track, and manage grievances between investors and public agencies before they escalate into disputes or withdrawals.	MEDI, CSI, DFA
Seek systematic feedback on the regulatory, institutional and incentive framework as well as government practices related to PPP investment and finance through a forum facilitating consultation with international and domestic investors, commercial financiers, and international development partners, and across government agencies.	CSI, CBA
Complete an assessment and strengthen the credit-worthiness, governance, and financial transparency of corporate entities involved in infrastructure finance either directly as obligors or indirectly as counterparts (e.g., offtakers) in project financings so as to expand financing opportunities, and reduce the need for SOE borrowings to be backed by state guarantees.	MoF, State Property Management Department, line ministries
<b>Deepening financial intermediation</b>	
Banking system: develop a plan to encourage domestic banks to responsibly expand their intermediation role in the financing of infrastructure, including the following aspects: (a) knowledge of infrastructure projects and structured finance; (b) credit methodologies relying not only on historical financial results and real collateral but also on future cash flows; (c) development of a local syndicated loan market.	MoF, CBA
Supervision and monitoring: CBA to complete its review of guidelines for long-term finance, and adopt a framework consistent with Basel principles, including indicators (such as net stable funding ratio) to monitor maturity transformation and mismatch both from a prudential and development perspective.	CBA
Interest-rate market: develop a yield curve, and a market for floating interest-rate instruments, and ultimately currency and interest rate swaps and hedges.	DMO, CBA
Securities market: facilitate the participation of institutional investors and progressively expand the corporate bond market to encompass not only financial sector issuers but also corporate issuers in the infrastructure sector.	

Develop a plan to increase awareness and progressively improve the environmental and social management capability, practices and regulation of financial institutions in Armenia.	CBA
<b>State intervention schemes</b>	
Assess the business case and economic justification for establishing a Viability Gap Funding (VGF) for viable projects whose returns are not adequately captured by the private sector, and an Availability Payment (AP) scheme for viable projects involving a demand risk which cannot be assumed by investors and lenders.	MoF, CSI
Assess the feasibility of responsibly encouraging commercial lending to infrastructure by establishing a wholesale scheme providing risk-sharing, long-term liquidity or refinancing to domestic commercial banks.	MoF, CBA, CSI

CBA: Central Bank of Armenia

CSI: Center for Strategic Initiatives

DFA: Development Foundation of Armenia

DMO: Debt Management Office (under the Ministry of Finance)

MEDI: Ministry of Economic Development and Investments

MoF: Ministry of Finance

## A. Infrastructure investment and finance in Armenia

### A.1. Infrastructure needs and investment in Armenia

1. To sustain economic growth, Armenia needs to undertake large investments in infrastructure. Infrastructure has strong linkages with poverty alleviation. Directly, infrastructure improves the well-being of the poor by allowing access to infrastructure services (such as water supply). Indirectly, it improves their livelihood by creating employment opportunities (for example, through connection to the power network or mobile telephony) and by enhancing the productivity of their assets. The availability and quality of infrastructure is also a major determinant of international competitiveness of the country both as an exporter and as a host for foreign direct investment. According to the World Economic Forum, Armenia in 2017 ranked #80 out of 138 countries in terms of infrastructure quality (# 85 for roads, and #77 for electricity supply). Armenia also faces connectivity challenges which affect trade and logistics: besides being relatively small as well as landlocked, the country lives with two closed borders. In 2016, Armenia ranked 141 among 160 economies worldwide in the Logistics Performance Index.
2. Assuming national investment needs of USD 150-200 per capita typical of lower-middle income countries (as an order of magnitude, in the absence of sector-specific, bottom-up estimates), Armenia could indicatively require an investment volume in the range of USD 450-600 million annually in energy, transport, telecommunication, water, and sanitation ( These figures do not include investment in regional connectivity projects such as the North South Corridor Project (estimated at USD 3 billion, but financed only up to USD 500 million, by the ADB), or the cost of replacing the generation capacity of the ageing nuclear plant at Metsamor (to be estimated by a least-cost generation expansion plan).
3. Gross fixed capital formation (GFCF) in Armenia, which includes investment in infrastructure, has fallen from 27 percent of GDP in 2011 to 21 percent of GDP in 2015. As indicated in Table 1 below, GFCF overwhelmingly (85 percent) stems from private sector investment, which has significantly declined in the last five years - from 22 percent in 2011 to 17 percent GDP in 2015. Investment in infrastructure is not specifically tracked by national statistics, but its volume may have fallen in a similar proportion.

**Table 1: Gross Fixed Capital Formation as a share of Armenia’s GDP (2011-2015)**

	2011	2012	2013	2014	2015
<b>Total</b>	<b>27%</b>	<b>25%</b>	<b>22%</b>	<b>21%</b>	<b>21%</b>
<i>By Investor Type</i>					
Private sector	22%	22%	20%	18%	17%
Public sector	5%	3%	3%	3%	3%

Source: Armenian Statistical Service

4. Going forward, given the limited fiscal space available and considering that public debt levels already exceed 50 percent of GDP, the brunt of the investment in infrastructure will need to be commercially financed by way of projects undertaken either fully owned by the private sector, or on a public-private partnership (PPP) basis. Before addressing the policy implications, the next section of the report examines the different channels through which infrastructure is, or can be, financed in Armenia.

## A.2. How is infrastructure financed in Armenia?

5. Infrastructure can produce large socio-economic benefits, accruing to three types of beneficiaries: a) direct users of the facilities (such as water electricity consumers, transit passengers, vehicle operators, and freight shippers), b) non-user beneficiaries (such as land owners and property developers in the case of transport corridors), and c) the general public. Depending on the beneficiaries' level of income, the operators' quality of service and ability to control access, and the quality of services provided, some of the costs can be recovered from users through fees and charges. Other important economic benefits are indirect, such as increased trade, commercial development, and job opportunities. These are difficult to measure and capture, and may only be monetized by the state, through tax revenues.

6. Ultimately, the cost of infrastructure investment is paid from a combination of i) tax revenues collected from taxpayers, ii) tariff collected from infrastructure ratepayers, and iii) increased value captured from other stakeholders (such as developers benefiting from higher real estate prices brought about by urban mass transport projects). The relation between funding and financing of infrastructure is more precisely analyzed in Table 2 below.

**Table 2: Paying for infrastructure creation**

	<b>Taxpayers</b>	<b>Stakeholders</b>	<b>Ratepayers</b>
<b>Funding from current revenue</b>	<i>Budget transfer.</i> State investment is funded from current tax revenue. Taxpayers pay for future infrastructure users.	<i>Value capture.</i> State investment is funded by fees paid by stakeholders, e.g., by bidding out real estate or other development rights.	<i>Internal accruals.</i> Commercial investment is funded from current tariff revenue. Current ratepayers pay for future infrastructure users.
<b>Funding from future revenue</b>	<i>Public financing.</i> State investment is funded by state borrowing from public or private sources, and is ultimately repaid from future tax revenue. Future taxpayers pay for future infrastructure users.	<i>Future value capture reduces the net financing requirement, but is difficult to pre-finance</i> due to its uncertainty. Real estate developers may leverage their equity investment through corporate debt on their balance-sheets.	<i>Commercial financing.</i> Investment is financed by project equity and debt, which are ultimately serviced from future tariff revenue. Future ratepayers pay for future infrastructure users.

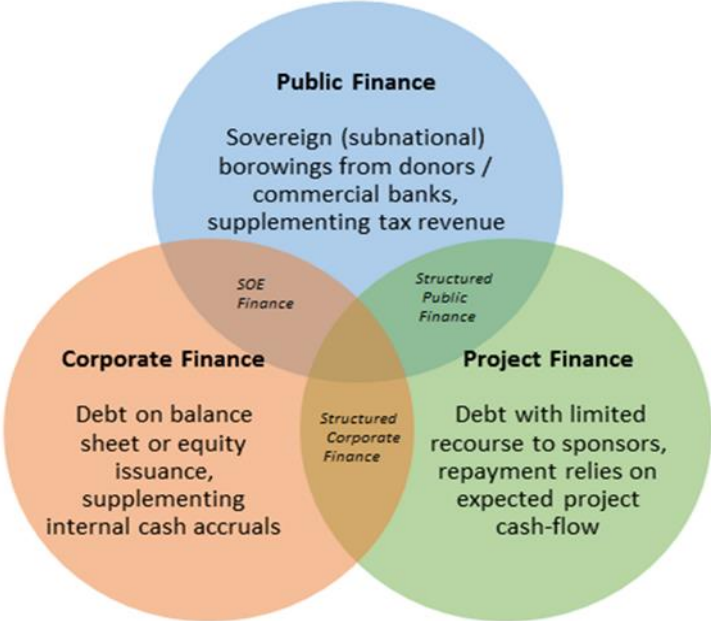
Source: derived from Estache, A. and Fay, M. *Current Debates on Infrastructure Policy, Policy Research Working Paper* (World Bank, November 2007).

7. Due to the large amounts involved, long investment and return horizons, and limited fiscal space available, commercial financing is of paramount importance to Armenia. Commercial finance combines three elements: (a) commercial financiers (investors or lenders), (b) equity or debt finance on commercial terms, and (c) commercial infrastructure borrowers and other obligors. Since the state plays such an extensive role in infrastructure, commercial finance often occurs in a hybrid rather than pure form. For example, private lenders may lend to state utilities, and state-owned financial institutions may facilitate equity and debt financing to private utilities on commercial or concessional terms.

8. Commercial investment in infrastructure can be financed in a variety of ways (Figure 1). Large-greenfield or brownfield projects are typically financed on a stand-alone “project finance” basis. Alongside project debt, project equity can be sourced from international or local project sponsors and/or from private equity funds. Smaller projects are typically funded from pure equity, or from debt guaranteed by the shareholders (“full-recourse” financing). Once in commercial operation, these projects usually fund their

working capital needs and asset expansion from corporate banking facilities. Hybrid project / corporate debt can be used to finance expansion, with repayment secured by a mix of existing and planned cash flow. Besides project or corporate finance, public finance may also play a role in commercial projects. Since the state plays such an extensive role in infrastructure, commercial finance often occurs in a hybrid rather than pure form. For example, private lenders may lend to state utilities, and state-owned financial institutions may facilitate equity and debt financing to private utilities on commercial or concessional terms.

**Figure 1: Main forms of infrastructure finance**



9. Public finance of infrastructure involves borrowing by state agencies, or by commercial entities with a state guarantee. Public finance is in principle suitable for large infrastructure projects, but amounts available are capped by the need to keep the state’s overall indebtedness within sustainable levels. Rural roads undertaken by the state with multilateral financing are an example of public finance. In the water sector, public finance supports a PPP arrangement: the state raised USD 200 million in concessional public financing from ADB, EBRD, and Germany’s KfW. In turn, water sector assets built by the state in Yerevan and most of the rest of the country are managed by a French water operator under a 10-year lease agreement.

10. Corporate finance supports investments undertaken by established corporate entities, such as public or privately owned utilities. Such projects are carried on balance-sheet, or may be incorporated in a dedicated project company whose debt is guaranteed by its shareholders. . The creditworthiness of these corporate borrowers can be assessed based on past financial results and available collateral, or by taking into account future cash flows. The borrowing capacity is determined by the debt-to-equity ratio (as a lending norm, seldom higher than 60:40) and ultimately by the ratio of net debt to gross cashflow from operations (often measured by earnings before interest, tax, depreciation and amortization, or “EBITDA”). supports projects undertaken by established corporate entities, whether public or privately owned. In practice, lenders often expect that the overall amount than can be raised by an obligor through vanilla corporate finance does not exceed three times the gross cash-flow from operations.

11. Corporate finance loans can be (plain) “vanilla”, with final maturity usually not exceeding 5 years, or they can be “structured” to allow for larger amounts and longer maturities. As an example of long-term



corporate finance, IFC, together with FMO and DEG (respectively the investment arms of Dutch and German aid agencies) recently extended an 18-year syndicated loan facility financing ContourGlobal’s acquisition of the Vorotan 405 MW hydro-cascade in February 2017. The transaction benefited from a parallel sovereign financing provided by KfW. Separately, Electric Networks of Armenia is currently negotiating with EBRD, ADB, and other international donors a 7-year syndicated loan to finance its USD 200 million multi-year investment program in electricity distribution.

12. **Project finance** refers to financing where loans are extended to a project company with limited (or no) recourse to the balance sheet of the project sponsors<sup>1</sup>. Instead, loans are expected to be repaid from future project cash flows. Project finance has been used from time to time in Armenia but mostly for export projects (e.g., financing of the Zanegzour copper and molybdenum mine in 2013 and 2015). The key metric to determine the borrowing capacity of a project is its projected debt service coverage ratio (DSCR). Project finance requires careful structuring of project contracts so that project risks are well identified and allocated to the parties best placed to bear them. Due to its relative complexity, project finance tends to be uneconomic for deals below USD 100 million. During the origination, structuring, negotiation and documentation stages, the host governments need to be advised by experienced project finance advisors.

13. Hybrid forms include, for example, the acquisition and expansion financing of telecom operator UComm, from a 7-year corporate financing with project finance features (“structured corporate finance”). Borrowing by a state utility (“SOE finance”) can be viewed as a mix between public and corporate finance, depending on the extent to which the borrower derives its credit strength from its own cash flows, or from the support of the state. Borrowings by public sector entities backed by commercial receivables, such as road funds, can be viewed as “structured public finance”.

14. These different forms of infrastructure finance each have their pros and cons, and are suitable for different types of investments, as summarized in Table 3 below.

**Table 3: Pros and cons of the main forms of infrastructure finance**

	Concept	Pros	Cons
1 <b>Project Finance</b>	<ul style="list-style-type: none"> <li>• Lenders rely on expected project cash-flow, with limited recourse to sponsors</li> <li>• Longer maturity of loans (10 to 15 yrs)</li> </ul>	<ul style="list-style-type: none"> <li>• Suitable for relatively large PPP projects (“sweet-spot” around \$100-300m)</li> <li>• Facilitates a disciplined risk allocation</li> <li>• Off B/S, off budget</li> </ul>	<ul style="list-style-type: none"> <li>• Complex structuring is required to achieve a bankable risk allocation</li> <li>• Lengthy process</li> <li>• The state may incur unrecorded contingent liabilities</li> </ul>
2 <b>Corporate Finance</b>	<ul style="list-style-type: none"> <li>• Investments financed through internal accruals + debt on balance sheet</li> <li>• Corporate loans tend to be smaller, shorter (&lt; 5 yrs) than project finance</li> <li>• Also supports contractors</li> </ul>	<ul style="list-style-type: none"> <li>• Simpler, especially in plain vanilla form</li> <li>• Available from local commercial banks or capital markets, in foreign and local currency</li> </ul>	<ul style="list-style-type: none"> <li>• Debt size capped by borrower balance sheet and cash-flow (e.g. 2-3x EBITDA)</li> <li>• Borrowers with insufficient credit strength may need guarantees from stronger entities</li> <li>• On B/S, on budget (SOEs)</li> </ul>
3 <b>Public Finance</b>	<ul style="list-style-type: none"> <li>• Sovereign or sub-sovereign borrowing</li> <li>• State assets can be outsourced to the private sector through management contracts or leases</li> </ul>	<ul style="list-style-type: none"> <li>• Implementation can be simpler, subject to procurement procedures and policy conditions from donors</li> <li>• Cheaper, especially if loans come from concessional sources (e.g. IDA)</li> </ul>	<ul style="list-style-type: none"> <li>• Concessional resources are limited</li> <li>• Non-concessional external debts are capped by the IMF envelope</li> <li>• Increases state indebtedness, already at high levels</li> </ul>

<sup>1</sup> Project sponsors are corporate (or at times state) entities who manage the project. Project sponsors are usually owners of the project company and may receive additional remuneration beyond shareholder dividends by way of a development success fee. Project sponsors play a key role during the development phase of the project, and may absorb part of the project risk by providing financial undertakings (project finance debt in which lenders have “limited recourse” to sponsors) or by entering into management or service agreements with the project company.

15. Project finance deserves attention because it is most appropriate for the largest commercial infrastructure projects as it allows sponsors to leverage their equity contribution beyond the levels achievable with plain vanilla corporate finance and supports long maturities (typically 10-15 years in emerging markets). Yet, until now, project finance has hardly been used to finance infrastructure projects in Armenia except for the concession of Yerevan’s Zvartots international airport (financed in 2006).

16. Larger financing facilities are normally provided by a syndicate” of banks lending on identical terms through a common loan documentation, in which the credit exposure, remuneration and security package are shared pro-rata among lenders. A “facility agent” and “security agent” are designated among the banks to coordinate loan administration including drawdowns, repayments, and collateral, on behalf of the bank syndicate. In “soft” markets with abundant liquidity, loans can be underwritten by arrangers who subsequently sell down their exposure to participant banks. In “hard” markets with scarce liquidity, syndicated loans are undertaken by a “club” of banks without underwriting, on a “final take” basis. Smaller credit facilities normally consist of “bilateral” loans individually extended by the respective banks. Armenia does not currently have a domestic syndicated loan market - virtually all local lending is on a bilateral basis.

### A.3. International comparisons

17. Although different countries may face different circumstances and may follow different paths in the development of their financial markets, it may be useful to draw a comparison with other developing countries to illustrate the potential for Armenia to tap financial markets to finance infrastructure investment. This section focuses on the project finance market, which is generally considered to be the most appropriate route to commercially finance large infrastructure transactions. (Note that most commercial infrastructure finance in Armenia has involved corporate finance rather than project finance, but unfortunately, international comparisons are not possible for infrastructure corporate finance as the market data required for such analysis do not exist.)

18. For purposes of this exercise, we have selected 6 peer economies with similarities to Armenia either in terms of size, level of income, or sovereign credit rating (namely Kenya, Lao PDR, Morocco, Georgia, Jamaica, and Croatia), plus 3 more advanced peer markets (Peru, Colombia, and Panama). The respective country characteristics and deal volumes achieved by the peer country sample are summarized in Table 4 below. These data provide an indication of the levels of project origination and financing that Armenia could aim to pursue going forward.

**Table 4: Project finance market volume in selected peer countries (2007-2016)**

Country	Income Group 2015	GDP per cap 2015 (\$)	2015 GDP (\$bn)	Fitch Rating	PF Infra volume 2007-16 (\$m)	Avg deal size (\$m)	Avg deal size / GDP	# Infra PF deals over 10 yrs
Panama	UMIC	13,268	52.1	BBB	3,147	262	0.7%	12
Croatia	HIC	11,536	48.7	BB	3,662	407	0.7%	9
Colombia	UMIC	6,056	292.1	BBB	15,748	630	0.3%	25
Peru	UMIC	6,027	189.1	BBB+	13,550	423	0.3%	32
Jamaica	UMIC	5,232	14.3	B	1,212	202	1.5%	6
Georgia	UMIC	3,796	14.0	BB-	804	161	1.3%	5
<b>Armenia</b>	<b>LMIC</b>	<b>3,489</b>	<b>10.5</b>	<b>B+</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>



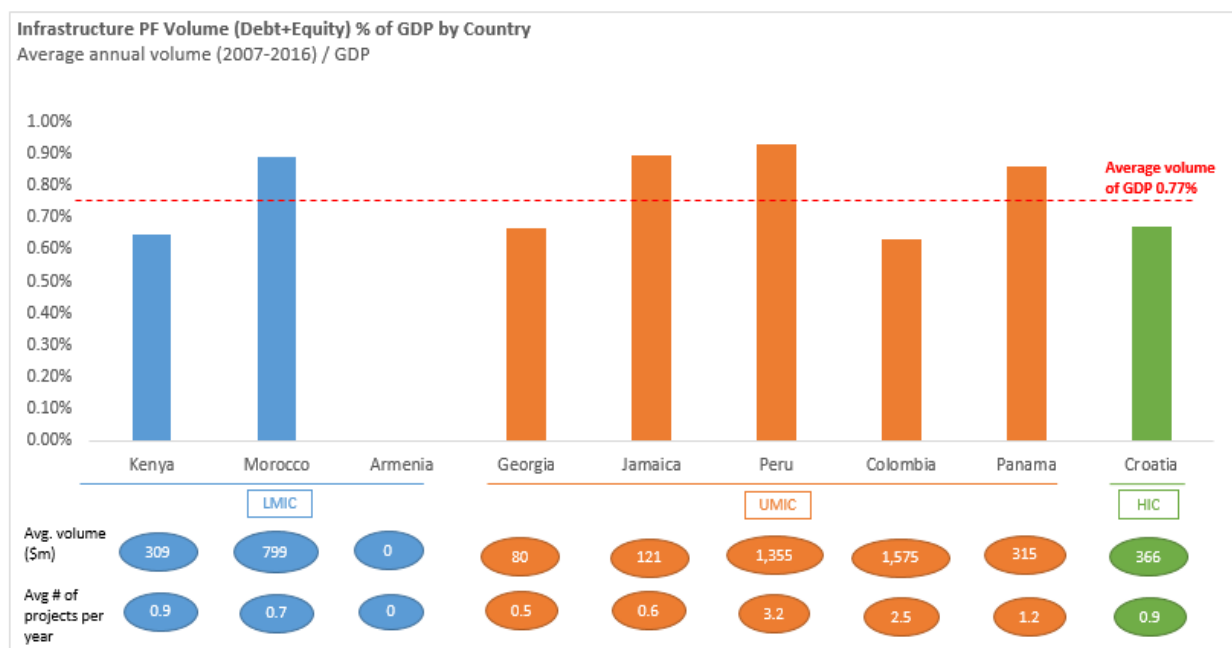
Morocco	LMIC	2,878	100.6	BBB-	7,988	1,141	1.3%	7
Lao PDR	LMIC	1,818	12.4	n/a	11,165	1,861	22.4%	6
Kenya	LMIC	1,377	63.4	B+	3,087	343	0.7%	9

Sources: World Bank data tables, team estimates for project finance volumes based on transactions as reported in Project Finance International and IJ Global.

19. As illustrated Table 4, and in Graph 1 below, peer emerging economies of comparable size, income level, and sovereign credit rating (such as Jamaica and Georgia) have each closed in the last 10 years around 5-6 deals totaling USD 800-1,200 million, or USD 80-120 million annually. Relative to size, income level, and sovereign credit rating, the Lao PDR achieved the most striking performance with an average annual volume equivalent to almost 10 percent of GDP. Projects financed in the Lao PDR mostly consist of hydropower plants exporting to neighboring Thailand and Vietnam. These projects are for the most part financed, or at least supported, by financial institutions based in the respective offtaker country. Excluding Lao PDR, over the last 10 years, the average project finance volume across the peer country sample was around 0.8% of 2015 GDP.

20. In terms of individual deal size, transactions in Georgia and Jamaica were each worth on average USD 160 to 200 million, equivalent to roughly 1.5 percent of the GDP of these countries in 2015. The “sweet spot” for a country rated B+ such as Armenia (based on comparisons with Jamaica, rated B, Kenya rated B+, and Georgia rated BB- by Fitch) seems to be for transactions underpinned by project cost in the range of USD 100-300 million.

**Graph 1: Infrastructure project finance volumes, international comparison (2007-2016)**



Sources: Team estimates for project finance volumes based on transactions as reported in Project Finance International and IJ Global. Note: Lao PDR has an unusually large volume, and was not included so as not to distort the graph.

## B. Policy agenda

21. Going forward, Armenia will need to embrace policies more explicitly addressing infrastructure finance principles and objectives. This could be done by formulating an overall infrastructure investment and finance program in conjunction with international donors in accordance with a “cascade” approach. This entails, successively: (i) identifying whether parts of an infrastructure development program can be financed on commercial terms; (ii) when commercial financing is not viable, undertake upstream reforms to strengthen policies, regulations, institutions, and capacity; (iii) if reforms are not sufficient, explore the possibility of deploying concessional and public resources to strengthen the bankability of priority investments; and finally (iv) where commercial financing is not feasible despite sector reform and risk mitigation, mobilize public and concessional resources.

22. Policy areas critical to the success of this agenda include (i) the origination of a mature pipeline of bankable infrastructure projects, (ii) a business climate conducive to commercial investment in infrastructure, and (iii) the availability of long-term financing for infrastructure projects.

### B.1. Project origination and transaction pipeline

23. The private sector actively invested in Armenia’s infrastructure during the last decade, especially by way of divestiture and concessions. PPP structures implemented to date in Armenia include: the concession of Yerevan’s Zvartnots international airport; the distribution of electricity licensed to privately-owned Electric Networks of Armenia (ENA); the sale of power plants to private investors, including the acquisition of the Vorotan 405 MW hydro cascade by an international sponsor under a 20-year offtake arrangement with ENA; management of the country’s water supply systems by a private operator on a lease basis; and a DBOF (develop, build, operate, and finance) contract for Yerevan’s municipal waste collection. The three mobile phone operators are all privately-owned. In addition, gas pipelines owned by the state are mostly leased to Gazprom, and the railways system is operated as a concession by South Caucasus Railway CJSC, a wholly-owned subsidiary of Russian Railways. (A list of the transactions found in the World Bank’s PPI database can be found in Annex 1.) Almost all these transactions were sourced through unsolicited proposals and direct negotiation.

24. As a result of these various transactions, a good part of Armenia’s infrastructure is presently owned or operated by the private sector. Key infrastructure assets under state ownership and control include electric transmission lines and the road network. Although there remains scope to undertake further divestiture and concession transactions, the key challenge is now for Armenia to originate a pipeline of viable greenfield infrastructure projects suitable for commercial investment and financing.

25. New projects that may be suitable for commercial investment and financing include renewable-energy projects such as a 55 MW solar plant expected to be tendered in the coming months, a 230 MW combined-cycle gas turbine independent power plant, a stretch of the North-South Road Corridor involving the construction of a tunnel and a bridge, and projects in health care and municipal services. In its current form, the project pipeline falls short of the Armenia’s investment needs and potential for commercial financing. In order to meet development objectives, this project pipeline needs to be expanded, nurtured, assessed for bankability, communicated to relevant investors and financiers, and brought to market once the projects are mature.

26. The following measures are recommended in order to strengthen the pipeline of infrastructure projects and facilitate the origination of transactions:

- a. Upstream in the project origination process, the country would benefit from adopting a more explicit Public Investment Management (PIM) framework. This framework would help to

- select and prioritize infrastructure projects based on economic and financial strength as well as identify potentially bankable projects exhibiting value for money.
- b. Identify potential PPP structures (such as leasing, concession, etc.); funding sources (general budget, sector-specific revenue grants, user charges); financing sources (grant, commercial loan, equity, etc.); and types of government support (Viability Gap funding “VGF” for viable projects whose returns are not adequately captured by the private sector, or Availability Payment scheme for viable projects involving a demand risk which cannot be assumed by commercial lenders).
  - c. Hire early-stage financial advisors (in addition to technical advisors) to help complete the identification of project information available in Armenia, conduct a preliminary bankability review of pilot PPP projects taking into account the structuring and financing experience for similar projects in comparable countries, and flesh out a broader pipeline of infrastructure projects potentially suitable for commercial financing. The scope of work should include an assessment of the extent of government support required (e.g., viability gap funding, minimum demand undertakings) and related contingent liabilities to be assumed by the state, identification of roadblocks that could be addressed through broader sector reform, and assessment of risk transfer schemes that could be pursued by the state to facilitate commercial investment and finance in infrastructure.
  - d. Establish a PPP unit to help line ministries and implementing agencies to: develop a pipeline of potentially bankable PPP projects; identify, evaluate, and tender prospective PPP projects; select and supervise transaction advisors<sup>2</sup>; bring projects to market for financing; improve communication with international investors and financiers; and coordinate across government agencies. The PPP unit should publish and continuously update the pipeline of infrastructure PPP projects being developed and brought to market, including the indicative amount, maturity stage (e.g., feasibility study, approvals, pre-qualification, tendering, award, construction, or completion), as well as the financing sources for PPP projects that have reached financial closure.
  - e. Seek technical assistance and funding from international donor agencies to establish a Project Preparation Facility allowing relevant agencies to hire top-notch advisors (initially, early-stage advisors to help develop a bankable pipeline; and subsequently, transaction advisors to bring mature deals to market).
  - f. Systematically identify, monitor, and record financial commitments, risks, and contingent liabilities incurred by state authorities as a result of PPP transactions and infrastructure financings.

## B.2. Improving the investment climate for infrastructure

27. A conducive business climate is essential in order to successfully attract and sustain commercial investment and finance in infrastructure. The business climate for infrastructure includes several aspects, notably: (i) the regulatory framework for the sourcing and implementation of PPP projects; (ii) the investor protection framework; and (iii) the credit-worthiness of infrastructure obligors, further discussed below.

28. Armenia does not have an explicit PPP framework; thus PPP transactions are implemented under general investment and sector-specific laws. The Public Procurement Law (2011), in principle, favors open

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<sup>2</sup> The text assumes Armenia follows a decentralized PPP model. Alternatively, in a centralized model, the PPP unit directly tenders projects developed by the ministries.

bidding and competitive dialogue, but in practice almost all the PPP transactions awarded so far have been sourced through unsolicited proposals and direct negotiations. Direct negotiation (also known as sole-source procurement) may be justifiable only when few bidders are qualified or interested, but it significantly increases the risk of political interference, and the perception of non-transparency, which may discourage investors from considering Armenia as a good investment opportunity. Specific procedures are needed to ensure that the process is fair, efficient, and protects public interest. Looking beyond the letter of the law, the feedback from market participants is that government practices need to be improved in order to attract the interest of a broader range of international investors and financiers for future transactions.

29. Deteriorating credit-worthiness has been a significant concern in the power sector. In recent years, the two state-owned generation companies (Armenian Nuclear Power Plant “ANPP” and Yerevan Thermal Power Centre “YTPC”), together accounting for 42 percent of domestic supply needs, have faced cash shortages due to a mix of (i) loans they provided to unrelated loss-making companies or for non-business purposes; (ii) accumulation of uncollected bills from the electricity distribution company, which in turn was building up losses because the cost of electricity purchased was higher than the forecast and was not fully compensated by the applicable tariff; and (iii) subsidies to poor households, together with non-core business expenditures. In order to close the cashflow gap, the two companies resorted to delaying payment to their suppliers, deferred key operating and maintenance expenditures, and borrowed expensive short-term loans from local banks. The government is now addressing these problems. It is important to ensure that these issues don’t arise again in the future given the knock-on effects on cashflow and credit through the energy supply chain.

30. Measures which could improve the investment climate for infrastructure and facilitate the successful origination, financing, and implementation of transactions include:

- a. Establish a regulatory framework specifically aimed at PPPs. The new framework should more precisely define PPP types, clarify the institutional structure, and address the procurement process, evaluation and award criteria, term, ownership, risks, security over the assets, termination, dispute resolution, etc.
- b. Meanwhile, ensure that the practices for the tender, evaluation, and award of PPP projects are kept strictly open and transparent, without exception, in order to avoid any perception of political interference in the PPP process. Direct negotiation (also known as sole-source procurement) may be justifiable particularly when few bidders are interested or qualified, but it significantly increases the risk of political interference and the perception of non-transparency, which can discourage investors from considering Armenia as a good investment opportunity. Specific procedures are needed to ensure that the process is fair, efficient, and protects public interest. Competitive bidding should remain the primary procurement route, and specific procedures need to be developed to handle exceptional cases of procurement requiring direct negotiation.
- c. Improve the investor protection framework, de facto and de jure, by updating the Investment Law (1994) to align it with Armenia’s international investment treaty obligations, and by ensuring its consistent enforcement.
- d. Complete the diagnostic, design, and implement a Systematic Investor Response Mechanism (SIRM) enabling Armenia to identify, track, and manage grievances between investors and public agencies before they escalate into costly disputes, and potentially investment withdrawals.
- e. Complete a systematic mapping and assessment of entities involved in infrastructure finance and assess the need for further improvements in their management, corporate governance arrangements, and financial transparency. Expand the number of credit-worthy infrastructure obligors able to raise funds on commercial terms either directly as obligors or indirectly as

contractual counterparts (e.g. offtakers) in project financings, and reduce the need for SOE borrowings to be backed by state guarantees.

- f. Seek more systematic feedback on the regulatory, institutional, and incentive framework, as well as government practices related to PPP investment and finance, through a forum facilitating consultation with international and domestic investors, commercial financiers, international development partners, and government agencies.

31. In parallel, broader reforms will need to be undertaken in order to enhance sector economics, efficiency and cost recovery; improve market contestability; strengthen governance; and reduce conflicts of interest between the political and business spheres in the public and private sectors.

### B.3. Financial intermediation

#### B.3.1 International financing sources

32. Most PPP transactions in Armenia to date have been financed by the commercial arms of multilateral agencies - IFC, EBRD, and ADB, together with bilateral agencies such as Germany's DEG and the Netherlands' FMO. For some projects, the commercial financing tranches can be supplemented by a parallel government tranche financed by sovereign borrowing from the related public windows. IFC and other commercial arms of international donors are well suited to finance commercial infrastructure projects in Armenia due to their good structuring capability and their focus on emerging markets. Yet, the resources available from multilateral and bilateral donors are limited and will need to be increasingly supplemented in the future by other sources, notably international banks, as well as domestic lenders and investors.

33. With a couple of significant exceptions (the latest refinancing of Zvartnots airport concession by Credit Suisse, and the recent financing of UComm by HSBC), international corporate and investment banks have hardly participated in infrastructure finance transactions. International financing sources present a number of advantages for the financing of infrastructure, notably: (i) availability of long-term liquidity (the global project finance market has an annual volume of around USD 300 billion); (ii) strong capability of project finance market leaders (consisting of a dozen or so international banks) in arranging complex project financings; and (iii) availability of long-term interest swap instruments to hedge interest fluctuation risk. One downside of cross-border financing is that lending is in foreign currency (usually USD). Foreign currency borrowing provides the currency required to purchase imported equipment and services in the case of greenfield or brownfield projects, but introduces a currency mismatch for the borrower to the extent the revenues of infrastructure projects are normally denominated in local currency.

34. In view of Armenia's sub-investment grade (B+) rating, key considerations for international banks to consider infrastructure project financings in Armenia include:

- a. Mitigation of country risk - either through project design in cases where debt repayment is secured by offshore revenue (as in the case of airports or mines), by way of risk transfer instruments such as MIGA guarantees, or World Bank Partial Risk Guarantees), export credits, or the private insurance market;
- b. Client interest (i.e., participation of a core strategic client as project sponsor); and

- c. Environmental and social aspects being handled in a manner consistent with the Equator Principles<sup>3</sup>.

35. Besides international donor agencies and commercial banks, international project bonds can in principle be used for project finance transactions, but in practice such transactions mostly take place in investment-grade countries and relate to the refinancing of transactions once the project is complete and has a satisfactory track record in terms of operations and cash flow generation. Market appetite for international project bonds in non-investment grade countries is very limited, even more so for greenfield projects.

### B.3.2. Domestic banking sector

36. Armenia has an active banking sector consisting of 18 banks as of end 2016, with total assets of USD 7.8 billion and an aggregate loan book of USD 4.2 billion equivalent to 39 percent of GDP. As of end 2016, the banking sector is well capitalized (with shareholder funds representing 16 percent of total assets, and a capital adequacy ratio of 20 percent), but low profitability (with an average return on equity (ROE) of only 2.7 percent).

37. Partly due to an increase in the minimum capital requirement (which formally took effect on January 1, 2017), total banking sector assets grew significantly in the last five years, from 58 percent of GDP in 2012 to 73 percent of GDP in 2016. As illustrated in Table 5 below, the long-term loan book (long-term “advances to customers”) of domestic banks almost tripled during this period to reach USD 1.7 billion or 42 percent of the domestic loan book in 2016, equivalent to 16.4 percent of GDP.

**Table 5: Total assets, loan book and long-term advances of banks in Armenia (2012-2016)**

	2012	2013	2014	2015	2016
Total assets (MUSD)	6,149	7,168	8,159	7,091	7,818
<i>Total assets (% of GDP)</i>	<i>57.9</i>	<i>64.5</i>	<i>70.3</i>	<i>67.3</i>	<i>73.3</i>
Advances to customers (MUSD)	3,981	4,302	5,086	4,200	4,196
<i>Advances to customers (% of</i>	<i>37.5</i>	<i>38.7</i>	<i>43.8</i>	<i>39.9</i>	<i>39.3</i>
LT adv. to customers (MUSD)	653	955	1,707	1,615	1,745
<i>LT adv. to customers (% of GDP)</i>	<i>6.1</i>	<i>8.6</i>	<i>14.7</i>	<i>15.3</i>	<i>16.4</i>

*Note: Long-term (abbreviated as “LT”) advances refers to credit facilities with a remaining maturity of at least 5 years. Source: Central Bank of Armenia.*

<sup>3</sup> The Equator Principles (EPs) are a risk management framework for financial institutions, providing a minimum standard for environmental and social due diligence. The EPs apply to project finance advisory and lending, project-related corporate loans, and associated bridge loans. So far, the EPs have been officially adopted by 89 financial institutions in 37 countries, covering most international project finance debt in emerging markets ([www.equator-principles.com](http://www.equator-principles.com)). OECD export credit agencies are also increasingly drawing on these standards.



38. Armenian banks face a structural maturity mismatch in their operations as the volume of medium (> 1 year) and long-term (> 5 years) assets far exceed medium and long-term resources. Although medium and long-term deposits have grown in recent years, they still represent only 7 percent of total liabilities. As can be seen in Table 6 below, the overall share of medium and long-term assets in the banks' total assets has not significantly increased during the last five years, but its break-down has changed: the share of medium and long-term advances to customers has actually fallen from 49 to 45 percent, whereas the share of medium and long-term investments (in particular domestic treasury bonds, which provide remunerative returns with zero risk-weighting for local banks) has increased from 2 to 8 percent of total assets.

39. Because interest rates in foreign currency are lower than in local currency, borrowers favor borrowing in foreign currency. This may not create a currency mismatch for domestic banks that have corresponding foreign currency resources (long net foreign currency exposures are strictly controlled by the Central Bank and limited to 7 percent of bank shareholder funds). However, this long-term currency mismatch is passed on to domestic borrowers who may incur a loss if the local currency depreciates faster than the interest rate differential (as of end 2016, the differential was 5-6 percent for maturities beyond one year). Instruments to hedge exchange rate fluctuation risk are not widely available in Armenia, especially for long-term maturities.

40. Most loans in Armenia have fixed interest rates. Fixed rates are generally suitable for infrastructure borrowers who need long-term resources and a stable financing cost. However, this creates an interest rate mismatch for lenders, whose resources have comparatively shorter maturities and variable interest rates.

**Table 6: Maturity transformation in Armenia's banking sector (2012-2016)**

	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>
<b>MLT assets (% total assets)</b>	55	53	59	59	55
<i>Advances to customers</i>	49	48	52	50	45
<i>Investments</i>	2	3	5	6	8
<i>Fixed assets</i>	3	3	3	3	2
<b>MLT liabilities (% total liabilities)</b>	40	36	34	36	38
<i>Deposits</i>	6	9	15	15	16
<i>Debt</i>	20	16	15	15	15
<i>Shareholder Funds</i>	16	15	14	16	16
<b>Maturity transformation indicators</b>					
<i>MLT advances / MLT liabilities</i>	1.24	1.32	1.52	1.40	1.18
<i>MLT assets / MLT liabilities</i>	1.38	1.48	1.65	1.75	1.45

Note: Medium and long-term (abbreviated as "MLT") refers to financial instruments with contractual maturities of at least one year. Source: Central Bank of Armenia

41. As of end 2016, the long-term exposure of domestic banks to infrastructure-related sectors was only USD 220 million, representing only 12.6 percent of their total long-term loan book, equivalent to just 2.1 percent of GDP. In the energy sector, infrastructure lending includes loans to micro hydro and renewable power plants, with maturities of up to 5-7 years.

**Table 7: Long-term exposure to infrastructure-related sectors (2012-2016)**

<b>LT exposure (MUSD) to</b>	<b><u>2012</u></b>	<b><u>2013</u></b>	<b><u>2014</u></b>	<b><u>2015</u></b>	<b><u>2016</u></b>
Electricity, gas	99	145	105	114	152
Water, sanitation	1	2	1	1	2
Transportation	5	13	63	46	25
<u>ICT</u>	<u>1</u>	<u>6</u>	<u>15</u>	<u>56</u>	<u>38</u>
<b>Total</b>	<b>107</b>	<b>167</b>	<b>184</b>	<b>218</b>	<b>220</b>
<b>% of GDP</b>	<b>1.0</b>	<b>1.5</b>	<b>1.6</b>	<b>2.1</b>	<b>2.1</b>
<b>% of LT customer advances</b>	<b>16.3</b>	<b>17.5</b>	<b>10.8</b>	<b>13.5</b>	<b>12.6</b>

Source: Central Bank of Armenia

42. Under existing prudential regulations, individual banks are allowed to incur an aggregate credit exposure per obligor equivalent to 20 percent of their shareholder funds. As an illustration, a group of the larger local banks with average aggregate shareholder funds of USD 500 million would be allowed to commit up to USD 100 million per obligor). Likewise, a maximum aggregate exposure of up to 10-15 percent of the loan book for some of the main subsectors of infrastructure (such as electricity, oil & gas, surface transport, or municipal services) could be considered prudent practice, assuming individual borrowers are credit-worthy. At present, the level of long-term exposure incurred by the domestic banking sector on infrastructure is far below these limits.

43. Factors restricting the banks' long-term lending to infrastructure include: (i) limited number of credit-worthy obligors; (ii) the banks' reluctance to assume credit or reputation risk on obligors whose business model hinges on political patronage; (iii) credit methodologies emphasizing past financial results and availability of collateral rather than future cash flows; (iv) a lack of familiarity with project and structured finance; (v) the absence of a local syndicated loan market able to provide the large amounts typically required for infrastructure transactions; (vi) relatively high cost of funds and lending interest rates, especially in local currency (interest rates can be lower on bank loans funded by concessional schemes run by the Central Bank, supported in part by Armenia's international development partners); and (vii) lack of the long-term resources required to support the maturities (10-15 years) required to finance infrastructure assets.

44. Public policies can be formulated to further facilitate domestic financial intermediation in Armenia. In particular, it would be useful for Armenia to develop a domestic syndicated loan market, which would help (i) improve the sharing and transparency of information across lenders; (ii) increase liquidity in the financial system by fostering the emergence of a secondary market in which standardized transactions can be traded; and (iii) establish a benchmark facilitating comparisons and arbitrage with similar transactions traded on the capital markets. Eventually, once the syndicated loan and capital markets have sufficiently developed, syndicated loans can be refinanced by other financial investors.

45. Additional measures aimed at improving the volume and quality of infrastructure finance in Armenia include:

- a. Completing CBA's review of its guidelines for long-term finance, and adopting a framework consistent with Basel principles, including indicators (such as net stable funding ratio) to monitor maturity transformation and mismatch both from a prudential and development perspective.



- b. Developing a yield curve including a benchmark rate for local currency lending, and creating a market for floating-rate instruments.
46. Formulating a plan to increase awareness and progressively improve the environmental and social management capability, practices, and regulation of financial institutions in Armenia.

### B.3.3 Domestic capital markets

47. Over time, Armenia may be able to draw on its domestic capital markets to supplement domestic bank lending to infrastructure. In principle, institutional investors are well placed to finance infrastructure assets due to their long-term liabilities. Compared to banks, they are able to extend financing at very long maturities (15-20 years), at fixed rates, matching the long-term liabilities of pension funds or life insurance companies. By contrast, Basel 3 regulations have limited the extent to which banks can provide long-term loans to infrastructure. Domestic capital markets are also suited to finance infrastructure because they can provide local currency resources to infrastructure obligors with local currency revenues.

48. Examples of emerging markets that have successfully tapped local capital markets to finance infrastructure investment range from Malaysia (where large-scale IPPs have been financed by the Employee Provident Fund since the early 1990s) to Colombia (where two toll-road projects recently raised over USD 400 million from pension funds through an infrastructure debt fund sponsored by the IFC). In India, leading players such as the Life Insurance Company invest in debt securities with time horizons up to 30 years, and most of the listed corporate bond market serves infrastructure obligors, either directly through issuances of major domestic utilities, or indirectly through issuances by state-related financial institutions dedicated to infrastructure finance.

49. As of now, Armenia's capital markets are not yet sufficiently mature to be a meaningfully source of infrastructure finance in view of their modest size and liquidity, limited sophistication, and narrow investor base. As of February 2017, total market capitalization is equivalent to less than USD 1.4 billion (13 percent of GDP), most of which consists of government treasury paper (USD 1,045 billion, equivalent to 10 percent of GDP). The local stock-exchange has an aggregate equity capitalization equivalent to USD 279 million (2.7 percent of GDP). The corporate bond market mostly consists of 2-3 year instruments issued by financial institutions, with an outstanding value of USD 59 million (0.6 percent of GDP). The largest investors are the domestic banks; these may hold up to 10 percent of their assets in government securities.

50. The fastest-growing segment among institutional investors is the pension-fund industry. Resources were initially accumulated from a voluntary scheme introduced in 2011. This was followed by a mandatory scheme for public sector employees started in 2014, managed by two international fund managers. Assets under management (AUM) were projected to reach USD 200 million by end 2017, and are expected to rise to USD 400 million once the mandatory pension program has been extended to the private sector.

51. It is important to note that institutional investors are subject to strict prudential constraints and fiduciary duties, which limit the amounts they would be able to allocate to infrastructure as an asset class. Also, they can invest only in instruments with well-established risk profiles (usually supported by a credit rating) and therefore tend to limit their investment in infrastructure to assets that have an established track-record (therefore typically post-completion), and may also require government support. The most immediate way in which Armenia's capital markets can participate in infrastructure finance is likely to be through the issuance of medium-term corporate bonds, either by banks that may use these resources to on-lend to infrastructure obligors, or by credit-worthy utilities.

## B.4. State intervention

52. Since the state does not have the resources to fund all infrastructure investments from the public budget, or finance them through public finance, it is important that state policies optimize the impact of valuable public resources by keeping focused on two types of interventions:

- a. direct investment and financing in areas that produce high economic and social benefits but are not amenable to commercial investment and finance; and
- b. selective “catalytic” interventions to facilitate transactions and foster the further development of commercial infrastructure finance markets. The guiding principle should be the catalytic impact of state intervention, measured by its multiplier effect, i.e. the amount of commercial financing that can be sustainably supported by each dollar of public funds committed to support the development of commercial infrastructure finance markets.

53. Broadly speaking, types of catalytic interventions to support commercial investment and finance in infrastructure may include “financial structure” and “project structure” interventions such as:

- a. Providing a long-term subordinated liquidity facility for projects that are generally expected to generate sufficient cashflows but face uncertainties (such as demand risk) that deter project lenders;
- b. Assuming part of the project cost in projects that produce strong economic and social benefits but whose financial cashflows are not sufficient to be fully commercially financed (in road transport, for example); and
- c. For such projects, the “multiplier effect” is insignificant in the short-term (one dollar of budget resources supports one dollar of commercial finance); however, in the medium and long-term such interventions may help develop financial discipline, credit-worthy entities, and eventually fully commercial financing.

54. Should Armenia establish a scheme dedicated to infrastructure finance? When considering this question, it is important to incorporate international experience and best practice. Globally, states have followed several, non-exclusive intervention approaches in support of infrastructure finance:

- a. Paying for tariffs in projects that can be efficiently managed by the private sector, but do not generate sufficient revenues to pay for operating cost (as implemented for example in India’s water sector; Armenia has followed the alternative approach of state investment managed by a private operator).
- b. Financial viability support (FVS) schemes aim to support priority projects that are economically viable, but whose financial returns are not high enough, or are sufficiently predictable, to attract the interest of private sector investors.
- c. Development finance institutions (DFI) aim to facilitate commercial lending to financially viable projects, which can be through either a “secondary” or a “primary” route. “Secondary” (“wholesale”) development finance schemes foster lending from domestic financial institutions by providing them long-term liquidity, sharing credit risk on the financing, or financing later maturities. In contrast, the “primary” or “retail” approach involves direct lending to commercial infrastructure obligors, through a dedicated institution.

55. In projects whose use tariffs are paid by the state, the “multiplier effect” is insignificant in the short-term (one dollar of budget resources supports one dollar of commercial finance), although it can be argued that in the medium and long-term such interventions may help develop financial discipline, credit-worthy entities, and eventually fully commercial financing.

56. Financial Viability Support schemes are relatively common in both developed and emerging markets, and are typically incorporated in the host country's PPP framework. Examples of such schemes are found in Chile, Mexico, Peru, India, and South Africa. These schemes can in turn take different forms, such as Viability Gap Funds "VGF" (targeting priority projects whose economic returns are good but don't attract the interest of private sector investors due to insufficient financial returns) and Availability Payment schemes (supporting projects exposed to demand risk, for which operating cashflows are not sufficiently predictable).

57. Wholesale financial intermediation schemes (as implemented for example in Bangladesh by the Ministry of Finance and the Central Bank, with the support of the World Bank) need not involve the creation of a new institution, are relatively easier to manage, and are generally less prone to moral hazard. Direct intervention typically involves the establishment of a new financial institution dedicated to infrastructure finance. Geographies in which the World Bank and IFC have supported primary development finance institutions include India, the Latin America region, Indonesia, and Colombia.

58. Given the modest size of the Armenian economy, and the current dearth of bankable projects (as is commonly the case in emerging economies with nascent PPP programs), priority should be given to assessing the feasibility of financial viability support, and possibly "wholesale" financial sector interventions, rather than "retail" financial sector interventions.

59. International experience shows that, while infrastructure finance development schemes can help kick-start market development, they may also face pitfalls: clientelism, political capture, unsustainable or over-optimistic business models, lack of financial discipline, and lack of development impact. In order to avoid such pitfalls, any new institution, if established, would need a follow good international practice, in particular:

- a. Clear mandate, strictly followed, designed to address well-identified market gaps. If possible, indirect catalytic interventions should be preferred to direct lending, so as to minimize moral hazard and avoid duplicating or competing with the private sector.
- b. Independent and highly professional management, with majority private sector ownership.
- c. Robust governance arrangements. To ensure credibility with all stakeholders and convince the private sector to participate in the capital, Board directors should be competitively selected for their ability to provide vision, value added, oversight, motivation (and if necessary sanction and removal) to senior management. The functioning of governance organs ought to be periodically assessed by specialized external consultants.
- d. Monitoring and evaluation (M&E) framework, through which performance and development impact are systematically assessed by staff who do not report to line management. Because the resources of DFIs are limited compared with the scale of the needs they address, they should be designed, and their impact should be measured in terms of the total financing they facilitate, not just the size of their balance-sheet of the financing they provide.
- e. Strict financial supervision.

### Box 1: Approaches to development finance

The approach to development finance has evolved over time, and so have the views of mainstream economic theory on the rationale and design of development finance institutions:

- The Interventionist approach, popular until the late 1980s, holds that the market failures are widespread in less developed economies and cannot be overcome by market forces. Thus, the state is expected to spearhead the mobilization and allocation of financial resources. This approach favors “direct” or “retail” intervention schemes, usually with majority state ownership and control. Funding is usually provided through government budget transfers and/or subsidized borrowing, which may result in greater political influence in daily operations of the DFIs.
- The Laissez-Faire approach became prevalent in the 1990s as a reaction to the outcomes of the previous approach, and encourages downscaling and privatization of DFIs. It holds that the costs associated with direct government intervention exceed those of market failures. Instead of intervening to fill funding gaps, government efforts should strengthen the legal and institutional environment underpinning markets. This view has been questioned in recent years on the grounds that creating a market infrastructure by itself may not lead to market development.
- The Pro-Market approach emerged in the late 2000s as a middle ground. It recognizes the fundamental role of markets in resource allocation, and emphasizes that the role of government is to promote the development of markets, not replace them. Rather, the authorities should address financing gaps by correcting specific market failures through short-term “wholesale” interventions such as risk-sharing and liquidity support. DFIs will seek to leverage the private sector’s capacity in funding and risk assessment while balancing the discipline that this private sector involvement implies with fulfilling their development mandate in a sustainable way. The Pro-Market approach favors tailored, targeted interventions emphasizing innovative instrument design taking into account the specific country context, rather than a generic and rigid blueprint. In practical terms, pro-market interventions are less susceptible to capture, do not compete with commercial banks (they remain the primary lenders), and minimize market distortions.

*Source: de la Torre, A. Gozzi J.C. and Schmukler, S.: Innovative Experiences in Access to Finance: Market Friendly Roles for the Visible Hand? Policy Research Working Paper (World Bank, August 2007)*

## Annex 1: Key infrastructure PPI transactions in Armenia since 2001

Project Name	Sector	Closing	Deal Type	Solicited / Unsolicited Proposal	Deal Size (MUSD)
Vimpelcom Armenia	ICT	1995	Divestiture	Unsolicited	456
Zvartnots International Airport	Transport	2001	Concession	Unsolicited	294
Armenia Power Networks	Energy	2002	Divestiture	Unsolicited	361
Sevan-Hrazdan Cascade of HEPS	Energy	2003	Divestiture	Unsolicited	25
VivaCell MTS	ICT	2004	Greenfield	Unsolicited	344
Hrazdan TPP Fifth Block	Energy	2006	Divestiture	Unsolicited	200
Shirak Airport	Transport	2007	Concession	Unsolicited	10
Orange Armenia	ICT	2008	Greenfield	Unsolicited	333
Armenia Railway	Transport	2008	Concession	Solicited	575
Vorotan Hydropower Plant (450MW)	Energy	2015	Divestiture	Solicited	250
Total amount					2,848

*Source: World Bank PPI Database*