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Economic Watch

Pensions

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Econimic Analysis

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Infrastructure and pension funds in Brazil

- **Infrastructure investments remain very low in Brazil**
  Infrastructure spending was around 3.3% of GDP in 2010, less than that required for the country to replicate the development experience of Asian economies (4%-6%).

- **The government has been trying to increase investments in infrastructure,** but important fiscal restrictions prevent the public sector from directly investing in infrastructure, and at the same time, legal uncertainties and other distortions inhibit private investments.

- **As the international experience suggests, pension funds can be an important source of resources for infrastructure investments**
  Brazilian pension funds have sufficient size (14.5% of GDP) and the right profile for meeting the funding needs of infrastructure investments.

- **Pension funds allocate around 21% of their portfolio (3% of GDP) to the infrastructure sector,**
  but no more than 1% of their resources are channelized into the sector through direct investments in infrastructure projects/funds. The main bulk of investments (around 20% of pension funds portfolio) in this segment are made through equity and fixed income operations.

- **More room for pension funds to invest in infrastructure –as well as in other sectors - should be created by a structural reduction of real interest rates.**
  As interest rates remain at very high levels, so remain the attractiveness of public bonds. In 2010, 48% of pension funds' resources were invested in public bonds.

1. Infrastructure: lack of investments despite increasing necessity

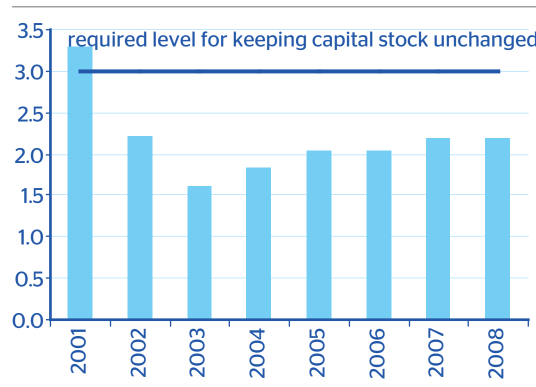
In spite of the positive macroeconomic performance in the last few years, infrastructure investment has remained low in Brazil. Infrastructure spending remained close to 2.0% of GDP during most of the last decade[1]. More recently, infrastructure investment has trended up and reached around 3.3% of GDP. This recent performance compares poorly to the level needed to keep infrastructure's stock of capital constant (3.0%), and in comparison with the amount required for the country to replicate the development seen in South Korea and other Asian economies (4.0%-6.0%)[2].

As a natural consequence of insufficient investment during a prolonged period, infrastructure is nowadays one of the main bottlenecks for productive activity in Brazil. From a macroeconomic perspective, the scarcity of good infrastructure is among the main factors that keep the country from growing more than 4.0% in a sustainable fashion.

The status of Brazilian infrastructures is broadly summarized by the World Economics Forum's Infrastructure Ranking, which shows that in 2011 Brazil ranked 62nd out of 139 countries (in comparison, Singapore ranks 5th, Malaysia 30th, Chile 40th, China 50th, Turkey 56th, Mexico 75th, and India 86th)[3].

Chart 1

Infraestructure investments (% GDP)



Source: Claudio Frisckhtak in "O investimento em Infra-Estructura em Brasil"

Table 1

Infraestructure Quality- Ranking (out of 139)

Infrastructure	62
Quality of overall infrastructure	84
Quality of roads	105
Quality of railroad infrastructure	87
Quality of port infrastructure	123
Quality of air transport infrastructure	93
Available airline seat kilometers	9
Quality of electricity supply	63
Fixed telephone lines	62
Mobile telephone subscriptions	76

Source: World Economic Forum, 2011

The main factors that help explain the lack of investment in infrastructure over the last few years are:

- Fiscal restrictions: the tax burden is already very high (around 35% of GDP) and there is practically no room for increasing taxes to invest in infrastructure. In addition to that, a significant share of budgetary resources is earmarked, which leaves very little space for investing in infrastructure. Budget rigidities imply that expenditure cuts – such as the one being implemented this year - usually affect infrastructure investments.
- After decades of dealing with macroeconomic problems such as inflation, the public sector lost the capacity to plan and execute infrastructure investments.
- Weak legal and regulatory environment. Although regulation for some sectors (such as telecommunications and electricity) is clear, in some cases this is not the case (as with pre-salt and gas). On top of that, there are increasing problems regarding the political use of regulatory agencies.
- Inflation, as well as other macroeconomic problems, has distorted assets prices and funding conditions. Real interest rates are among the highest in the word, which inhibit long-term investments such as infrastructure investments.

1: See Frischtak, Claudio. 2007. "O Investimento em Infra-Estrutura no Brasil: Histórico Recente e Perspectivas".
2: See Frischtak, Claudio. 2007 and Fay M. and M. Morrison. 2005. "Infrastructure in Latin America & the Caribbean: Recent Developments and Key Challenges." Washington, DC: The World Bank, Finance, Private Sector and Infrastructure Unit – Latin America & the Caribbean Region.
3: See World Economics Forum. 2010-2011. The Global Competitiveness Report.

In spite of all these problems, the increasing necessity of improving domestic infrastructure has recently created a sense of priority towards infrastructure expenditures. This sense was especially boosted by the organization of both the 2014 World Cup and the 2016 Olympic Games. The government has, therefore, made room for increasing direct public investment (especially in infrastructure), and total public investments reached 2.9% of GDP in 2010 in comparison to 1.6% in 2006.

Among the main public initiatives to foster infrastructure spending, and certainly the most visible, was the PAC, the Plan for Growth Acceleration. From 2007 to 2010, investments included in the PAC reached R$444 billion - around 3.5% of GDP - most of the resources were invested in social housing rather than physical infrastructure. For the 2011-2014 period, the goal is to invest R$955 billions, around 5.2% of GDP.

In addition to directly investing in infrastructure, the government has been trying – with timid results – to implement policies to attract the participation of the private sector. An example was the Public-Private Partnership (PPP) law implemented in 2004 whose idea was to ease investments in infrastructure through the cooperation of private agents with the public sector. After seven years, the government was not able to pave the way for such partnerships, as they remained relatively complex from a financial and juridical point of view, which added to the risks related to having a long-term association with the public sector. On top of that, low returns are also referred as a barrier for the creation of more PPPs.

Another recent public action to increase the role of the private sector was the announcement of measures to stimulate long term financing and allow infrastructure improvements. The particular goal is to develop debt securities specifically for infrastructure and construction projects and to create a more robust and diversified long term debt market in Brazil. More precisely, the main measures taken were:

- The income tax on infrastructure-linked debentures was reduced to 0.0% for households and non-resident investors and to 15% for companies.
- The income tax on bonds linked to some specific investments was reduced to 0.0% for non-resident investors.
- The creation of a new legal framework for debentures (modified the old legal framework set by Law 6.404).
- The IOF (the financial transactions tax) on foreign capital inflows into private equity funds was reduced to 2.0%.
- Creation of a liquidity fund: financial institutions are now allowed to allocate up to 3 p.p. of their reserve requirements on time deposits to a liquidity fund for private bonds. In addition, fiscal incentives were set to stimulate the strengthening of the secondary market for private bonds.

In spite of implementing measures to foster private investments in infrastructure, the public sector has lacked some effort in showing its openness and its commitment to an increasing participation of the private sector in infrastructure projects over the last few years. Therefore, the recent decision to concede the management of some of the main airports of the country to the private sector should definitively be seen as a positive sign.

2. Pension funds: still focused on funding the public sector

The Brazilian pension system is formed by a mandatory, public universal system and by two voluntary, private supplemental plans: a closed-ended plan, composed by individuals linked to companies, unions, or professional associations and managed by non-profit organizations, and by an open-ended plan, managed by for-profit entities (mainly banks and insurers) and open to any individual.

The mandatory universal system works as a "pay-as-you-go" mechanism in which active workers' contributions are used to pay retired workers' benefits. In 2010, the revenues of this public universal system mounted to 5.8% of GDP and total expenditures reached 6.9% of GDP, which implies the system had a deficit equal to 1.1% of GDP.

As the graph below shows, the current social security deficit is higher than the deficit observed at the end of the nineties (0.3% in 1997), as expenditures expanded much more than revenues in this period. More precisely, expenditures moved up from 5% to 6.9% of GDP while revenues expanded from 4.7% in 1997 to 5.8% last year.

The expansion observed in social security spending was due to the fact that social security benefits are linked to the minimum wage and to the generosity of the system. Regarding the former, 69% of the beneficiaries received payments equivalent to the monthly minimum wage in 2009. The minimum wage/social benefits linkage was especially harmful in the last few years as the minimum wage was adjusted significantly up (around 6.0% in real terms during the government of Lula). With respect to the generosity of the system, the share of the population over 65 years old was equal to 7% and social security spending was also around 7% of GDP in 2006; this contrasts sharply with the rates observed in other countries in the same period, such as Japan (population over 65: 20%; social security spending: 7% of GDP), Spain (17% and 9%, respectively), and USA (13% and 6%). Further evidence of the generosity of the Brazilian system is that in 2008 the average retirement age was 53 years (51 for women; 54 for men)[4].

The deterioration of the social security accounts occurred in spite of the implementation of some partial but important reforms during the governments of both Cardoso and Lula. If these reforms hadn't been introduced, the system's deficit would certainly have trended up much more sharply. Among the main reforms introduced were the implementation of the "fator previdenciario" (a discount factor established to encourage workers to defer retirement, by calculating benefits according to the insured's contributions, age, and life expectancy at retirement; the use of this factor is mandatory in benefit calculations for workers insured from November of 1999), the implementation of a minimum contribution period as requirement for retirement, taxation of social security benefits, and some other stricter retirement requirements.

The outlook for the social security accounts are not favorable as the system will face a slow but continuous negative effect derived from the aging of the population and as the minimum wage grows robustly (a new law set up a floor for future adjustments of the minimum wage linked to inflation in the previous year plus the average GDP growth of the previous two years.). The expected deterioration of social security accounts should, however, trigger the implementation of new reforms. In the last few months, the government has been studying a project to amend the current system. Among the options being studied are the elimination of the linkage between the minimum wage and social security benefit payments and increasing the retirement age.

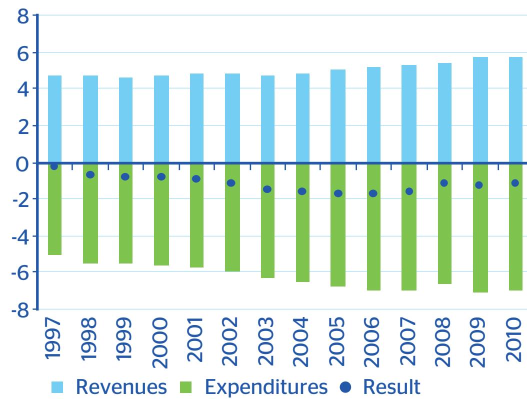
The mandatory universal system is complemented by a private supplemental system, which uses capitalization mechanisms. Open-ended plans are regulated by the insurance supervisor, SUSEP, which report to the Ministry of Economy, and closed-ended plans are overseen by the PREVIC, which reports to the Ministry of Social Security.

Contributions to open-ended supplemental plans have been trending up and reached 1.25% of GDP in 2010 (see graph below). This is relatively small in comparison to the size of both the universal social security system and closed-ended plans (for the later, see details below). Although contributions as a share of GDP are not as significant as the other arms of the system, the total number of participants in open-ended plans was equal to 8 million people in 2010 (around 4% of total population).

The main open-ended plans, which managed 93% of total contributions in 2010, are those linked to the main banks operating in the country: Bradesco (market share: 31%); Banco do Brasil (21%), Itaú (19%), Santander (11%), Caixa Economica Federal (7%), and HSBC (4%).

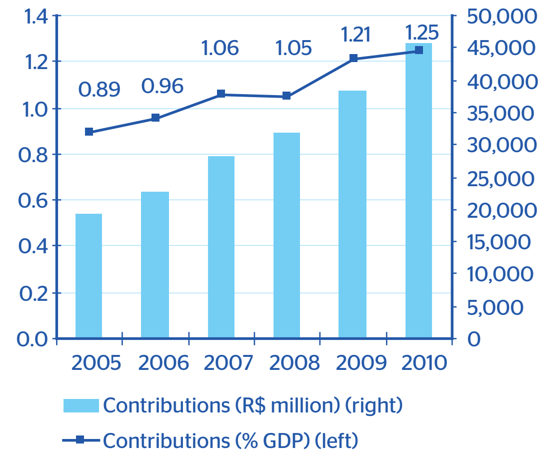
4: See Giambiagi, Fabio. 2009. "Previdência Social no Brasil: diagnóstico e propostas" and Credit suisse. 2009. "A guide to the Brazilian economy".

Chart 2
Social Security Accounts



Source: National Treasury

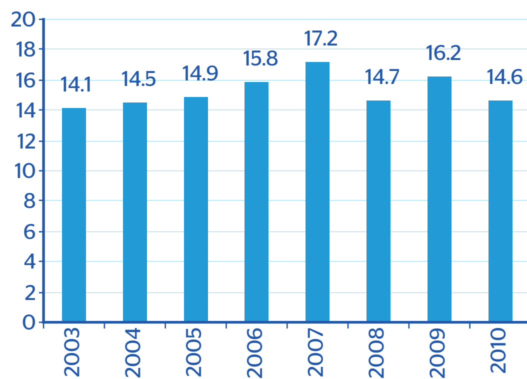
Chart 3
Open-ended supplemental plans: contributions



Source: SUSEP.

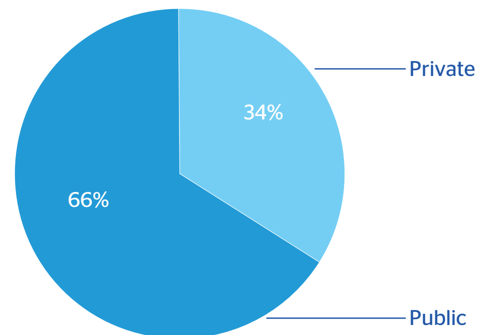
Regarding closed-end plans, their investments amounted to R$538 billion in 2010 (the eighth in the world in absolute terms according to the PREVIC, and around 14.5% of GDP). 66% of this amount comes from pension funds linked to state-owned companies and, therefore, 34% from private companies' pension funds.

Chart 4
Closed-end supplemental funds: assets (% PIB)



Source: ABRAPP

Chart 5
Supplemental Closed-ended Pension Funds: associated to public/ private companies



Source: ABRAPP

The three largest pension funds in Brazil are currently associated with public companies: 1) Previ: Banco do Brasil's pension fund; market share: 28% of total investments; 2) Petros: Petrobras' pension fund; market share: 10% of total investments; 3) Funcef: Caixa Economica Federal's pension fund; market share: 8% of total investments.

The two largest pension funds linked to private companies are Fundaçao CESP and Valia, which are respectively the fourth and fifth largest funds in the country with markets shares equal to 3.5% and 2.5%.

The top five pension funds manage 52% of the total resources of the system.

As the table below shows, more than 50% of the pension funds reserves come from the financial sector. In addition to Previ (Banco do Brasil) and FUNCEF (Caixa Economica Federal), there are three other financial sector pension funds among the top ten: Itaubanco (Itaú), Banesprev (Santander), and Centrus (Central Bank).

Table 2

Origin of the Pension Funds Reserves

	2003	2004	2005	2006	2007	2008	2009	2010
Financial	48.9%	49.7%	50.1%	51.5%	54.0%	51.3%	52.0%	51.3%
Services	26.9%	26.5%	26.2%	24.4%	22.9%	24.7%	24.1%	24.6%
Industry	24.2%	23.8%	23.8%	24.2%	23.2%	24.0%	23.9%	24.1%
Petrochemistry	10.5%	10.2%	10.1%	9.7%	9.4%	9.9%	9.6%	10.6%
Steel	5.0%	5.0%	5.0%	5.1%	5.1%	5.0%	5.3%	5.2%
Machines & equipments	1.9%	1.9%	1.9%	2.3%	2.2%	2.3%	2.2%	2.1%
Chemical	2.2%	2.3%	2.3%	2.5%	2.2%	2.3%	2.3%	2.2%
Electronic	0.9%	0.8%	0.8%	0.9%	0.9%	0.9%	0.9%	0.8%
Automotive	1.2%	1.1%	1.1%	1.2%	1.0%	1.1%	1.1%	0.6%
Food	0.9%	0.8%	0.8%	0.8%	0.8%	0.9%	0.9%	0.8%
Mining	0.1%	0.1%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
Beverage	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	1.1%
Others	1.2%	1.1%	1.1%	1.1%	1.0%	1.1%	1.1%	0.3%

Source: ABRAPP

Brazilian closed-ended pension funds are classified according to the features of the plan: pre-defined benefits, pre-defined contribution, and mixed. Pre-defined benefits plans hold almost 80% of pension funds investments, as this plan was the first to be implemented in the country.

Pension funds' affiliates amounted to slightly more than 2 million in 2010, in comparison to 129 thousand in 1990 and 1.6 million in 2000. The current male share is equal to 67.3% of total pension funds' affiliates, according to the information made available by the Brazilian Association of Pension Funds (ABRAPP). Practically half of male affiliates were between 35 and 54 years old.

Table 3

Profile of Pension Funds' Affiliates

	Gender	
Age	Male	Female
<24	5.3%	3.0%
25-34	21.4%	11.2%
35-54	33.4%	14.8%
55-64	5.2%	2.4%
65-74	1.3%	0.8%
75-84	0.5%	0.3%
>85	0.3%	0.2%
Total	67.3%	32.7%

Source: ABRAPP

Looking forward, the size of Brazilian pension funds should increase in the future not only due to a natural process of development of both the country and the pension fund system, but also as an eventual social security reform will limit civil servants benefits, and therefore create space for supplemental plans.

3. Pension funds: size and profile for meeting infrastructure's funding needs

As the international experience suggests, pension funds can be an important source of resources for infrastructure investments[5]. This view seems to be shared by Brazilian policy makers. President Dilma Rousseff, for example, pointed out recently that: "We (Brazil) will not be able to fund infrastructure projects without stronger participation from pension funds".

There is increasing evidence of pension funds financing infrastructure projects in Brazil. Three of the largest pension funds in the country, PREVI, Petros and FUNCEF, for example, control Invepar, whose capital amounted to R$1.4billion in 2010, and which is one of the main companies investing in the transportation sector. Petros, for example, is increasingly investing in infrastructure projects related to the energy sector, which includes investments in the oil and gas sector as well as in small hydropower plants.

This increasing interest in investing in infrastructure is the result of both a higher supply of infrastructure projects and of a greater demand by pension funds for such investments. While the higher supply follows the recent prioritization of infrastructure projects and the sense of urgency towards them, the higher demand is related to outlooks that interest rates will continue trending down[6] and that pension funds will need, at some point, to diversify away from assets linked to interest rates (such as public bonds; see more about this issue below). In addition to that, infrastructure investments can potentially generate high returns[7], small correlation with other assets, limited sensitivity to the business cycle (as the recent global turbulences has shown), stable long-run cash flow, and good protection against inflation (as in many cases infrastructure revenues are linked to inflation).

In spite of the increasing interest in infrastructure projects, pension funds' investment in the sector is still relatively small. According to the PREVIC - the regulator of supplemental closed-ended plans - pension funds' direct investments in infrastructure projects amounts to R$ 1.8 billion. This represents only 0.3% of pension funds overall investments and no more than 1.5% of total resources invested in infrastructure in Brazil. The main bulk of these direct investments in infrastructure are channelized through private equity investment funds (fundos de investimento em participaçoes – FIPs) or through investments conducted by subsidiary companies (empresas participadas) such as the investment of pension funds in Invepar.

The utilization of other instruments such as PPPs and Specific Purpose Entities (SPEs)[8] to allow pension funds to directly invest in infrastructure remains limited as they are still seen as complex mechanisms in comparison to other instruments such as FIPs. In March 2010, the government passed measures regarding the presentation of guarantees to ease the utilization of SPEs by pension funds, which could stimulate its utilization in the future (in 2010, pension funds invested only R$ 119 million - 0.0% of their portfolio – using SPEs).

Although there is no official data showing the system's indirect investments (meaning the investments destined to the sector through other instruments, such as the acquisition of variable and fixed income issued by companies of the sector), the analysis of PREVI's portfolio could shed some light on the issue. Looking at PREVI's financial statements for 2010, we estimate indirect investments in infrastructure to be around R$32 billion, which represents around 20% of PREVI's total investments.

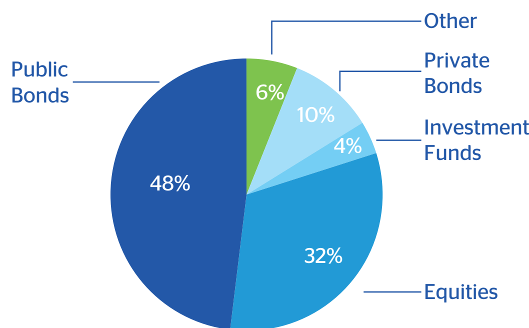
In addition to providing indirect resources for infrastructure, PREVI invests around 0.7% of its total resources to the sector through FIP's and subsidiaries like Invepar, Log-In and Neoenergia.

5: See Fundos de Pensao – Revista da ABRAPP. Marzo/Abril 2011. "Estudo sobre infraestrutura como classe de ativo" and also Inderst, G. (2009), "Pension Fund Investment in Infrastructure", OECD Working Papers on Insurance and Private Pensions, No. 32, OECD.
6: Real interest rates declined from around 11..5% in the 2000-2004 period to around 7.0% currently.
7: Energy projects, for example, can generate returns ranging from 15% to 25% according to JPMorgan, which is in line with Petro's returns on investing in the sector (19% according to Fundos de Pensao – Revista da ABRAPP. July 2010. "As boas oportunidades em infraestrutura".
8: SPEs must be formed to finance new projects, for a fixed term of duration, and must have its activities restricted to those provided for in the corporate purpose.

Therefore, guided by the example of PREVI, pension funds total investments in infrastructure in Brazil are around 21% of pension funds' total investments, of which less than 1% is invested directly through FIPs or subsidiary companies. As a share of GDP, total investments in infrastructure, therefore, represent more or less 3%, which is less than Chile (6.5%) and Colombia (3.5%), but more than Peru (2.2%) and Mexico (0.8%).

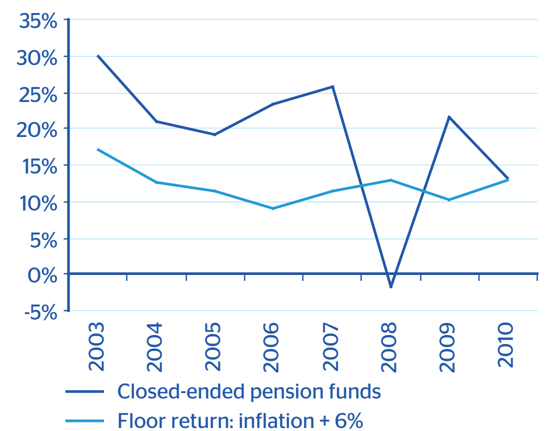
More room for investing in infrastructure – as well as in other segments - should be created by the expected interest rate reduction. So long as interest rates remain at very high levels (the SELIC, which is the reference interest rate, is currently at 12.25% and averaged 10.0%, last year, the lowest value in many years), the attractiveness of public bonds will remain high. In 2010, 48% of pension funds' resources were invested in public bonds. On the other hand, the resources invested in investments funds (which include FIPs as well as other types of funds) reached only 4% of pension funds' portfolio.

Chart 6
Pension Funds' Investments (2010)



Source: PREVIC

Chart 7
Investments Returns (%)



Source: ABRAPP

Supported by high returns on public bonds, overall returns of pension funds' investments exceeded the minimum returns required for most plans, namely inflation (INPC) plus 6%. (see the graph above for details), with the exception of 2008.

In 2009, new investments limits were introduced by the regulator to improve the risk management of the pension system in Brazil (see table below). With respect to the main instruments to invest in infrastructure, we note that legal limits restrict FIPs investments to no more than 10% of the pension fund portfolio by issuer and no more than 20% overall.

Table 4
Investment Limits - by segment

Fixed Income		
Federal bonds	-	100%
Other public bonds (regional)	80%	
Multilateral institutions		
Other fixed income securities		
Variable Income		
Novo Mercado	70%	70%
Level II	60%	
Bovespa Mais	50%	
Level I	45%	
Traditional - Index Fund - Equity Fund	35%	
SPE (special purpose entity)	20%	
Other	3%	
Structured Investments		
FIP, FIC-FIP	-	20%
FIEE (investment fund for emerging companies)	-	
Real Estate Fund	10%	
Multimarket Fund	10%	
Investments abroad		
Investment fund assets	-	10%
FIDE	-	
Index Fund	-	
Mercosur, BDR	-	
Real Estate Investments		
Real Estate Investments	-	8%
Operation with Pension Fund's Affiliate		
Loans	-	15%
Funding	-	

Investment Limits - by issuer	
National Treasury	100%
Regional Treasury	10%
Financial institution	10%
Listed company	10%
Multilaterals	10%
Insurance company	10%
Sponsor	10%
Other (firms, individuals)	10%
SPE	10%
FIP. FDIC, other funds	10%
Concentration Limits - by issuer	
Listed company	25%
SPE	25%
Financial institution's capital	25%
Index Fund	25%
FIP, FIC-FIP, FIEE, FII, Multimarket Fund	25%
Funds invested abroad	25%
Index Fund abroad	25%
Concentration Limits - by investment	
TVM series	25%
FIDC series	25%
Real estate enterprise	25%

Source: PREVIC

Direct investment in infrastructure projects/funds remains very limited because the infrastructure business is still relatively unknown, and because there are still many improvements to be made in the legal environment to reduce infrastructure projects' risks and uncertainties. These problems should, however, be gradually corrected in the future. This, together with the opportunities for investment that will be generated in the sector and the consolidation of a robust macroeconomic environment, should guarantee that pension funds will invest more heavily in the infrastructure sector. The positive outlook for the sector could, actually, be illustrated by PREVI's intention to invest R$7 billions in infrastructure projects by 2016, which is seven times larger than the amount the largest pension fund in Brazil invested last year[9].

9: See Fundos de Pensao – Revista da ABRAPP. July 2010. "As boas oportunidades em infraestrutura".

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