BRAZILIAN PENSION FUNDS: REAL ESTATE INVESTMENTS

by

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Submitted to the Department of Urban Studies and Planning in Partial Fulfillment of the Requirements for the Degree of Master of Science in Real Estate Development

at the

Massachusetts Institute of Technology

September, 2000

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ABSTRACT

The objective of the thesis is to analyze the participation of Brazilian pension funds in the real estate sector, with special attention to their historical motivations. The thesis also describes the prospects of future investments in the sector once that both pension funds and the real estate industry are experiencing great transformation in that country.

Since their regulation in the late 1970s, pension funds have been responsible for the largest share of real estate investments in Brazil. Nevertheless, the percentage of pension funds' portfolios allocated to real estate decreased during the last decade, while the amount of those investments increased. That is a direct consequence of the extraordinary growth of those institutions' number and size: today's 362 pension funds are responsible for more than US$ 60 billion worth of direct investments in all sectors of the economy, including about US$ 6 billion invested in real estate.

This thesis examines the existing real estate portfolios of pension funds, and attempts to explain the technical and political reasons for such investments. Also, it describes the changes under way in the pension system, main trends in the market, and their potential effects to both pension funds' portfolios and the real estate industry.

Thesis Supervisor: Blake Eagle

Title: Chairman, MIT Center for Real Estate

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1 INTRODUCTION

This thesis describes the participation of Brazilian pension funds in real estate, raises issues concerning the future development of this market, and presents perspectives for the future of real estate in Brazilian institutional investors' portfolios.

The subject is closely linked to characteristics of the Brazilian real estate market. This in turn is directly affected by the way the country's economy is organized and has evolved during the past decades. Chapter 2 presents the economic and geographic background necessary for understanding Brazilian markets, and summarizes how real estate is financed, developed and owned in the country.

Understanding the role of pension funds in modern economies is crucial for explaining these entities' investment behavior. In the Brazilian case, it is also important to understand the pension system as a whole. Chapter 3, thus, explains how Social Security is organized in the country, shows how pension plans complement the State, and gives background information on the historic evolution of the Brazilian pension system.

Chapter 4 introduces the foundations of portfolio theory, showing how institutional investors adopted these concepts in the past. Some issues are then raised concerning limitations to the application to real estate of models that are adopted by portfolio managers when investing in stocks or bonds. Chapter 4 also shows how institutional investors deal with of real estate markets inefficiencies, as lack of both liquidity and reliable data.

An analysis of Brazilian pension funds' real estate portfolios is presented on Chapter 5. This includes an assessment of select portfolios and a detailed description of each of the main real estate segments that have been targeted by pension managers.

Chapter 6 explores the future of real estate in pension funds' portfolios. It begins with an assessment of the performance of existing portfolios as part of an overall investment policy, and shows how the market is currently trying to overcome some of the main limitations that always characterized real estate, particularly transparency and liquidity. Chapter 6 ends with the main trends in the market, and how participants are preparing for a transformed environment.

The conclusion to the thesis is on Chapter 7, which revisits the different topics addressed throughout the text and synthesizes the main issues raised in the analysis.

Chapter 8 lists bibliographic references researched for the thesis, including books, articles, interviews in Brazil, websites, and market reports.

2 BRAZILIAN REAL ESTATE INDUSTRY

2.1 Economic Background

The history of the Brazilian economy during the early 1990s was characterized by escalating inflation rates. That was followed by the implementation, in 1994, of the government's Real Plan. The main objective of the plan was to beat inflation through an ingenuous attack on the indexation mechanisms that have been implemented in order to cope with severe economic uncertainty. Inflation rates enventually dropped after 1994, as seen in Figure 2-1.

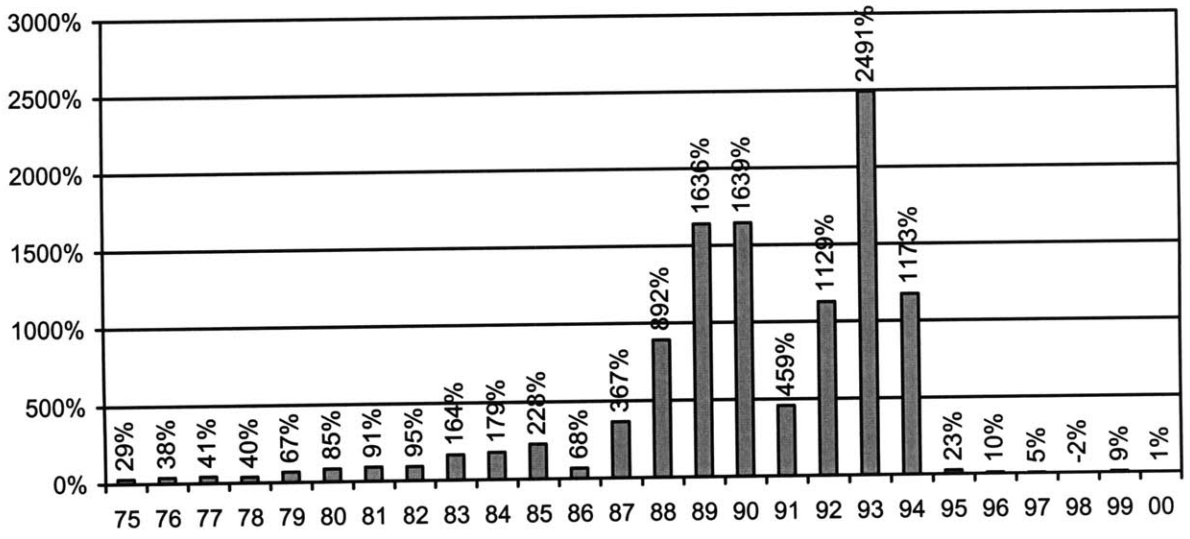

Figure 2-1 Annual Inflation Rates

Note: January-December, except for 2000 January-June

Source: IPC-FIPE

A new currency, the Real, was introduced in 1994. It was backed by the opening of the economy to external players and a broad privatization process. As typical of emerging economies during the same period, Brazil increased its dependency to international capital, and has since then been

particularly vulnerable to movements of global markets. The effects of the Russian crisis of 1998 reached the Brazilian economy, and, for the first time since 1994 the government allowed exchange rates to be determined by the market. This resulted on a strong currency devaluation during the early months of 1999, economic growth slowed, and the country is until mid-2000 still recovering from the shock.

Nevertheless, the new environment has also brought a long-term perspective to local financial markets. For the first time investors were able to separate real returns from those masked by nominal returns created by indexation. International competition also brought incentives to the modernization of local companies. According to the Brazilian Central Bank[1], the country's GDP grew from US$ 430 billion in 1993 to US$ 802 billion in 1997.

The government's economic policy to sustain a steady influx of foreign capital was in part based on high interest rates. These have been at even higher levels during the periods following the Asian and Russian crises, when investors shied away from emerging markets. Stock markets, on the other hand, have been extremely volatile since the Real Plan. Capital markets reflected every positive sign of recovery, but were severely hurt by the obstacles faced by the economy.

[1] Banco Central do Brasil

Table 2.1 Twelve-month Returns, 1990-1999

Year	Stock Market Returns (IBOVESPA)		Fixed-Income Returns (CDB Rates)	
	Nominal	**Real**	**Nominal**	**Real**
1990	308%	-74%	1793%	20%
1991	2316%	316%	606%	22%
1992	1015%	-11%	1617%	36%
1993	5437%	97%	2934%	8%
1994	1060%	-3%	1157%	5%
1995	-1%	-14%	46%	27%
1996	64%	50%	23%	12%
1997	45%	35%	21%	13%
1998	-33%	-35%	24%	22%
1999	152%	110%	21%	1%

Note: Real returns based on monthly IGP-DI inflation rates
Sources: IPEA, FGV, ANDIMA

Brazilian real estate returns are typically in a broad range of 6-12%. Pre-1994 indexed contracts had the ability to recover losses from inflation, and thus these investments were generally considered hedges against inflation. More recently, without the protection given by indexation, real estate returns dropped significantly. Note, however, that real estate returns differ throughout property types. Institutional investors, as analyzed in this thesis, invest in real estate that yields returns around 12%, and in some cases (as development) aim at higher rates.

2.2 Geographic Facts

Brazil's area of 8.5 million sq. km is roughly that of the continental U.S. Unlike the U.S., however, the Brazilian population of 160 million is concentrated alongside the Atlantic coast: the

main Brazilian cities are located within a 100-mile distance from the coast. Two exceptions are Brasilia, the federal capital built in the late 1950s, and Belo Horizonte. Sao Paulo and Rio de Janeiro States historically concentrated industries and services, and their capital cities are until today the largest in the country. These two cities also have the country's leading real estate markets, which account for most of the investment grade commercial properties.

Southern States' capitals as Porto Alegre, Curitiba and Belo Horizonte also have well-developed commercial real estate markets. The Northeast and North are less developed and inhabited regions, with large cities as Salvador, Recife and Fortaleza leading the real estate markets.

Table 2.2 Largest Metropolitan Areas

Metropolitan Area – State	Region	Population (million)
São Paulo – SP	Southeast	17.2
Rio de Janeiro – RJ	Southeast	10.6
Belo Horizonte – MG	Southeast	4.5
Porto Alegre – RS	South	3.7
Salvador – BA	Northeast	3.0
Recife – PE	Northeast	2.9
Campinas – SP	Southeast	2.7
Fortaleza – CE	Northeast	2.6
Curitiba – PR	South	2.4

Source: IBGE Contagem da População 1996

Institutional investments are concentrated on State capitals' real estate, particularly Sao Paulo, Rio de Janeiro and, to a lesser extent, Brasilia. Economic specialization made some satellite markets also important for real estate investors. These include Campinas (technology and telecommunication), Sao Jose dos Campos (aircraft industry), Parana State (automobile

industry), and the Northeastern coast (tourism). There is no specific study, however, on the correlation among these real estate markets.

2.3 Real Estate Financing

The main characteristic of Brazilian real estate markets is the unavailability of fairly priced long-term financing. High inflation and interest rates, added to political instability, helped cast a general uncertainty feeling that permeate all markets. Real estate has historically been considered an extraordinary hedge against this economic uncertainty because of the residual value of the built property.

Real estate financing has been limited to home mortgage programs established by the Federal government, notably the Housing Financing System (Sistema Financeiro de Habitação, SFH). Created in 1964 by the then military government, the SFH was financed by resources from savings accounts and salary deductions. Financial institutions would then issue inflation-indexed bonds backed by mortgage payments.

Although carefully designed and implemented, the system faced obstacles during the 1970s and 1980s. During that period of increasingly high inflation rates, wages were adjusted semiannually whereas mortgage payments were adjusted monthly. Weakened by an extraordinary increase in default rates, the government was forced to cover successive deficits.

A new Real Estate Financing System (Sistema Financeiro Imobiliário, SFI) was implemented in the late 1990s to substitute the problematic S.F.H. It is based on the U.S. residential mortgage industry, and is expected to be one of the solutions to the Brazilian housing problems. Section 6.3 describes the role of institutional investors in the implementation of a successful residential real estate securitization market.

2.4 Real Estate Development

Commercial and large-scale residential real estate in Brazil is, in its majority, all equity financed. The high interest rate environment caused real estate developers to shy away from financial institutions as a desired source of medium to long-term capital. For this reason, and as opposed to U.S. markets, success in the Brazilian real estate development market is conditioned to easy access to equity capital.

Equity capital is typically provided by four sources. First, a series of development companies are subsidiaries of larger corporations, particularly construction companies and financial institutions. These corporations have capital readily available to finance the construction and commercialization phases of development projects.

Second, several smaller scale real estate projects are financed directly by a group of wealthy investors. Disbursements are made according to the construction schedule, and each investor ends up owning a separate unit of the built property (office floors, apartment units, etc.).

The third source of equity capital is the actual user of the property after completion. This format is often found in conjunction with the first two formats. The developer, in this case, sells units before and during construction. The payment schedule is engineered to allow buyers to make monthly payments without recurring to external financing sources. In fact, the developer finances the buyer, thus incurring all mortgage servicing costs and default risks. The mortgage contract is usually taken out by a financial institution after construction is completed, when only buyer default risks remain.

This is the most common method of selling apartment units in Brazil, and some few specialized companies grew to be active players in different geographic regions. Smaller, local development firms are, however, much more common.

Finally, the fourth source of real estate equity capital are pension funds. These institutions typically own real estate, but during the 1990s have partnered with developers in order to juice up returns. Experience shows that, in many cases, they were unable to correctly assess all risks involved with developing real estate, and as a result experienced return rates less outstanding than expected.

2.5 Real Estate Ownership

The way real estate is financed in Brazil is reflected in the way it is owned. For one, real estate is considered a long-term asset, preferably owned by the user. Real estate as pure investment is generally limited to a few rental units or to a portfolio owned by a wealthy individual. There are of course exceptions, but in general there are no large companies that specialize in owning residential real estate.

Part of this behavior is explained by a cultural aversion to rents. The average Brazilian dream of owning his or her home, and leaving it as a legacy. Similarly to rents, a mortgage contract is considered a temporary situation. Once the mortgage is paid out, there is no reason for getting a new one in such a high interest rates and volatile environment. The result is that ownership of one apartment building is almost always divided into a number equal to its units'. Similarly, firms often own the space they occupy.

That limits institutional investment in most existing real estate, as each transaction would only be achieved after exhaustive negotiations with several owners that often have conflicting interests. Large tenants, who typically prefer dealing with only one landlord, face the same problem.

There are, nevertheless, large real estate investors. The main group is composed by the 362 Brazilian pension funds. They invest in a wide range of real estate segments, including office buildings, shopping malls and hotels. Until recently pension funds investments' resembled the "buy and hold" behavior that characterizes individuals in that market. A series of changes are

transforming the role of real estate in pensions' portfolios. Chapter 4 describes some of these changes, and Chapter 6 shows the potential these institutions have to help transform the entire real estate market.

2.6 Demand for real estate

There is little information about the demand *ex-ante* for real estate in Brazil. Vacancy rate data (demand *ex-post*) in Sao Paulo and Rio de Janeiro is indeed available, but hardly represent the aggregate of the Brazilian market. Apart from macroeconomic factors, local economies behave quite differently. Different property types also behave unevenly.

Developers and investors typically resort to large brokerage companies in order to assess the demand for a specific property type at a given location. This information has the form of stock absorption, again demand *ex-post*. Data is proprietary, but an analysis of the new developments undertaken by the main players should indicate how the market perceives demand.

Chapter 5 presents a detailed analysis of the different property types that compose a typical pension fund portfolio. As the main investors in the market, pension funds are in a unique position to tap existing demand. The poor performance of some of their investments, however, shows that often pension funds investments in real estate were also driven by motives other than expected returns.

3 PENSION SYSTEM

3.1 Overview

Pension plans are the private complement to a State-run Social Security system. The Brazilian Social Security operates under deficit. The government is responsible for covering the promised benefit payments, which in turn compromises the country's annual budget. Nevertheless, benefits paid out by the State system are much below the average salary received by the retiree during the last working years. Thus, in Brazil, the complementary role of pension plans is critical.

Bodie (1989) characterizes pension plans as an insurance against the following retirement income risks:

(a) Replacement rate inadequacy – the possibility that the retiree will not have enough income to maintain the same standard of living after retirement;

(b) Longevity – the risk that the retiree will outlive the amount saved as provision of retirement income;

(c) Social Security cuts – the risk that the benefits provided by the Social Security system will be cut before retirement age;

(d) Investment risk – the risk that the amount saved for retirement will perform poorly;

(e) Inflation risk – the risk that inflation will erode the purchasing power of retirement savings.

The list above applies to the Brazilian case with two comments. First, item (c) must be expanded to incorporate the general understanding that retirement benefits from Social Security are *indeed* far below the average salary level during the years prior to retirement.

The second comment applies to item (e). During the high inflation period beginning in the late 1970s, the Brazilian economy developed sophisticated indexation mechanisms that guaranteed full inflation recovery. This changed after the Real Plan, which lowered inflation rates by, among other measures, abolishing indexation from salaries, contracts and bank deposits. Thus the concern with loss of purchasing power due to inflation appeared in the late 1990s, and is still a recent phenomenon.

From a broader point of view, pension funds play a crucial role in any modern economy. Their long term liability schedule, in addition to the amount of funds under management, make them major players in all financial markets. In the Brazilian economy, which suffers from illiquidity and lack of long term capital, pension funds are considered one of the driving forces for future economic and social development.

3.2 Economic Role of Pension Plans

In addition to securing retirement payments to its beneficiaries, pension funds play an increasingly important role in the development of national economies. By definition, pension funds are not-for-profit institutions that over the years accumulate a substantial share of the

country's long-term savings. Brazilian pension funds currently manage about 12% of the country's GDP, but this share is expected to grow sharply during the next decade as a consequence of increased number of institutions and beneficiaries, as well as good investment performance.

Martinez (1996) characterizes Brazilian pension plans by their positive effects to the workforce, employers and the economy. Drucker (1976) first described what he called the pension fund socialism. According to this view, the level of wealth accumulated by pension funds leads to a situation where workers, as beneficiaries of a well established pension fund system, become the de facto owners of most of the country's wealth. This trend could already be seen in the U.S. during the mid-1970s, and became more acute after the expansion of the system during the following decade.

In Brazil the importance of pension funds as major players in the economy is more recent. It wasn't until the 1990s that the wealth accumulated by those institutions began to stand out in the economy. Brazilian pension funds occupied a leading position among institutional investors during the privatization process. Beginning in 1990, the Brazilian government sponsored a privatization program that would eventually sell out about US$ 90 billion worth of assets and participation in non-core industries. Pension funds were active players in this process, ultimately spreading their interests to a much broader range of investments.

3.3 Brazilian Social Security

Brazil has a Social Security system mandatory to all regularly registered workers. The system is financed by deductions from the employee's wage and contributions made by the employer. The first retirement savings institutions were created between the 1920s and 1930s, the pioneer of which was the retirement and pension plan of federal railroad workers established in 1923. Other companies and unions followed the same idea, but their plans had uneven characteristics. It wasn't until 1960 that the system was regulated by the Congress, and in the 1966 the Social Security agency (INPS[2]) was created. In 1974 the government created the Ministry of Social Security and Social Assistance (MPAS[3]) to implement and control all initiatives in the field.

Brazilian Social Security is based on a partition (pay-as-you-go) model, in which contributions are immediately distributed as benefits. That is opposed to a capitalization model where one's benefits are actually the result of the capitalization of his or her contributions. In the Social Security model one worker's contribution is transformed into benefit to someone who is already retired. The model relies on the continuity of this process, as today's worker retirement benefits depend on the ability of the system to incorporate new contributors. The critical point is that the system does not have a capital cushion, and indeed counts on new entrants to be able to meet future payments.

The Social Security system is currently working under annual deficits covered by the government. Among other reasons, this was caused by economic and social changes that were

[2] Instituto Nacional de Previdência Social
[3] Ministério da Previdência e Assistência Social

not foreseen when the system was designed. The changes include increased life expectancy, reduction in average household size, and effective participation of women in the workforce. These trends were offset for several years by a continuous increase in the total number of workers, but the system is now mature with about two workers per beneficiary[4].

Another reason for the crisis in the system is the booming number of unregistered workers. This is caused by the sum of extremely high taxes borne by legally registered workers and their employers, and high unemployment rates. The loss of taxpayers generates even higher tax rates, which in turn is an incentive for more informality. Informality is not limited to non-skilled workers, but encompasses self-employed professionals with graduate degrees as well. This share of the population, of course, does not contribute to the Social Security system.

In 1997 private-sector workers contributed a total of R$ 41 billion to the Social Security. Benefits paid out to the private sector, at that year, totaled R$ 44 billion, with a deficit of R$ 3 billion. The crisis is much more acute in the public sector. Federal, State and local government employees, which represent only 17% of the total workforce, received more than R$ 46 billion in retirement benefits in 1997[5]. The reform of this archaic partition system is now the objective of major discussions in the National Congress.

[4] Oliveira, Francisco, K. Beltrão, and M. Ferreira, *Reforma da Previdência*, in "Revolução na Previdência", p. 312
[5] Emediato, L. Fernando, *Pelo Fim dos Privilégios*, in "Revolução na Previdência", p. 271

3.4 Complementary Pension System

The State-run Social Security system is complemented by a private system of *open* and *closed* pension plans. The former are open to any willing participant, and offered by insurance companies and other financial institutions. Open plans are independent of the participant's being or not regularly employed, and therefore there is no sponsor. Participation in open plans is discretionary, and the participant is responsible for making 100% of the monthly contributions. Open plans are aimed at self-employers and other professionals who do not enjoy the benefits of a company pension plan. Annual administration fees are on the range of 3% of the account's outstanding balance, plus 1.5% over monthly contributions[6].

Closed pension funds are the main objective of this paper, and thus the term pension fund will henceforth refer to these institutions. They differ from open pension funds in that they are intimately related to a sponsoring entity that offers the benefit to its employees and dependents. Annual fees charged by closed pension funds are limited to 1.5% of the account's outstanding balance.

One impediment for the full development of the closed system is the lack of a portability mechanism. That is, the employee cannot access its pension account when leaving the company before retirement. The Congress in on the verge of approving a new mechanism that allows pension accounts to be transferred between different pension plans after a vesting period.

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[6] *Aposentadoria Portátil*, Revista Exame, May 31,2000, pp. 208-210

3.5 Regulation and Monitoring

The Brazilian pension system was regulated in 1977, with the passing of Law 6435/77. Additional regulations and decrees complemented the original law since then. The Congress currently discusses Complementary Resolutions 8, 9 and 10/99 that incorporate, among other provisions, portability to closed pension funds.

Brazilian pension plans are generally controlled by the Ministry of Social Security and Social Assistance (MPAS), and more directly by its agency the Secretariat of Complementary Social Security (SPC[7]).

The Central Bank and its agency the National Monetary Board (CMN[8]) regulate pension investments. Investments are also closely monitored by the capital markets regulatory agency CVM[9]. The recently passed CMN's Resolution 2720, that limits pension portfolio allocations, was developed in conjunction with the SPC.

[7] Secretaria de Previdência Complementar
[8] Conselho Monetário Nacional
[9] Comissão de Valores Mobiliários

3.6 Types of Plans

Pension plans are sponsored by one or more companies. Depending on how the plan is established, the sponsor is the sole responsible for funding it, or more commonly contributions are split between employer and employee. The pension *fund* is the sum of assets resulting from all contributions, plus earnings from investments made over the years. The fund is the actual source of retirement benefit payments, and must meet strict actuary requirements.

There are two main types of pension plans: defined benefit and defined contribution. Most pension plans in Brazil were historically defined benefit (DB) plans. In this type of plan the benefits are defined up-front, when the worker joins the plan. The amount of contributions, though, is not predetermined. Monthly contributions are calculated by discounting the value of future benefits according to actuary principles. The sponsor is responsible, in this case, to complement benefit payments if the pension fund is not sufficient to cover all liabilities at the time of retirement. Because of this liability, similar to an insurance policy, sponsors actually share the ownership of DB plans with beneficiaries. Alternatively, contribution on a given period may be calculated as a share of total benefits being paid out at the same period. This pay-as-you-go mechanism is also used by the Social Security, and can be severely hurt if unable to incorporate new participants at a sufficient rate.

Defined contribution (DC) plans are the equivalent of retirement savings accounts. The employee determines how much he or she will contribute to the plan. In this case, as with DB plans, the sponsoring company may or not contribute. Contributions are accumulated in an

individual investment account managed by the pension plan. The amount of benefits that will be received after retirement is not predetermined. On the contrary, it depends on the outstanding balance of the beneficiary's account at that time. The balance comes from contributions over the years plus earnings (or losses) resulting from the investment of these funds. In a DC plan the employee bears the risk of the investment, as the sponsor is solely responsible for managing the funds.

There is a strong tendency towards DC plans in Brazil. Several existing DB plans consider converting to the DC format, and the majority of new plans have been already established as Defined Contribution. As a result of the increased number of DC plans, beneficiaries tend to be much more active in monitoring the management of their individual accounts, as they would with a regular savings or mutual fund account.

From a pure financial perspective, DB pension fund managers have no incentive to invest in risky assets, as the future benefits are predetermined and can be achieved under a 100% fixed-income strategy. Most of the recent strategies in the real estate market made by both DC and—surprisingly—DB fund managers were targeted at high-risk/high-return investments.

3.7 Brazilian Pension Funds

The first Brazilian pension fund, PREVI[10], was created in 1904 to provide retirement benefits to the employees of the State-owned Banco do Brasil, at that time the country's largest bank. In 2000 the now mature PREVI is by far as the largest pension fund in the country and Latin America. Until the late 1970s the few existing pension funds were sponsored by State-owned companies. In 1970 oil distribution Petrobras—then Brazil's largest company—established its pension fund PETROS[11], today the 3rd largest in the country.

After 1977, with the passing of Law 6435/77, the number of pension funds has increased steadily, reaching 362 by June 2000. The market projects the number of pension funds to increase to about 500 in 2005, and to more than 630 by 2010.

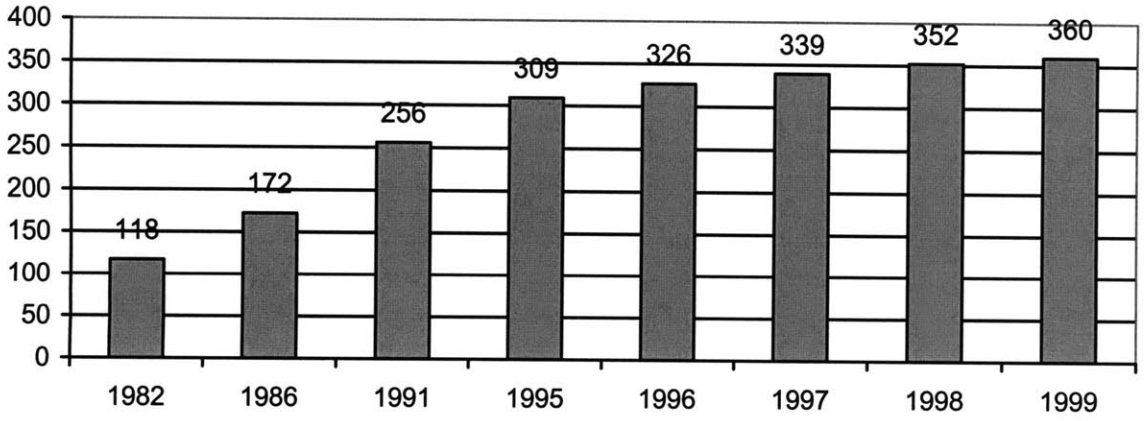

Figure 3-1 Number of Pension Funds
Source: ABRAPP

[10] Caixa de Previdência dos Funcionários do Banco do Brasil
[11] Fundação Petrobrás de Seguridade Social

The number of participants also increased steadily, although the number of beneficiaries increased at a faster rate. This is due to the fact that some of the largest pension funds already reached a mature level in which the number of participants stabilizes.

But the clearest indicator of the development of the system is the growth in annual investments made by all institutions. In March 2000 investments amounted to US$ 66.6 billion (US$1=R$1.80). Again, projections indicate that the system is on the verge of booming.

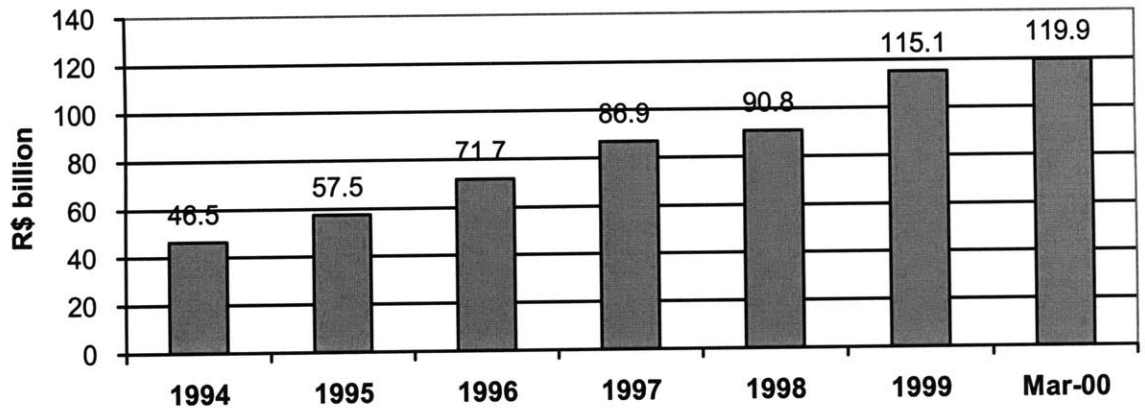

Figure 3-2 Total Investments in R$ billion

Source: ABRAPP

3.8 Privatization

The Brazilian government historically owned companies in a broad range of industries including mining, oil extraction and distribution, power generation, air transportation, telecommunications, and financial services. These companies ranked among the largest in the country in terms of revenues and number of employees. Most of the pioneer pension funds were established by

State-owned companies, as Banco do Brasil (PREVI), Petrobrás (PETROS) and Caixa Econômica Federal (FUNCEF). As much as 9 of today's 10 largest pension funds were originally sponsored by State-owned companies.

Table 3.1 Public and Private Pension Funds

	Public Pension Funds	***% of Total***	**Private Pension Funds**	***% of Total***	**Total**
Number of Institutions	95	*26%*	265	*74%*	360
Number of Participants	725,156	*43%*	963,726	*57%*	1,688,882
Assets (US$ million)	48,314	*69%*	21,683	*31%*	69,997

Note: US$1=R$1.80

Source: SPC December 1999

Government control over these companies stressed the political component of their pension funds' management. Investments, then, were in many cases driven more by political interests than performance reasons. Moreover, the strong ties to the government also gave the pension fund beneficiary an implicit guarantee that the institution was insured by the State.

This situation began to change during the early 1990s. The Brazilian government sponsored a huge privatization process to sell non-core companies to private investors. According to the Brazilian Development Bank, BNDES, between 1991 and May 2000, the Federal and State governments received more than US$ 91 billion resulting from privatization programs (includes sales revenues and transferred liabilities).

The privatization process affected Brazilian pension funds in two important ways. First, the sponsors of some of the largest pension funds were sold to local or multinational corporations.

The new majority shareholders usually sponsored its own pension plans in a performance driven way. These new owners replaced existing managers—which had political connections and interests—with professional managers from the private sector. The effect of these changes to the system is still echoing in the new way of managing investment portfolios (including real estate).

The second effect of privatization was the direct participation of pension funds as shareholders in newly privatized companies. Together with large industrial conglomerates and financial institutions, pension funds were the main local purchasers of those companies. Pension funds' participation was particularly strong in the infrastructure sector, which typically demands long term investments.

In conclusion, the Brazilian pension industry is experiencing a series of fundamental changes. Pension plans were originally created to complement the public pension system, but evolved to become a major provider of benefits to retirees that can no longer rely on an inefficient Social Security system. Over the years the importance of pension funds in the economy grew substantially as a result of an increase in the number of such institutions. The recent privatization process helped bring a new light to the management of public pension funds, and more and more investment policies are determined by professional, standardized reasons.

4 INSTITUTIONAL INVESTMENTS

This Chapter presents a summary of the theory behind institutional investments and the development of a sophisticated industry that manages pension funds' assets. More importantly, it describes how concepts long used in variable and fixed-income investment analysis were only recently incorporated to the real estate portion of institutional portfolios.

4.1 Risk and Return

During the 1970s, and particularly in the U.S., real estate investments were for the first time seriously considered as a component of a broader institutional investment strategy that also comprised stocks and bonds. That was a natural evolution of portfolio theory.

The original target of portfolio theory was explaining the behavior of stock markets. Historical observations showed that each security's return rate (or percent change in price) varies over time. This variation can be measured in terms of standard deviation to mean returns, and is called the risk σ of the security. In other words, risk is equal to the statistical uncertainty that an asset's return will be equal to its historical mean return.

This total risk σ, in turn, has two components. The first component is the risk that is specific to the security's underlying asset, called idiosyncratic risk. It is caused by factors affecting the asset's industry or geographic location.

The other component of σ is the risk common to the economy as a whole, or systematic risk. No matter the industry or geographic location, all assets' returns are affected by this risk. Therefore an investment in one security will be subject not only to the asset underlying the security, but also to movements of the economy.

Investments in *more than one* security, however, have a different behavior. The return to the investment on a pool of securities is equal to the average of individual returns weighted by the amount invested in each security. But the risk σ of the *portfolio* now comprises the aggregate of the systemic and idiosyncratic risks of the assets, and that is not a simple weighted-average.

Systemic risk is constant across all securities traded in a same market. Now, if the market is efficient then idiosyncratic risks that have different behaviors will offset each other.

This simplified model implies that a portfolio of all assets traded in a market will bear only systematic risk, also called market risk. This is the same as to say that the idiosyncratic component of all securities in the market can be perfectly hedged in a fully diversified portfolio that contains all these securities.

Accordingly, the market portfolio yields the market return. The degree by which an individual asset's return varies from the market return is given by a statistical measure of joint-volatility, as correlation or covariance. An asset that negatively correlates with the market can offset the risk of an asset that moves in the opposite direction, and so forth. From this results that the market

portfolio has the optimal risk-adjusted return. In theory, thus, a passive strategy of investing in a perfectly diversified pool of assets, holding each asset in an equal proportion of its participation in the market, should be optimal.

This conclusion means that investors in an efficient market should invest in all assets (including real estate) no matter how volatile they are if taken separately, because this volatility has in fact beneficial hedging value from a portfolio diversification perspective.

4.2 Application to Real Estate

Markets are not perfectly efficient. This means that there exist frictions as liquidity issues, information asymmetries and transaction costs. Additionally, investors are not always rational on their behavior, but unevenly weight political, geographical and cultural factors in their investment decisions. Inefficiencies have been increasingly arbitraged away from local stock markets, and with globalization from markets throughout the world. Inefficiency, however, is still one of the main characteristics of real estate markets.

A second obstacle to a blind transposition of portfolio theory to real estate markets is the fact that real estate prices are not determined in the spot market, but subject to infrequent appraisals and even more infrequent transactions. If prices are not 100% fail proof, how can one assess the total value of the real estate market, which is a necessary condition to benchmark risks and returns on individual assets?

This issue is critical. The first attempts to apply a portfolio approach to real estate investments relied on historical returns of U.S. real estate indices as NCREIF, which tracks the returns on institutional investments. Clearly the index is not a perfect proxy for the whole market, as is concentrated on particular real estate sectors and geographic locations preferred by institutions. In addition to that, returns are based on prices typically determined by annual appraisals.

Nevertheless, the results of early studies as Ibbotson and Siegel (1984) showed a surprising low—and in some cases negative—correlation between real estate and other asset classes. More important, real estate returns were highly correlated with the inflation index. The authors conclude with an influential recommendation that fund managers should invest a high percentage of their portfolios in real estate to hedge against inflation. The same inflation hedge justification was empirically used in Brazilian real estate investments during the 1980s and 1990s.

Firstenberg et al. (1988) later expanded this concept, recommending that the real estate portion of an optimized portfolio be diversified within geographic locations and property types. According to their findings, different regions and property types have low correlation among each other. The authors conclude that well diversified portfolios should have between 15 and 20% allocation to real estate. Actual pension funds' allocation to real estate is much lower, but similar among different institutions. In the Brazilian case it is in the range of 9% of the total portfolio. This can be explained by similarities in the decision making process and investment behavior.

4.3 Decision Making Process

Brazilian pension funds are typically highly hierarchyzed institutions, in part because of the public nature of the original funds. The top management level is occupied by the Administration Board, that among other functions oversees actuary budget and investment policies. A President or Chairman of the Board commands meetings and decisions. This position, as well as the composition of the entire Board itself, was considered of political importance by governments and union associations.

Below the Administration Board, a group of Executive Directors plans and runs the investment strategy. Specific Divisions effectively manage daily activities of the pension plan. Another entity, the Fiscal Board, monitors the pension managers, reporting to the Board and eventually demanding external auditing.

A typical real estate investment decision follows these steps:

(a) Budget allocation – the investment strategy is determined by a Planning Division according to risk-adjusted return analysis of potential markets, including stocks, bonds, real estate, etc. The product of this analysis is a set of percent allocations to which the investment managers will abide.

(b) Preliminary analysis – performed by the Investment Division according to general rules. For instance, the investment might have to provide a minimum 12% annual return, etc. Another positive factor is the developer's willingness to accept real estate properties as part of the purchase value.

(c) First assessment by the Investment Board, composed of Directors.

(d) Detailed analysis – projects that receive a preliminary approval by the Investment Board are subject to a more detailed set of evaluations, including scenario simulations performed by in-house staff.

(e) Second assessment by the Investment Board.

(f) Administration Board – after the second approval by the Investment Board, the investment opportunity is presented for the first time at an Administration Board meeting.

(g) External evaluation – only projects that have been pre-approved by the Administration Board are subject to a comprehensive evaluation by third-party consultants.

(h) Final approval – reports from external consultants and further analyses made by the Investment Division are eventually presented to the Administrative Board for final approval.

Besides being time consuming—an approval can last several months to be achieved[12]—the process described above is not transparent to external players. Some decision criteria are common to different real estate projects, as minimum expected return. Other criteria, however, are more subjective. These include the shared ownership with the original developer and the characteristics of the property itself, as location and market segment.

[12] Deals are rarely lost as a result of approval delays, as developers cannot resort to a source of financing other than pension funds.

Most of the recent institutional real estate investments are also dependent on a yield maintenance clause. By this provision the developer promises to cover the gap between a minimum yield and the return actually achieved by the investment. This agreement is typically due after a preset number of years (5 or 10), after which the investor will receive market returns.

One comment must be made about feasibility studies presented to institutional investors in Brazil. In general, no matter how sophisticated the external consultant performing the analysis, the study rarely incorporates the cyclicality observed in real estate markets. Rents and other inflows, then, are usually expected to grow for 10 or more years. The result is that, when the yield maintenance clause expires, the property will theoretically be generating enough revenues to offset the loss of the developer's guarantees.

But real estate cycles indeed occur, especially because of the lag between the original conceptualization and the completion of a building, and the market impact of several similar buildings being completed at the same time (Wheaton and DiPasquale, 1996). Some fund managers are now questioning the validity of a yield maintenance agreement, and instead preferring to purchase real estate at a market price.

Real estate was often sold to Brazilian institutional investors at high prices. Real estate was not expected to perform as other portions of the portfolio because fund managers knew that prices were inflated from the beginning. The scrutiny of the media, resulting from the openness of the late 1990s, unveiled corruption schemes that existed in some pension funds. Bribes were deducted from the purchase price, ultimately hurting the fund's beneficiaries. Note that

corruption occurred throughout the pension fund system, but due to amounts involved on real estate transactions, mismanagement in this type of investment can be more visible.

In part because of the aforementioned privatization process, pension funds now struggle to impose a professional attitude towards the management of their portfolios. New methodologies are being implemented to standardize and expedite the investment analysis and approval process. This new attitude towards institutional real estate investment is crucial for the development of a strong and globally competitive local market.

4.4 Investment Criteria

Pension funds' investment criteria were historically not disclosed to outsiders. For this reason, developers and their consultants had to figure out what types and locations were being targeted by each institution in order to offer deals accordingly. This also allowed pension funds to analyze each deal as a unique project, as they had not to abide to a fixed set of rules.

More recently, pension fund managers have been developing—and in some cases disclosing—a straightforward set of requirements that a real estate project has to meet, including financial structure, location, characteristics of the built property, etc.

The criteria can be divided into two categories: Pre-requisites and Grading Criteria. Pre-requisite criteria are used to eliminate projects before any further analysis is undertaken. Some examples of these general criteria:

- Size of investment
- Age since completion
- Compliance with environmental laws
- Developer's experience
- Shared participation with developer
- Yield maintenance guarantees

Projects that pass the initial assessment are subject to a more detailed analysis, when each different criterion do not eliminate, but is part of a grading framework. Only projects that receive a number of points above certain levels will be subject to further analysis. Fundação CESP (FUNCESP), for instance, developed a grading system that assigns points and weights to:

- Payment conditions
- Location
- Returns
- Current phase of development
- Liquidity
- Developer's experience in same-kind projects
- Developer's knowledge of local market
- Yield maintenance guarantee – rate and duration

4.5 Allocation Behavior

Because of their size and slow decision making processes, pension funds are usually unable to promptly respond to market movements. That is especially true for large participations in illiquid markets as real estate. It is then unlikely that a fund manager will heavily invest in a highly risky asset that demands constant rebalancing if this investment can hurt the overall portfolio. In addition, fund managers may find it difficult to justify taking risky positions against the market.

As a consequence, pension fund managers generally try to follow other fund's allocation strategies. By doing that, they are able to at least guarantee that its performance will be on average equivalent to other players'. In Brazil, this similar pattern is mandatory, as regulations limit allocation schedules for all pension funds. In fact, in April 2000 a new regulation was passed posing strict control over the investments made by pension funds.

Resolution 2720 divides the potential investment universe into six types according to risk profile, and assigns percentages that can be allocated into each type. The six portfolios are to be separately managed by independent asset managers, and each of them has to perform well. For the first time, the SPC will monitor the performance of each portfolio by using market benchmarks. The SPC will also monitor the performance of the portfolio as a whole (returns have to be higher than 6% plus inflation).

The following is the evolution of the portfolio allocation of all pension funds. Real estate allocation has percentually decreased, although the value of the investments in the sector actually increased due to the development of the system.

Table 4.1 Allocation of Pension Fund Portfolios

	Dec-94	Dec-95	Dec-96	Dec-97	Dec-98	Dec-99
Real Estate	**14%**	**15%**	**13%**	**10%**	**11%**	**9%**
Real Estate Loans	**5%**	**6%**	**5%**	**5%**	**4%**	**3%**
Stocks	39%	29%	31%	28%	19%	26%
Short-Term Deposits	11%	15%	10%	8%	10%	5%
Mutual Funds - Fixed Income	12%	12%	17%	19%	23%	32%
Mutual Funds – Stocks	0%	0%	3%	11%	10%	12%
Other Loans	2%	2%	2%	2%	2%	2%
Debentures	2%	5%	5%	4%	4%	3%
Treasury Bonds	4%	4%	6%	4%	7%	6%
Other	3%	3%	2%	2%	3%	3%
Operations with Sponsor	8%	9%	7%	7%	8%	0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Source: ABRAPP

These numbers can be compared with the recently approved Resolution 2720's allocation limits (Table 4.2). It is clear that regulators are trying to assure a minimum and safe return on the portfolio, which can indeed be obtained by investing 100% of the holdings in fixed-income securities. The allowed allocation decreases as the investment risk increases, as well as the potential for mismanagement gets bigger.

Table 4.2 Resolution 2720

	Segments	Maximum Allocation
1	**Fixed Income**	**100%**
	Low Credit Risk	100%
	Derivatives	5%
	High Credit Risk	20%
2	**Stocks**	**60%**
	Market Index	60%
	High Liquidity	60%
	Derivatives	10%
	Medium Liquidity	20%
	Low Liquidity	2%
	IPOs	2%
	International (BDRs)	10%
3	**Real Estate**[13]	**18% in 2000, decrease to 10% by 2007**
	Development	Same as segment
	Income	Same as segment
	Real Estate Funds	Same as segment
	Other	Same as segment
4	**Special**	**10%**
	Infrastructure Projects	10%
	Restructuring Companies	10%
	Emerging Company Funds	10%
	Participating Debentures	10%
5	**Loans to Participants**	**10%**
	Real Estate	10%
	Other	10%
6	**Risk Management**	**n/a**

Source: CMN

[13] Additional allocation limits within the real estate portfolio: 4% in a single property, 5% lease to sponsor, 2% land. Besides, the pension funds cannot own more than 60% of a single development project or 25% of a real estate fund. Finally, pension funds are prohibited to assume developer ("incorporador") extended legal responsibilities.

The real estate market was hit by the new regulation in two ways. First, by the decrease in the allowed allocation, which will reach 10% of the portfolio by 2007, when compared to the previously 20% allowed to the sector. The actual allocation to real estate is near 9% in 2000. If one assumes that those 9% are based on reliable and updated book values, some pension funds will still have to sell real estate assets in order to comply with the new legislation. The fact is that those values are sometimes inflated, and the regulation only requires new appraisals to be performed every 3 years. In addition to unreliable book values, we observe an uneven concentration of real estate holdings among the largest pension funds. Table 4.3 describes the portfolio allocation of the 20 largest pension funds, and their share of the total pension market.

Table 4.3 Largest Pension Funds

Rank	Institution	Total Investments		Real Estate Investments	
		US$ billion	Market share	Percent of fund's investments	Date
1	Previ	18.1	27.1%	6.1%	Dec-99
2	Sistel	4.2	6.3%	n/a	-
3	Petros	3.7	5.6%	13.9%	Mar-00
4	Funcef	3.7	5.6%	19.5%	Dec-98
5	Funcesp	2.5	3.7%	n/a	-
6	Centrus	2.0	3.1%	6.5%	Mar-00
7	Itaubanco	1.6	2.4%	n/a	-
8	Valia	1.4	2.1%	n/a	-
9	Forluz	1.1	1.6%	n/a	-
10	Real Grandeza	0.9	1.3%	n/a	-
11	Fapes	0.8	1.2%	n/a	-
12	Aerus	0.8	1.2%	16.3%	Jun-00
13	Telos	0.7	1.0%	5.8%	May-00
14	Funbep	0.7	1.0%	n/a	-
15	Fundacao Copel	0.6	1.0%	7.4%	Mar-00
16	Banesprev	0.6	0.9%	n/a	-
16	CCF	0.6	0.9%	n/a	-
17	Capef	0.6	0.9%	12.7%	Apr-00
18	EletroCEEE	0.6	0.9%	4.3%	May-00
19	IBM	0.6	0.8%	n/a	-
	Total 20 Largest	**45.6**	**68.4%**	**n/a**	**-**
	Total Market	**66.6**	**100.0%**	**8.8%**	**-**

Notes: (1) US$1=R$1.80
(2) Real Estate Investments include Real Estate Equity and Funds
Sources: ABRAPP March 2000, SPC, Pension Funds

The rebalancing of the portfolio will be more critical among some pension funds, as comparatively low levels of real estate investments made by the largest institution, PREVI, skew the average allocation downwards.

Table 4.4 Share of Real Estate Portfolios

	Share of Real Estate in Portfolio
PREVI	*6.1%*
Total with PREVI	*8.8%*
Total without PREVI	*9.9%*

Notes: (1) US$1=R$1.80
(2) Real Estate includes Real Estate Funds
Sources: SPC, PREVI

A second consequence of the new regulation is the gathering of direct investments and real estate funds under the same real estate portfolio. Here the regulators tried to control excesses in the use of the real estate funds as explained on Section 6.2.

4.6 Asset/Liability Matching

One key principle in portfolio management is asset/liability matching: the overall investment portfolio should preferably have the same maturity as the fund's liabilities. This strategy hedges the portfolio against sudden changes in interest rates, particularly in the fixed-income holdings. That is, changes in interest rates will impact investments and liabilities in a similar way, and the fund is therefore immunized.

Duration is the effective maturity of one fixed-income investment: it is the average number of years the investment is expected to last. Assuming flat term structure of interest rates at a level *y*, the perpetual liabilities of a pension plan has duration *(1+y)/y* [14]. For example, if interest rates are at 10%, perpetual liabilities—like those of a pension fund—have duration of 11 years. The fund manager must immunize those liabilities with a portfolio with the same duration, and continuously rebalance the portfolio to maintain the duration. According to theory, the lower the interest rate, the longer duration the pension fund manager should have in the portfolio.

With higher interest rates, for instance 20% and a flat term structure, duration drops to 6 years. With 30%, as was the case in Brazil after the Russian crisis of late 1998, duration reaches almost 4 years.

At high interest rate levels, otherwise long-term investors as pension funds have an incentive to run to shorter-term securities. That was indeed observed throughout 1999, when institutional investments in real estate ceased, as opposed to a sharp increase in investments in short-term government bonds. Note that this simple calculation assumes a flat yield curve, which was never the case. However, the uncertainty that characterized the post-Russian crisis period somehow offset any expected fall in interest rates.

[14] Bodie, Zvi, "Pension Funds and Financial Innovations", September 1989, pp. 28-29

Investments in real estate are by definition long-term commitments. That is especially true in Brazil, where the market lacks liquidity. A high interest rate scenario has the potential to freeze all investments on this market.

4.7 Benchmarks

Theory dictates that risk and return cannot be taken separately. Moreover, efficient markets immediately arbitrage away any investment opportunity that promises abnormally higher returns than other investments with similar risk levels.

A key point in assessing the risk/return profile of an investment is the availability of reliable historic data. In fact, availability of data also defines an efficient market. Expected returns can only be estimated by observing past returns, and the volatility of those past returns is in turn the best approximation for estimating risk.

The lack of comprehensive and reliable data was always a main characteristic of real estate markets throughout the world. The best investment opportunities rely on specific knowledge of local markets, and this competitive advantage is usually too profitable to be given away.

The increased presence of institutional portfolio investors in U.S. real estate has helped change that market. In 2000 data is readily available, and sophisticated researchers cover the main U.S.

markets. Series of published indices as NCREIF and NAREIT can be used as tools to help determine optimal portfolio allocations.

A second factor helps increase the efficiency of U.S. real estate: the existence of a mature real estate securities' market. REIT, RMBS and CMBS shares are actively traded in exchanges and OTC markets. Thus prices are determined on a regular basis, although still less frequently than other securities as stocks. There exists, though, a wide range of market analysts covering real estate capital markets, adding to the readiness and reliability of information.

Brazilian markets lack both factors. From the institutional investors' side, there is still no strong incentive to publish valuable performance data. From the capital markets side, the few available real estate securities are far from representing the market as a whole. Moreover, the secondary market for these securities is not yet active, and prices are generally outdated.

Those two obstacles made it impossible, until now, to attach institutional real estate investments in Brazil to reliable benchmarks. The investment attitude has not been that of a portfolio investment, but investments are analyzed on a case by case, opportunistic basis.

Thus real estate allocation usually followed reasons that are independent from the risk/return optimization used for the variable and fixed-income portions of the portfolio. The consequences of this attitude are further explored on Chapters 5 and 6.

4.8 Developers

Some Brazilian developers specialize in creating real estate projects that target to the institutional market. That is the case with top developers of Class A office buildings in Sao Paulo and Rio de Janeiro, as Birmann. Other firms participate in different segments of the market, and have a wider range of customers, but seek pension funds when developing office towers, hotels and shopping malls.

One extreme example is Encol, the largest construction and development company in Brazil during the early-1990s. This company implemented a popular housing program, supported by sophisticated construction methods, marketing strategy and financing structure. Besides middle-income housing projects, Encol also developed what is now considered the best business hotel in Sao Paulo, managed by Renaissance. The firm initially sold 50% of the hotel to the pension fund FUNCEF during construction, and later experienced financial distress that spiraled to bankruptcy. FUNCEF ended up purchasing the remaining 50% of the project, which although has nowadays formidable occupancy rates is regarded by market professionals as a poor investment in that pension fund's portfolio, because of high acquisition price.

4.9 Consultants

Real estate investment opportunities are typically brought to pension funds by specialized brokers or consultants. Leading consultants in the Brazilian market include large brokerage

houses as CB Richard Ellis and Jones Lang LaSalle, as well as smaller, specialized firms as Mackenzie Hill and Seasons. It is common for developers to hire different consulting firms to deal with the two phases of the project's commercialization: sale to institutional investors, and later leasing the built space. The specialized consultants often participate in the conceptual phases of the development, helping shape it towards the needs of pension fund managers.

The shaping of the project includes market, design and deal formatting. Consultants are in close contact with pension funds, as these firms are hired by institutions to perform real estate services such as valuations, leases, research and asset management. Thus they are an invaluable source of up-to-date information on pension funds' investment policies: consultants get a first-hand scoop on real estate markets being targeted by the funds. And because they also act as consultants to pension funds in several occasions, top consultants might have even helped determine the fund's investment strategies[15].

Similarly, consultants are an important addition to design teams, as the insider knowledge of pension fund's preferences can be incorporated in the design of a building. Finally, and perhaps more importantly, consultants help format the deal, tailoring it to the desired participation of pension funds. Pension managers have to follow directions set by an internal Investment Board, and these directions include preferred deal formats. Some examples were given on Section 4.3, as minimum expected return, shared participation with the developer, and ability to exchange existing properties for equity on new projects. These policies were not standardized nor published by pension funds, and therefore it has been part of the consultant's scope to assist the

[15] This clearly creates agency problems, as consultants that advise pension funds on their investments collect fees from projects they present to the same funds.

developer when formatting the deal's financial structure. It is also common to find investment banks involved with the financial engineering phase of the project, particularly those banks with stronger ties to institutional investors.

Pension managers expected developers to provide increasingly sophisticated presentation materials containing market analysis, feasibility studies and detailed drawings. The professionals—consultants and investment bankers—responsible for the commercialization phase would engage on a road show, visiting potential investors and presenting the project. At this point the long and bureaucratic decision process for each pension fund had to be closely monitored, especially because smaller institutions sometimes make investment decisions only after one of the largest pension funds already decided to participate in the deal.

5 MAPPING THE INVESTMENTS

5.1 Existing Portfolios

Pension funds were the main investors in large real estate projects in Brazil during the 1990s. Beginning in the late 1990s, regulatory agencies increasingly limited the allocation of real estate in those institution's portfolio. That is a clear indication that this portion of those portfolios was generally underperforming, and needed to be controlled.

Notwithstanding some obstacles, the existing real estate portfolios could eventually be turned over and if professionally managed actually increase the risk-adjusted quality of the overall portfolios. The fact that this is even an issue to be discussed, and monitored, also indicates that there are still obstacles to the implementation of performance-based strategies.

It is then important to first analyze the existing real estate portfolios (Table 5.1). The comparison between public and private pension funds' portfolios highlights some basic differences on the way these different types of institutions are managed. First, although total allocation to real estate funds and direct investments is similar, the majority of all new recent investments was made by public institutions, as shown by the discrepancy between the entry "Properties under construction". Second, most of real estate loans to participants are made by public institutions (4.9% of public portfolios as opposed to 0.2% of private portfolios).

Table 5.1 Detailed allocation of Real Estate Portfolios in US$ Millions

	Public Pension Funds	%	Private Pension Funds	%	Total	%
Real Estate Funds	**196**	***0.5%***	**86**	***0.4%***	**282**	***0.4%***
Direct Investments	**3,834**	***8.9%***	**1,481**	***7.2%***	**5,315**	***8.4%***
Land	100	*0.2%*	57	*0.3%*	157	*0.2%*
Properties under construction	533	*1.2%*	12	*0.1%*	545	*0.9%*
Used by the pension fund	67	*0.2%*	15	*0.1%*	82	*0.1%*
Leased to sponsors	442	*1.0%*	279	*1.4%*	722	*1.1%*
Commercial real estate	1,473	*3.4%*	662	*3.2%*	2,135	*3.4%*
Shopping Malls	945	*2.2%*	370	*1.8%*	1,315	*2.1%*
Hotels and Resorts	147	*0.3%*	10	*0.0%*	157	*0.2%*
Theme Parks	28	*0.1%*	-	*0.0%*	28	*0.0%*
Hospitals	-	*0.0%*	1	*0.0%*	1	*0.0%*
Dispositions	95	*0.2%*	66	*0.3%*	161	*0.3%*
Other	3	*0.0%*	8	*0.0%*	11	*0.0%*
Real Estate Loans	**2,088**	***4.9%***	**33**	***0.2%***	**2,121**	***3.3%***
Total Investments	**42,992**	***100.0%***	**20,560**	***100.0%***	**63,552**	***100.0%***

Note: US$1=R$1.80
Source: SPC December 1999

The nature of pension funds' real estate holdings can be divided into 3 main categories: sponsor related, beneficiary related and new developments.

Reflecting a general understanding that real estate in an independent portion of the total pension fund's portfolio (the other portions being stocks and fixed-income securities), real estate investments were historically tied to the sponsoring company business. The first real estate holdings of Brazilian pension funds were usually the headquarters of the sponsoring company, its industrial plants and warehouses. The sponsor saw in that a good opportunity to unload illiquid

assets from the books, and at the same time were guaranteed by contracts with reliable and soft landlords.

The pension fund, on the other hand, had the incentive to buy a long-term asset that was already leased to a reliable tenant, the sponsor. In such transactions, risk (of vacancy) played a more important role than rate of return.

An important issue with sponsor related real estate holdings is lack of diversification. The fund is ultimately owned by the company's employees, and their retirement depends on the pension plan's ability to remain solvent. If the sponsoring company experiences financial problems (which reduce its ability to pay salaries and cover its pension plans' liabilities), the fund is also exposed with a potential loss of its main (and usually only) tenant. This argument is similar for pension funds' holding large shares of the sponsors' stock, which is highly limited.

A second portion of the pension funds' real estate portfolio is related to loans made to beneficiaries. Pension funds are a traditional source of real estate mortgages, usually contracted at below market rates. Evidently these mortgages pushed portfolio returns down, but in addition to that some pension funds ended up holding distressed properties recovered after defaults in loan repayments.

There is an argument for pension fund's lending to beneficiaries that is based on these institutions' social role. As the home-mortgage financing system in Brazil has been proved incapable of providing acceptable rates and conditions, the pension fund ended up occupying this

role. From a portfolio perspective, however, this argument is flawed: below-market loans hurt all the fund's beneficiaries.

In recent years, pension funds investments in real estate were generally oriented towards new developments on four main segments: office buildings, shopping malls, hotels and resorts, and theme parks. With the exception of office buildings, the other three segments are not entirely real estate and demand market-specific expertise, although have a strong real estate component. In fact, the same—real estate—department or division within the pension fund structure controls all these investments. For this reason the real estate component is important enough to justify an analysis of all four segments in this paper. The following is the distribution of total investments made by pension funds in real estate.

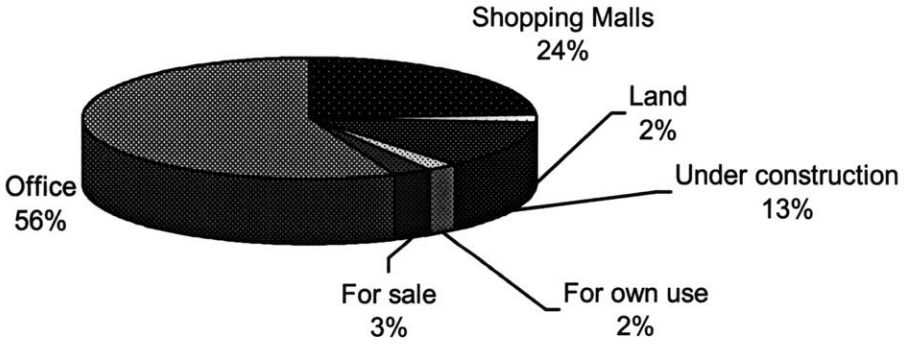

Figure 5-1 Pension Fund Real Estate Investments by Segment
Source: CB Richard Ellis

Concentration on office properties is striking. Figure 5-2 shows that there is also a strong concentration on investments by geographic location, particularly in the Sao Paulo and Rio de Janeiro markets.

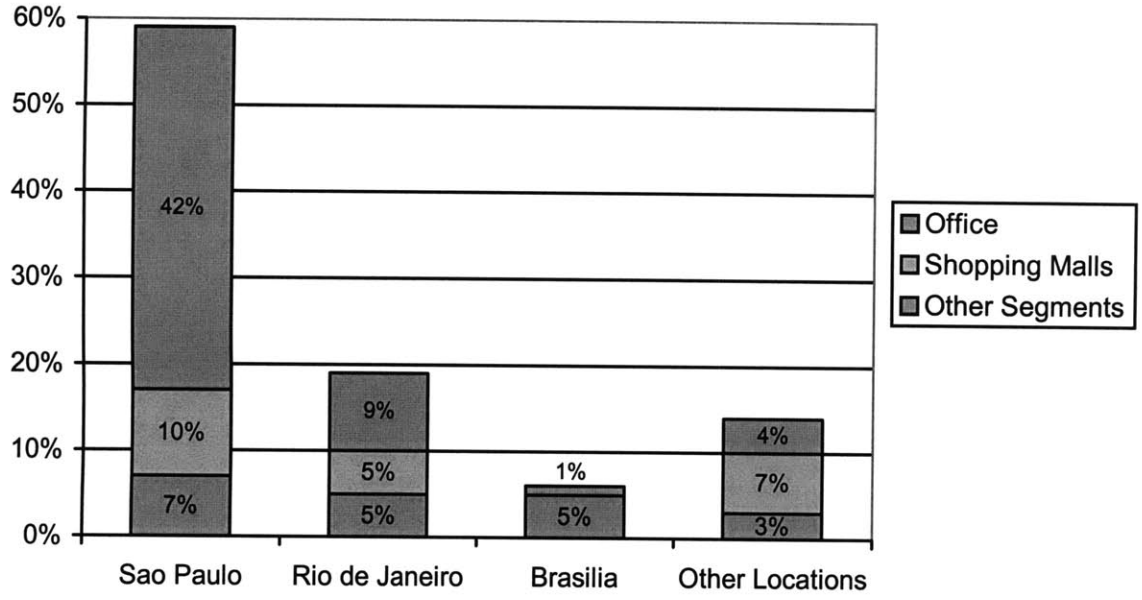

Figure 5-2 Pension Funds Real Estate Investments by Location
Source: CB Richard Ellis

This concentration by type and location raises some crucial issues when looked from an overall portfolio perspective.

- Is the real estate portion of the portfolios diversified enough (and does it have to be diversified)?
- How do pension funds located in cities other than Sao Paulo and Rio de Janeiro can participate and monitor their investments in these markets?

These two points are addressed on Chapter 6, but first the next sections present a more detailed analysis of each of the main real estate segments in pension funds' portfolios.

5.2 Office Buildings

The market for investment grade office buildings has been historically concentrated in the largest Brazilian cities, Sao Paulo and Rio de Janeiro.

The total office stock in Sao Paulo is 7.6 million sq. meters (81.8 million sq. feet), of which about 10% is Class A[16]. Of these 740,000 sq. meters of Class A office space, about 25% is owned by pension funds. Within most of the pension funds' portfolios, however, office buildings account for the largest allocation.

Figure 5-3 shows that office acquisitions made by other investors boomed after 1994. This is a direct result of the economic stability brought by the Real Plan. Between 1994 and 1998, the market focused on individuals who decided to diversify their investments by purchasing small office units at a cost of about US$ 80,000. These units were financed by the developer at 12% interest rate plus inflation. Construction was expected to last for about 36 months, and after that the property would start generating cash flow. Although there was actual demand for this type of property—that would be occupied by small service firms—the market was clearly overbuilt by 1998. As with all sectors of the real estate market, this particular segment's cycle ended, and

[16] CB Richard Ellis, "Market Survey XI – Brazil", 1999

developers started offering a substitute with similar characteristics: apartment-hotel units, called "flats". These units had similar price and financing features as the preceding office units, and tapped an existing market demand as well. When this second cycle also ended, by 1999, developers tried to establish a new real estate investment alternative aimed at the same market: real estate funds. Section 6.2 describes these funds in more detail, and shows how the development of this instrument can affect pension funds' investment strategies.

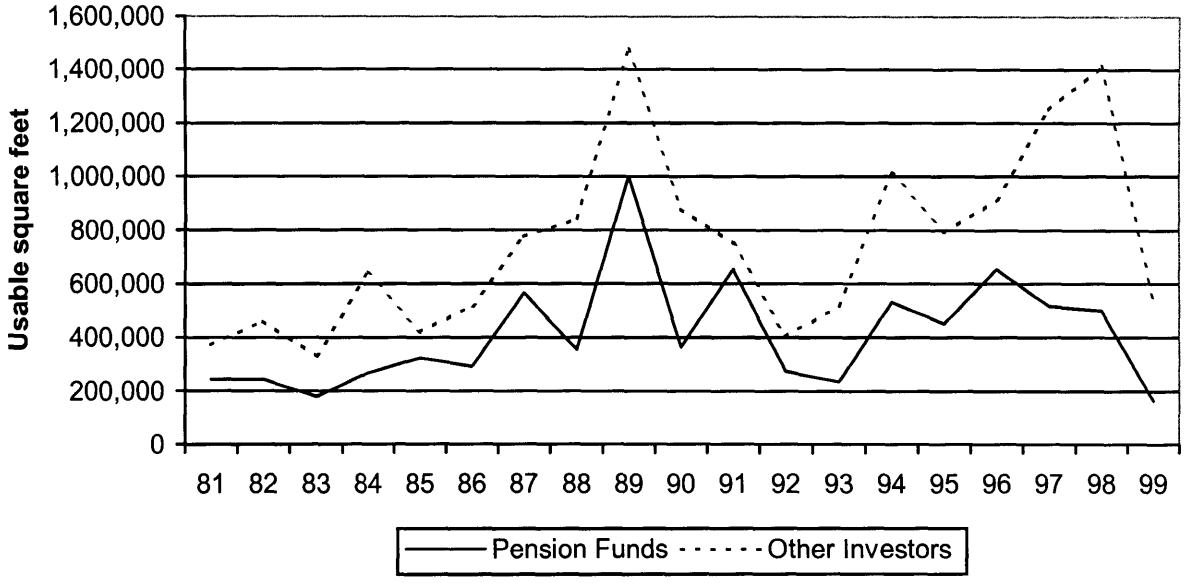

Figure 5-3 Sao Paulo Office Space - Annual Acquisitions
Source: CB Richard Ellis

Although private investors were satisfied with smaller scale real estate products, pension funds always preferred investing in top quality office buildings. These Class A buildings are differentiated in that their footprint have at least 500 sq. meters (5,380 sq. feet), air-conditioning and surveillance systems, modern telecommunications capability, high quality finishing materials, and adequate parking space. New developments are located on the trendiest commercial districts. In fact, the city of Sao Paulo has experienced a migration of new office

developments from more traditional and central areas (Downtown and Paulista Avenue) to recently developed areas (Pinheiros River region). Some residential districts were actually redeveloped to accommodate multinational companies' headquarters, for example the Sao Paulo Office Park area. Most of this district is now occupied with recently built Class A office developments, in many cases owned by pension funds.

At the Pinheiros River region are located two of the largest new developments in the city, both purchased by pension funds. The neighboring World Trade Center (WTC) and United Nations Center (CNU) mixed-use complexes, however, present opposite results to their investors. Bought at an inflated price, WTC has an allegedly poor performance[17], in contrast with the success of CNU. These buildings characterize two eras of pension fund investment in the country, one that was marked by high prices in contrast with the recent professionalization on investment decision making.

In 1999, office vacancies in Sao Paulo were at 12% of the total stock. Vacancies among Class A buildings, however, were at only 2%[18]. A strong increase in the number of multinational companies being established in Sao Paulo, as well as the development of Internet industry, is pushing the rental market to one of its best periods.

[17] *Bilhões Sob Pressão*, Revista Istoé, October 7,1998
[18] CB Richard Ellis, Ibid.

The stock of office space in Rio de Janeiro is of 5.25 million sq. meter (56.5 million sq. feet), of which about 57% have air-conditioning systems[19]. This is an example of the lower quality office space in that city, were average temperatures in the summer reach 90°F. The market for Class A office is nevertheless under-supplied: vacancy rates were consistently below 2% during 1999. Most of the office space is located at the Downtown area (78%), but institutional investors have recently invested in top quality office developments in areas far away from the traditional commercial center, particularly Barra da Tijuca.

Pension fund investments are highly concentrated on Sao Paulo (42%) and Rio de Janeiro (9%) office buildings. Other cities account for about 5% of their portfolios, particularly Brasilia, Salvador, Recife and Curitiba.

5.3 Retail

The first Brazilian shopping mall opened in Sao Paulo in 1966. A first boom in the number of such developments only occurred in the 1980s, with the opening of more than 50 shopping malls. The economic stability brought by the Real Plan in the mid-1990s resulted in an unparalleled growth in retail sales, and that was followed by a new wave of shopping mall developments. In fact, shopping mall sales as a percentage of total retail sales jumped from about 8% and 10% in the 1980s[20] to about 18% in 1999[21].

[19] CB Richard Ellis, Ibid.
[20] CB Richard Ellis, Ibid.
[21] Source: ABRASCE

According to the Sao Paulo Association of Shopping Center Tenants (ALSHOP), there were 472 shopping centers in the country in 1998. These statistics include not only regional malls, but also small neighborhood centers and strip centers. The 162 largest regional malls are members of the Brazilian Association of Shopping Malls (ABRASCE), and are the target of institutional investors in the segment.

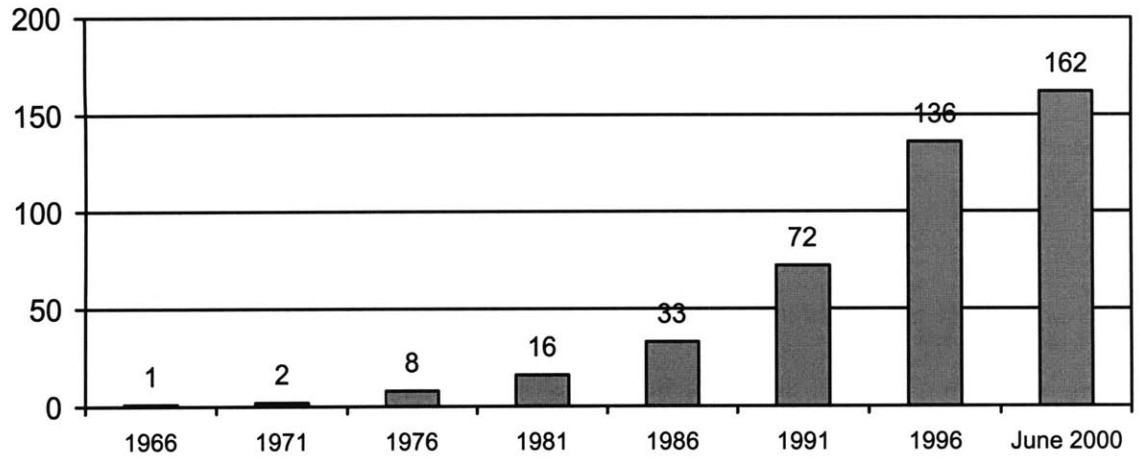

Figure 5-4 Number of Shopping Malls in Brazil
Source: ABRASCE

The ABRASCE members account for 3.7 million sq. meters (39.8 sq. feet) gross leasable area. By the end of 2000 their gross leasable area is expected to reach 4.3 million sq. meters (46.8 sq. feet).

The growth in revenues observed during the last decade was, to some extent, caused by growth in the leasable area of all shopping malls (Figure 5-5). Pension funds were the main sponsors of the 1990s shopping mall boom.

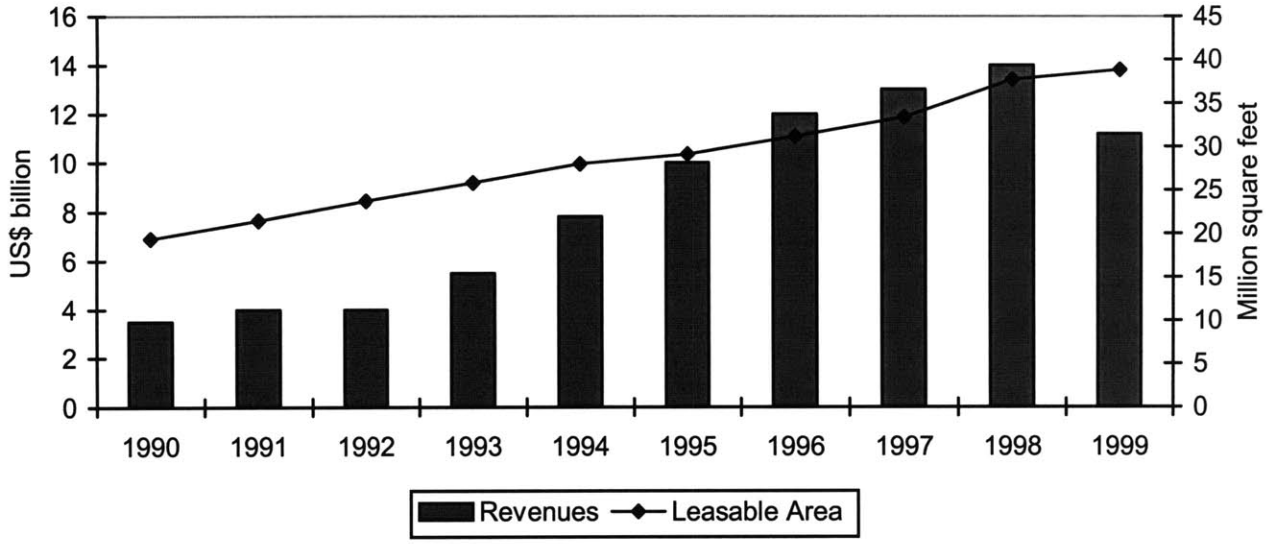

Figure 5-5 Shopping Mall Revenues vs. Leasable Area
Source: ABRASCE

By the end of 1999, the largest Brazilian pension fund, PREVI, allocated 24% of its real estate investments to shopping malls. Those investments amounted to R$ 470 million. The fourth largest pension fund, FUNCEF, also had substantial holdings in shopping malls located throughout the country. These two portfolios have in common the fact that they represent about 20% of each fund's real estate portfolio, and are well diversified among geographic locations. This diversification is not typical of all pension funds. For instance FUNCESP, the 5th largest pension fund in the country, and the largest from Sao Paulo, invests about 70% of its portfolio in shopping malls in that metropolitan area and adjoining cities. This makes FUNCESP a key player in the Sao Paulo market.

A common factor among PREVI, FUNCEF and FUNCESP shopping mall portfolios is that the participation in each property is percentually substantial, and in many cases the fund is the majority shareholder. That is typical for the largest funds, but smaller funds try to overcome investment limitations with controlling agreements. Pension funds usually agree upon a shared control of the business venture, which is to be performed by a board assigned by the funds.

This is an important fact, especially when compared to the limited control that comes from financial instruments that bring liquidity to the market, as real estate funds. Pension funds are supportive of an effort to increase liquidity in real estate markets, but giving away control power is still a delicate issue.

Because of the size of their shopping malls' holdings, pension funds are active players in this market. Specific departments were created since the mid-1990s to monitor investments and analyze new opportunities.

There is a general understanding among pension funds that the shopping center industry is nearing maturity. Pension funds, that own in some cases all competing properties in a market, can sense market movements in advance. But competition is not the only reason for losses in this segment: high purchase prices usually paid by pension funds also hurt these institutions. Moreover, some yield maintenance periods are to become due, and from then on all revenues will come from the shopping malls' operations.

There is a strong tendency towards centers that bring together retail and entertainment activities. There has already been an increased number of shopping mall redevelopments and expansions that concentrate on food courts, movie theaters and other entertainment related activities. Pension funds are also investing in new mall developments anchored on said entertainment stores, as New York Center in Rio de Janeiro purchased by a pool of institutional investors. A second tendency is towards centers that specialize in a particular type of product or service, as furniture and auto parts. ABRASCE forecasts investments of about US$ 700 million until 2001 in new and redeveloped malls.

In addition to shopping malls, pension funds also invest in retail stores, particularly large supermarkets. In these cases, revenues may or not incorporate a percentage rent.

5.4 Hotels and Resorts

Pension funds invest in two types of hospitality projects in Brazil: top quality business hotels, located in Southeast State capitals, and destination resorts, mainly on the Northeast coast. The Federal Government, through the Brazilian Development Bank (BNDES) provides long-term credit lines for the development of hotels and tourism infrastructure. The Interamerican Development Bank also supports the sector, providing capital for the development of resort destinations on northeastern States.

Economic stability and development brought by the Real Plan beginning in 1994 helped establish Sao Paulo as the main business destination in South America. Southern State capitals as Porto Alegre and Curitiba, by the same time, had their importance increased by the establishment of an active regional market (Mercosul) that includes Brazil, Argentina, Paraguai and Uruguai. International hotel operators decided then to improve the hospitality infrastructure in those cities. The implementation of new hotels was often the result of a partnership between local developers (responsible for the construction) and institutional investors (who financed the construction and ended up owning the properties).

Business travel is responsible for 50% of the Brazilian tourism market, estimated at US$ 7 billion. Sao Paulo alone receives five million visitors annually, but the tourism industry is estimated at only 5% of the State's Gross Product[22].

Institutional investors have preferred landmark business hotels in Sao Paulo: a pool of pension funds purchased the Gran Melia Hotel in 1998, and FUNCEF invested on the new Renaissance Hotel. Hiatt, Mariott, Four Seasons and Hilton have recently either planned or started the construction of top quality hotels in that city.

Most international class resort hotels are located on the coast of Northeastern States as Bahia, Pernambuco and Ceara. Pension funds' investments in the region include FUNCEF's Cabo Santo Agostinho Resort in Pernambuco, and PREVI's Sauipe Project. Master planned to receive total investments worth of US$ 1.5 billion, the 6 km of beaches of Sauipe in Bahia are being

[22] Austin Asis, "Estudo Setorial Analítico – Turismo", May 1999

developed from scratch. Infrastructure projects include a new 45-mile highway connecting the area to the State's capital, Salvador. Construction company Odebretch is building 5 large resort hotels and 6 inns, totaling 1650 rooms. The majority shareholder, PREVI, invested US$ 150 million in this project.

There is an additional trend on tourism investments in Brazil: eco-resorts, located in the Amazon rain forest and the Pantanal wetlands region. Although this segment of the industry receives incentives from local and international development agencies, pension funds have not yet invested in such projects.

5.5 Theme Parks

Pension funds have been the main investors in a wave of theme park developments initiated in the mid-1990s, or right after the economic stabilization brought by the Real Plan. The 35 Brazilian theme parks[23] generate US$ 120 million in ticket sales[24].

A series of water (Wet'nWild) and larger theme parks (Hopi Hari, Terra Encantada) recently opened in the Southeast and Northeast regions. Pension funds FUNCEF, PSS, SISTEL and PREVI participated in these ventures. Investors on the large entertainment complex around the city of Vinhedo, Sao Paulo State, experienced several months of construction delay due to

[23] Source: ADIBRA website
[24] BNDES, "Parques Temáticos: Novo Impulso na Indústria Turística Brasileira", February 1998

environmental problems. That is an example of how much specific knowledge is necessary for investing in these projects, and how critical it is to fully understand the entertainment industry.

5.6 Other

Institutional investments in less traditional sectors include Industrial and Healthcare. Industrial investments were initially oriented towards user-specific properties. Such investments have been hurt by successive economic downturns: pension funds often ended up owning extremely illiquid, untenanted properties. A more recent trend in this market are industrial parks. These properties offer a broad range of amenities as telecommunication facilities and target to a increasing demand for light industrial space around southeastern cities as Sao Paulo and Campinas. Several industrial parks are also being positioned as a logistic alternative around the main transportation hubs of Sao Paulo State, in cities like Sorocaba and Sao Jose dos Campos.

Healthcare investments are concentrated on private hospitals and clinics in the main centers as Sao Paulo and Rio de Janeiro. According to the SPC, the few direct investments in the sector were made by private pension funds (about 1/1000 of their portfolio, or less than .03% of investments made by all institutions).

Pension funds do not invest in residential real estate. Among the few initiatives in the segment was the establishment of Panamby real estate fund in Sao Paulo, the largest real estate fund to

date estimated at US$ 80 million[25]. The objective of this fund was to purchase a large undeveloped site that is being sold to residential developers for the construction of upscale apartment buildings.

5.7 Dispositions

In contrast to the "buy" mode of the mid-1990s, pension funds are now involved on selling portions of their real estate portfolios. There are some explanations for this behavior, the first of which is a change on how real estate is considered in a professionally managed portfolio. Real estate holdings were not expected to generate substantial results, as were historically considered a low-risk hedge against inflation. Moreover, investments undertaken at artificially high prices could not be expected to perform well. As long as the yield maintenance agreement was under way, however, pension managers were at a somewhat comfortable position.

The recent change in the way real estate is looked at in a risk-adjusted portfolio demands constant rebalancing. Thus real estate holdings should be optimally sold at the correct life cycle phase.

Although there is a strong incentive to sell properties, pension fund managers experience some obstacles. First, the illiquidity of real estate is exacerbated in the case of pension funds that only hold large participations. The only potential buyer of these holdings would be another pension

[25] Source: Fundo Imobiliário website

fund, and such transaction is unlikely. Unless there is another long-term institutional investor willing to buy distressed real estate assets sales will not occur.

Also difficult is the probability that current managers of pension funds will assume the burden of having to mark down the book value of poorly contracted investments. Without a strong reason for this reevaluation, fund managers have no incentive to be penalized for past managers' actions. For them, a safer alternative is to exchange existing real estate in the portfolio for new properties. This mechanism may even hide the actual value of the transaction, and postpone the reevaluation problem.

6 PERSPECTIVES FOR INSTITUTIONAL REAL ESTATE INVESTMENTS

The impact of Resolution 2720, that regulates pension funds' investments, is huge on real estate strategies. As previously presented, both direct investments in real estate and real estate funds holdings are now limited to a decreasing percentage of the overall portfolios that will reach 10% by 2007. On the other hand, the projected growth of the pension industry will more than offset this limitation, and pension funds will be ready to continue looking for new—and good—investments in the sector.

6.1 Quality Issues

Past experiences in real estate investing and property management have helped educate pension fund administrators. They are able to perform sophisticated market and financial analysis specific to the sector. This knowledge is being tested today by managers who have to deal with the results of poor investments made in the past.

It is incorrect to say that bad experiences in institutional real estate investment are only a result of bad projects. On the contrary, pension funds were able to select some of the best quality real estate available in the Brazilian market. There, as opposed for instance to what happens in the U.S., long-term capital is generally unavailable. Thus pension funds are to a certain degree protected against the "lemons" problem, in which only the least quality products are offered to the slowest/passive player.

As there was no alternative source of capital, pension funds were able to choose among all projects available in the market. Without competition to finance real estate, most of the best conceived and constructed properties are now part of pension fund portfolios.

But the performance of most of these investments is indeed poor. Take for instance the World Trade Center Sao Paulo case. Thirty-two pension funds purchased 75% of the mixed-use development that includes an office tower, hotel, and shopping mall. The hotel has one the lowest vacancies in the city, and the office building is regarded as a market success. The development was originally estimated to cost US$ 150 million, but as a result of construction overruns and delays ended up costing more than US$ 400 million. The finished complex is appraised at only US$ 250 million, which gives investors negative yields[26].

If fund managers have the local expertise that is necessary to make good investments in real estate, then what is missing is a transparent mechanism of pricing these assets. The proposed capital markets solutions, as described on the next two sections, also attempt to bring liquidity to the industry.

[26] *Bilhões Sob Pressão*, Revista Istoé, October 7,1998

6.2 Real Estate Funds

Real estate funds (FII) are capital markets instruments for investing in real estate equity. Similarly to U.S. REITs, they have to comply with a restriction of 75% of their assets being allocated to real estate. But they are different from REITs in that dividend distributions and holding periods are not regulated. Thus FIIs are not only a good instrument for investing on income-producing real estate, but also for financing development.

In fact, since its introduction FIIs were often used as vehicles for financing development. REITs, on the contrary, were typically the result of the conversion of a portfolio of existing assets into a large fund. Brazilian real estate funds were regulated in 1993 by Federal Law 8668. The legislation originally allowed ownership concentration, and pension funds' specific regulation characterized those investments as variable income (as stocks), which were limited to 50% of the institutional portfolio.

That created a first wave of FIIs that targeted (and were actually tailored to) pension funds. A developer, assisted by an investment bank, created a fund and offered its shares to institutional investors. The law prohibited yield maintenance guarantees, but some agreements included this type of provision. To overcome illiquidity, and the lack of a secondary market for FII shares, issuers offered long-term repurchase agreements[27], which had to be reflected on higher selling prices.

[27] Ventura, Renato, "Real Estate Securitization in Brazil", MIT, 1997, p. 42

Some of the first FIIs were also used as a means to overcome restrictions on the selling of fixed-income securities to foreign investors that existed since 1993. At that time foreigners could not invest in indexed funds, which paid very high interest and inflation rates. But there was a loophole in the law: if a FII issuance was not completed, then invested funds would be returned to investors with the addition of fixed-income returns. This resulted on the development of FIIs that were specifically engineered not to be approved. In order to prevent such behavior, a 1996 new Tax on Financial Operations (IOF) taxed funds that do not begin operations and short-term foreign investors[28].

Notwithstanding this abusive use of the real estate fund instrument, more than 50 FIIs were established during the past 7 years, and were responsible for R$ 1.3 billion investments in real estate equity[29]. Pension funds were the main buyers of these highly illiquid securities. New Resolution 2720 aimed at this market, gathering direct real estate investments and FIIs in the same 10% maximum allocation of the portfolio.

Lately, when institutional investors shied away from the market, developers started creating real estate funds that targeted to individual investors. Those same investors that purchased small office and apartment-hotel units described on Section 5.2 now created a strong demand for more liquid real estate investments. FIIs allied the real estate component and a desired separation from the daily property management. Moreover, FIIs are a unique opportunity to participate in larger scale projects otherwise limited to institutional investors.

[28] Ibid. pp. 44-45
[29] Source: Fundo Imobiliário website

Two projects have already been created with this new objective, both in Sao Paulo. Unibanco underwrote REIT Brazil, a fund based on JK Financial Center—a Class A office building—for Brazil Realty. The purchase of a half-floor in this building would cost about US$ 1.6 million, but the FII gives the individual investor the chance to buy a US$ 40,000 share of the same property. This operation was a market success, indicating a new niche in the real estate market. The niche was also exploited by the issuance of Patio Higienopolis Shopping Mall Fund, structured by Brazilian Mortgages. In this case shares were sold for about US$ 5,500.

Such initiatives are still rare, but they make clear that the advantages of the development of an efficient market for real estate equity securities is highly positive for pension funds. Until now the instrument was never used as an effective tool for giving the market liquidity, transparency[30], and reliable pricing.

Although pension fund managers are supportive of the idea of obtaining liquidity through FIIs, there is a critical issue that must be addressed by these institutions: control. Efficient FIIs are based on pulverized ownership. Pension funds have exercised direct control over real estate holdings to date (and increasingly over other equity participations), and may not be yet willling to delegate management functions.

[30] An additional problem for investors is the fact that management of FII is likely to be controlled by the original developer, as opposed to an independent board of directors.

6.3 Securitization

As noted on Chapter 2, the government-sponsored Residential Financing System, SFH, was not able to provide the necessary debt capital for real estate in Brazil. That, added high inflation and interest rates, resulted on an extraordinarily inefficient environment for developers and users of real estate.

The Brazilian Congress regulated a new Real Estate Financing System, SFI, based on the U.S. real estate debt market. In this system, loan originators sell mortgage receivables to a securitizing company, that in turns issues mortgage-backed securities. The securities are then traded on the Sao Paulo Futures Exchange (Bolsa Mercantil e de Futuros, BM&F), or sold directly to institutional investors.

Institutions, particularly pension funds, are expected to be the main investors in these securities. Similarly to the U.S. RMBS and CMBS markets, mortgage-backed securities are designed to provide hedging qualities to a portfolio investor. Risk segregation allows investors with different levels of real estate expertise to purchase these derivatives.

Some internal and external factors are fundamental to the development of the new SFI. The first factor was the creation of a legal instrument that allows an expedite recovery of the collateral on a defaulting mortgage contract, which avoids lengthy court decisions.

The second factor is the establishment of a solid purchaser of mortgages. The Brazilian model does not eliminate credit risks by way of a federal sponsorship similar to that of U.S. Fannie Mae and Freddie Mac. To overcome this obstacle, about 30 of the largest Brazilian financial institutions are now partners in the first securitization company, CIBRASEC.

The third factor is external to the system, but was the responsible for the yet discreet development of the SFI: interest rates. The high interest rate environment following the Russian crisis of 1998 raised concerns on both potential borrowers and institutional investors. As a result, the performance of CIBRASEC is much below projections at its establishment.

Notwithstanding the low participation of pension funds in this market, the system has been carefully designed to provide superior risk-hedging characteristics. But even with lower interest rates, the model still fails to overcome liquidity problems, as there is no active secondary market.

Also, the relatively slow development of securitizations has not yet justified the establishment of a rating agency in the country. As noted by Riddiough (January 2000), rating agencies play a crucial role in the U.S. CMBS market, where default risk is present (as opposed to the RMBS market, where prepayment risks prevail). Likewise, in the Brazilian SFI model credit risks exist, hence rating agencies would eventually improve the system.

6.4 Portfolio Management Approach

The availability of equity and debt real estate securities has the potential to transform the Brazilian market. More than that, pension managers will eventually enjoy features never encountered in real estate markets, such as liquidity, transparency, efficient pricing, and reliable data. With these components, real estate investments will be able to play a different role in professionally managed pension fund portfolios.

Efficient capital markets are based on liquidity. Brazilian real estate markets have historically been characterized by the opposite, or large and direct participations that would hardly find a buyer if had to be sold. And pension funds are being hurt until today by the illiquidity of their holdings—as well as their unwillingness to assume losses in book value, that in turn is reflected in unrealistic asked prices. The correct use of vehicles such as real estate funds will eventually simulate the necessary role of a dealer in real estate markets. According to Riddiough (Spring 2000), the main reason for the success of REITs in the U.S. market was that they acted as dealers, providing liquidity to a stagnated market. The situation is similar in the Brazilian market, where there are no institutional buyers other than pension funds.

The conversion of existing pension funds' portfolios into FIIs is a potential solution for the dealer problem. This mechanism, however, faces an important obstacle: real estate transfer tax (ITBI). This local tax is levied on every real estate transaction, and varies between 2% and 6%. According to the law, the exchange of ownership that follows the establishment of a FII is a real estate transaction, and the newly created fund incurs on ITBI.

Ready access to capital markets also brings transparency. Once the market gets more pulverized, and prices are daily determined on stock exchanges, there is few room left for corruption. Moreover, as players in a well-developed secondary market, managers and beneficiaries will be able to monitor the market value of pension fund's holdings without having to resort to infrequent appraisals.

The final change is already in place, and relates to the use of portfolio management techniques to real estate investments. Empirical justifications for investments in real estate (particularly hedge against inflation and economic uncertainties) will give way to accurate risk/return analysis, and the impact that real estate might have to the overall portfolio. Suffice to say that this is dependent on the availability of reliable data, one that is typical of capital markets. Not surprisingly, recently incorporated defined contribution pension funds managed by financial institutions do not invest in real estate in Brazil. These are professionally managed funds that use sophisticated allocation methods, and for whom real estate is a sector that still lacks reliable data. In addition, the poor performance of institutional real estate portfolios in the past would not justify new investments.

6.5 Advisory Services

Since the early 1980s real estate consultants have been hired to manage institutional real estate portfolios in Brazil. A complete servicing agreement included two steps: strategy definition and

asset management. During the first phase the consultant analyzed the existing portfolio and suggested strategies to either turn over or expand the real estate holdings.

Once the strategy was approved by the pension fund, the consulting firm would acquire and dispose of assets, manage lease contracts, perform property management functions, and report back to the pension fund.

This type of contract is relatively rare, though. By contracting comprehensive services, institutions give away the desired control over their real estate investments. And control has always been deemed key to pension fund managers. Third-party asset managers were also a substitute for in-house real estate departments, and that was regarded as a negative measure because limited employment, direct control, and in some cases potential for corruption.

It is important to note that external asset managers became increasingly common in other areas of institutional portfolios, namely variable and fixed-income. Large local and multinational banks specialize in providing these services to institutional investors for fees. Pension funds usually held the management of a small portion of their portfolios in-house, although these portions often underperformed the market. As noted before, the availability of reliable benchmarks makes it harder to mask bad investments. This is the case with stock and bond markets, but is not the case with real estate. Not only there are no benchmarks for Brazilian real estate, but also the uniqueness of real estate investments prevents direct comparisons. Without comparables and benchmarks there was room for mismanagement to remain unnoticed.

The U.S. institutional real estate market improved the concept of asset management. Here, specialized advisory companies manage real estate portfolios of billions of dollars on behalf of pension funds, foundations and endowments. These companies are sometimes subsidiaries of investment banks, insurance companies and other asset managers. In common, they have the fact that they apply sophisticated portfolio theory models into real estate markets. Optimal portfolio allocation based on a risk-adjusted return strategy is used as a common tool. The emergence of this industry also helped improve real estate benchmarks and research.

On the investors' side, the use of external advisors assures professionalism. Pension beneficiaries are hedged against sudden changes in markets, as advisors are experts in several locations and real estate segments—or at least are actively involved in those markets, as opposed to pension fund managers. Smaller pension funds, particularly those located in cities other than Sao Paulo and Rio de Janeiro, will have an incentive to invest in those important markets through real estate advisors.

Nevertheless, in the U.S. the advent of a strong real estate advisory industry also caused an increase in fee expenses incurred by pension funds. This problem was even more acute during the real estate boom of the mid-eighties. As advisor fees were calculated as a fraction of assets under management, there was an incentive for managers to increase the size of this portion of the portfolio.

A more mature industry now aligns advisors and pension funds' interests by (1) tying fees to the investment's performance, and (2) demanding a shared participation of advisors' equity on riskier investments they recommend.

Investments may be made under separate accounts or pooled funds. The former is adjusted to the specific needs of a given pension fund, while the latter is joined by several institutions that find its characteristics compliant with their investment criteria.

Potential investments are also divided according to their risk/return profile. For example, AEW Capital Management lists the following investment spectrum:

- High-yield funds (open or closed-ended): invest in real estate ventures in the US or overseas, with characteristics similar to those of traditional private equity, but using the fund vehicle.
- REIT investments: is superior to traditional core funds, in that allies the liquidity and daily valuation of the REIT instrument with the solidity of REIT companies.
- Commingled funds: low-risk equity investment instrument.
- Mortgage portfolios: low-risk, similar to traditional fixed income portfolio.

Some U.S. and local companies are trying to transpose this investment model to the Brazilian market. It is still a recent phenomenon, and will certainly face some obstacles. First, these companies will have to overcome the control need that was typical of pension funds in the past.

Pension funds might find it hard to delegate the management of the total portfolio, especially now that they believe having a stronger knowledge of these markets.

Second, advisors will have to scrutinize existing portfolios, provide reliable appraisals, and expose the real return on investments. That may also find resistance within the pension funds' fabric.

Finally, there is the obvious problem of how to turn over a portfolio in an imperfect market where pension funds are the only investors. The solution to this may be based on both the implementation of a real estate capital market, and on the drawing of international investors to this market.

The new Resolution 2720 creates a positive precedent for the external management of real estate portfolios. Regulators are supportive of the idea of professionalizing the management of pension investments, and although institutions are not yet obliged to do so with their real estate holdings, beneficiaries may eventually demand this protective measure. Large institutions, those with substantial real estate portfolios, will distribute the management of their investments among competing real estate advisors. And competition, in this case, will bring a positive impulse to transparency and professionalism.

6.6 Competition: Other Institutional Investors

A more developed real estate market will eventually attract institutional investors other than local pension funds. International private investors or pension funds might find it valuable to a diversification policy to invest in Brazilian real estate. The reassuring presence of international advisors in Brazil has the potential to convince these otherwise reluctant players towards allocating part of the portfolio in an better-organized market.

Besides their obvious improvement to the Brazilian real estate market, new entrants have a positive impact to local pension funds. Although they will compete for the same projects, they will also help local institutions turn over their portfolios.

6.7 Competition: Alternative Investments

Without structural changes, real estate risks being exchanged by other types of investments made by pension funds. The first half of 2000 has seen a race to alternative private equity investments in the technology sector, particularly the Internet. Pension fund managers exchanged the high risk/high return of opportunistic investments in real estate for providing venture capital for start-ups. In a market were capital sources are scarce, as the Brazilian, this represents a strong blow to the real estate industry.

Expected improvements to the real estate market have the potential to offset this negative tendency. Transparency and professional asset management will play an important role in changing the way institutions look at real estate.

Real estate has the long-term characteristic that institutions need to match their pension liabilities, returns are predictable, and downside risks are limited to the property value. Perhaps most pension investments will be on stable, income-producing real estate. But opportunistic investments will coexist with such low risk/low return strategies, allowing pension funds to take advantage of arbitrage opportunities limited to investors with market expertise and easy access to capital.

7 CONCLUSION

Pension funds have been investing in Brazilian real estate for decades, but since the mid-eighties these institutions became the main players in the market. Large scale, sophisticated projects were primarily oriented to institutional investors that, in turn, developed great expertise in analyzing and managing such properties.

The main driver for real estate investment, however, was often not limited to the expected return rate of the deal or portfolio diversification. In many cases investment decisions were also tied to personal advantages.

Lately, the industry has been transformed by a wave of privatizations that transferred the control of some plan sponsors from the State to private companies. These companies started demanding a more effective and professional attitude towards investments, including real estate.

In fact, portions of pension funds portfolios are already managed by external specialists that incorporate portfolio theory principles when suggesting optimal investment allocations. Real estate has always posed impediments to this investment model: markets are typically inneficient, lacking liquidity, transparency, and information.

A great share of real estate investments made by pension funds in the past had poor performance when compared to the stock or bond markets. The result is that nowadays most pension managers do not regard real estate as a priority. In fact, given that pension funds often hold the

best quality properties in their portfolios, and these do not perform well—because of high acquisition prices—new investments stalled. Sales, on the other hand, are also limited due to a complete lack of institutional investors other than pension funds. The economic environment resulted on a race to liquidity, while real estate remains a long-term commitment.

There is, then, a vicious cycle: *pension funds made poor investments in the past, but now new investments do not occur due to their inability to turn over existing properties at the asked price.* At the same time that supply is constrained, demand for commercial space is booming, with Class A office rents reaching peak levels.

The real estate market is organizing itself to overcome the supply side problems. There is an increased trend towards capital markets instruments—as real estate funds and securitization—that will eventually bring liquidity and transparency to the market. International investment managers are also beginning to offer services that bring together portfolio allocation techniques based on risk/return analysis and real estate expertise. At the same time, foreign investors seem to be increasingly interested in that which is by far the largest real estate market in South America.

There is opportunity for the relationship between pension funds and real estate to achieve a new, professional and efficient level. This is dependent, however, on the market's ability to overcome attitudes of the past and reorganize itself.

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