

# Infrastructure investment in Latin America

## Pension funds, capital markets and financial regimes

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BBVA Research

**Opportunities for funding infrastructure through the capital markets in Africa**

World Bank Group Pre Conference Workshop for Capital Markets Regulators

Cape Town – South Africa - November 25, 2015

# Outline

## Section 1

### Infrastructure, growth and infrastructure gap

## Section 2

### Pension funds and the rationale behind investing in infrastructure

## Section 3

### Financial regime and financial vehicles in LatAm

## Section 4

### Factors behind investing in infrastructure: what really matters?

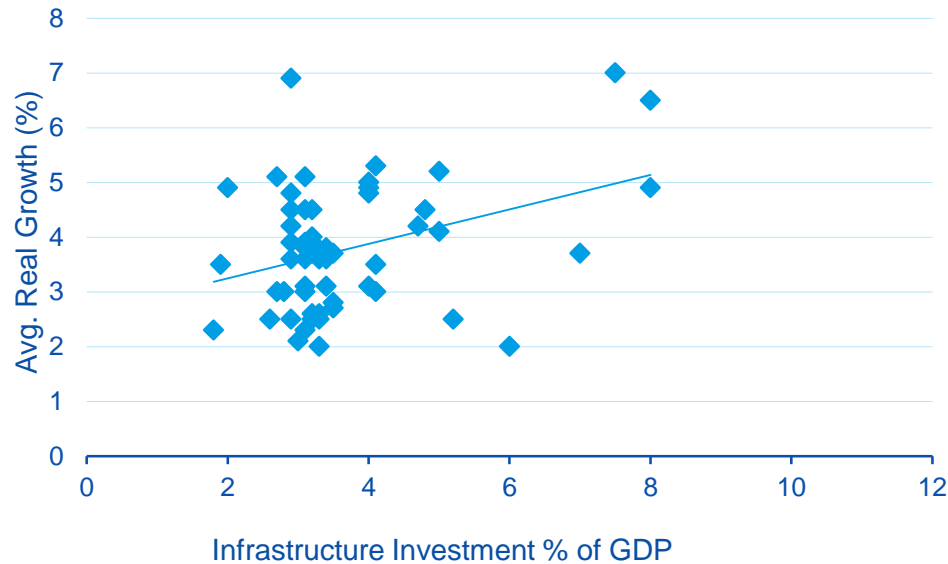
## Section 5

### Conclusions

# Growth and infrastructure

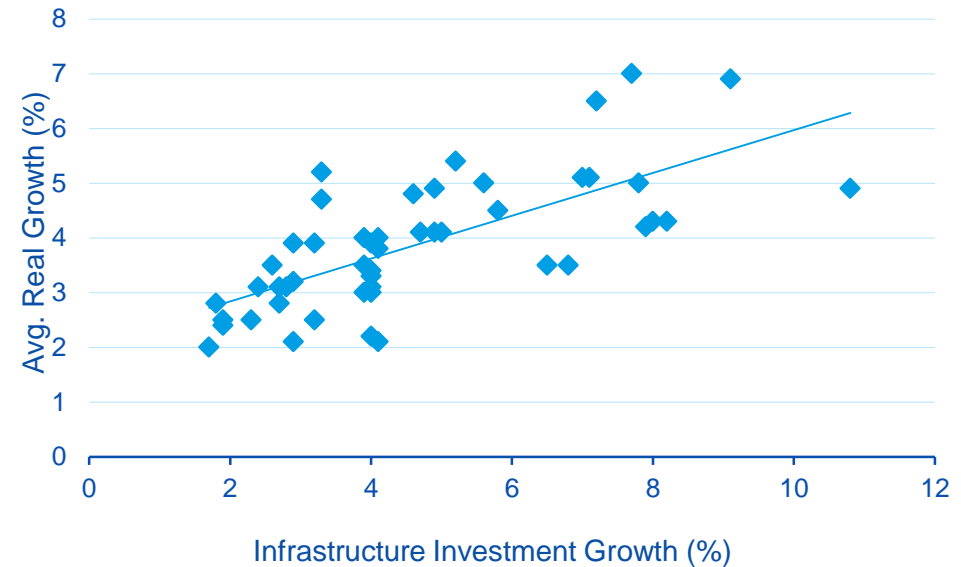
**Correlation A - Infrastructure and GDP Growth**

Source: IMF / BBVA Research



**Correlation B - Infrastructure and GDP Growth**

Source: IMF / BBVA Research

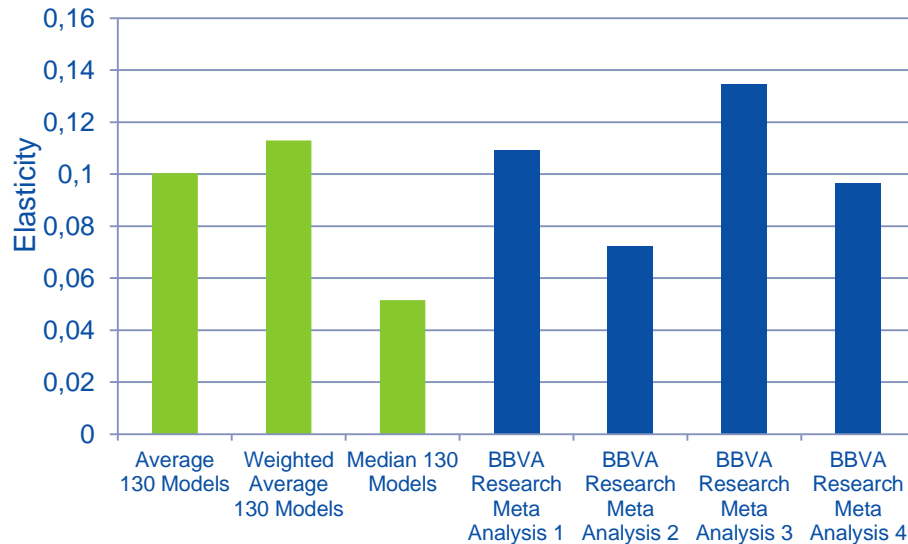


- There is abundant evidence about the importance of infrastructure investment for economic growth
- However the estimates vary depending on different contexts and assumptions

# What is the impact of infrastructure on growth?

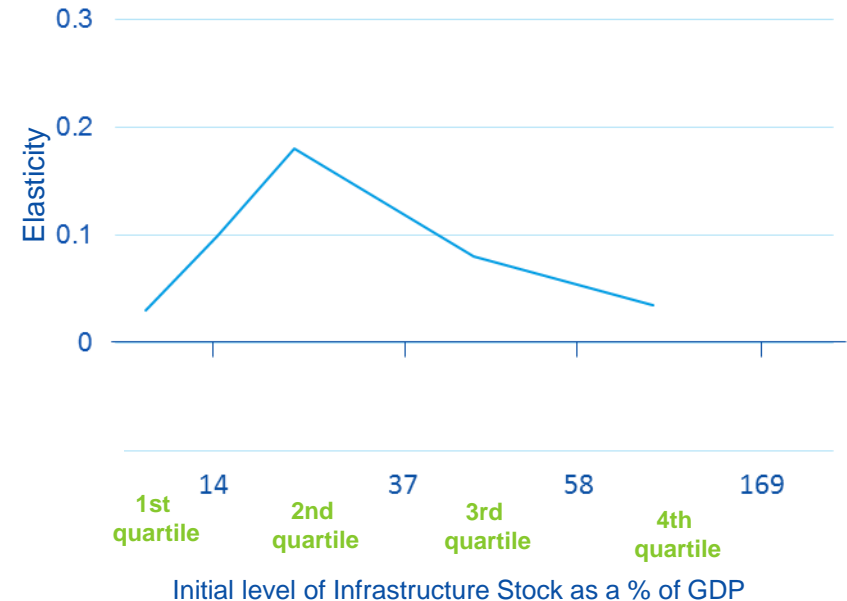
## Estimates of GDP elasticity to infrastructure investment

Source: BBVA Research



## The importance of the initial level of infrastructure

Source: IMF / BBVA Research



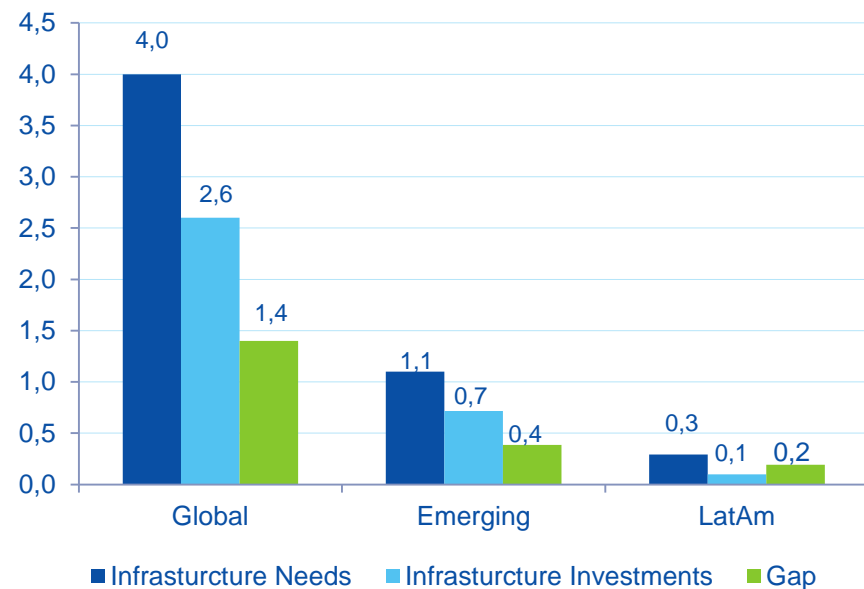
- The impact will depend on the initial stage of infrastructure stock. There are marginal effects.
- BBVA Research meta-analysis (130 models) finds an effect between 0,07 to 0,13. If the stock of infrastructure growth 7% (e.g. from 2,3% of GDP to 2,5% of GDP) the GDP could growth by up to 1,0%

# Financing infrastructure

## Global Infrastructure gap

(financial needs per year-US\$ Trillions)

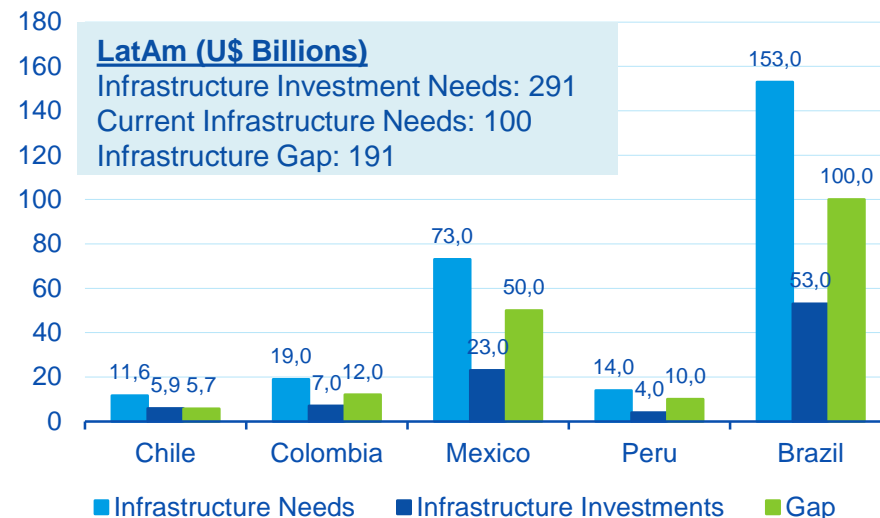
Source: BBVA Research



## Latin American Infrastructure gap

(financial needs per year- US\$ Billions)

Source: IMF / BBVA Research



- Important needs of financing the infrastructure gap.
- US\$ 291 billion of infrastructure gap in LatAm. It represents 5,5% of GDP per year
- How to finance the gap?

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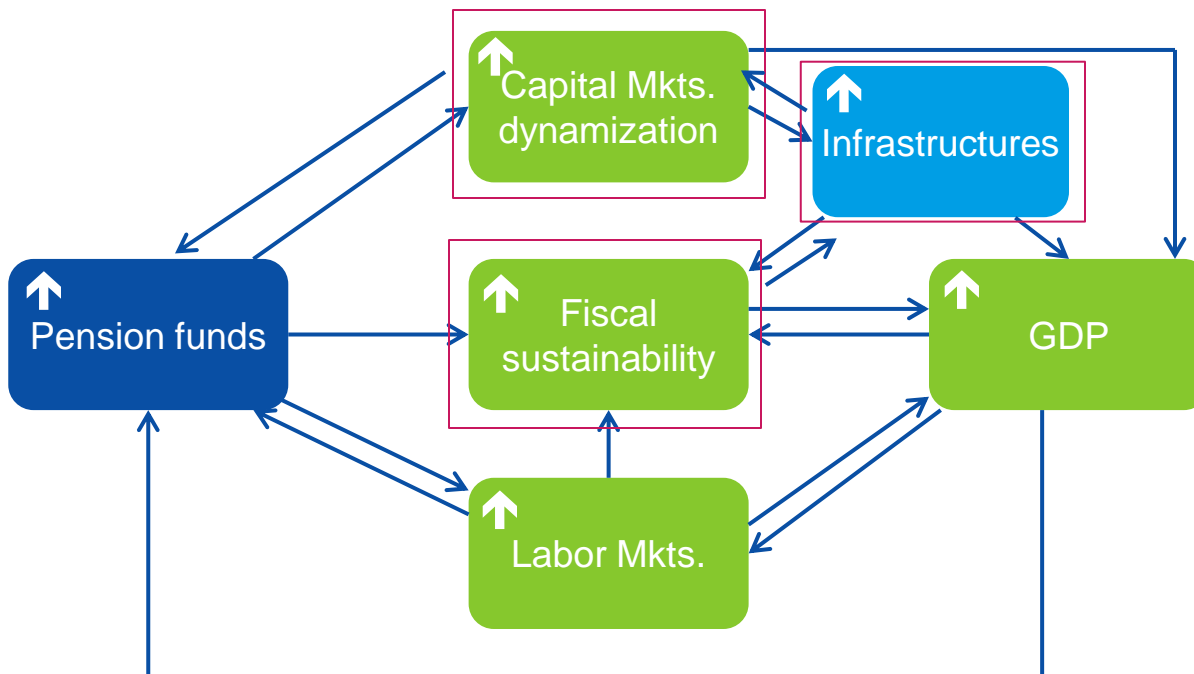
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# The rational to invest in infrastructure projects

## PF and Infrastructure: the theoretical virtuous circle

Source: BBVA Research



- It is possible to see a virtuous circle between pension’s goals and other economic policy targets.
- However, different conditional factors that likely affect the impact of some of these pieces:
  - Infrastructure-Growth multipliers
  - Quality of the infrastructure and the specific financial SPV.
  - Efficient frontier.
  - Regulatory institutional aspects

**Pensions:** Improve portfolio performance. Increase portfolio size. Better pensions

**The economy:** an economic policy focus. Also a global concern after financial crisis

**Infrastructures:** a key element for growth and likely key for pensions. It could involve higher/lower risks...

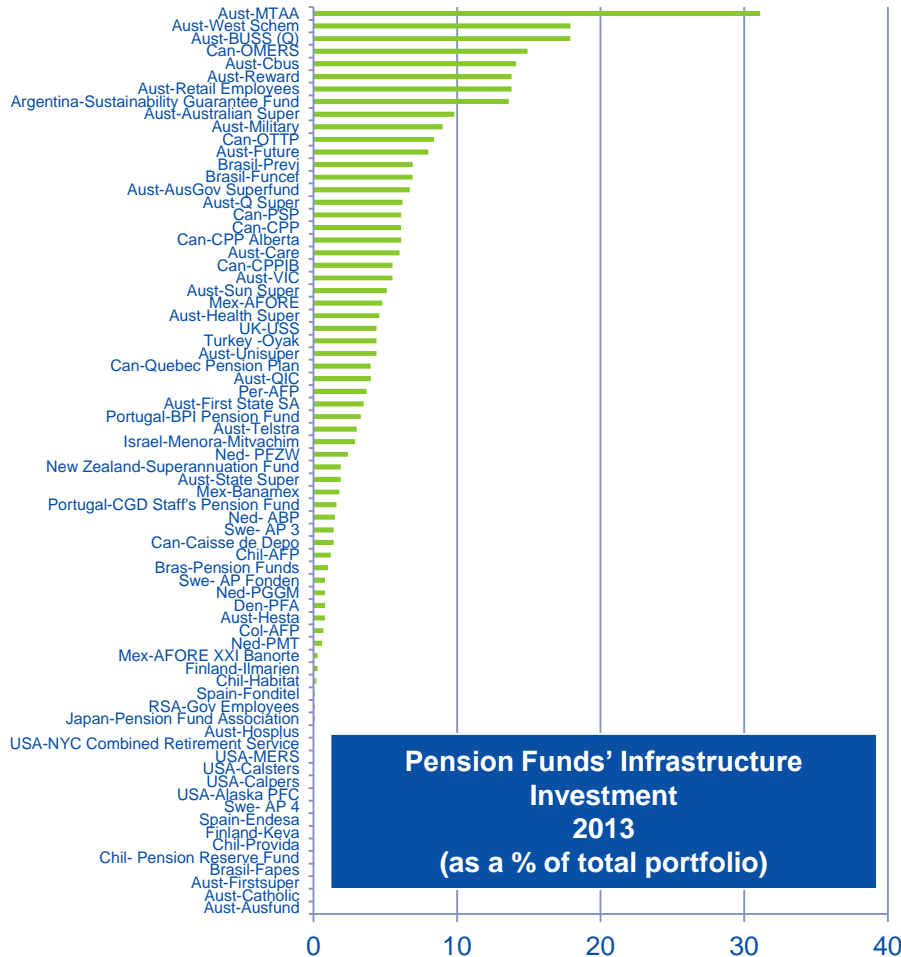
# Current trends increasing global interest of pension funds and infrastructure investments

## **Different reasons make the case for policy action:**

- Financial crisis and fiscal constraints
- Demographic and financial risks (very low return scenario)
- The need for growth and generate employment
- Close the Infrastructure gap
- Improve efficient frontiers of portfolios
- Strengthening ties between private pension and the society



# How much are PFs investing in direct infrastructure?



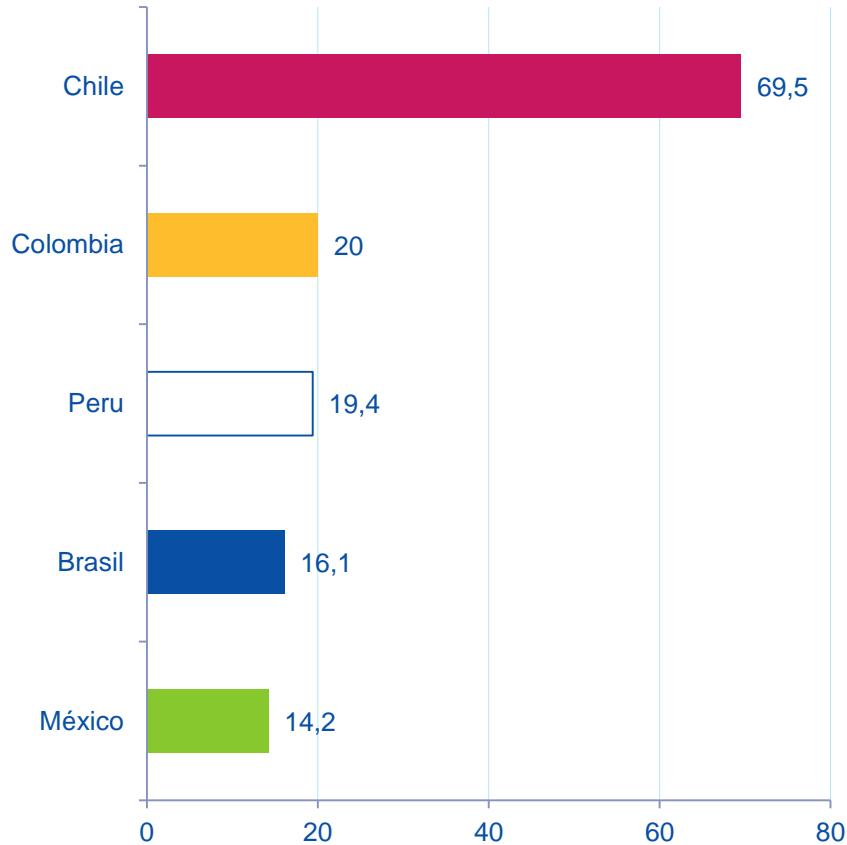
- Sample of 72 pension funds for 21 countries (data 2010 -2013) that are allowed to invest in infrastructure.
- Investing in infrastructure: from 0% to 31% of total PF's Portfolio:
  - **Average of those investing: 5,4% of portfolio**
- Australian and Canadian PFs are those investing more in infrastructure:
  - **Australian PF currently investing: 8,6% of portfolio**
  - **Canadian PF currently investing: 6,6%**

# Latin American PF and infrastructure assets

## LatAm – Total AUM

As a Percentage of GDP

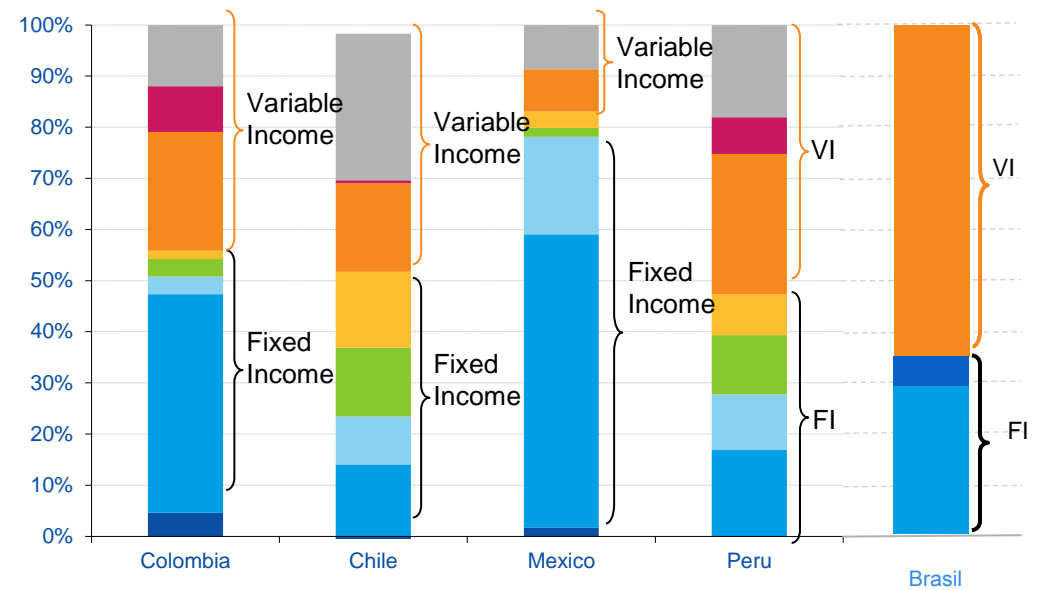
Source: BBVA Research



## LatAm - Asset allocation

Percentage

Source: BBVA Research



- Other Assets
- State Sector
- Fixed Income / Sector Corporativo
- Fixed Income / Financial Sector
- Fixed Income / Foreign Sector
- Variable Income / Corporate Sector
- Variable Income / Financial Sector
- Variable Income / Foreign Sector

# Latin American PF and infrastructure assets

## LatAm: Pension Fund Investment in Infrastructure Allocation – 2014

Source: BBVA Research

	TOTAL AUM		Broad Concept of Infrastructure Investing			Specific focused on Infrastructure Investing		
	US\$ Billion	% GDP	US\$ Billion	% GDP	% Portfolio	US\$ Billion	% GDP	% Portfolio
Brazil	480	16,1%	97,0	3,0%	25,0%	4,8	0,1%	2,0%
Colombia	96	20,0%	14,0	3,7%	19,1%	0,9	0,2%	0,7%
Chile	165	69,5%	14,4	4,5%	10,0%	2,3	0,6%	1,1%
Mexico	159	14,2%	16,3	1,4%	10,3%	7,6	0,7%	4,8%
Peru	39	19,4%	4,0	2,0%	10,1%	0,9	0,4%	2,2%
<b>LatAm</b>	<b>940</b>	<b>22,3%</b>	<b>146,7</b>	<b>3,3%</b>	<b>17,4%</b>	<b>16,5</b>	<b>0,7%</b>	<b>2,6%</b>

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Section 3

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Section 4

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Section 5

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# A snapshot of Pension fund`s financial instruments to invest in infrastructures

## Colombia

- Since 2010 it is allowed more diversification Investment through **Private Capital Funds (PCF)**.
- Recently there has been given more flexibility to invest in **infrastructure bonds**, with participation of the Financial Andean Corporation-CAF, that have constituted a Senior Debt Fund, to increase quality of the asset, allowing PFs to invest

## Mexico

- Since 2008 it is allowed to invest in infrastructure through the so called **CKDs and FIBRAS**. Other structured assets have been created since.
- It is allowed to invest using these instruments until **20% of the portfolio in structured instruments**

## Chile

- The legal framework allows PF to invest only in **instruments expressly authorized by law** or by the investment regulation.
- Funds can **only invest in financial assets of public offer**.
- Investment in **structured debt can reach 95%** of the portfolio in some of the multi-fund. Possible to **invest indirectly to alternative assets**

# A snapshot of Pension fund`s financial instruments to invest in infrastructures

Peru

- Investment through **Infrastructure funds** and indirectly to some **alternative assets** (between 4-15% for private equity). Not required previous authorization of regulator.
- **PF Trust (US\$ 1.4 billion)** to invest in infrastructure funds.
- Investment in bonds though **CRPAO**
- **There is not a specific quantitative limit** to invest in infrastructure.

# Chile: the case of the infrastructure bonds

- Investment grade bonds. Up to 24 y. L. term maturity. Inflation indexed. Last issued 2006.
- A strong guarantee system was created through the State Government, IADB: “Non-Financial guarantees” (*Guaranteed Minimum Income and Present Value of Incomes*) Strong incentives for PPP financing or project bankability.
- Trust accounts: Net resources associated to the bonds were deposited into trust accounts and addressed to construction.
- Concession holder would be authorized to use the benefits or reduce the capital, if a minimum of liquidity was guaranteed for next payment of the coupon.
- The operator had to contribute between 15%-20% of the required investment.
- During the construction stage, a loan bridge was arranged.
- Concessionaires are registered in the Securities Regulator that demands several requirements, making the issuer more transparent.
- As a result of the Financial Crisis, *monoliners* disappeared, but the subjacent risk of bonds survived (investment grade maintained). Government guarantees were not activated. This situation is mainly due to the good design of the concessions.

# Chile: the case of infrastructure bonds

## Infrastructure Bonds

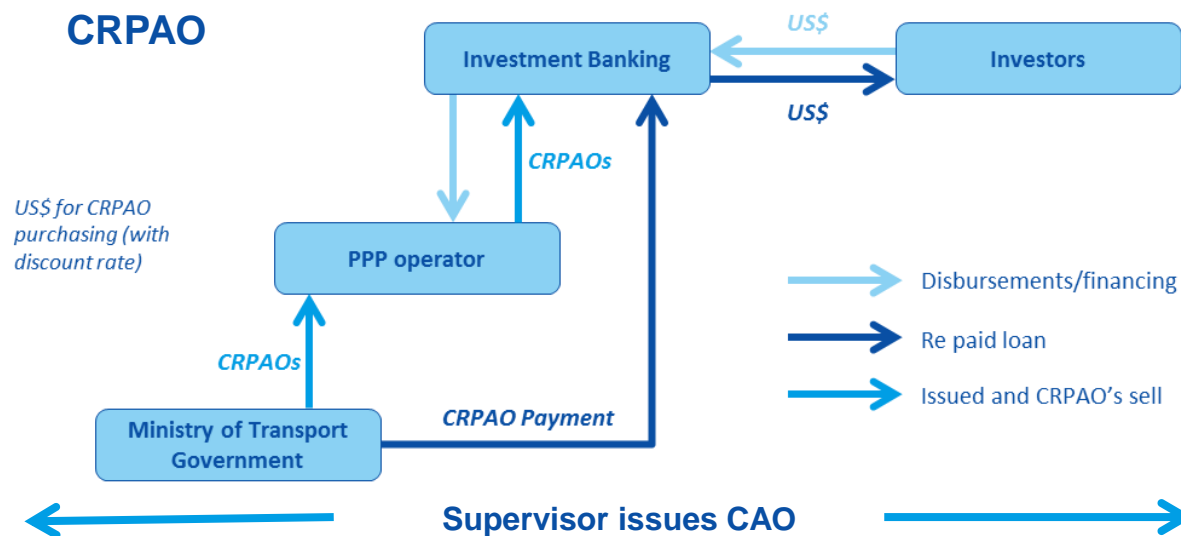
Operator	Date	Payment (UF)	Term	Duration	Rating	Interest Rate	Margin
Los Libertadores Highway	17-ene-07	1,119,000	18.5	10.8	AAA	3.26%	0.45%
Del Maipo Highway	20-dic-06	6,000,000	24.0	21.3	AAA	3.51%	0.66%
Del Bosque Highway	16-nov-06	1,500,000	17.1	16.3	AAA	3.36%	0.54%
Del Sol Highway	28-jun-06	970,000	12.0	6.1	AAA	4.15%	0.77%
Interportuaria Highway	26-ene-06	990,000	24.5	7.7	A+	4.60%	1.76%
Vespucio Sur Highway	11-nov-04	10,500,000	24.0	12.1	AAA	4.59%	0.44%
Del Maipo Highway	13-oct-04	5,800,000	21.0	12.7	AAA	4.69%	0.30%
Central Highway	19-dic-03	13,000,500	23.0	11.5	AAA	5.69%	0.67%
Costanera Norte Highway	11-dic-03	7,600,000	21.1	11.9	AAA	5.58%	0.56%
Costanera Norte Highway	11-dic-03	1,900,000	12.6	7.9	AAA	4.95%	0.80%
Melipilla Highway	17-jul-03	720,000	21.5	4.9	AA-	6.49%	2.60%
Los Libertadores Highway	9-abr-03	1,591,000	8.0	4.0	AAA	4.00%	1.36%
Los Libertadores Highway	9-abr-03	2,085,000	23.0	10.1	AAA	5.78%	1.96%
Del Sol Highway	9-may-02	5,565,000	16.0	8.2	AAA	6.35%	1.35%
Rutas del Pacífico	9-abr-02	10,999,000	23.0	11.5	AAA	6.02%	1.10%
Del Bosque Highway	21-mar-01	7,801,000	20.5	9.9	AAA	6.38%	1.08%



# Peru: different financial instruments

## CRPAO (*Work Annual Payment Certificate*)

- IIRSA (2006) highways. Debt financial instrument. Irrevocable and unconditional characteristics. Partially guaranteed by the IDB
- Payable in 15y on a 6 moth basis after the issuance of Work Progress Certificate-CAO, issued by the supervisor
- Guarantee that construction is according standards established in contract
- High government guarantee but strict mechanisms of supervisions according to CAO. Obligation of governments. of recognizing the payments for construction work in progress
- It reduces the effect of construction risk by gvt assumption (gvt ensures 100% of the obligation)



# Peru: different instruments through more flexibility

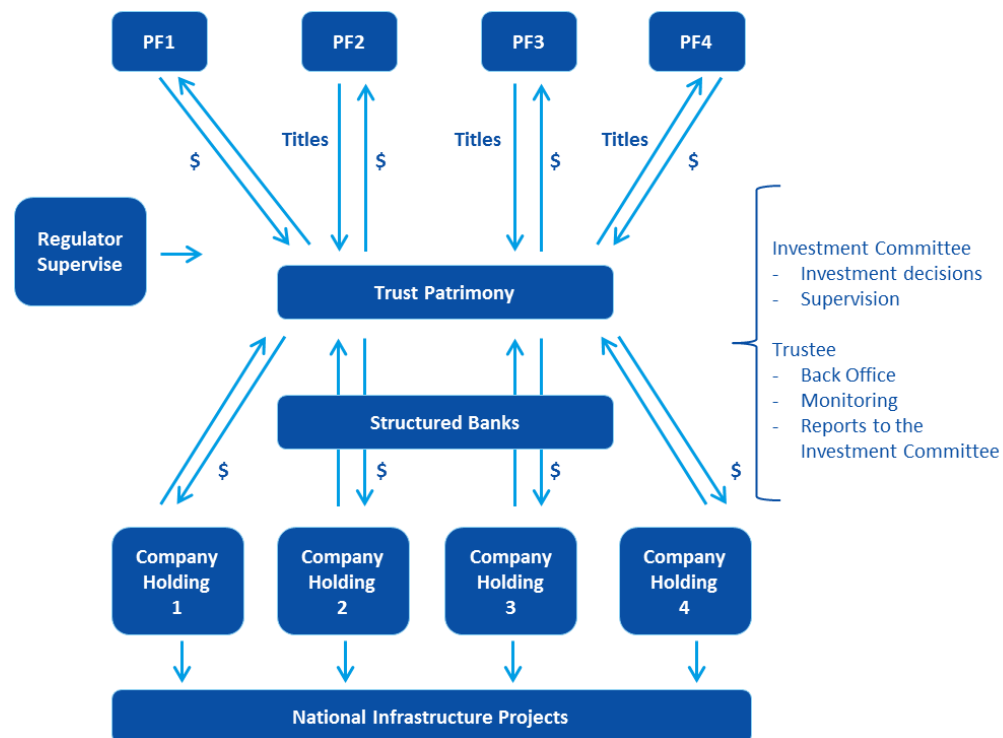
## Quote in Infrastructure Funds

- No specific quantitative limits.
- PF participation in Investment Committees.

## Private Pension Fund Trust

- PFs make cash transfer, when projects established, to the Trust and each one receives equity participation.
- Trust acquires structured debt after approval Investment Committee.
- Trust managed independently, authorized by the regulator.

## Scheme of the infrastructure investment trust



Source: Central Bank of Peru (2013)

# Mexico: structured assets and infrastructure

## CKD

Aimed to the development of projects and companies

## FIBRAS

Specialized in the acquisition, construction and financing of infrastructure and real state

## REITs

Similar to FIBRAs, but listed in eligible countries.

## Debt linked to real assets

Debt whose sources of payment are real assets or projects.

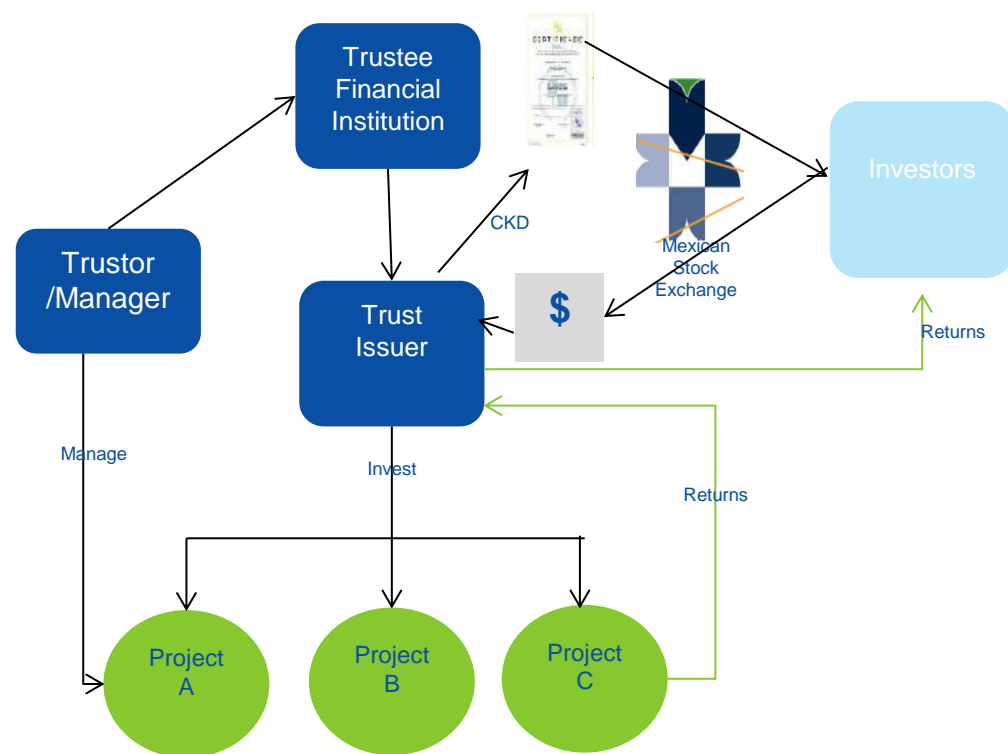
## CKDs:

- Trust structured instrument to finance one or more projects.
- The returns and income flows from are associated to the benefits obtained from the subjacent project. So the returns are not completely predicted and depend on how well is working the project.. It is not a debt instrument. No secondary market. There is a deadline of finalization
- Through CKDs, resources are given to the investors according to an established schedule..
- Corporate governance. CKDs count with a holder assembly and Technical Committees to control the project. Participation of experienced operator (Real Estate, PE, Infrastructure)

# Mexico: how does a CKD operate?

## Challenges:

- Continue improving project finance subadjacent scheme. Takes years, experience, institutional maturity, learning.
- Good projects and more sectorial diversification
- Adjust CKD structure to international funds
- Promote broad participation of institutional investors
- How to make more transparent CKD operative to the general public



Source: CONSAR

# Colombia: CPF and Infrastructure Bonds

## CPF- Capital Private Fund

- Financial vehicle designed to invest in companies that do not list in capital markets. Clear rules of corporate governance. PF participation could not exceed 30% of the CPF.
- Period of financing 8y or more.
- There are Portfolio limits depending on the risk profile of the portfolio. Maximum 7%.

## Infrastructure bonds- 4G projects (mainly highways): Since 2012 - O&M- Minimum 10y.

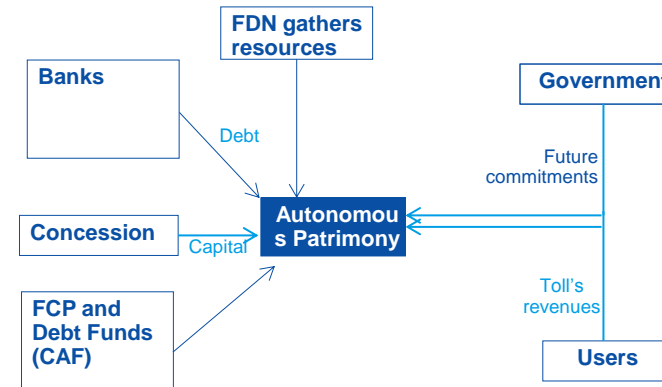
- APP scheme. Minimum government guarantee. Official national Projects..
- Financing support from FDN – National Financial for Infrastructures
- Banks finance through 25% technical patrimony of the operation.
- PFs intervene in the Op. & Maint. stage, by re-financing banking debt of the construction st.

## CAF Senior Debt Fund (US\$ 1 billion)

- To facilitate the participation of PF to invest in infrastructure.

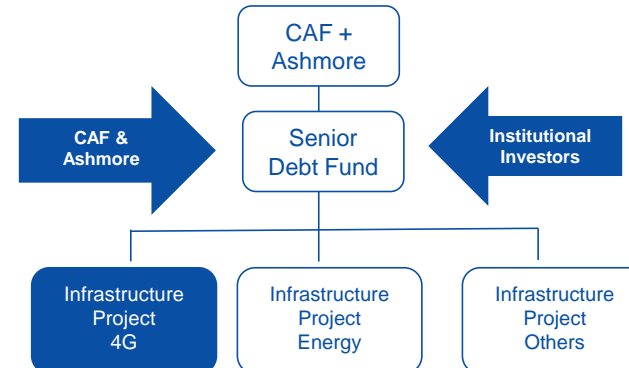
## Financial sources for 4G Infrastructure

Source: Colombia Government / BBVA Research



## CAF Senior Debt Fund

Source: CAF/ BBVA Research



# Colombia- PFs limits to invest in infrastructure

## FCP

- **Prudent PF Portfolio and Programmed Withdrawal Portfolio:** Not Permitted
- **Moderate PF Portfolio :** 5% limit of portfolio
- **Riskier PF Portfolio:** 7% limit of portfolio
- **Severance Long Term Portfolio :** 5% limit of portfolio
- **Severance Short Run Portfolio:** not allowed

## Debt

Since April 2014 the government has permitted PF to invest in debt instruments

- Funds to invest in debt issued by a concession project in infrastructure, direct or indirect (Debt Fund).

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# How Flexible are PF's financial regimes to invest in infrastructure?

A PCA synthetic Index of regulatory openness for the investment of pension funds in infrastructure

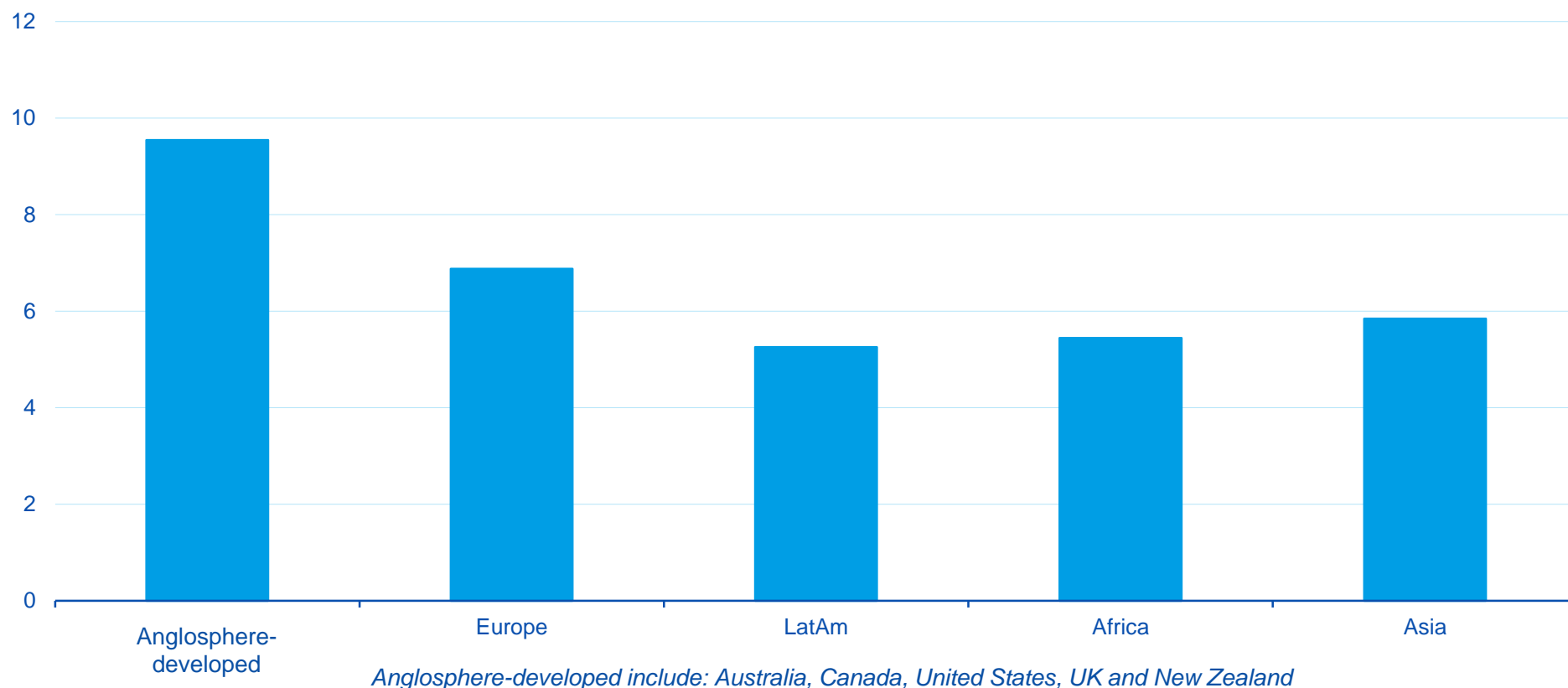
Country	Index	Country	Index	Country	Index	Country	Index
Belgium	10.58	Sweden	7.93	Iceland	6.01	Zambia	4.91
Canada	10.58	Germany	7.93	Jordan	6.01	Nigeria	4.57
Ireland	10.58	Korea	7.78	Switzerland	5.68	Nigeria	4.57
Netherlands	10.58	Portugal	7.61	Brazil	5.68	Romania	4.57
Gibraltar	10.58	United States	7.59	Malta	5.66	Czech Repub	4.33
Malta	10.58	Hungary	7.22	Poland	5.50	Albania	4.18
Malawi	10.22	Greece	6.80	Bulgaria	5.50	Colombia	4.18
Australia	9.86	Mauritius	6.79	Slovak Repub	5.32	China	4.18
United Kingdom	9.86	Austria	6.74	Armenia	5.31	Pakistan	4.18
Israel	9.85	Italy	6.47	Armenia	5.31	Russian Fede	3.98
New Zealand	9.83	Turkey	6.47	Costa Rica	5.29	Maldives	3.79
Norway	8.71	France	6.43	Slovenia	5.29	Egypt	3.74
Japan	8.41	Thailand	6.10	Tanzania	5.29	Dominican Re	3.38
Estonia	8.36	Trinidad and	6.07	Peru	5.29	Chile	3.07
Jamaica	8.31	South Africa	6.07	Kenya	4.93	Uganda	3.02
Luxembourg	7.95	Spain	6.06	Republic of M	4.93	India	2.30
Finland	7.94	Mexico	6.04	Namibia	4.91	Ukraine	2.25

Source: Alonso, Arellano and Tuesta (2015) / BBVA Research

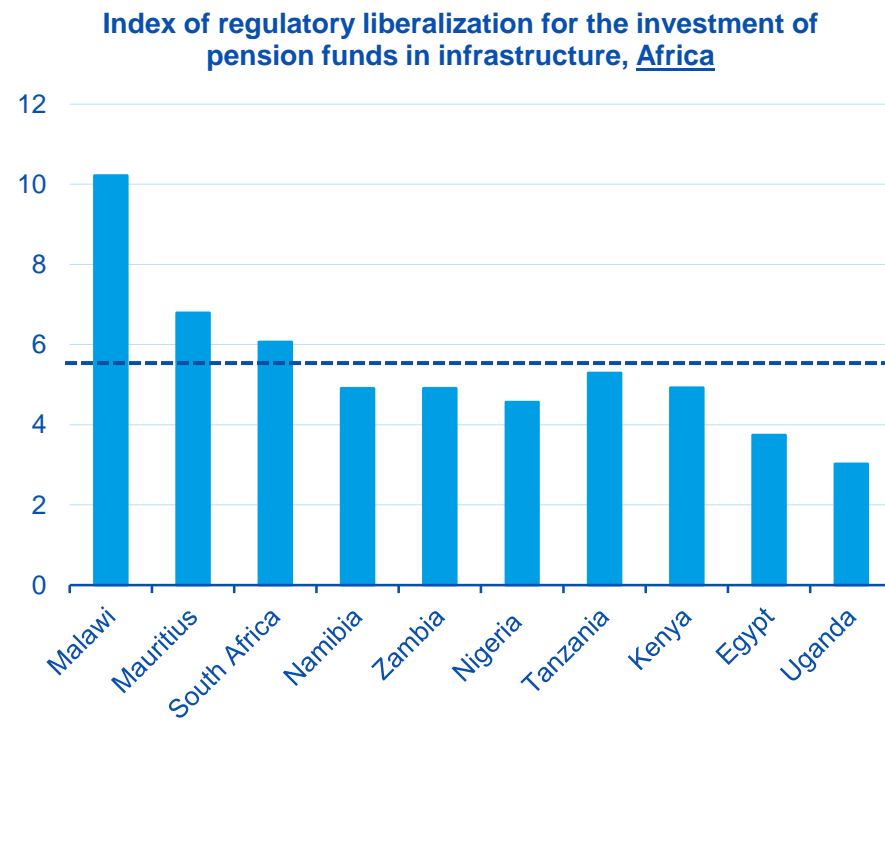
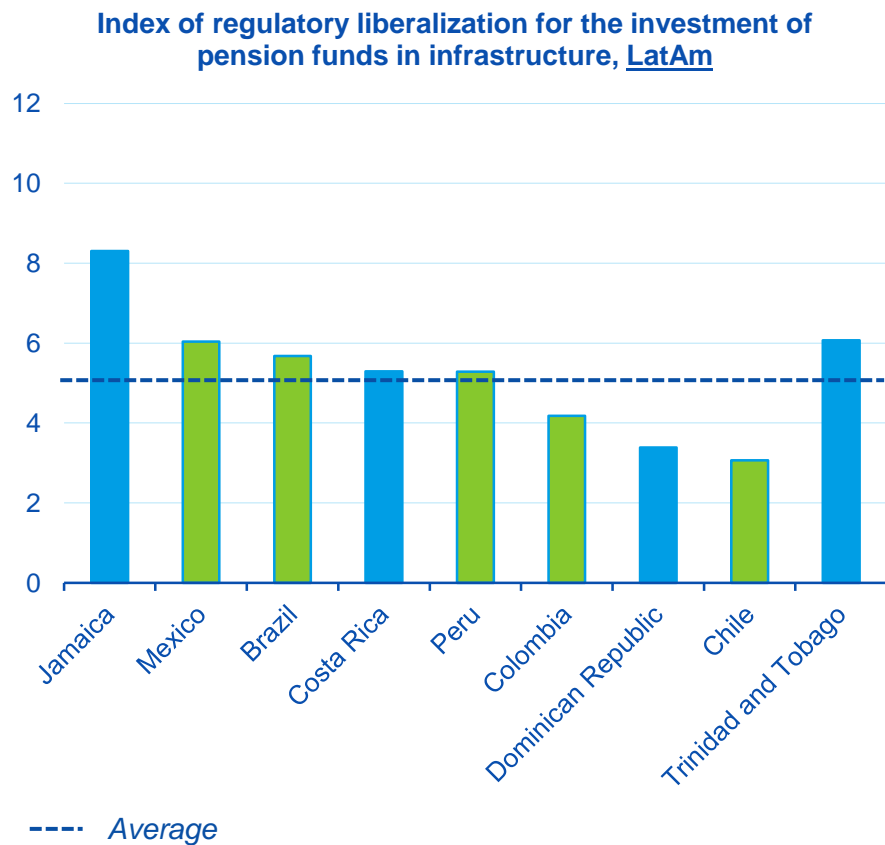


# How Flexible are PF's financial regimes to invest in infrastructure?

Index of Regulatory Openness for the investment of pension funds in infrastructure



# How Flexible are PF's financial regimes to invest in infrastructure?



Source: Alonso, Arellano and Tuesta (2015) / BBVA Research

# Data

The information of the database comes from several sources:

Group of variables	Database
Group 1: flexibility of pension funds' investment in infrastructure according to several asset categories	OECD (2014a)
Group 2: general characteristics of pension funds	OECD (2014c)
Group 3: variables associated with financial market characteristics, legislation and other relevant regulations	World Economic Forum USA (2012)
<b>Dependent variable:</b> the investment of pension funds in infrastructure (as a % of total investments)	OECD (2014b)

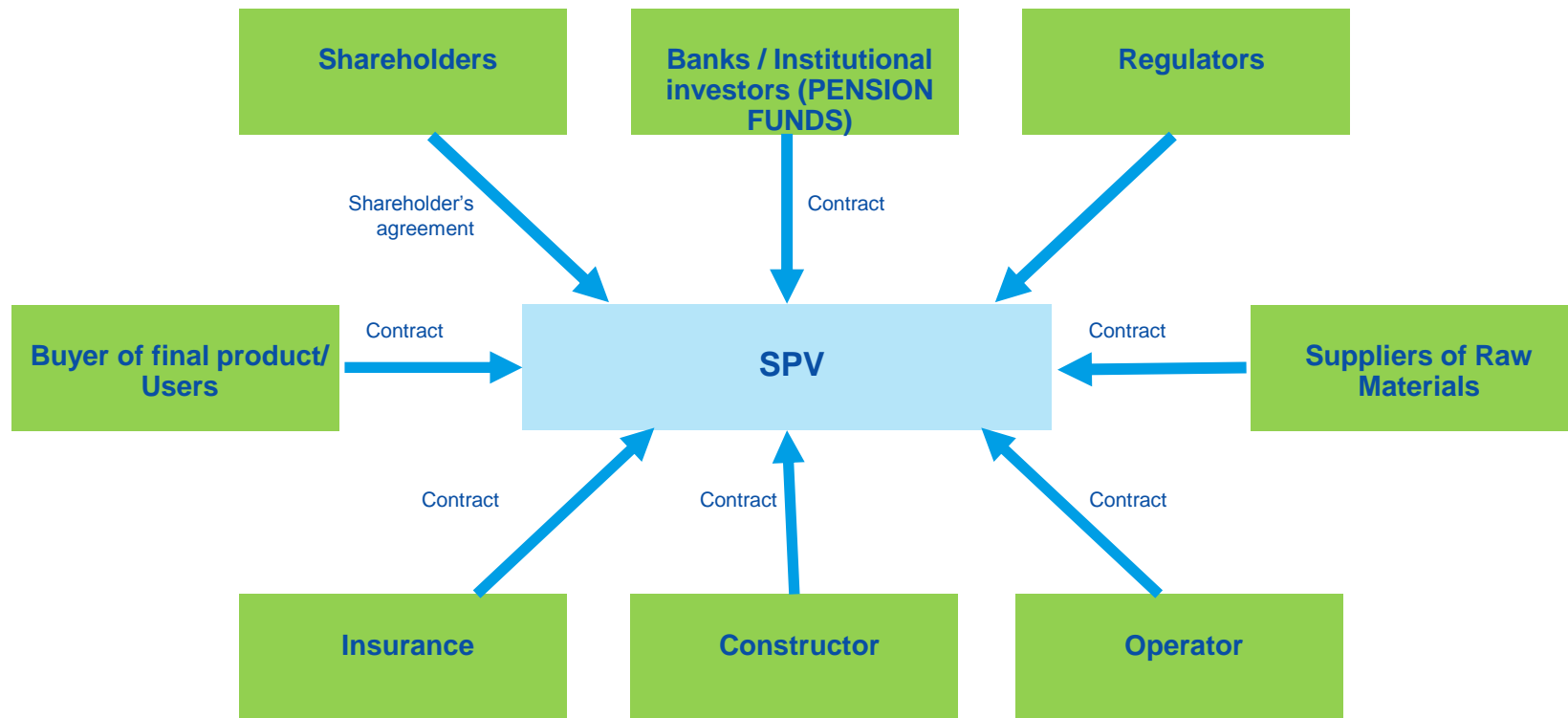
Source: Alonso, Arellano and Tuesta (2015) / BBVA Research

# Results of the Model: Financial regimes are not so important but, institutional context is very relevant

Dependent variable: Total Infrastructure investment (as a % of total investments)					
		Model 1	Model 2	Model 3	Model 4
PF regulation	Portfolio limit in domestic asset categories	2.577 **	-1,731	-2,791	-4,846
	Portfolio limit in foreign asset categories	-0,399	-2.342 *	-4.660 **	-4,928
	Capital account liberalization		6.395 **	12.872 ***	49.606 **
Structural variables	Quality of overall infrastructure		-5,955	-19.497 **	-65.177 **
	Importance of pension funds relative to the size of the economy in the OECD		0.193 *	0,09	-0,073
	DB pension plans' assets as a % of total assets		0,04	0,01	0.386 **
Rule of law	Strength of legal rights index		4.241 *	4.841 **	15.035 **
	Strength of investor protection index		-5.960 *	-11.725 ***	-38.669 **
	Number of procedures to enforce a contract		-0,227	-1,615	-5.546 **
Financial Mkts' performance	Financial strengths indicator			9.000 **	32.405 **
	Non-financial corporate bonds to total bonds and notes outstanding (%)			0.940 **	5.143 **
	Share of total number of securitization deals			0.340 *	2.139 **
	Anglosphere countries (broad version)				47,65
Geographic	EU countries				140.591 **
	EFTA countries				90.244 *
	Latin-American and Caribbean countries				94.610 ***
Constant		-33.142 ***	0,628	69,281	29,451
Number of observations		57	57	57	57
Pseudo R <sup>2</sup>		0,018	0,088	0,147	0,225
Log pseudolikelihood		-80,655	-74,884	-70,026	-63,679

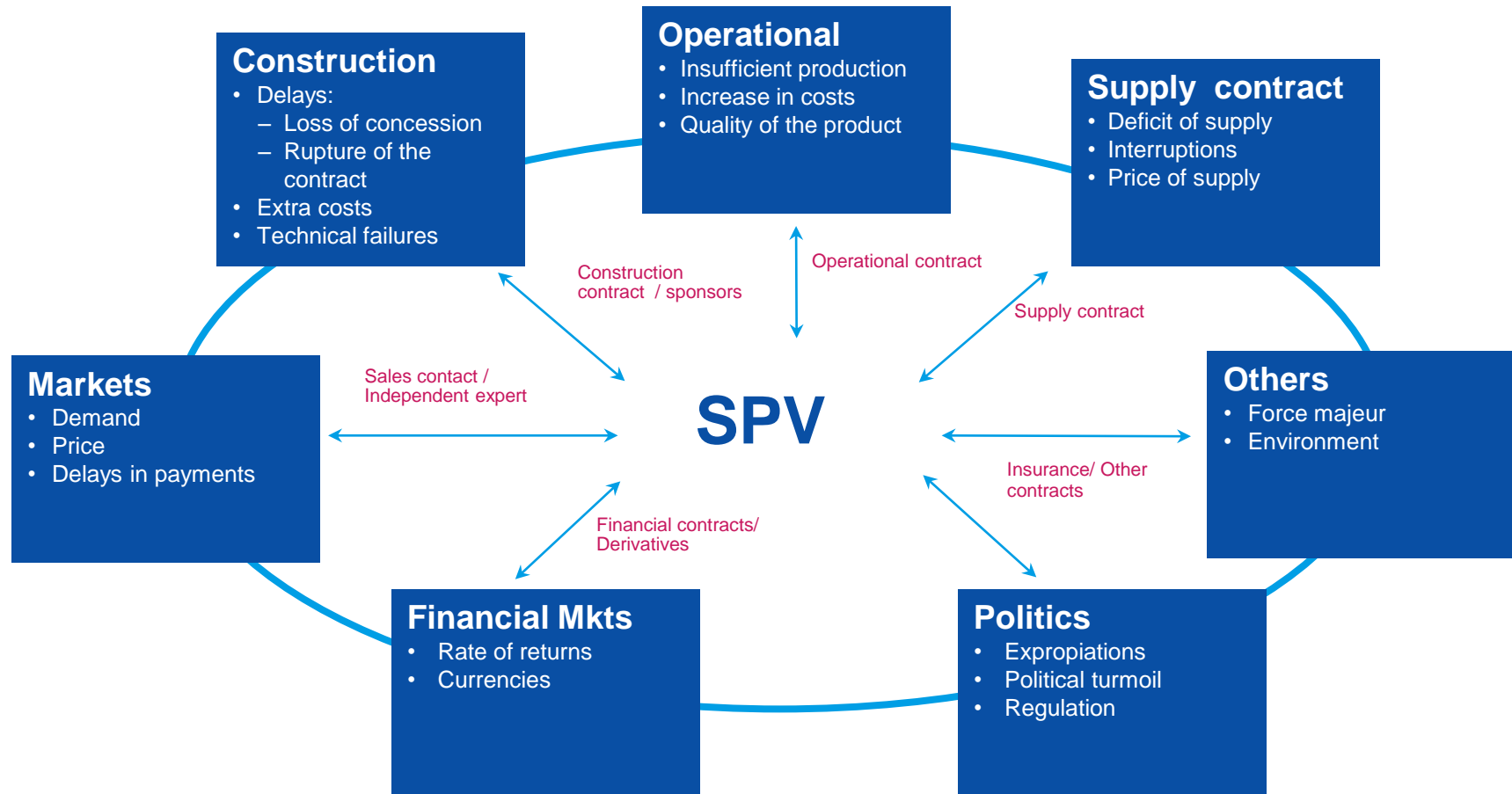
Source: Alonso, Arellano and Tuesta (2015) / BBVA Research

# Invest on infrastructures: many factors to take into account



Source: BBVA Research

# More to take into account: risks and coverage



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# Final comments: future trends in infrastructure investing

- An scenario of diminishing interest rates as a consequence of global monetary policies, financial conditions, new regulatory developments (Basel III, Solvency II, others), and longevity risk . This makes necessary for PF to look for alternatives that improve portfolio returns
- LatAm has an important infrastructure gap and its PFs have US\$ 1 trillion dollars in AUM. New financial instruments for PF for financing Infrastructures
- LatAm is in the beginning of its learning curve. Rule of Law, institutional factors and government commitment to reduce uncertainty are key to invest more in infrastructures. PF regulatory regime is not all. Policy action for emerging economies: work hard to improve institutions and continue with structural reforms
- Overall, project infrastructure investing is a good alternative for increasing pension fund's financial exposure; however, this needs to go hand in hand with its trustee role, the commitment to provide adequate pensions, and a well designed long term financial strategy



Thank you

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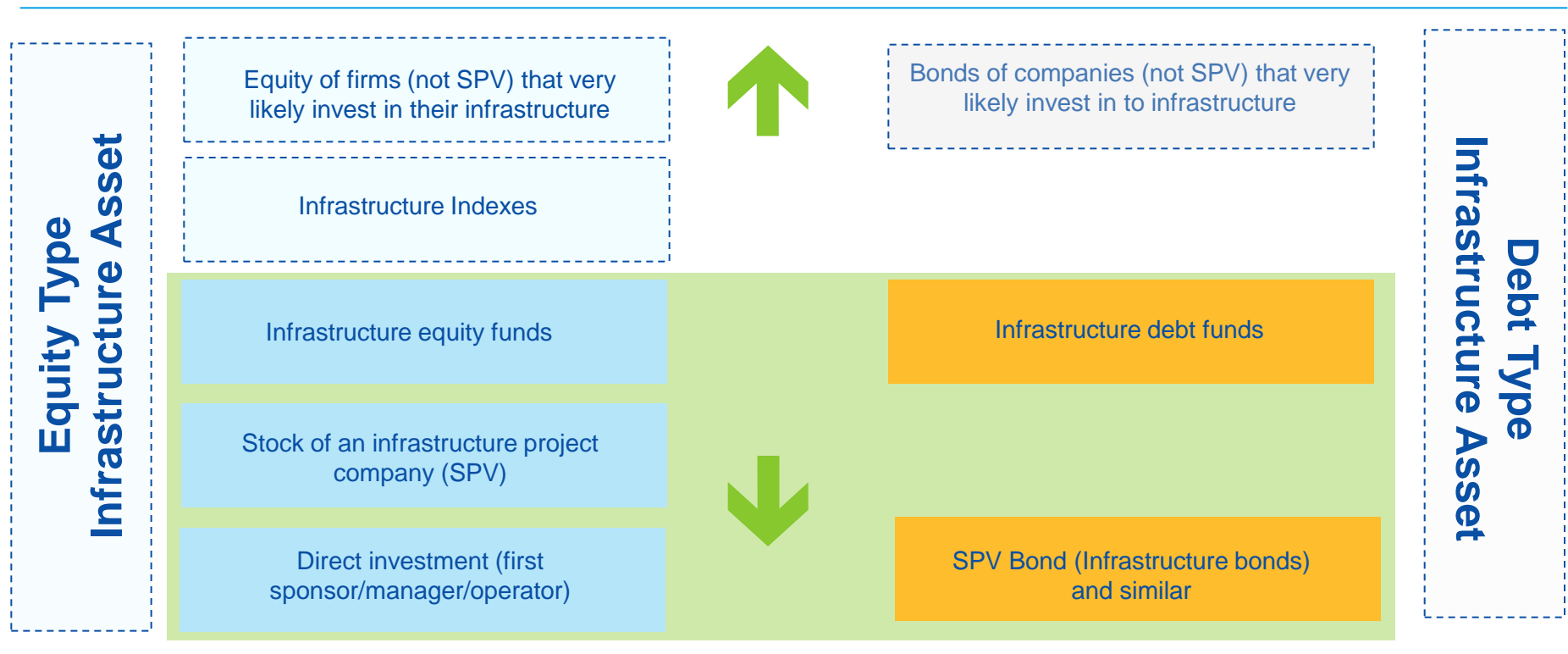
## LatAm Direct Infrastructure Investing (Direct Debt/SPV-Equity/SPV Inf. Funds) Returns

Source: BBVA Research (2012), national government sources

	2011		2011		2011
Bond- Infra.-Avg-CHL(02-11)	10,5%	CKD- LATIN (IRR)	20-30%	CKD-Vertex-MEX (IRR)	14-18%
<b>Inf. Fund Prime-CHL</b>	<b>9,0%</b>	<b>CKD INFR-Macquaire (IRR)-MEX</b>	<b>8%</b>	CKD-Wamex-MEX (IRR)	12,5%
CKD-AGC-MEX (IRR)	8,0%	<b>CKD INFR- MARHNOS (IRR)-MEX</b>	<b>11-14%</b>	CKD-AMB - MEX (IRR)	13-16%
CKD- Artha- MEX /IRR)	12%	<b>CKD INFR-Navix-MEX (IRR)</b>	<b>16-18%</b>	<b>CKD INFR-GBM-MEX (IRR)</b>	<b>16-19%</b>
CKD- Atlas.MEX (Exp. IRR)	8%	CKD-Nexus-MEX (IRR)	20%	<b>Inf. Fund AC- PE (Ytd)</b>	<b>37,9%</b>
CKD-Capital Inmobiliario-MEX (IRR)	11,5%	CKD- Pinebridge-MEX (IRR)	20-25%	<b>Inf. Fund Larrain PE (IRR)</b>	<b>22,2%</b>
CKD- EMX Capital-MEX (IRR)	25-30%	CKD-PLA (PRUMEX)-MEX (IRR)	16-22%	Bond-SPV Pq Rimac-PE (Coupon)	6,5%
CKD-MEXGIS 3-MEX (IRR)	18-22%	CKD-Planigrupo-MEX (IRR)	16-20%	Bond-SPV IIRSA N-PE (Coupon)	8,75%
CKD-MRP-MEX (IRR)	16-20%	CKD-Promecap-MEX (IRR)	10-25%	Bond-SPV Taboada-PE (Coupon)	5,97%
<b>CKD INFR- Institucional MEX (IRR)</b>	<b>16-20%</b>	CKD- Carreteras Occ-MEX (IRR)	11-15%	Bond -SPV Huascacocha PE (Coupon)	5,2%

# Approaches to infrastructure investments

## Indirect



## Direct

Source: BBVA Research and Sawant (2010)