

Pension Funds and Infrastructure Investment in Latin America

May 4th, 2011

David Tuesta Chief Economist-Pensions | BBVA Research | World Bank, Washington, D.C.

Infrastructure investment and economic growth

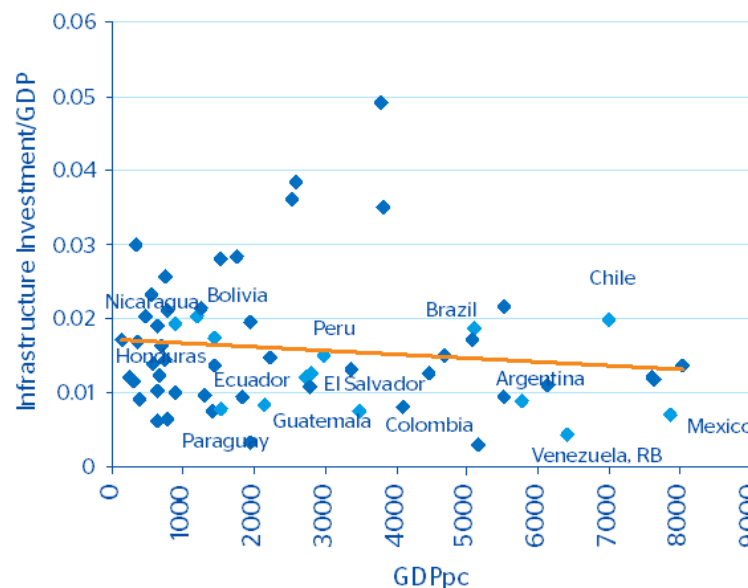
- Asia has strongly invested in infrastructure and has reached high sustainable levels of economic growth
- Latin American countries lie, on average, below the global trend of infrastructure investing
- As a consequence, Latam runs the risk of restricting growth if it does not find financing for infrastructure projects

Asia and Latam investments

- China and Vietnam, two economies with high growth, are investing around 10% of GDP in infrastructure. (Straub et al 2008). While their GDPpc growth rate, for the same countries, reached 7% (World Bank)
- Latin America and the Caribbean, however, only have been investing 1% of GDP, and their GDPpc growth rate has reached 3.5% (World Bank)

Private Investment in Infrastructure as a % of GDP (average over the last 10 years)

Source: BBVA calculations based on World Bank data

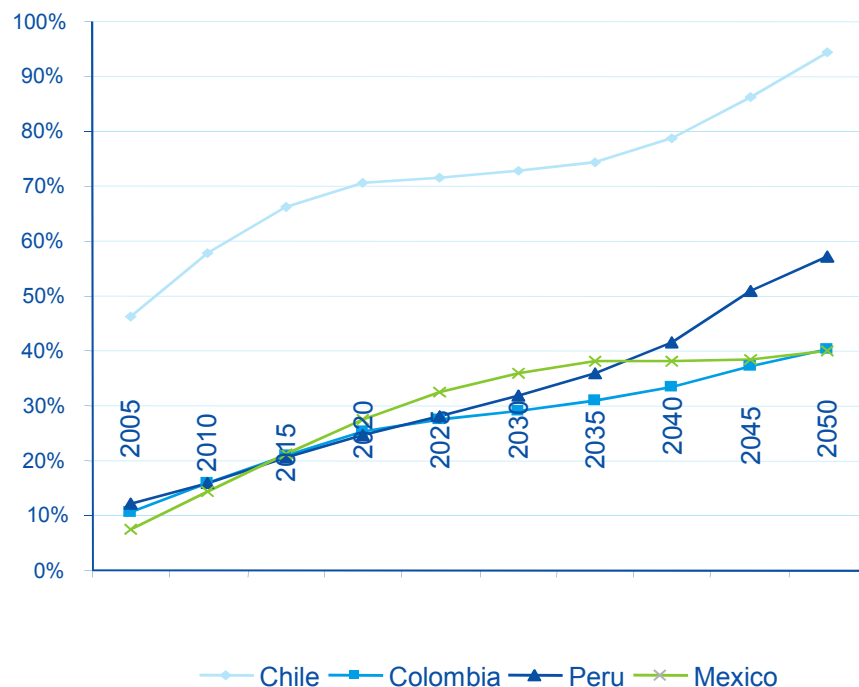


Pension Funds: major projected resources

Projected Private Pension Funds Accumulated Balance

(% of GDP)

Source: BBVA Research



- The FPs will administer a large quantity of resources over the next decades
- The Pension Funds (FPs) can be an appropriate source of savings to partially cover the financing needs

How to combine the needs of both parties?

Government

- Fiscal consolidation or a tax burden reduction. Possible if government resources for investment in infrastructure are replaced by private resources
- Improved efficiency and effectiveness in the budget process. Estimation is achieved by shifting costs to the beneficiaries/users
- It is necessary to find a partner to substitute public investment if there are cyclical problems in order to redirect resources to other social expenditures
- Improved quality and reduced total costs of infrastructure projects



Pension Funds

- Achieve optimal planning of long-term portfolios (Inderst, 2009)
- To reduce political and regulatory risks (Vives, 2000)
- Proper design of a financial investment project in the long term offers a good ratio of risk/return
- Investment within the country reduces some financial risk, such as exchange rate risk
- Pension fund investment in infrastructure can be viewed as favorable to the public as it in turn increases the quality of life

Infrastructure and Pension Funds

Three key elements from the pension fund perspective

- Improvement in the risk-return profile for the total Pension Fund portfolio due to asset contribution in infrastructure investments
- Fiduciary duties and prudential investment analysis under the scheme provided
- Feasible cash flows of infrastructure assets. Unfortunately, not all infrastructure projects are necessarily successful for various reasons: technical, operational, economic, political, etc.

Why invest in infrastructure?

The Risk Profile in infrastructure is among that of stocks and bonds. However, the ratio of risk/return is more similar to investments in bonds

Assets according to estimated risk and return

Source: Morgan Stanley-Liability model (data as of May 2007)

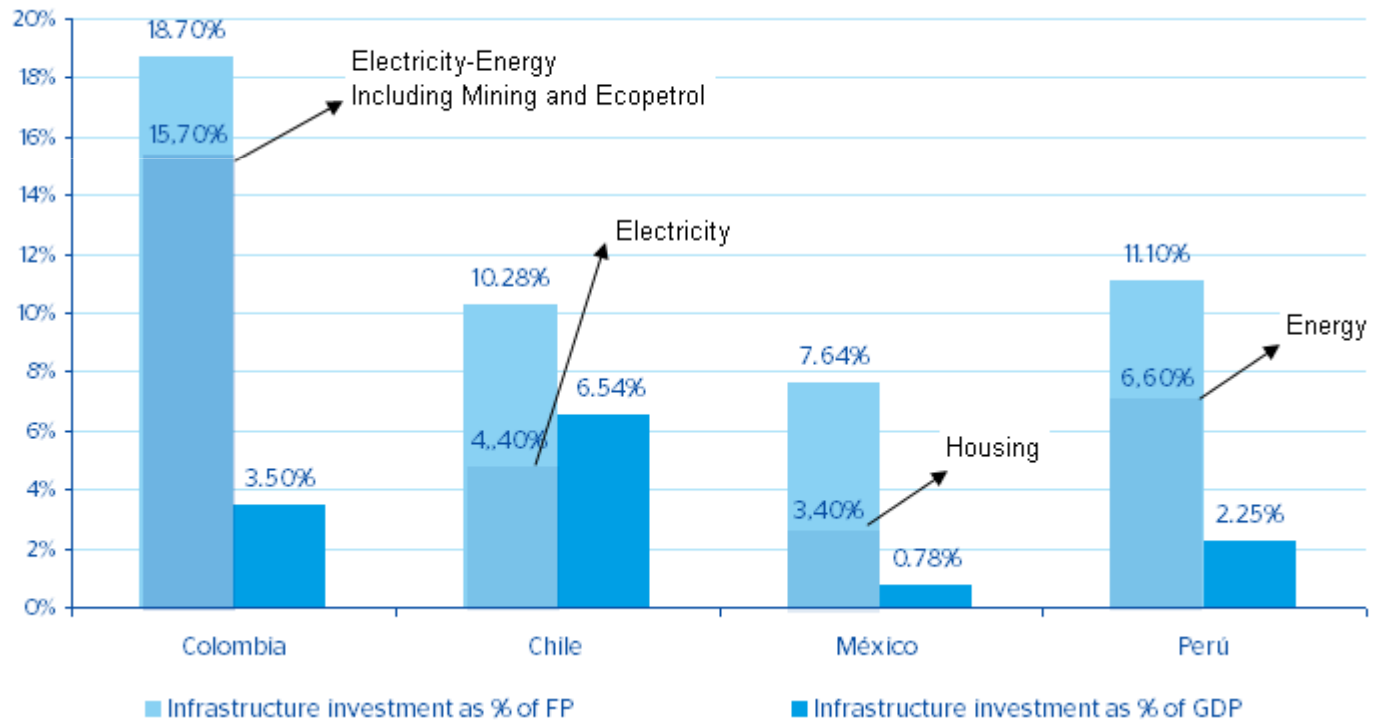
Assets	Expected return	Annualized volatility	5% of the worst returns	Ratio Risk/Return
Bonds (5 years)	5.20%	4.40%	3.10%	1.18
Stocks	8.10%	18.20%	1.10%	0.45
Real Estate	7.00%	9.50%	-1.30%	0.74
Infrastructure	9.30%	7.90%	-1.50%	1.18
Private capital funds	10.00%	30.20%	-7.30%	0.33

The final decision to invest in infrastructure should be left in the hands of the Pension Funds, which must be the result of rigorous analysis of optimal portfolio management and the **relevance of their fiduciary role (the funds are of the future retired)**

How much is invested?

Infrastructure investment by the Pension Funds (FPs)

Source: ASOFONDOS, Superintendency of Pensions in Chile, Consar

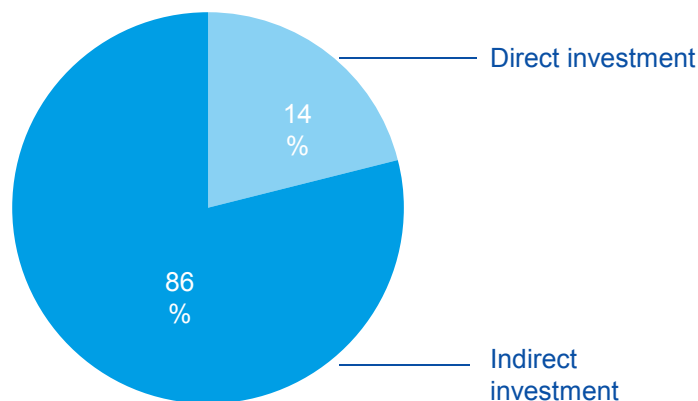


Chilean Case: Investment in Infrastructure

- Pension funds hold a significant volume of resources invested in infrastructure (USD \$14,451.7 million – 6.54% of GDP)
- The principal form of investment, indirect, is to invest in stocks and bonds related to infrastructure (USD \$12,492 million – 5.34% of GDP)
- Direct investment, infrastructure bonds and investment funds in infrastructure projects (USD \$1,959.7 million) (example: Investment funds “Prime Infrastructure I and II”, Route between Talcachuano –Penco ports)

Infrastructure Investment

Source: BBVA Research



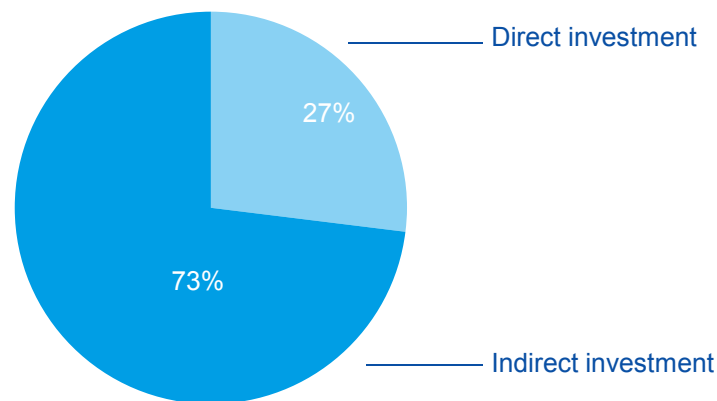
- The investment by FPs in infrastructure bonds was strong at first, when used for large transportation projects (major highways, freeways and airport capital). However this tendency has stopped (the last issue was launched in 2006)
- A principle cause of not using infrastructure bonds as a financing method for new projects is the bankruptcy of monoline insurers

Peruvian Case: Investment in Infrastructure

- Funds invested by the FPs in infrastructure amounts to **USD \$3,416 million – 2.3% of GDP**
- The principal form of investment, is indirect, the investment in stocks and bonds of companies related with infrastructure and in investment funds of this sector (USD \$2,483 millones – 1.7% of GDP)
- **Direct investment is made through bonds and stocks of infrastructure projects and infrastructure trust funds.** (For example, the financing method used for the IIRSA Sur highway: Certificates of Recognition of Annual Pay for Projects, CRPAO)

Infrastructure Investment

Source: BBVA Research



- The market of infrastructure investment funds in Peru is relatively new. Currently there exists: (i) Infrastructure investment funds, public services and natural resources of AC capital, (ii) Larraín Vial investment fund in Latin American Energy and (iii) Brookfield infrastructure investment fund and AC Capital
- The latter was created by the Ministry of Economy as a way to finance large investment projects in the context of the 2009 financial crisis. Currently it has committed just under USD \$500 million

Colombian Case: Investment in Infrastructure

Infrastructure Investment

Source: Asofondos and BBVA Research

Type of investment in infrastructure	
Direct investment	0%
Indirect investment	100%
Indirect investment as a % of total portfolio	
Electricity	15.7%
Private Capital Funds	1.2%
Transportation	0.8%
Communications	0.2%
Water	0.3%
Aeronautical bonds	0.2%
Mortgage Securitization	0.0%
Other	0.2%
<i>Sub-total Infrastructure excl. Energy and Private Capital Funds</i>	1.7%
Total	18.6%

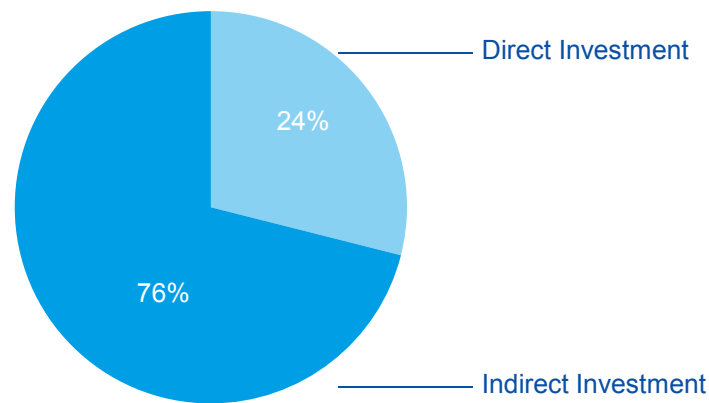
- Indirect infrastructure investment has mainly developed through corporate bonds and stocks (USD \$9,591 million – 3.5% of GDP)
- The electricity sector captures the majority of infrastructure investment participation (84% of total infrastructure investment)
- Investment in private capital funds (FCP) has considerably increased since 2007, when the investment regime was established through the 2175 decree
- Currently they are investing in 35 FCPs, of which the main funds are principally related with the energy sector. FCP Interbolsa energético, FCP CPVAL and FCP Tribeca Fund I
- Beyond the energy sector, the other areas of the FCPs have portfolios with a much lower participation in pension funds (1.7%). However, if it is put in context, that is equivalent to 14.5% of bond issues of local corporate debt in 2010 or 30% of private investment in transportation and communication.

Mexican case: Investment in Infrastructure

- As a percentage of GDP, pension funds in Mexico have increased from 1.4% at the end of 1998 to 10.2% by the 2010 year end (USD \$114.24 billion)
- The main form of investment, indirect, is conducted through stocks and company bonds related with infrastructure (including hotels, steel, transportation, infrastructure, telecom and housing) (USD \$6.6 billion – 0.6% of GDP by the end of 2010)
- Direct investment through structured instruments among them the CKD's, represents 0.2% of GDP by the end of 2010 (USD \$2.1 billion)
- CONSAR figures from December 9th, 2010, note that \$2.34 billion had been placed in CKD's, the participation of the SIEFORES in CKD's endorsed productive projects worth \$2.11 billion and were in the process of positioning and analyzing around 20 new projects

Infrastructure Investment

Source: BBVA Research



- The Certificates of Development (CKDs) are trust certificates intended to fund one or more projects. There are two types, one directed toward private capital which in turn invests in projects and another directed only to projects, mainly in infrastructure
- Among the principle CKDs related to infrastructure there are: Macquarie and Red de Carreteras de Occidente (RCO). Macquarie is the first infrastructure investment fund launched in Latin America by an Australian bank Macquarie. RCO was the first project that issued CKDs (October 2009) and is mainly responsible for the Maravatío-Zaplotanejo Highway, Autopista Guadalajara-Zaplotanejo, and others

Regulatory framework and development areas for Pension Funds in Infrastructure Projects

Colombia

- The 1328 law of 2010 and its regulatory decrees allows greater diversification, and depending on the opportunities of the presented projects and the existing investment plans, a space for indirect investment in infrastructure projects may be added (**for example, the limit of 30% of the portfolio in bonds now is extended to 60%**)

Mexico

- It was only from March 2008, with the reform of the investment regime, that direct investment in infrastructure was allowed **through trusts and financial instruments linked to infrastructure projects (Certificates of Capital Development CKD's, Infrastructure and Real Estate Trusts)**
- It is possible to **invest up to 40% of the portfolio in securitized instruments and up to 15% in structured instruments** (depending on the type of Pension Fund)

Chile

- Investment funds can only be invested in specifically authorized instruments by law or the investment regime
- The investment regime looks to make pension funds invest only in financial assets for public offerings, due to their liquidity and relatively easy valuation. **Investment in structured debt can reach 95% of the portfolio (depending on the fund)**

Peru

- In order for an AFP to invest in any instrument it should be "AFPable". That is, the Superintendency of Banking, Insurance and AFP (SBS) needs to authorize that the AFP can invest in the said instrument. In some cases this process can be long and complex, limiting the supply of investment instruments
- **Pension funds can invest up to 100% of their portfolio in structured instruments (depending on the type of fund)**

What we see in the FPs-Infrastructure relationship?

Strong Points

- Gradual advances in regulation on the participation of the Private Sector in infrastructure investing. History is building.
- Pension Fund participation in infrastructure and other special instruments has begun.



Weaknesses

- Lack of a clear process for the integral development of concessions and the participation of different actors.
- Fragmented legal bodies in different economic sectors and government levels.
- Administrative and judicial restrictions that limit the decisions of key actors in the concession process.
- Limits on the degree of authority given to principal decision makers in the process
- Risks are not accurately allocated/assessed in many countries.
- Obsession to rush and involve Pension Funds in infrastructure, which could generate perverse incentives.

Peruvian Case: The delay in the concession process

- There are weaknesses in the infrastructure investing system. The most important is concentrated in the bureaucratic process that holds concessions
- Others include: failures in contracts, social risks, inadequate framework for monitoring
- Delays in the granting process affects the duration of the project and can add a lot of uncertainty. In the example of six projects, the average time is almost six years

Deadlines in six concessions projects

Source: Report Infrastructure projects, Payet Firm, 2009. Elaborated by: ERD BBVA

Project	Infrastructure	Type	Months
Olmos	Water diversion	Co-Financed	89
Red Vial 5	Road	Self-sustainable	59
Red Vial 6	Road	Self-sustainable	90
Lima Airport	Airport	Self-sustainable	29
North IRRSA	Road	Co-Financed	58
Emfapa Tumbes	Sanitation	Co-Financed	59

How to create a framework for infrastructure investing with the participation of Pension Funds

To do this, a comprehensive approach and the improvement of each stage in the process is necessary

- a) Identify bottlenecks, comparing the views of various stakeholders
- b) Projection models for institutionalized cost-benefits
- c) Regulation, concession and control laws should be effective and insure efficiency
- d) Appropriately allocate the risks of the markets and financial assets for investors, and comply with existing regulations (or cause changes that involve improvements). The institutional investors must have a voice in this design

How to create a framework for infrastructure investing with the participation of Pension Funds

- e) Develop clear instruments to mitigate risks. A risk outline that allows a favorable environment to receive good credit ratings of the instruments involved, and the participation of relevant stakeholders
- f) For the case of pensions, it is important to evaluate the risk-return performance of these instruments which are considered appropriate within the multi-fund schemes of the industry
- g) Necessity to consolidate the model of Project Finance

Proposal: to search for comprehensive approaches for reform in each country by neutral agencies (Multilateral Organizations)

Opportunity cost of not investing in infrastructure...

Growth Accounting Model

According to Ashauer (1989a, 1989b, 1989c)

Production function

$$Y_t = A_t \underbrace{(K_t)^\alpha}_{\text{PFT}} \underbrace{(L_t)^\beta}_{\text{Labor Force}} (G_t)^\chi$$

$$\alpha + \beta + \chi = 1$$

Stock of capital

$$K_t = sY_{t-1} + (1 - \partial)K_{t-1}$$

Other stock of physical capital

$$G_t = sY_{t-1} + \underbrace{AP_t}_{\text{Pension Funds contribution to infrastructure}} + (1 - \partial)G_{t-1}$$

Stock of capital in infrastructure

s = savings rate

Current public and private investment

Pension Funds contribution to infrastructure

∂ = depreciation rate

Opportunity cost of not investing in infrastructure...

	Opportunity cost of not investing in infrastructure				Potential benefit of investing in infrastructure
	Gap % between GDP per capita in a scenario with higher infrastructure investment vs historical investment, % each year				Discounted Present Value/ GDP (2005)
	2020	2030	2040	2050	2005-2050
Mexico	0,8%	1,0%	1,1%	1,1%	24,1%
Chile	1,8%	2,7%	3,2%	3,6%	89,3%
Colombia	0,9%	1,4%	1,8%	2,2%	49,15
Peru <small>Source: SEE BBVA</small>	1,6%	2,3%	3,0%	3,6%	103,3%

Final Reflections

- Growth in Latin America will require the elimination of bottlenecks that can produce a deficit in the investment in infrastructure projects. Currently, Latin America is still below the global trend in infrastructure investing
- Pension Funds manage significant quantities of resources (between 60 and 15% of GDP) and funds will continue to increase over the following years. They will need to diversify financial assets and financial instruments related to infrastructure can be a good vehicle to consider in their portfolios
- Currently pension funds have been investing in infrastructure projects both directly and indirectly, with percentages that range between 19% and 6% of the total portfolio, and 4% and 1 % of GDP
- Recently local regulation has been giving more space for instruments to direct their investment to infrastructure. Major developments, require improvements in the framework that ensures the quality of the project, proper risk mitigation and financial instruments that are adapted to the specific characteristics of pension regulations.



BBVA

RESEARCH

Thank you.

May 4th, 2011

David Tuesta Chief Economist-Pensions | BBVA Research | World Bank, Washington, D.C.