

PROSPECTS FOR ARGENTINE PENSION FUND
INVESTMENT IN REAL ESTATE

by

Agustín F. Milberg

Submitted to the department of Architecture
in Partial Fulfillment of the Requirements for the Degree of

MASTER OF SCIENCE
in Real Estate Development

at the

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
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ABSTRACT

In 1993, in line with a series of market-oriented economic reforms, Argentina passed a law allowing the creation of private pension funds. By July 1995, after 11 months in operations, private pension funds had accumulated around \$2bn of contributions. Earlier that same year, a law was passed facilitating the securitization of mortgages and the creation of real estate investment funds. Several residential mortgage securitization projects are expected to be completed in 1996.

In line with worldwide trends, Argentine pension funds are expected to allocate resources into real estate debt and equity investments. This thesis analyzes the case for Argentine pension fund investment in real estate. In order to do so, it first examines the Argentine economy and capital markets that constitute the investment environment under which pension funds operate. Then it discusses the pension fund industry and regulations that influence managers' investment decisions, the commercial real estate market, and the prospects for residential mortgage securitization. Building upon this, the last section discusses the potential contribution of real estate debt and equity investment to pension funds' portfolios. Finally the thesis attempts to forecast how pension funds' real estate investment will evolve over time.

The topic of this thesis is the future which is, by force, conjectural. Given the limited statistical information available, this thesis makes frequent use of general economic principles, anecdotal evidence and my own direct observations to build its arguments. It is hoped that this thesis a useful framework to think about pension fund real estate investment in developing economies.

Thesis Supervisor: Lawrence Bacow
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1. SUMMARY AND CONCLUSIONS

This chapter summarizes the case for Argentine pension fund real estate investment. It first examines the Argentine economy and capital markets that constitute the investment environment under which pension funds operate. Then it discusses the pension fund industry and the regulations that influence managers' investment decisions. This is followed by an evaluation of the commercial real estate market, and the prospects for residential mortgage securitization. Building upon this, the last section discusses the potential contribution of real estate debt and equity investment to pension funds' portfolios. Finally a forecast of how pension funds' real estate investment will evolve over time is presented..

1.1. ECONOMIC OUTLOOK

In order to discuss the case for pension fund investment in real estate we first need to understand the macroeconomic context. This section analyzes Argentina's economic evolution and the implications to the stability of the economy that result from adopting a fixed exchange rate.

Over the last few years Argentina has experienced a profound transformation. In 1983, after several decades of political instability characterized by alternating civilian and military governments, democracy was restored with the election of Raúl Alfonsín. He was succeeded in 1989 by Carlos Menem, who undertook a series of daring economic reforms to establish a market-oriented economy open to foreign investment and trade. Telecommunication, transportation, energy and utility industries were privatized; price controls on products and services were eliminated; restrictions on foreign investment were lifted and import duties drastically reduced. In 1992 the foreign debt was refinanced in accordance with the Brady Plan.

In 1991 the Argentine peso was pegged to the US dollar to put an end to several decades of high inflation. In order to support the exchange rate, the Central Bank was required to maintain dollar reserves equivalent to 100% of the peso monetary base. This allows the government to fully convert the Argentine currency into dollars if required, and for this reason the program is known as the Convertibility Plan. Although inflation immediately dropped, between 1991 and 1993 the Argentine rate exceeded the US rate, resulting in a real appreciation of the peso and a deficit in the trade balance. It was only in 1994 that inflation in Argentina (4.1%) fell in line with the inflation rate in the US. Simultaneously, between 1991 and 1993 Argentina's GDP grew at an average annual rate of 7.7%. The success of the economic program helped Carlos Menem win the presidential election for an additional four-year term starting July 1995.

In the first half of 1995, the Argentine economy was hit by local repercussions of the Mexican crisis, which the government managed to survive without devaluing its currency. Massive capital flights shrank bank deposits by 17.8% between November 1994 and May 1995, recovering slowly since then. In early March 1995 the stock market bottomed out at half the pre-Mexican crisis level and then resumed a rising trend recovering by over 40% in only two months. Simultaneously, the country risk premium measured by the spread between the ten-year Global Bond¹ and comparable US government bonds reached 1,134 basis points and then dropped to 616 basis points in June. The incipient mortgage credit market dried out, and property transactions came to a halt or took place at large discounts. Stocks, bonds and real estate prices plummeted and then recovered, but are still below pre-crisis levels. Through brutal fiscal adjustment, the government is trying to reorient the economy to growth on the basis of domestic savings and exports. The price of this adjustment will be a recession. By mid 1995, unemployment had reached a record 15%. GDP is expected to contract this year and to record minimal growth in 1996.²

¹ Government dollar-denominated bond issued in 1991 to refinance Euronotes; pays fixed-interest rate semiannually.

² EIU - Economist Intelligence Unit: Argentina, Country Report. Second Quarter 1995.

The magnitude of the reforms Argentina is undertaking and its reliance on foreign investment, make the economy extremely unstable. This is exacerbated by the fixed-exchange rate adopted by Argentina, which has proved effective in controlling inflation but limits the ability of the government to mitigate recessions and booms by alternately lowering and raising the interest rate. In practice, the only monetary tools available for the government to influence the interest rate are the Central Bank's discount rate and the level of reserve requirements on current accounts and fixed-term deposits imposed on commercial banks. As an example of the latter, during the Mexican crisis the average reserve coefficient was relaxed from 21% to 15.7%. The most effective way for a monetary authorities to influence interest rates is by buying and selling government bonds thus changing the monetary base³. This monetary tool known as open market operations cannot be conducted in Argentina without undermining the convertibility rule.

As a result of adopting a fixed-exchange rate, the interest rate of Argentina will be largely a function of the US interest rates plus a premium to cover country risk. Argentina's interest rates will be relatively immune to government policies. To tame the business cycle, the government can only rely on fiscal tools, i.e. expanding and contracting government spending. However, this is also severely limited because, for currency board consistency, the government has to run budget surpluses. We conclude that current monetary constraints imply that Argentina will only achieve a long run growth following a series of marked recessions and booms that will render the economy unstable.

1.2. INVESTMENT ENVIRONMENT

This section discusses the implications of Argentina's macroeconomic scenario to investment decisions. After analyzing the correlation between stocks, bonds and real

³ Dornbusch, Rudiger: Macroeconomics.

estate, it discusses whether investors can reduce portfolio volatility by diversifying across different asset classes.

US investors facing a recession, can mitigate losses in stocks by investing in bonds. As the Fed lowers the interest rate to stimulate investment, the price of long-term bonds tends to go up offsetting stock losses. This opportunity is not available in Argentina. Under the currency board system, an economic recession will typically be accompanied by high interest rates and a boom by low interest rates, as evidenced by the Mexican crisis. When the economy looks good, foreign capital flows in, the stock market rises and interest rates go down (driving the price of bonds up). When things look bad, foreign capital flows out and the opposite occurs. As a result of the inability of the government to control the interest rates, stocks and bonds tend to move together.

A real estate asset, such as a commercial office building, is a hybrid of equity and debt components. The equity component is the building itself, whose price follows a pattern somewhat related to the general business cycle. The debt component consists of the leases which, similar to bonds, pay fixed amounts of money over specified time periods. As an asset with stock and bond-like features, real estate will tend to move together with stocks and bonds.

However, assets will behave slightly differently under various economic scenarios and therefore their correlation will be less than perfect. For example, stocks will react more rapidly than bonds to signs of economic growth; government bonds will be more sensitive to political crisis; during a period of inflation, fixed income securities will perform worse than real estate, whose rents are periodically adjusted.

Within an economy where all the assets tend to move together, the ability of investors to reduce macroeconomic risk by diversifying across different investments is limited. Moreover, highly positively correlated assets entail that the composition of the safest portfolio will tend to be dominated by the asset with the smallest price fluctuations. For

example, if stocks are very volatile and have high correlations with more stable bonds, the safest portfolio will consist only of debt. Including stocks will leverage portfolio returns, but at the expense of increased volatility. As we will see in section 2.6 this is the situation faced by Argentine pension funds.

1.3. CAPITAL MARKETS

By law, Argentine pension funds can only invest in assets that trade in secondary markets, i.e. public securities. Therefore, in order to understand pension fund investment decisions we first need to understand Argentine capital markets.

During the 1980s the Argentine financial markets were moribund: corporate stocks raised an average of only \$26m of capital per year and no corporate bonds were issued prior to 1989. Since then, the adoption of a law that regulates the issuance of corporate bonds in 1988, the massive privatization program, and the opening of the market to foreign investors under very favorable conditions, have caused a dramatic growth in the capital markets. As a result, during 1990 and 1993, Argentina raised an impressive \$1.0bn in stocks, \$4.7bn in American Depository Receipts, \$5.3bn of privatization proceeds, and \$5.4bn in new corporate bonds.⁴

By far the largest and most traded market is government bonds, which by the end of 1994 amounted to \$80bn. In May 1995 dollar-denominated bonds offered returns ranging from 10.7% for the Bonex '89⁵ (average life: 2.24 years) to 18.8% for the Floating Rate Bond⁶ (average life: 4.70 years). Yields in peso-denominated issues of comparable durations were 1,000 basis points higher, reflecting exchange rate uncertainty.⁷ Corporate bonds

⁴ EIU - Economist Intelligence Unit: Argentina: Country Report, Second Quarter 1995.

⁵ Government bond issued in 1989 and maturing in 1999. Capital is amortized at 12.5% over eight years starting 1992 and pays six-month Libor interest rates.

⁶ Government bond issued in 1993 to refinance interests in accordance with the Band Plan. It matures in 2005 and pays six-month Libor interest rates.

⁷ Lopez León y Cía.: Fundamental Analysis: Short-Run Economic Analysis of Public Bonds. July 1995.

command returns slightly above government bonds of comparable duration and are rarely traded after being placed.

The stock market has a total capitalization of only \$32bn or 11.5% of GDP (March 1995). In comparison, Chile's market is capitalized at 126% of GDP.⁸ The average trading volume is \$30m per day, three quarters of which is concentrated in only ten stocks. This volume is so thin that it allows relatively small investors to influence stock prices. As a result, the Merval stock index shows an annual volatility greater than 50%, which is extremely high. Currently, there are almost no publicly traded debt or equity real estate securities. Mortgage-backed securities have never been issued and equities are limited to shares of IRSA, the only real estate development and investment company listed in the Buenos Aires Stock Exchange⁹.

Finally, the futures and options market is very illiquid and trades only on few stocks and government bonds. As a result, pension funds cannot hedge their debt portfolios from interest rate risk by using derivatives. In order to effectively hedge interest rate risk, investors need to rebalance duration of the hedge regularly because the duration of a debt portfolio is constantly changing as bonds mature.

We conclude that Argentina's securities markets, although growing at a rapid pace, are in their infancy and offer a limited range of choices to institutional investors, like pension funds. Real estate equity and debt securities are unavailable and so are hedging instruments that would allow pension funds to insulate their portfolios against interest rate risk.

⁸ World Bank: Argentina: Capital Market Study. September 1994.

⁹ This company, derives its income from office and retail leases but also from developing properties, a business that pension funds typically consider too risky. Further, the earnings of a publicly-held company are taxed at the corporate level, which prevents pension funds from reaping its exemption from income taxes.

1.4. PENSION FUNDS

This section analyzes pension funds as a potential investor in real estate. It briefly describes the Argentine pension fund system and how performance measurement rules influence their investment decisions.

In 1993, Argentina passed a law allowing the creation of private pension funds, which coexist with a state-run system¹⁰. The Argentine pension system as a whole (private plus state-run) receives 27% of salaries. Employers' are required to contribute 16% of their workers' salaries to support the state run system, in charge of all the workers retired before the reform. The state also guarantees a minimum universal retirement benefit to current workers.

Additionally, workers contribute 11% of their salaries to finance their pension plans. Workers can choose to contribute to the state-run system or to private pension funds. The state-run system is similar to a pay-as-you-go defined-benefit plan given that the retirement benefits are a percentage of the worker's salaries prior to retirement.

The capitalization system is run by several pension fund management companies, each of which is in charge of a single retirement fund. To protect workers' savings, pension funds' accounts are kept completely separate from those of the management firms. This implies that, even if the management firm went bankrupt, the pension savings would not be affected. Every time a worker contributes to a fund, he or she acquires shares of the fund, which are kept in a separate account under the worker's name. Private pension funds are defined-contribution plans, i.e. workers are not guaranteed a defined pension upon retirement. In practice they function like a compulsory IRA: the beneficiaries have no say on how their savings are invested. However, if the fund performs poorly, the workers can transfer the whole amount of their savings to another manager.

¹⁰ Law 24,241, or Pension Fund Law (*Ley de Fondos de Jubilaciones y Pensiones*)

About half the workers who are enrolled in some retirement plan (3.6m workers) contribute to the new retirement system. As a result, by August 1994 private pension funds started receiving contributions at an average of \$175m per month. Most younger workers with more years ahead to accumulate retirement savings transferred to the private system. Older workers stayed in the state-run system. Hence, the average age of the contributors to the private system is only 35 years, while the retirement age is 60 and 65 years for men and women respectively. By July 1995, after being in operations during 11 months, the system had collected a total of \$2bn and is expected to grow to \$16bn by the year 2000 and \$41bn by 2005.¹¹

The pension fund system was designed to provide internal control mechanisms. Pension fund managers are obliged to form a reserve deposit equivalent to 2% of the value of the fund. Every month the annual performance of each fund is compared with the system's average. If a fund performs below 70% the system's average, the manager will have to make up for the difference from the reserve deposit (and replenish it with its own money). As a last resort, if the manager could not, the state would foot the bill. On the other hand, a pension fund manager showing a return more than 30% above the system's average, will not immediately report the whole amount of the return to its customers. Instead, the excess returns will be used to build a cushion to offset potential future losses.

While attempting to create internal controls, this system provides strong incentives for pension funds to mimic each other's portfolios. In effect, a pension fund management company that invests as everyone else avoids the risk of falling short of the minimum return requirement; all it stands to lose are a few customers to a better performing fund. On the other hand, a management company that decides to differentiate its portfolio takes considerable risk. If it performs well, all the benefits will end up in the pension beneficiaries' accounts (including the excess returns, after staying in the above-mentioned cushion during some time); the manager will only benefit indirectly by enhancing its

¹¹ Superintendencia de Administradoras de Fondos de Jubilaciones y Pensiones.

ability to recruit new customers. However, if it performs below the 70% benchmark, it will lose its own money and probably experience a reduction in the number of customers. Not only will it lose capital but also impair its ability to generate revenue. Benefits of the upside do not compensate for the risks of the downside. As a result, the system promotes pension funds to hold similar portfolios. This is key to understanding the prospects of pension fund investment in real estate. The herd mentality created by the system implies that an investment vehicle will either be accepted by all pension funds or by none.

Pension funds' asset allocation is governed by the pension fund law and the regulations dictated by the government supervisory agency known as the *Superintendencia*. Pension fund allocation regulations cap the amount that funds can invest in each asset class (bank deposits 28%, government bonds 50%, Argentine stocks 50%, and so forth).¹² Within these limits, the composition of the portfolios is decided by the managers. The caps on investments force pension fund managers to hold riskier portfolios than they would prefer. Pension fund managers admit that in the absence of investment regulations, they would invest more in bank deposits, considered the safest investment category, but capped at 28%.

Not surprisingly, with half the work force still in the state-run system, pension funds are still actively recruiting customers. Pension funds' investment strategy is geared toward stable and moderate growth, which is the best way to attract new workers who are extremely sensitive to drops in funds' value. Additionally managers have to avoid falling short of the 70% benchmark with the associated losses for the firm.

On average, in February 1995 pension funds invested 27.3% in short term bank deposits, 56.3% in government bonds, 6.6% in corporate bonds and 4.2% in mutual funds, mostly money market. The remainder was distributed in Argentine stocks (1.2%) and foreign

¹² Superintendencia de Administradoras de Fondos de Jubilaciones y Pensiones: Memoria Trimestral No 3. April 1995.

bonds (1.7%).¹³ Succinctly: short term debt denominated in pesos and dollars, most of which is issued by the Argentine government.

The average maturity of debt held by pension funds is strikingly short, about two years. This is surprising given the long term nature of pension funds' liabilities and the expectation of falling interest rates. The term structure of interest rates of Argentina provides incentives for investors to invest in long-term debt when they can. But the maturity of the bulk of Argentine corporate and government bonds is short: two to five years. Further, by investing short term, pension funds can reduce the volatility of their portfolios and risk of default, which increases with longer maturities. Ultimately, pension fund portfolios' short duration is due to customers' willingness to tolerate reinvestment risk more than fluctuations in their portfolios' value.

1.5. REAL ESTATE

After decades of under-construction, the Argentine real estate market seems posed for rapid growth. Since 1991, when the Convertibility Plan restored investors' confidence and mortgage credits reappeared, property prices (in dollars) have doubled. In Buenos Aires, where one third of the country's population lives, second-hand apartment buildings in good locations sell for \$1,000 per square meter, new ones sell for about \$1,500 per square meter. Since 1991 the total area recorded by construction permits in the Federal District (a section of Buenos Aires with a population of three million, where the Federal Government resides) more than doubled the average of the 1980s. High-rise luxury apartment condominiums have been the most active segment. If interest rates come down from their current highs of 18% (in dollars), the market for middle income housing is expected to expand significantly.

¹³ Superintendencia de Administradoras de Fondos de Jubilaciones y Pensiones: Memoria Trimestral No 3. April 1995.

Real Estate Debt

After almost 20 years of being virtually absent from the market, mortgage credits reappeared in Argentina after the Convertibility Plan brought inflation under control. By February 1995 mortgage credits amounted to \$5.2bn. Only 10% of the housing stock is encumbered by debt, suggesting a potential for a four-fold growth in the next few years¹⁴. Dollar and peso deposits are the predominant funding source followed by external loans and credits. Until now, commercial banks have been able to borrow dollars at around 10% and lend them at an effective rate of 18%. Such spreads can only be explained by the high operating costs of Argentine banks. The pent-up demand for credit and the lack of competition between banks and financial institutions allows banks to pass through to their customers their inefficiencies.¹⁵

Some corporations have managed to raise capital at a lower rate than charged by banks by issuing bonds locally and abroad. This process is a form of securitization known as desintermediation of debt: money is passed from savers to borrowers without banks' intermediation. However, due to inadequate legal and tax frameworks, the securitization of mortgage debt has not yet occurred. In January 1995, a law was passed instituting the "fiduciary" and the "closed-end real estate investment fund" -both suitable vehicles for the securitization of mortgages and the creation of real estate investment funds. Although this law has not yet been regulated, it is apparent that it will allow the public issuance of asset-backed securities in every respect identical to those utilized in the US market. Several projects to securitize debt are currently being studied, which means that by 1996 mortgage-backed securities will probably be available in the Argentine market.

The mortgage-backed securities market will have a big impact on the credit market. Mortgage securitization could substantially reduce borrowing rates, while at the same time provide investors with a relatively safe long-term investment vehicle. Mortgage

¹⁴ World Bank: Argentina: Capital Market Study. September 1994.

¹⁵ World Bank: Argentina: Capital Market Study. September 1994.

underwriting is very conservative, maximum loan to value ratios range from 50% to 70%, and average 35%. Mortgage loans are almost exclusively generated in US dollars because there are no long term investors in pesos.¹⁶ If the Convertibility plan succeeds in keeping inflation under control, pension funds, given that retirement benefits are largely determined in pesos, will have a role to play in providing long term funding in local currency.

Real Estate Equity

The commercial real estate market of Argentina (both office and retail) is heavily concentrated in central Buenos Aires. The national government, financial activity, and headquarters of the major corporations are located there. The office market of Buenos Aires amounts to about 2.5m square meters, or about 1.75m of usable area, with 0.5m classified as class A (under forgiving standards). With office prices averaging \$1,000 per square meter of usable space, the total dollar value of the office market is estimated to be \$1.75bn. According to Richard Ellis, annual absorption in recent years has ranged between 25,000 and 45,000 square meters corresponding to \$50m to \$90m worth of space¹⁷. The quality of the existing office stock is below market standards. Several projects of class A office space, where the demand is strongest, are currently being put on the market, with prices ranging between \$1,800 and \$2,600 per square meter. Given its relatively modest size (roughly the same as current pension funds' portfolios), this market could easily get overheated if pension funds started pouring money into it.

Commercial real estate in Argentina is typically owner-occupied. In the last three years, the rise in property values and the arrival of foreign firms has increased the demand for rental space. Rents for class A office space are currently about \$20 per square meter per month, net of operating expenses, for buildings that would sell for \$2,000 per square meter. By law, the minimum rental terms for commercial leases is three years and the maximum is ten years. In practice, commercial leases range between three and six years

¹⁶ World Bank: Argentina: Capital Market Study. September 1994.

¹⁷Richard Ellis, Office Market Report.

and sometimes include an option to renew. Contracts often establish monthly payments and are denominated in dollars.

In the next two years, the price of real estate in Argentina will be subject to two offsetting forces. The demand for space is expected to decline as a result of recession, resulting in lower rents. However, lower rents will be capitalized at a reduced rate as the interest rates fall. As a result, property prices are expected to increase. With a capitalization rate currently at 12%, property investment will result in competitive total returns only if property prices rise.

Supply of new office space is unrestricted. In effect, land suitable for development is relatively abundant and zoning regulations are not too constricting. Although some office development is undertaken with space already pre-leased or pre-sold, most construction is undertaken on a speculative basis. These factors would suggest a market that is prone to over-construction.

On the other hand, construction loans cover a fraction of the cost (about 50%) and are often recourse. Permanent loans are out of the question because, at current interest rates, they would result in negative financial leverage. Therefore, permanent financing is all equity. Additionally, Argentine tax legislation does not provide fiscal incentives for investing in real estate. For example, the current depreciation allowance is only 2% per year, resulting in a 50-year amortization term. As a result, the current capital supply in the office market is not likely to generate a “price bubble” where too many investors chase too few deals. We can conclude that, although the size and development practices pose some threat of over-construction, the capital structure and tax regulations impose discipline. If non-recourse construction and permanent loans become available, the office market could easily spiral out of control. This will affect not only developers but also investors, given that bursts of excess supply will tend to make office property prices more volatile.

1.6. PENSION FUNDS AND REAL ESTATE INVESTMENT

As discussed previously, Argentine pension funds can be characterized as a small but rapidly growing investor, managed by firms that are prompted to recruit new customers in order to survive. Their investment horizon is ambiguous: while the average maturity of their liabilities is around 30 years, every month their performance is checked with the rest of system. This produces an incentive for every pension fund to hold the “average fund”. Pension funds’ investment strategy is geared toward achieving the lowest possible volatility as a way to attract new customers. In the context of Argentine capital markets and pension fund asset allocation rules, this is best achieved by holding a mix of bank deposits and short term debt instruments. Finally the asset allocation rules force pension funds to hold relatively risky assets that they otherwise would overlook.

Investment in real estate can be in the form of debt (a mortgage backed by a real estate asset) or equity (the asset itself). The analysis of real estate investment and its potential contribution to pension funds’ portfolios is based on general economic principles rather than historical data series. In effect, given the changes undergone by the Argentine economy and the novelty of real estate securities, the validity of historical information to project the future is doubtful. A formal financial analysis of real estate debt and equity investment is presented in chapter 7 of this paper.

Residential mortgage backed securities (RMBS) will be the first instruments available for pension funds’ real estate investment. While basically a fixed-income security comparable to a bond, RMBS have certain characteristics that make them different from other securities. The most distinctive feature result from the ability households to pre-pay their mortgages. Thus, when interest rates go down households tend to pre-pay their mortgages and refinance at a lower rate, making RMBS similar to callable bonds.¹⁸ RMBS will be an entirely new investment vehicle because in Argentina there are no corporate callable bonds.

¹⁸ Wurtz bach, Charles H. *Manging Real Estate Portfolios*. 1994.

Additionally, circumstances likely to trigger default in mortgage loans are different than those for government and corporate bonds. For example, RMBS would probably have been less affected by the recent economic crisis than government and corporate bonds. RMBS depend on the economy of households which is less closely related to the health of the national financial system. Therefore, RMBS will provide some diversification benefits to pension fund portfolios.

RMBS lend themselves to the creation of safe investment vehicles because banks exercise conservative underwriting standards. Additionally, they can be provided with credit enhancements by splitting cash flows of the mortgage pool into senior and junior tranches. RMBS are expected to offer initial returns between 12% and 14%, which are consistent with pension funds' investment goals. As the market becomes familiar with the securities, the risk premium is likely to decrease and RMBS appreciate to the benefit of the early investors. Asset allocation rules allow pension funds to hold up to 28% their portfolios in RMBS. Therefore, pension funds will be able to substitute more risky assets for RMBS. This should result in lower portfolio volatility while maintaining the desired yields.

As pension funds accumulate contributions, the market will start developing more complex debt instruments that are specially tailored to their needs. For example, mortgage pool cash flows can be split into long term, safe tranches and short term risky tranches.¹⁹ Eventually, as interest rates decline, permanent loans on commercial projects will become a viable financing alternative. Pension funds could play a role in generating mortgages that are hybrids of debt and equity. For example, participating mortgages where part of the debt service is derived from the income generated by the property, and convertible mortgages that typically give the lender a call option on the property when the principal is due. Hybrid mortgages would allow pension funds to generate a long-term fixed-income investment while at the same time capping potential losses resulting from

¹⁹ Rosenthal James A. *Securitization of Credit: Inside the New Tehcnology of Finance*.

inflation. This mortgages could be particularly useful to pension funds because Argentine law prohibits indexing debt contracts to the inflation rate.

In a last stage, pension funds will start making relatively safe equity investments in real estate, such as fully-leased office buildings with credit worthy tenants. Currently, pension funds are forbidden by law direct ownership of real estate. As we have seen, they have incentives to hold uniform portfolios. Therefore, the securitization of real estate equity will probably take the form of commingled funds owning real estate portfolios acquired and managed by a financial intermediary, with pension acting as shareholders.

The transition of pension funds' investment from real estate debt to real estate equity will be a lengthy process. A stronger rental market has to be developed and the commercial real estate markets need to be institutionalized before real estate equity can be traded in secondary markets. Pension funds need to accumulate sufficient funds and develop the necessary skills for investing in real estate equity. Even if direct ownership is avoided by using financial intermediaries, managing a real estate portfolio requires specific industry knowledge that stocks and bond investors, such as pension funds, usually lack. More importantly, at this stage of pensions' fund development, reasons to diversify into real estate equity are less than compelling.

In effect, unless property prices rise significantly returns on real estate will not be higher than returns on the dollar-denominated government bonds pension funds already hold. Considering Argentina's history of high inflation, arguing that real estate is an inflation hedge is difficult. When inflation turns hyperinflation, the mortgage market disappears and the property market collapses. Historically, assets denominated in foreign hard currencies have performed better under inflation.

After analyzing the performance of real estate compared to stocks and bonds under different economic scenarios, this report concludes that real estate is the asset most able

to survive a macroeconomic crisis. Such a crisis could be triggered by a devaluation or a default on government debt (an improbable but possible scenario). This event would probably be accompanied by a financial crisis and crash of the stock market. Real estate equity would be less severely affected. This is consistent with conventional wisdom which claims that land and buildings are a safe refuge for savings in times of trouble. However, under normal circumstances, real estate equity would add volatility to current pension fund portfolios, which consist mostly of debt.

Pension fund investment policies do not appear to be directed to hedging portfolios against major macroeconomic crises. Hedging policies would demand increased investment in foreign assets, permissible under current regulations (pension funds are allowed to allocate up to 10% of assets in foreign government bonds and 7% in foreign stocks). Pension fund managers argue that this strategy unnecessarily sacrifices returns. Another reason may be a result of Argentine government guarantee of minimum return on pension funds. In case of default the government will have incentives to give priority to pension funds.

An analysis of the property market and the pension fund industry indicates it is improbable that pension funds will invest in the real estate equity in the near future. Moreover, this report argues that stocks will be included in pension fund portfolios before real estate equity, according to the following development. As the Argentine economy grows the government will increase its ability to stabilize the business cycle by using monetary and fiscal tools. Lower country risk premiums will approximate Argentine interest rates to US interest rates. The stock market capitalization and trading volume will grow, reducing its vulnerability to speculative attacks.

Assets markets will move away from dependence on macroeconomic factors and toward market-specific forces. Removing the veil of macroeconomic instability will reveal the differences between asset classes. Within the constraints imposed by the currency board mechanism, the correlation between stocks bonds and real estate will diminish. In the

long run, the correlation between stocks and bonds is expected to be relatively low as the credit market becomes less dependent from foreign capital inflows. The correlation between bonds and real estate will also diminish, although not as much, because real estate is partially debt-like. Finally, the correlation between stocks and real estate will also be low. This is due to the fact that it takes time to produce real estate, and once put in place it takes time to consume. As a result, in a stable economy, the property market generates a cycle that lags the general business cycle, whereas most stocks move in rhythm to the business cycle. Therefore, real estate can be expected to mitigate the market risk of a portfolio of stocks.

In the future, pension funds will find that they can no longer achieve the desired level of return by holding debt instruments exclusively. As a practical matter, at current growth rates pension funds run the risk of owning the entire debt market by investing exclusively in debt instruments. In that situation, the tradeoff between risk and return will make equity investment attractive, or inevitable, to pension funds.

Stocks will precede real estate because they will provide similar or higher diversification benefits to pension funds' debt portfolios, be easier to manage and possibly contribute higher returns. By holding stocks pension funds will become exposed to market risk. Only when equity proportions in pension funds portfolios become substantial will equity real estate investment finally become an attractive investment to pension funds.

2. THE ARGENTINE ECONOMY

2.1. BACKGROUND ²⁰

Argentina is a 1.07m square-mile-country, with a temperate climate and a population of 33m with a high literacy rate and a high level of working skills. With 13m people, Buenos Aires is the dominant center. Natural resources (agricultural land, forests, fish oil, and mineral reserves) and hydroelectricity are abundant.

2.1.1. Table: Argentina In Brief. ²¹

Area:	2.8m square kilometers
Population:	33.4m (1994 estimated)
Urban Population:	87%
GDP	\$ 280 billion (1994)
GDP Growth 1990 - 1994	7.7% (annual average)
GDP per capita	\$ 8,080 (1994)
Distribution of GDP:	
Primary	7.8%
Manufacturing	23.5%
Construction	5.3%
Retail	15.4%
Transport and communications	5.2%
Services	26%
Finance and Insurance	16.8%
Government:	Federal Republic with tripartite system

From the turn of the century through the 1930s Argentina ranked among the richest countries, per capita, in the world. Then came a long period of political and economic

²⁰ EIU - Economist Intelligence Unit: Argentina: Country Profile, 1994-95.

²¹ Ministerio de Economía y Obras y Servicios Públicos: Argentina en Crecimiento.1994.

instability, marked by alternations of civilian and military governments and social unrest. The state monopolized key areas of the economy, including electricity, oil, gas, water supply, communications, and railways, and regulated the rest of the economy through price controls, foreign exchange controls and restrictions on imports and foreign investment. Chronic fiscal deficits were financed by printing money, resulting in inflation and hyperinflation.

While the 1980s, “the lost decade”, saw gross domestic product decrease, foreign debt grow, and inflation heat up to the highest in the world, progress was made on the political front. In 1983, the democratic election of Raúl Alfonsín as president put an end to seven year of military rule. While he could not bring the economy into shape, Alfonsín restored political and civil liberties. His successor, Carlos Menem, although belonging to a party that traditionally supported state control of the economy, undertook a series of daring economic measures to establish a market-oriented economy that is open to foreign investment and trade.

Telephone, airline, railway, oil, radio, television, electricity, water supply and gas were privatized. Price controls on products and services were eliminated. Restrictions on foreign investment were lifted and import duties drastically reduced. The Mercosur, a tariff-free common market uniting Brazil, Paraguay, Uruguay and Argentina was formed. In 1992 the foreign debt was refinanced in accordance with the Brady Plan. As a consequence of the economic reforms, Argentina’s GDP grew an average of 7.7% per year in the period between 1991 and 1994. During that period Argentina ranked the third economy in the world to attract more foreign investment (after China and Mexico). Most of the foreign investment went into the newly-privatized enterprises.

The monetary system was reformed by means of the Convertibility Law of March 27, 1991. This law establishes the convertibility of Argentine currency into US dollars at a fixed rate and requires the Central Bank to maintain dollar reserves equivalent to 100% of the monetary base. As a result, inflation has fallen drastically and now approaches

international standards (4.1% in 1994). The Convertibility Plan stopped the Central Bank from financing budget deficits by printing money because for the program to be consistent the public sector had to balance its accounts.

Under the Convertibility Plan, the fixed nominal exchange rate was the anchor of the stabilization program. The government emphasizes that it will maintain the fixed nominal exchange rate for the foreseeable future and seems prepared to dollarize the economy fully if required.

2.2. CURRENT SITUATION.

In the first half of 1995 the Argentine financial markets were strained by the domestic repercussions of the Mexican foreign exchange crisis. By February the country was plagued by capital flight, severe pressure in the banking system, rising interest rates and a sharp increase in the country risk premium. Bank deposits shrank by \$7.5bn between late November 1994 and early May 1995 (from \$46bn to \$38bn, a 17.8% drop). In March alone deposits fell by \$4.3bn, severely affecting banks' liquidity and in some cases, solvency. Nine banks are now suspended and two are in liquidation. As a result of mergers and acquisitions financial institutions shrank from 206 to 167 from December 1994 to June 1995²².

The economic authorities had to implement increasingly tough policies in order to persuade economic agents of the government's resolve. In March, the economy minister Domingo Cavallo, signed an agreement with the IMF, as part of a fiscal and financial program, allowing Argentina to withdraw \$2.8bn. This agreement included additional fresh funds from the World Bank, the Inter-American Development Bank (IDB), Japan Eximbank and the issuance of a specially tailored Argentine bond. The March fiscal

²² EIU - Economist Intelligence Unit: Argentina: Country Report, Second Quarter 1995.

package included a significant tax increase. Value added tax was raised from 18% to 21%.

However, the government's ability to achieve fiscal surplus will depend on the level of economic activity. The official revenue estimates were made on the assumption of a 3% GDP growth rate for 1995, which may be overoptimistic.

As a result of the Mexican crisis, the prices of Argentine shares and bonds fell drastically in February and bottomed out in early March. Following the announcement of the tough March fiscal package, asset prices again resumed a rising trend. In just two months, between March 10 and May 12, the Merval stock exchange index increased 43.8%, the price of the Brady par bond 27.2% and the price of the Brady floating-rate bond 35.2%. Similarly, the spread of the ten-year global bond fell from 1,134 to 616 basis points. However, prices are still below pre-crisis levels.

By late April, Standard & Poor raised the credit rating for Argentine Brady bonds from B+ to BB-, the rating which currently holds for voluntary debt (Global Bonds, Euronotes and Bonex). The new rating is two levels below "investment grade" instruments, which the agency gives only to Chile and Colombia in Latin America. Shortly after, Moody's announced that its Argentine rating would be reviewed positively.

The government took a number of steps to avert a potentially severe financial crisis. The banking sector, which had been the direct beneficiary of massive capital inflows, recorded an impressive 54.3% growth between 1991 and 1994. Last year the financial sector began to slow down. It was clear that the sector had over-expanded. During the first weeks of turmoil in the financial markets, the authorities tried to avoid getting the Central Bank actively involved. The 1992 Central Bank charter had virtually eliminated the bank's role as a lender of last resort. Furthermore, because there was no system of deposit insurance in operation, the financial system was extremely vulnerable to a change in depositors' moods.

Finally, the scale of the withdrawal of funds forced the economic authorities to make the Central Bank intervene. To reduce uncertainty and exchange rate risk, the economic authorities converted banks' reserves on peso-denominated deposits (held at the Central Bank) into dollars. As a result, one third of the monetary base was dollarized. To improve the financial system's liquidity, the average reserve coefficient was dropped from 21% to 15.7%. The funds provided by the Central Bank to the financial system made it possible to mitigate the contraction in total credit which otherwise might have taken place. About 75% of banks' total financial needs resulting from the withdrawal of deposits was met by direct or indirect assistance of the Central Bank. The remainder was covered by banks' own capital resources, credit cancellations and net foreign credits. To reduce the uncertainty about the safety of banks' deposits, a compulsory deposit insurance scheme was implemented. The privately run insurance scheme will take more than seven years to reach the planned volume and will only cover deposits up to Ps20,000. Nevertheless, the insurance scheme has had a favorable impact upon expectations.

The management of the crisis was influenced by the electoral calendar. In May 14, Carlos Menem won a second presidential term, taking 50% of the vote in the first round of the election. The Peronists also strengthened their position in the Chamber of Deputies. The government was reshuffled in July. The government's popularity is remarkable given that it has been in office for six years. There is no doubt that the stabilization of the economy has been a decisive factor. Another important factor is that much of the population regards the present administration as the best equipped to deal with the difficult times that lie ahead.

It is remarkable that the government has been able so far to prevent a total collapse of the economy as happened in Mexico. This reflects to some extent differences in the economic fundamentals in the two countries. But Argentina's radically different policy response has probably been more important. For a soft landing to be achieved, the

economy needs to reallocate resources towards the production of exportable goods and increase the savings rate without generating a recession so deep that the fragile financial system is put under intolerable strain. This transition will not be easy. Argentina's currency board, which entails rigid monetary and exchange rate mechanisms, is good for controlling inflation but prevents the government from resorting to devaluation to change relative prices. However, it is not clear whether a real devaluation could be engineered through a change in the nominal exchange rate, given the deeply embedded inflationary culture in Argentina. In practice, the current constraints on policy leave fiscal policy as the only instrument available to the economic authorities to orient the economy toward the desired targets. Because there is only one instrument (fiscal policy) to tackle multiple objectives (increase savings and net exports, improve expectations and maintain the stability of the financial system), the government has opted for a bold strategy: attempting to generate a fiscal surplus even if it exacerbates recessionary pressures.

In order to meet the fiscal targets, a remarkable improvement in tax collection is needed. The government will try to privatize the few remaining state-owned companies. The banking system needs to undergo a sharp restructuring and downsizing, but this is difficult in the context of a confidence crisis and a liquidity squeeze. Furthermore, because there is no lender of last resort, the current economic policy regime is ill-suited to financial crisis. The currency board mechanism limits the ability of the government to assist the financial sector. Hence, in the event of a deepening financial crisis either the convertibility rule yields or the financial system cracks. If private capital inflows recover, the restructuring of the financial system will be less painful.

The Economist Intelligence Unit (EIU) expects GDP to decrease by 1.6% in 1995 and grow by 0.6% in 1996. A balance trade account is expected for 1995 and 1996. This correction will contribute to a reduction in the current-account deficit, which will bring it into line with the available level of external finance. Inflation is expected to remain under control and the government is expected to stick to the fixed nominal exchange rate, provided the financial system does not collapse.

2.3. BUSINESS LAW AND FOREIGN INVESTMENT.

The Argentine Constitution, based on that of the United States, dates back to 1853. It was reformed in 1994 to allow for the possibility of reelection of Menem, but no other essential changes were made. Although the Constitution consecrates individual property rights and freedom of commerce, this has not prevented civil and military governments from passing laws that severely limit those rights. Currently Argentina enjoys a free market and one of the most liberal and open foreign investment regimes in the world.

The corporate law of Argentina has two basic business vehicles: the *Sociedad Anónima* (S.A.), similar to the US corporation and the *Sociedad de Responsabilidad Limitada* (S.R.L.), similar to the US limited partnership.

After several decades of a legislation restricting the participation of foreign companies in local businesses, currently there are no restrictions on foreign investment in Argentina. Thus, foreign investors may purchase any kind of assets (including real estate) without governmental approval. Overseas companies enjoy the same legal rights and obligations as those based in Argentina and may repatriate the whole amount of their investment or profits at any given time, after paying the income tax, if applicable. Presently, there are no restrictions to remit currency abroad, and there is a free foreign exchange market.

Foreigners may conduct businesses in Argentina either through a local subsidiary that has to be incorporated before the Public Registry of Commerce and which may use any of the corporate forms of the Argentine corporate law (S.A., S.R.L.), through a branch of the parent company or by forming joint ventures with local partners. Foreigners are subject to the same restrictions as local investors. The conducts and dealings of commercial enterprises are governed by the Argentine Commercial Code and the supplementary laws and regulations.

2.4. TAXES.²³

There are three different level of tax authorities: the Nation, the Provinces and the Municipalities. There are no differences between the tax treatment of branches and that of corporations. Traditionally, Argentine Tax Law was based on the principle of taxation at source. Since 1992 Argentina has adopted the principle of worldwide taxation. The main taxes levied by the government are summarized below.

Income tax. 30% of all profits at the end of the fiscal year. The same rate applies to the silent equity of stock issuing partnerships. Tax losses may be offset against income obtained in the five following years. Dividends are not taxed further at the personal level. Limited liability partnerships are required to report their taxable income, showing its allocation to partners who must carry it over to their personal income tax returns and pay tax thereon at a progressive rate.

Value added tax (VAT). Though levied on the value added at each stage of production, it is intended to tax only the final consumer. Current rate is 21%. Although VAT is not paid on land, virtually all the materials and labor required for construction are charged with it. In the case of property development, the VAT paid during construction will only be recouped when the property is sold. The sale of used property and rents are exempt from VAT.

Land and property taxes. These taxes are levied at the municipal level, based on the assessed valuation of property. Rates vary from one jurisdiction to another, but their amount are usually negligible and are never considered in tax planning.

²³ Bianchi, Roberto A.: Normative del Mercado de Capitales en la Argentina/ Compiled by Roberto Bianchi. 1993.

3. THE CAPITAL MARKETS OF ARGENTINA.

3.1. INSTITUTIONS AND REGULATORY FRAMEWORK.²⁴

As Pension Funds can only invest in publicly traded securities, it is necessary to understand how the capital markets of Argentina are structured and what legal instruments contemplated by Argentine legislation lend themselves for the creation of real estate investment vehicles.

The two principal securities markets in Argentina are the *Mercado de Valores* (Merval) and the *Mercado Abierto Electrónico* (MAE). The Merval is associated with the Buenos Aires stock exchange.

Until recently, the Merval allowed only individual membership with a one-seat one-vote management. In 1988, banks and other dealers unable to gain the limited seats on the Merval established the MAE. The MAE primarily trades in public securities in an over-the-counter form with the dealers acting as principals rather than brokers. Trades are confirmed electronically and settled without a clearing house mechanism or guarantee. The MAE quickly surpassed the Merval in trading volume. To counter, the Merval opened up its membership to institutions in 1992 and, after a period of active rivalry, in April 1993 reached an accord with the Merval. Under the agreement, all stock trading is confined to the Merval. While both markets can trade on bonds, government bonds are overwhelmingly traded on the MAE and corporate bonds are traded in low volumes on both markets. The Merval currently allows two systems of trading: the traditional open outcry trading and the continuous market where securities are traded over the telephone followed by electronic confirmations.

²⁴ Bianchi, Roberto A.: Normative del Mercado de Capitales en la Argentina/ Compiled by Roberto Bianchi. 1993.

A tradition of high inflation kept the capital markets repressed for decades. Since the Convertibility Plan capital markets have grown rapidly, but they remain thin and volatile. Since 1991-92 the autonomous oversight and regulatory agency (the *Comisión Nacional de Valores*, CNV) launched a series of normative changes in line with government policies to facilitate the financing of working capital and investments, to increase transparency, and to provide security to domestic and foreign investors.

Some of the recent capital-market policy initiatives include:

- Elimination of fixed commissions for agents operating in the market and reduction of the charges levied upon stock-market transactions. Elimination of stamp and transfer taxes. These measures resulted in a reduction of intermediation costs from 3.7% to 1.5%.
- Elimination of capital gains tax.
- Authorization to issue commercial paper. Issuing companies must obtain credit ratings from two private and independent firms.
- Minimum capital requirements for firms operating in the stock market
- Common information and reporting requirements for all markets operating in the country. The use of inside information is prohibited and public disclosure of the holdings of directors and representatives is mandatory. To facilitate interpretation of balance sheet, reporting formats have been simplified.
- Regulations to allow authorized companies to have access to international capital markets through the issuance of American Depositary Receipts (ADRs).
- Opening the first commodities market to offer future and options contracts was opened in 1991. A grain future market trading in wheat in 1992 which later expanded to include corn soybeans and sunflower seeds.

These measures have contributed to the rapid growth of capital markets, but the decisive factor was the public offerings of part of the state-owned oil company, YPF, and the

telephone companies' shares. Further, the recently created private pension funds system are channeling about \$2bn per year to the public and private assets in the capital markets.

The government has removed all investment barriers to encourage inflows into domestic capital market. Entering, trading and leaving the market is straightforward: there are no exchange controls, no registration requirements and capital gains and dividends are not taxed at the investor's level. Without industry restrictions for foreign investment, Argentina's capital market is one of the most open in the world. What was regarded as an attractive feature when foreign capital was flowing inwards, turned to be a problem when expectations changed in 1995. Although there are no precise estimates, foreigners probably account for 20-30% of the market float.

3.2. MUTUAL FUNDS AND THE SECURITIZATION OF MORTGAGES.²⁵

Until recently, hyperinflation and several regulatory hurdles prevented a market in long term securitizable debt contracts. A recent study by Arthur Anderson concluded that \$10.4bn of bank loans were securitizable in 1993, and that the volume would reach \$44bn in 1997. However, the Argentine Civil Code does not provide an adequate development of modern concepts of trust, fiduciary and beneficial ownership for modern securitization transactions.

An attempt to allow securitization was tried in August 1993 by the CNV exploiting the similarities between asset-backed securities and closed-end mutual funds. Investment funds date back to 1961 and are considered a legally safe investment vehicle. They were initially conceived as open-end funds to invest in publicly traded securities. In such funds, the investors can demand their certificates to be rescued by the fund at any time. Funds are required to hold a diversified portfolio, and have limited voting rights in the

²⁵ Paoloantonio, Martin E. Fondos Comunes de Inversiion, Mercado Financiero y Mercado de Capitales.

companies whose shares they buy. The profits of the fund are tax exempt. Under this legislation several money funds and stocks funds were created.

Only in 1993 were close-end funds regulated. Argentine close-end funds, like those of the US, have a fixed number of shares. Closed-end funds do not rescue the shares of their investors. Instead, investors who want to liquidate their position have to find a buyer for their shares in the fund. As the closed-end fund's share is determined by supply and demand, the price can fall below or rise above the net asset value per share. Closed-end funds lend themselves to securitizing illiquid investments like real estate and mortgage loans.

Investment funds do not constitute legal entities and are pass-through entities from a tax perspective. They are organized around a managing society that makes the investment decision and a depository society, typically a bank, which performs the duties of a trustee and prevents a managing society under financial distress from getting hold of the assets of the fund. A statute, governing the functioning of the fund, is signed between the managing society and the depository society and is subscribed by the investors. It has to be approved by the securities regulatory agency CNV, and contains the following provisions: 1) the fund's investment policies; 2) the maximum management fees to be charged by the manager and the trustee; 3) the duration of the fund and how it will be liquidated; 4) distribution of dividends.

Given the limited authority of the CNV, organizing the securitization of debt under this framework left unresolved many issues, outlined below. 1) Only financial institutions authorized approved by the Central Bank were allowed to issue securities. 2) In order to prevent the cascading of intermediation costs, open-end funds are not allowed to invest in shares of closed-end funds. Therefore, an asset-backed security issued as a share of a closed-end mutual fund was not apt to be bought by bond and money-market mutual funds. 3) Most importantly, asset backed securities, received a unfavorable tax treatment

(they were subject to income tax, withholding taxes and, possibly, VAT), making them uncompetitive relative to corporate bonds.

As a result of this, no securitization of assets took place under this framework. To overcome these problems Law 24,441, sanctioned in January 1995, modified the law of Investment Funds, and specifically allowed the creation of closed-end funds to invest in real estate equity and both secured and unsecured debt. The law introduced the legal figure of the real estate investment funds (*Fondos Comunes de Inversión Inmobiliaria*). More important, the law exempts investment funds from VAT and income tax.

Additionally Law 24,441 explicitly creates the figure of the fiduciary funds as an alternative vehicle suitable for securitization, regulates lease contracts and creates a new mortgage vehicle named "*letras hipotecarias*". Although the law is vague and unregulated it is expected that it will provide an adequate securitization framework.

The Argentine fiduciary fund will be similar to the US trust. Unlike investment funds they are not constrained by a predetermined legal form. Fiduciary funds are governed by a private contract. Therefore, they will be more flexible. Other attractive feature: 1) Both the originator and the depositor are insulated from liability resulting from the bankruptcy of the fiduciary fund (before this law was passed this issue was unclear). 2) The law creates the figure of the financial fiduciary, to securitize debt in different tranches.

3.3. MORTGAGES

The *letra hipotecaria*, also created by Law 24,441, is a form of standardized mortgage contract, that can be transferred by a simple endorsement. By law these mortgages are required to have the following features: 1) they can only be signed on first -senior- mortgages; 2) they are endorsable; 3) mortgages arranged under this form are, by law, pre-payable (this was not the case with residential mortgages signed under the previous

regime) 4) The lender can exercise his rights as mortgage holder in a very expeditious fashion: if the borrower defaults for 60 days, a judge will give the borrower a 15-day warning and then proceed to auction the property. The proceeds from the auction are used to repay the loan and, if there is a remainder it goes to the borrower.

The importance of this legislation is that it creates a standard instrument that will be very suitable for securitization.. Additionally it improves the rights of the lender in case of default by speeding up the eviction process, which presently is extremely slow.

3.4. LEASING CONTRACTS

Law 24,441 introduces a form of rent with an option to buy known as the leasing contracts. The law defines leasing as a rental contract that gives the tenant the option to buy the property. The term of the lease can be freely agreed between the parties (there are no maximum nor minimum terms as is the case with rents). Notice that under current legislation, rental terms cannot exceed ten years. If the tenant fails to comply with the lease payments the law establishes the following:

- 1) If the lessee had paid less than one fourth of the total lease payments, the owner will be able to evict the tenant after a short notice to comply with the payments.
- 2) If the lessee had paid between one-fourth and three-fourths of the lease payments, the owner will have to inform the lessee and allow him 60 days to comply. After that, the owner will proceed as in case 1.
- 3) If the lessee had paid more than three-fourths of the total payments or was already entitled to buy the property the period of notice would have to be of 90 days. After evicting the property, the owner will still have the right to sue the tenant for unpaid rents.

3.5. ECONOMIC CHARACTERISTICS.^{26 27}

Due to high inflation and economic stagnation, private corporate securities issues were negligible before the recent economic stabilization program. Until 1989, the securities markets were moribund raising an annual average \$26m of capital over 1981-89. Since then, several factors have caused dramatic growth in capital markets. These include the 1988 Negotiable Obligations Law and subsequent tax concessions to debt securities, the massive privatization program, the Convertibility Law and opening up the foreign investment under equal treatment to domestic investment. As a result of this, during 1990-93, Argentina raised an impressive \$1.0bn in stocks, 4.7bn in ADR issues, \$5.3bn of privatization proceeds, and \$5.4bn in new bonds.

*Stocks*²⁸

The Argentine corporate population is very small, and new equity issuance even smaller. There's lack of liquidity in all but a handful of stocks. The market value of stocks ranged between \$1-3bn throughout the 1980s and was \$3.31bn at the end of 1990. Since then, the market capitalization of stocks has grown dramatically to \$44bn by December 1993, a rise of more than 13 times. This rapid increase is partly explained by prices that rose by more than six times. The remaining two-fold increase in market capitalization (roughly 2.1 times) has come mainly through privatization and only to a small extent through new primary equity offerings. Despite the increase in market capitalization, the number of listed companies continues to fall, from over 600 several decades ago to 278 in 1980, 181 in 1990 and 159 in October 1993.

The institutionalization of the market has not yet occurred (private investors still constitute the biggest players). Banks and Insurance companies are not big investors and the existing 75 investment funds control only 1% of the market. Finally, although there

²⁶ EIU - Economist Intelligence Unit: Argentina: Country Report, Second Quarter 1995.

²⁷ World Bank.: Argentina - Capital Market Study. September 1994.

²⁸ Banco Río: Argentina Equity Handbook. March 1995.

are 153 companies registered, 75% of the capitalization of the market is accounted for by the ten largest companies. 85% of the trade is concentrated in 23 companies. The participation of foreign investors in the stock market is not significant.

The stock market of Argentina is substantially more volatile than the US or other markets. The Merval index increased 165% in 1990, 766% in 1991, went down 42% in 1992, up 36% in 1993 and 1% in the first 9 months of 1994. The Argentine market has increase substantially its volatility since the Mexican crisis. Between October and December 20th the Merval volatility was close to 25% on an annual basis. When extending this period of time to the end of March volatility shows a huge jump to 56%. The sharp recovery seen in March has increased the volatility to 81%.

Government Bonds:²⁹

³⁰The Government of Argentina issues both dollar and peso-denominated debt instruments. On September 1994, Argentine public debt amounted to \$77.2bn (25% of GDP). There were 53.7 billion in government securities of which \$45.8bn were in dollars and 7.9 in pesos. The former included \$21.8bn in various Brady bonds. About \$17.4bn correspond to forced securities issued as a payment of pre-1991 debt and restructuring of existing liabilities for unpaid pensions, government purchases and tax rebates. It is only recently that Argentina has started issuing voluntary debt. In 1991 there were \$1bn worth of eurobonds with maturities ranging from two to seven years. In December 1993, Argentina launched a ten-year \$1bn global bond, with a coupon of 8.46%, 280 basis points above the equivalent US treasury bill. The bond was rated B1 by Moody's and BB- by Standard and Poors, both below investment grade. The government did not issue short term T-bills until August 1994.

²⁹ Lopez León y Cía.: *Titulos Públicos - Argentina y America Latina*. April 1995.

³⁰ Argentine Central Bank.: *Boletín Estadístico*. April 1995.

3.6. BANKING SYSTEM³¹³²

Due to hyperinflation the deposit base eroded during the 1980s. M2/GDP was 17.5% in June 1994. This means that Argentines held the equivalent of two months' worth of income, while in the US that number is in the around six months. Currently there's pent-up demand for credit. Most projections indicate loan growth rates of 20-25% per year in the next 4-5 years.

Average *real* lending rates remain high: 17-18% in dollars, above 25% in pesos. The primary cause for high interest rates is high level of bank operating costs (other factors include: high reserve requirements, non-performing loans and taxes). High inflation in the past encouraged excessive branch expansion to capture inflation tax, resulting in high operating costs. Operating costs are among the highest in the world at 7-8% of assets.

There are 132 private banks (Argentine and foreign) and 34 Federal, Provincial and Municipal banks. The sector needs to consolidate (after Mexican crisis some banks have merged). The sector has been protected against competition from the commercial banking sector. Money market funds, leasing contracts, commercial paper market, and private placement of debt are just starting. The strong credit demand, fast growing but still low intermediation capacity, and inadequate competition within and from outside the sector result in weak incentives to cut the historically high operating costs of banks which instead are passed on to the clients. Over June 93-March 94 the average spread in peso loans ranged between 14-18% per year and the dollar lending spread around 6-7% per year. In well functioning markets the standard spread is usually 60% of deposit rates; in Argentina the average spread is over 200% for pesos and 100% for dollars.

Until recently, there are no state guarantees nor compulsory insurance over deposits. After the Mexican crisis a compulsory deposit insurance scheme was implemented. The

³¹ Argentine Central Bank.:Boletín Estadístico. April 1995.

³² World Bank.: Argentina - Capital Market Study. September 1994.

Central Bank requires non-interest bearing reserves of 43% against peso and dollar current and savings accounts (which is considered high). Central Bank is reputed to be soft on banks. Enactment of truth in lending regulation to encourage competition would be very beneficial. Deposits remain the predominant source of funding followed by external loans and credit. Since Convertibility Program bank deposits grew from 104 billion (March 91) to 46.9 billion (June 94). The currency of deposits is half pesos and half dollars.

External Credits and Loans are still small but rapidly increasing. In aggregate Argentine banks are estimated to have raised \$2.5bn during 91-93 in medium and long term bonds. Banks are examining the possibility of securitization to increase funding (Citibank, UNB and Galicia are considering securitizing auto and mortgage loans).

Except for offshore placement of securities backed by auto loans no securitization was implemented until now. Bank lending increased from \$14bn in March 1991 to \$53bn in June 1994. About 59% of loans are in dollars, whereas only 50% of deposits are in dollars. This is due to: 1) higher share of current account deposits in pesos that bear higher level of reserve requirements (therefore squeezing pesos available for loans); 2) higher share of foreign credits and dollar denominated securities in borrowings and 3) preference for dollar lending to avoid devaluation risk. Maturity of loans remains very short. The mean maturity of peso loans is 50 days while that of dollar loans is 500 days.

3.7. MORTGAGE MARKET³³

Argentina suffers from an acute shortage of home financing. While the ownership rate is above 70%, less than 10% of homes in Argentina are encumbered by a mortgage today. World Bank would find reasonable that something like 7% of home stock value would be debt-financed. The mortgage loan portfolio of the system in December 1993 was

³³World Bank.: Argentina - Capital Market Study. September 1994.

estimated at around 6.1 billion and the potential mortgage market could be conservatively estimated at around 23 billion, suggesting a 4-fold growth.

There are 3 sources of mortgage loans in Argentina:

- 1) Commercial banks: The maturity and size of the home loan programs are restricted by terms obtainable to Argentine banks in the eurobond markets. The banks with better access to the eurobond markets have a competitive advantage and strong incentive to capitalize it by booking long term home loans. Currently banks give loans for 12 years at 16% interest (plus service fees) in dollars. They finance 50% of home value with no right to partial prepayment. Lenders seek a monthly payment/income ratio of less than 20-25%.. Mortgages are not privately traded and commercial banks keep the loans they originate in their portfolios.
- 2) Banco Hipotecario (now a second tier lending). All its new lending is done through TIAVI scheme. A potential borrower saves in TIAVI certificates issued by the Banco Hipotecario. This paper pays Libor + 2% (tax free). After 2-4 years the bondholder can get a loan of 2-4 times the savings, between 60 and 90% of home value and \$60,000. The loan is given for up to 15 years at a rate equivalent to LIBOR plus 6-8% p.a. None of the TIAVI schemes allows partial prepayment. Commercial banks originate the loans and co-finance 10-40% of the loans. The TIAVI certificates are listed on the exchanges and can be traded. Banco Hipotecario has sold \$750m of TIAVI certificates. The advantages are lower costs than commercial bank mortgages, longer terms and variable interest rates. Disadvantage is that it does not finance home right away.
- 3) FONAVI (Fondo de Ahorro y Vivienda). Subsidized housing program for low income borrowers. The program is moribund.

There are no significant problems in obtaining a good title over the real estate concerned. Argentine registries are OK with no excessive problems of dual ownership or unclear titles. Lenders estimate the time for delinquency notices, eviction and public auction at

1-2 years, but are confident of eventual foreclosure of property. Therefore, collateral related problems do not deter lending for real estate.

4. PENSION FUNDS:

4.1. BACKGROUND.

Prior to the introduction of private pension funds, the retirement system of Argentina was based on a pay-as-you go state-run system. This system dates from 1954 and became insolvent for the following reasons:

- 1) High proportion of pensioners over workers. This can be attributed to two reasons: a) The ageing of the Argentine population. B) The state, for political reasons has been overly generous at the time of granting retirement benefits rights.
- 2) Misuse of retirement funds. Chronic fiscal deficits prompted the state to deviate retirement funds to other purposes.
- 3) Non-compliance with retirement contributions by employers and workers. Unsatisfactory retirement payments gave workers and employers and incentive to evade contributions. The state was not equipped to control this.

4.2. DESCRIPTION OF NEW PENSION SYSTEM.

Law 24,241 sanctioned in October 1993 modified the existent pension system introducing a hybrid new system similar to that of Chile. Unlike that of Chile, however, the Argentine reform did not liquidate the state-run system. The new system is financed by contribution of both workers (11% of salary) and employers (16% of salary). Total contributions were increased by 1% (from 26% to 27%) and the retirement age was postponed three years -to 65 for men and 60 for women. Additionally, workers need to demonstrate 30 years of contributions to be able to retire.

As a result of this, the retirement system of Argentina actually consists of two systems: a state-run system (*sistema de reparto*) and a private-run capitalization system (*sistema de capitalización*). The former can be thought of as a defined benefit plan, the amount of the

benefit being a function of the worker's salary before retirement; the latter can be thought of as a defined contribution plan. The mechanics of how it works are explained below.

Employers contribution, equivalent to 16% of the salaries paid, goes to the state, which uses these funds to help pay the retirement benefits of workers retired under the old state-run system. Additionally, against their contributions current workers are guaranteed upon retirement a minimum pension benefit (*Prestación Básica Universal*). The minimum pension benefit for a worker that has contributed for 30 years will be two-and-a-half times the average contribution to their pension plan made by all workers. As workers contribute 11% of their salary, the minimum retirement benefit will amount to 27.5% of average salary (2.5 times 11%). This number is currently around \$150.

Workers were given the right to continue contributing 11% of their salaries to the state-run system or to start contributing to the new private system.

State-run system

A worker who decides to contribute to the state run system upon retirement will get the before-mentioned minimum pension benefit and the accrued benefits for the contributions made to the state-run system before the reform. Additionally, he or she will get a compensation equivalent to the average salary received during the ten years before retirement multiplied by 0.85% times the number of years contributed to the system after the reform. In the box below the retirement benefits of both systems are calculated. This system can be thought of as a defined-benefit plan. The majority of workers over aged over 45, chose to stay in the state-run system. Contributions to this system are merged with general state accounts.

Private pension funds

Private pension funds are a defined-contribution retirement plans run by private companies. Each manager runs a single retirement fund and the workers have no say in how their savings are invested. Pension funds charge an up-front fee that ranges between

25% and 35% of each monthly contribution. This pays the manager and a life and disability insurance policy, that covers the worker until retirement. In case of death the worker's family will receive a rent that will range, depending on the composition of the family group, between 49% and 70% of the average salary of the last five working years. In case of permanent disability the worker will receive a rent equivalent to 70% of the average salary of the last five working years.

Each worker has its own retirement savings account that grows according to contributions. There are several AFJPs competing for retirement savings on the basis of their past performance and expected future returns. Workers can change from one AFJP to another every six months. The retirement benefits will depend on the return of the fund. The system is similar to US defined contribution plans: workers bear investment risk. However, the state guarantees a minimum rent of the retirement funds equivalent to 70% of the average rent of the all funds.

Upon retiring workers can slowly consume their savings or contract a lifetime rent through a life insurance company. Workers can make voluntary contributions which are deductible for income tax calculation. This system has attracted mainly young and above average salary workers (3.4m workers or half the registered workers),. The average age of the contributors is only 35 years, while 80% are under 50 years. 75% are men and 25% are women. 56% are employed and 12% are independent workers. The amount paid by worker is between \$45 and \$50 per month.

4.2.1. Calculating Retirement Benefits

For the sake of illustration we calculate the retirement benefits of a worker contributing to either the state run system or the private run system.

Assumptions:

Current age of worker:	30 years
Sex:	male
Started working at age:	20 years
Will retire at age:	64
Current salary:	1,000
Salary growth:	2% (real)
Salary at retirement age:	1,960 (plus inflation)
<i>Prestación básica universal:</i>	\$175 (30% of avg. salary)
<i>Prestación compensatoria:</i>	\$275 (1.5 * 10 * 1,960)

Contributing to private-run system:

Contribution net of AFJP fees:	7.5% (11% - 3.5%)
Return on pension fund investments:	5% (real)
Retirement rent:	\$595
TOTAL RETIREMENT BENEFITS:	\$1,045 (175+275+595)

Contributing to state-run system:

Prestación additional por permanencia:	545 (0.85% * 35 * 1,960)
TOTAL RETIREMENT BENEFITS:	\$995

4.3. PENSION FUND MANAGEMENT COMPANIES (AFJPs).

About half the workers who make retirement contributions to some retirement system contribute to private pension funds. This amounts to 3.6m workers. To protect workers retirement savings, AFJPs are independent from, and cannot make use of, the funds they manage.

As mentioned earlier, each AFJP can manage only one fund. AFJPs are supervised by a public agency, the Superintendency, which sees that pension fund investments comply with the rules. The minimum capital required to form an AFJP was Ps3m. Besides this, each AFJP is required to contribute from its own pocket a reserve equivalent to 2% of the pension funds managed which has to be invested in the same way as pension fund itself. Pension funds get all their fees up-front at the time the contribution is made. Commissions are freely established by each AFJP and, including insurance they range between 25% and 35% of contributions (they can combine fixed payments and percentage payments). The mean commission, calculated on the basis of a \$500 salary is 33% of contribution. The AFJPs do not receive any additional payments for managing the retirement accounts. Thus, on a contribution made today, after charging the commission, AFJPs will not charge additional fees until the beneficiary retires, at which point the AFJP will be able to charge fees on programmed retirement plans. Most AFJPs currently do not charge money for this but in this is likely to change in the future.

4.3.1. Table: Commissions Charged By Four Largest AFJPs.

AFJP	On Voluntary Contributions		On Obligatory Contributions	Agreed-Upon Deposits	Programmed Retirement
	Fixed	Variable			
Consolidar	\$ -	3.40%	1.00%	1.00%	\$ 5.00
Máxima	\$ 1.90	3.35%	0.00%	0.00%	-
Nación	\$ 0.50	3.50%	0.00%	0.00%	-
Siembra	\$ 3.00	3.40%	1.00%	1.00%	\$5 for operation 1.5% annual fee

As mentioned earlier, the state guarantees each worker a return of 70% of the average return of pension funds. On the other extreme, an AFJP making more than 130% return of the average pension fund system will be required to constitute a cushion. A Pension Fund Administrator that does not meet the 70% benchmark will first eat-up the cushion made during good years (if he is lucky to have one) and then it will have to pocket-out the difference from its own resources (out of the reserve fund which AFJP shareholders have to bring back to the minimum requirement of 2% of the fund). If it fails to do so, the Superintendency will liquidate the AFJP and the state will make-up the difference. Retirement savings will be transferred to another AFJP.

There are 26 AFJPs of which the five largest concentrate 60% of the workers contributing to the private system. The biggest are: Consolidar (14%), Máxima (13%), Siembra (11%), Nación (11%). On the other end of the spectrum the 19 smallest AFJPs add up to only 5% of the market. It is expected that only the largest will survive and some AFJPs are already merging. Typically commercial banks entered the pension fund business sometimes associated with local or foreign insurance companies and pension fund managers. For instance, New York Life owns 17% of Siembra.

Being an AFJP is not as lucrative as was originally expected. The number of workers deciding to move to the private system was smaller than forecasted. As a result, of the

existing 25 companies only the ten largest are likely to survive. Some companies have not met the minimum guaranteed return and have had to foot the bill off their own account. More recently, unemployment growth further reduced AFJPs commissions. It is important to understand that the only way for a company to improve its revenue is to increase the number of affiliated workers. As AFJPs do not charge on the basis of the funds managed, as time goes by and the amount of their investment funds grow, their financial situation will deteriorate. First, a larger portfolio will increase overheads. Secondly, pension funds have to constitute a reserve equivalent to 2% of the funds managed which is a financial expense for the AFJP.

Insurance costs, the biggest expense AFJPs have to incur, ranges widely. For instance, the above-mentioned largest AFJPs are paying between 16% and 18% of contributions in insurance premiums. Frequently the insurance premiums are contracted with insurance companies that are related to the AFJP.

4.4. PENSION FUNDS' PORTFOLIOS³⁴

As of March 1995, after eight months of existence, the number of workers contributing to the private pension system amounted to 3.6m (up from 2.2m in August 1994). Pension Funds total investment portfolio amounted to \$1,377m. Total annual collection is estimated at \$2,000m or 0.71% of GDP.

³⁴ Superintendencia de Administradoras de Fondos de Jubilaciones y Pensiones: Memoria Trimestral N°3. April 1995.

4.4.1. Table: Pension Fund's Assets³⁵

Year	Total Investment
1994	570
1995	2,383
1996	4,509
1997	6,928
1998	9,670
1999	12,762
2000	16,377
2001	20,317
2002	24,729
2003	29,662
2004	35,166
2005	41,296

The World Bank, more optimistic, expects accumulated funds to exceed \$20bn by year 2,000 and reach \$50bn by 2005³⁶. The AFJPs with largest accounts are Consolidar (14%), Siembra (13%), Máxima (13%), Nación (8%), totaling 48.5%. Notwithstanding their favorable tax treatment (100% of retirement contribution can be accounted for as an expense to calculate income tax), voluntary contributions are negligible. The reason for this can be found in the age of beneficiaries and the novelty of the system.

³⁵ Elaborated on the basis of information administered by SAFJP.

³⁶ World Bank.: Argentina - Capital Market Study. September 1994.

4.4.2. Table: Age Distribution of Pension Fund Beneficiaries³⁷

Age	Male	Female	Total
<20	85,988	33,873	119,861
20-24	399,681	154,058	553,740
25-29	423,103	139,039	562,142
30-34	399,215	119,899	519,114
35-39	347,506	106,848	454,354
40-44	281,310	88,068	369,379
45-49	183,607	57,807	241,414
50-54	92,159	29,725	121,884
55-59	40,254	11,847	52,101
60-64	12,487	2,830	15,317
65-69	2,230	664	2,894
70-74	500	131	631
75-79	162	43	205
>80	339	137	476
Total	2,569,478	883,903	3,502,106

Pension funds' asset allocation is governed by Pension Fund Law and regulations dictated by the Superintendency (which are more restrictive than the law and thus binding). Within the limits set by the Superintendency, assets can be allocated freely. Except for CDs, all pension fund investments have to be publicly-traded in secondary markets. The following table summarizes the investment restrictions and asset allocation of the total system.

³⁷ Superintendencia de Administradoras de Fondos de Jubilaciones y Pensiones: Memoria Trimestral N°3. April 1995.

4.4.3. Table: Average Pension Fund Asset (February 1995)³⁸

TOTAL PENSION FUND INVESTMENT (as of February 19'95)			Maximum		Effective	
			Law	SAFJP	Pesos/Dollars	%
I - Cash						2.18%
II - Investments by type						
a	TGN	Federal State Securities	50.00%	50.00%	444,780,302	46.82%
b	TEE	Provincial and Municipal Securities	30.00%	15.00%	59,193,771	6.23%
c	ONL	Long-term Corporate Bonds (>2 years)	40.00%	28.00%	37,854,252	3.99%
d	ONE	Short-term Corporate Bonds (<2 years)	20.00%	14.00%	24,893,926	2.62%
e	ONC	Convertible Corporate Bonds	40.00%	28.00%		0.00%
f	OCP	Convertible Bonds of Privatized Companies	20.00%	14.00%		0.00%
g	CDF	Fixed-term Bank Deposits	30.00%	28.00%	259,226,797	27.29%
h	ACC	Stocks of Argentine Companies	50.00%	35.00%	4,434,960	0.47%
i	ACP	Stocks of Privatized Companies	20.00%	14.00%	6,761,028	0.71%
j	CFI	Shares of Mutual Funds	20.00%	14.00%	39,821,799	4.19%
k	TDE	Bonds issued by Foreign Governments	10.00%	10.00%		0.00%
l	TEX	Bonds and stocks of Foreign Corporations	10.00%	7.00%	16,193,481	1.70%
m	OPC	Futures and Option Contracts	10.00%	2.00%		0.00%
n	CLH	Mortgage Bonds and Mortgage-backed Securities	40.00%	28.00%		0.00%
ñ	CFD	Shares of Direct Investment Funds	10.00%	10.00%		0.00%
		National and Regional Public Works	20.00%		36,013,793	
TOTAL INVESTMENTS					929,174,109	97.82%

Asset allocation does not vary greatly from one fund to another nor from period to period. One of the reasons for this may be found in the requirement to meet the 70% return benchmark, which constitutes an incentive for pension funds to mimic each other.

³⁸Superintendencia de Administradoras de Fondos de Jubilaciones y Pensiones, Ley 24,441

Within the limits set by the regulations a pension fund manager would try to build the best possible portfolio. A pension fund manager would rank his or her investment alternatives in the following pecking order:

a) Fixed-rate deposits

Pension funds can invest up to 28% of their portfolios in fixed-rate deposits. The maximum term of such deposits is 180 days. The banks where pension funds make their deposits have to meet a minimum risk grade specified by the Superintendency. Furthermore, pension funds cannot invest in a single bank more than 5% of their total portfolio. Fixed-rate deposits can be made in pesos or in dollars. On average, 30-day deposits in pesos pay 11.60% and in dollars 7.90% (Given their size, pension funds can probably get higher rates). At the end of May 1995 87% of pension funds' deposits were denominated in pesos. This type of investment provides an acceptable yield with zero volatility. Pension funds invest in this item the maximum amount they can (above 27% of their portfolio).

b) Government debt

Pension funds can invest up to 50% of their portfolios in Federal Government securities and 15% in securities issued by provinces, municipalities and government agencies. Pension funds on average hold 56.3% in this group of assets (not counting indirect investment through mutual funds).

To keep pension funds beneficiaries calm, the Superintendency allows AFJP to hold up to 50% of the government securities until maturity, and report them at book value (i.e. to amortize them in straight line over the holding period). This regulation lends itself for the following strategy which pension funds seem to be following: pick among the government bonds the more volatile ones and keep them until maturity (for example a long term dollar bond). This allows pension funds to achieve relatively high yields while simultaneously eliminating volatility. Pension funds make full use of book-value-reporting.

This regulation, conceived for political reasons, has two major drawbacks. One, it forces pension funds to keep a group of securities until maturity, come hell or high water. This may result in the construction of inefficient portfolios. Secondly, it provides incentives for workers to move from an overvalued fund to an undervalued fund and thus make above market returns at the expense of the system. Of course, given the age of beneficiaries and the amount of capital invested such speculative maneuvers do not pose a serious threat.

b.1) Government bonds denominated in dollars.

80% of pension fund investment in government debt is denominated in dollars. As a general rule, the yield of government bonds denominated in dollars is equivalent to the yield of US government bonds of the same duration plus an interest differential. This spread mainly reflects default risk and, in certain securities, liquidity premiums. It is interesting to observe that the market assigns different default risk to otherwise equivalent government bonds implying that the market has developed some kind of consensus as to what bonds the government is likely to default first. Returns in dollar-denominated securities range from about 9.5% (*Bonex 87*) to an exceptional 23% (*Bonos de Consolidación, Bonos de Consolidación de Deuda Previsional 2a serie*). Government agency securities consist of *Cédulas hipotecarias rurales* (a bond issued by the Banco Nación to finance farm loans) which accounts for three-fourth of this category and *Tiavis* (a bond to finance home loans) which constitutes the remaining one-fourth. The *Cédulas Hipotecarias* have yields that range between 16 to 17% and a duration of between two and three years.

The security held by the pension funds that has the highest duration is the dollar-denominated Par Bond that have a duration of about nine years. The average duration of the government debt securities held by pension funds is in the neighborhood of three to four years. The term structure of interest rates has many “kinks”, with significant price differentials between different debt instruments of comparable maturities. One would expect the term structure of government dollar-debt to have a certain correlation with the

US term structure. However, the prevailing factor in determining the term structure is default risk, given that the longer the time to maturity the higher the probability of default. Combining several dollar denominated debt instruments of different maturities a term structure can be regressed. This shows a relatively steep curve starting at a little above 10% for durations of less than one year to a little above 15% for durations of 10 years. During the tequila crisis, the spread between 1 and 10 years went up to 10% (who would hold a 10 year government bond of a government on the brink of default).

b.2) Government bonds denominated in pesos

Given the rules of the Convertibility Plan³⁹, the return on peso-denominated bonds are governed by the same factors as the dollar-denominated bonds (i.e. default risk and liquidity premiums) *plus* currency exchange risk. Under the rules of the Convertibility Plan exchange risk can be defined as the risk that the Argentine government will not be able to maintain the current exchange rate. As a general rule, the return on peso-denominated securities falls in the range of 20-25%, well above that of dollar denominated securities. The Bic5 shows a return of 23% and the *Bonos de Consolidación de Deuda Previsional en Pesos 1a* a return of 28%. A term structure of peso-interest rates is almost impossible to build. However, given that currency exchange risk increases with time, such a curve can only be steeper than that of dollar-denominated instruments. The amount of peso denominated debt is 20% and the duration is about one year.

c) Corporate Debt.

Pension Funds are allowed to invest 28% and 14% of their portfolios in long and short term corporate debt respectively. They invest about 4% and 2.5% respectively. Until now, all Argentine corporate bonds have been issued in US dollars. Interest rates, depending on the solvency of the firm can range between 12% and 16%. In March 1995

³⁹ The government has dollar reserves equivalent to 100% of the monetary base and stands ready to exchange pesos for dollars at one for one exchange rate.

two thirds of the corporate debt had a duration of 2-4 years and one third a duration of less than 2 years.

d) Shares of Mutual Funds.

Pension Funds invest a little more than 4% of their assets in mutual funds. Such funds invest in dollar and pesos debt instruments.

By this time and following the proposed pecking order, the pension fund has already invested 94.4% of its assets (27.3 in Fixed Term Deposits, 56.3% in Government Securities, 6.6% in Corporate Debt and 4.2% in Mutual Funds). The remainder is distributed among Argentine stocks (1.2%), foreign bonds (1.7%), and cash reserves.

Some of the general characteristics of pension funds portfolios are summarized bellow:

1. Large proportion of debt. The equity holdings of pension funds account for only 1.2% of their total assets. The reason for this has to be found in the high volatility of the Argentine stock market. The large proportion of debt brings along a very high sensitivity to interest rates. A fall in the interest rate makes the value of the portfolio go up and vice versa.
2. Currency. Large proportion of dollar determined assets. 55% of pension fund assets are held in dollar denominated debt instruments and only 45% in peso denominated ones. This is due to two reasons: 1) More debt instruments are available in dollars than in pesos. 2) Allocating more debt in pesos increases the volatility of the portfolio and the exposure to a devaluation of the peso.
3. Duration. The duration of the debt held by pension funds is strikingly short (on average around two years). There are two reasons for this: 1) Given economic uncertainty, long term debt securities in Argentina are scarce. 2) Long term securities have relatively high volatilities which pension fund managers dislike because they scare away customers. In effect, the ability of AFJP to capture new

customers is very sensitive to the volatility in the value of the fund's share. At this stage of their development the marketing factors prevail over any other consideration.

4. Country risk. Should, as in the past, Argentina enter a macroeconomic crisis, the retirement savings of Argentine workers, invested almost exclusively on Argentine securities will be severely eroded. To put it in other words: few workers would save on their own in the kind of securities that funds are buying for them.
5. Yield. Pension Funds seem to be performing up to expectations. In effect, the annualized yield on their investments is 11.7% (not bad if you consider that inflation has been less than 4%). However, if you value the portion of the portfolios reported at book value, at market value, the return would be around 10%.
6. Volatility. The average share has fluctuated from 10.15 to 10.55 before the Mexican crisis down to 10.1 after the tequila effect and up to 10.85 this year.

5. REAL ESTATE MARKET

5.1. OVERVIEW.⁴⁰

The economic development of Argentina throughout the nineteenth century, was characterized by the conquest of fertile farming land and the rapid growth of cities. The owners of rural and urban property in Argentina enjoyed virtually unrestricted rights. It was not until the 1940s that the first zoning codes for the city of Buenos Aires were sanctioned. Historically, the Argentine laws consecrated strong property rights. However, starting from 1942 rent controls were imposed on residential rents which were only removed in 1976. This legislation, combined with high inflation, resulted in the destruction of a once vast residential rental market.

Presently, property rights are perceived as safe and no attempts have been made to restore rent controls since 1976. Almost all real estate in Argentina is owned by individuals and private firms. The role of the public sector in the development of cities is limited to the enactment and enforcement of zoning regulations. Under the swing of recent privatizations, even the development of infrastructure has been transferred to private hands.

A disproportionate amount of Argentina's real estate is concentrated in Buenos Aires, which has a population of 11m inhabitants within its greater metropolitan area. Buenos Aires houses one third of the country's population and accounts for about 40% of the GDP.

Property prices in Argentina have fluctuated along with the rest of the economy. Thus, in the late seventies, property prices matched those of Manhattan. In the eighties, due to the external debt and economic mismanagement property prices plummeted. By 1986 the

⁴⁰ Databank.: Claves del Sector Inmobiliario, Informe Especial Para Inversores. Noviembre 1991.

cost of an apartment in Buenos Aires was \$300 per square meter, making a one bedroom apartment cost the same as a car. Clearly, the property market of Argentina did not prove a good inflation hedge. Not surprisingly, under extreme inflation, the credit market dried out, making property transactions entirely dependent on equity. Throughout much of the 1980s property prices remained well below replacement costs.

Since 1991, when the Convertibility Plan brought inflation under control and restored investors' confidence, property prices measured in US dollars doubled. Currently, second-hand apartment buildings in Buenos Aires sell for around \$1,000 per square meter and new ones for about \$1,500. Mortgage credits have reappeared, although at astronomical interest rates. The effective interest rate on a ten-year mortgage loan in dollars is currently above 17%.

5.2. RESIDENTIAL MARKET.

There are three million households in Buenos Aires, of which one third live in the Federal District and two thirds live in the suburbs. It is interesting to notice that, unlike most US cities, the majority of the wealthier people choose to live in condominiums in the Federal District, rather than the suburbs.

As a result of several decades of rent controls the rental market of Buenos Aires is extremely small. The rental market is greater in the Federal District (21% of households) than in the suburbs (only 9%). Rents in the Federal District, typically cost 10% of house value, with the operating expenses (and sometimes property taxes) born by the tenant. For instance, a 70-square meter, 2 bedroom apartment in a good neighborhood commands a rent of \$600 per month and would sell for \$70,000. Rents are freely determined by landowners and renters. Minimum residential rental term of two years. The efficacy of this regulation that attempts to prevent landlords from imposing unfair pressure over tenants is doubtful.

One remarkable characteristics of the housing market of Argentina has been the persistent absence of credit. In a survey conducted in 1988 by the Secretary of Housing, a group of families were asked how they had financed the acquisition of their houses. There answers are summarized below:

5.2.1. Table: Owner Households By Way In Which House Was Acquired. ⁴¹

Way in which house was acquired	HOUSEHOLDS	
Exclusively with household savings	1,416,860	63.61%
Partially financed	658,467	29.56%
Inherited	144,469	6.49%
No information	7,454	0.33%
TOTAL	2,227,250	100.00%

The information shows that about two thirds of households acquired their homes without financing. The 6.5% accounted under “inherited” understates the fact that young couples often receive assistance from their parents to purchase new homes. This allows us to imagine the impact that an improvement in financing will have on housing demand. For instance, a fall in interest rates from the current levels of 18% to 14%, combined with an extension of loan terms from 10 to 15 years and a softening in the income level requirements (from 30 to 35%) results in an increase in the borrowing capacity of 57%.

In the past three years credits have reappeared, although they do not seem to meet household needs. In effect, credits are only available in US dollars at an effective rate of about 17% or higher. Credits in pesos are only available at variable interest rates. Economic uncertainty and volatile interest rates make both peso and dollar denominated loans unattractive to households. It is expected that interest rates in US dollars will go down relatively soon. The supply of long term loans in pesos will take more time.

⁴¹ Secretary of Housing

5.3. COMMERCIAL MARKET (OFFICE AND RETAIL).

The Federal District is the capital of Argentina, where most of the government offices as well as the headquarters of the largest corporations are located. The financial district, at the center of the Federal District, attracts workers from all across the Metropolitan Area. Commuting time to the suburbs may take an hour by car and up to two hours by public transportation. To avoid this hassle, some firms like IBM are planning to move their offices to the suburbs, although no suburban office parks have been developed yet.

The center of the office district was developed in first half of the twentieth century and grew toward nearby residential neighborhoods and the river cost in the 1960s and 1970s. During the 1980s no addition was made to the office stock. As a consequence, the quality of office space is below market standards. A survey conducted by Richard Ellis in 1992, classifies the office stock of the Federal District as follows:

Table: Buenos Aires Office Stock

5.3.1. Table: Federal District's Construction Permits

CATEGORY	Number of Buildings	Area (square meters)	Percent of Total
First Class	46	530,000	25.73%
Second Class	212	1,070,000	51.94%
Third Class	149	460,000	22.33%
TOTAL	407	2,060,000	100.00%

The survey did not include government buildings which would add another 500,000 square meters. The 46 buildings classified as first class includes what, by US standard, would classify as class A and class B office space. A significant proportion of the buildings in this category are located in Catalinas, an area adjacent to the river that was developed in the 1970s. Buildings constructed in the last few years belong to the top of this category. The price of office space in this category ranges from \$1,800 to \$2,600 per square foot.

There are no surveys of the office stock by occupancy type. However, the ownership rate is significantly larger than in the US, the reasons being: 1) the history of rent controls in Argentina, which destroyed the rental market (particularly the residential market, but also the office market); 2) the low prices of office space that prevailed in the past, which made buying attractive relative to renting.

Both these situations have changed. In effect, office rent control is very improbable, and prices have increased considerably in the last few years. As a result, currently companies tend to rent rather than own their office space.

Minimum rental terms for commercial buildings are three years and cannot exceed 10 years. In practice commercial contracts range between three and six years and sometimes they include an option to renew. Frequently, contracts allow the tenant to terminate the contract after some time. Typically contracts are signed in US dollars and establish monthly payments. Operating expenses are normally born by the tenant, including property taxes that are rather inexpensive. A deposit that ranges between 1 to 5 months, is generally made at the beginning of the contract term to compensate for defaulted payments and property damages. In the office market rents cost 12% of the value of buildings.

Commercial real estate in Argentina is commonly occupied, owned and managed by the same firm. In the last years the rise in property values and the arrival of foreign firms, has increased the demand for rental space. Rents for Class A office space are currently in the neighborhood of \$20 per square meter per month net of operating expenses. Minimum rental terms for commercial buildings are three years and cannot exceed ten years. In practice commercial contracts range between 3 and 6 years and sometimes they include an option to renew. Frequently, contracts allow the tenant to terminate the contract after some time. Contracts are often signed in US dollars and establish monthly

payments. With a capitalization rate of around 12%, property investment will result in attractive total returns only if property prices rise as interest rates go down.

The office market of Argentina is heavily concentrated in central Buenos Aires where the national government, the financial activity as well as the headquarters of the major corporations are located. The office market of Buenos Aires amounts to about 2.5m square meters (or about 1.75m square meters of usable area), with 0.5m qualifying as first class. With office prices averaging \$1,000 per square meter of usable space, the dollar value of office space can be estimated at 1.75 trillion. According to estimates, annual absorption in recent years has ranged between 25-45 thousand square meters or between \$50m and \$90m worth of space. The quality of the office space is below market standards. Several projects of class A office space, where the demand is strongest, are currently being constructed.

The following table shows the portfolio of commercial properties owned by IRSA, the only real estate investment firm that is listed in the Buenos Aires Stock Exchange. The properties were appraised at their transaction value. Of the seven office buildings, four are located in the *Microcentro*, two in *Catalinas* and one is north of the *Macrocentro* in a district known as *Once*. A brief description of some of the properties follows:

5.3.2. Table: Property portfolio owned by IRSA S.A.

ADDRESS	Main use	Leasable Area (m2)	Occupancy Rate	Rents Annual	Rents Monthly	Appraised Value	Cap. rate
Reconquista 823	Office	6,100	100%	1,380	19	10,600	13.0%
Suipacha 652	Office	11,667	72%	1,263	13	8,150	15.5%
Av. de Mayo 599	Office	1,780	100%	444	21	3,100	14.3%
Madero 940	Office	1,483	100%	432	24	2,700	16.0%
Sarmiento 517	Office	1783	82%	289	16	N/A	N/A
Av. de Mayo 701	Office	748	100%	198	22	1,598	12.4%
Rivadavia 2768	Office	2,808	40%	90	7	1,083	8.3%
Florida 291	Office/Retail	3,017	100%	875	24	5,290	16.5%
Constitución 1111	Retail	3,550	87%	868	23	4,290	20.2%
Santa Fe 1588	Retail	2,745	93%	707	23	N/A	N/A
Rivadavia 2243	Retail	1,879	100%	531	24	4,290	12.4%
Alsina 934	Retail	3,750	100%	144	3	800	18.0%

Reconquista 823

This office building is located in *Catalinas* and consists of 3 basement level for 56 cars, a ground floor and 15 levels with 6,100 square meters of rentable space. The building was bought by IRSA in November 1993 for \$9.75m (\$1,598 per square meter). It was rented to a waters company Aguas Argentinas S.A. for \$115,000 per month (\$18.9/ per square meter.). At its current appraisal value of \$10.6m it is resulting in a capitalization rate of 13.0%.

Suipacha 652/64

Located in the *Microcentro* this office building has 11,667 square meters of leasable office space distributed in 7 stories plus underground parking for 72 vehicles. The building was bought and refurbished by IRSA. It is being rented to good tenants at an average rate of \$13 per square meter. At its current appraisal value the capitalization rate of the building is 15.5%.

Avenida de Mayo 589

This is an 1920s' elegant office building located in a corner at the *Microcentro*. The building does not count with parking and, at its rental rate of 20.8 per square meter, which results in a capitalization rate of 14.3%.

By US standards the office market of Buenos Aires is relatively small. According to Richard Ellis the absorption of office space was 30,000 square meters for 1989, 45,000 square meters for 1990 and 35,000 square meters for 1991. The same survey projected an absorption varying from 50 to 100 thousand square meters throughout the 1990s. Since 1992 there have been some significant additions to the Class A office stock, like the Edificio Banco República a class A office building designed by the Argentine

architect César Pelli, who resides in the US. Nearby, an Argentine cement company, Loma Negra, and the grain trader, Bunge, are constructing office towers. In another section of the city, a local developer, Alto Palermo, is constructing an office tower connected to an Intercontinental hotel.

Rents in the near future are likely to go down in both the office and the retail market as a consequence of the ongoing economic recession and high rates of unemployment.

Retail activity

In the Federal District, retail activity traditionally took place in single stores located in commercial streets near wealthy neighborhoods. Such is the case of Florida Street, Santa Fe Avenue and Cabildo Avenue. In the suburbs, some municipalities like Munro, have become retail centers.

The first shopping center of Argentina dates from 1987, when the French retailer Carrefour opened the Shopping Soleil, next to the wealthy suburb of San Isidro. Currently, there are 9 shopping centers in Buenos Aires. Along this line, supermarkets and big retail boxes have become very popular. For instance, the US retailer Wal Mart is about to open its first supermarket in Argentina.

There's no such thing as permanent debt on commercial projects. The reason is simple. The return on property investment is around 12% while interest rates are around 18%. Even after taking into account the expected property appreciation, a loan on a commercial building results in negative financial leverage. A decline in the interest rate will drive property prices up for two reasons: 1) It will reduce the required rate of return of real estate investment 2) If interest rates fall below the cost of equity, property owners will be able to create a tax shelter by borrowing and deducting interest payments from their income tax calculations.

5.4. REAL ESTATE DEVELOPMENT

Construction techniques, based on masonry walls and concrete structures, are labor intensive. The construction industry of Argentina is characterized by the presence of small firms. Larger firms, which worked as public contractors were decimated in the 1980s when the state's investment in infrastructure was interrupted.

As a consequence of the absence of financing, speculative residential development throughout the 1980s was restricted to high-rise luxury condominiums in the Federal District. In fact, to this day, there are no merchant builders who construct middle-income houses. Instead, middle-income households frequently construct their own dwellings in stages, as savings allow. According to the Secretary of Housing, 70% of the houses constructed in Buenos Aires between 1978 and 1988 (excluding illegal settlements), were constructed by their owners (with varying degrees of participation).

Since the Convertibility Plan there has been some improvement in the construction industry. In 1993, the sector's rate of growth was 10.9% after two years of above 20% annual rates of growth. Yet this recovery proceeded from very depressed levels of economic activity at the turn of the decade: the constant price share of construction in GDP almost reached 6% in 1993, compared with over 8% at the beginning of the 1980s.

As far as residential construction is concerned, this expansion has been the result of pent-up demand and the reappearance of mortgage credit. Initially, residential construction focused on units for high-income families. More recently, medium-priced units have become a more dynamic sector. It is estimated that in order to prevent the current housing deficit of 3.3m units from growing, a total of 250,000 residential units must be built every year⁴². Yet most of them will not have a market if long-term credit for low-income families is not forthcoming. Construction activity has also been stimulated by the construction of new shopping centers, hotels and the renewal of gas station networks.

⁴² Secretary of Housing: Housing Deficit Report.

Similarly, the privatization of public utilities and services, which has frequently involved new investment commitments, has increased spending in the sector. Such has been the case with road infrastructure and telecommunications. Large urban projects, like the renewal of the Puerto Madero docklands in Buenos Aires, have also contributed, while more projects are in the pipeline (such as the Proyecto Area Retiro).

In the Federal District, the average number of construction permits given between 1991 to 1993 multiplied by 2.5 the permits given during the 1980s. However, this is still less than 1% of the housing stock, without taking into account that not every permit is actually built.

Construction costs for high rise condominiums is around \$700 per square meter for standard quality construction. Construction cost for office buildings starts at \$600 per square meter and can go as high as \$1000 depending on the finishes and mechanical systems. Construction firms are hard pressed to reduce the construction cost if they want to capture the market for middle income housing. Some construction firms claim that they can construct middle income housing for \$500 per square meters or less. Technology needs to be incorporated in order to reduce construction costs. Construction loans typically are in US dollars at rates that range between 15% and 20%, and are recourse.

Zoning regulations are sanctioned and enforced at the municipal level. For instance, the Municipality of Buenos Aires sets for each section of the city with respect to the uses allowed and density of development (maximum floor area ratios, building height, setbacks) not unlike those used in the US. City councils allow zoning variances, often raising suspicion of corruption. Neighbors do not intervene in any way in the issuance of permits or the granting of exceptions.

Land suitable for development is abundant and the development is not severely limited by zoning regulations. Some office development is undertaken on a speculative basis (i.e.

build first and see who buys or rents later) and some are started with the clients already lined up. Construction loans cover a fraction of the cost (50%) and are often recourse. Property prices are driven by market fundamentals (the need for office space) and not by excess capital supply (investors chasing deals). The tax legislation of Argentina does not provide fiscal incentives for investing in property (depreciation is calculated on a 50-year straight line). In conclusions, given the market structure the office market is not immune to over-construction. Investors should consider the impact of future demand when buying an existing building.

6. REAL ESTATE AND PENSION FUNDS' PORTFOLIO

6.1. GENERAL CONSIDERATIONS.

After having described the real estate market, we need to sort out the characteristics of the asset from the investor's perspective. In this section we are trying to determine the characteristics of real estate in the context of pension fund's investment portfolio. We are not concerned with how real estate performed in the past, but how it is likely to perform in the future.

The purpose is to develop a reasonable model to quantify the contribution of real estate equity to pension funds' portfolios. There are two complementary ways to analyze the characteristics of securities:

Statistical method. Think of it as an *inductive* method: you go from the individual facts to the general principles. It is a method broadly used in the analysis of financial markets in the US. You take a historical data series and try to infer the characteristics of the asset being analyzed from its past behavior: how the asset performed under different economic scenarios, historic correlation with other assets, etc.

Economic method. This is the *deductive* way of tackling the problem. You start from the general principles, and try to infer how the asset is likely to perform under different scenarios. For example, an asset that generates a revenue that is periodically adjusted by inflation will perform better under inflation than one that generates a fixed long term nominal income stream.

For the purpose of this thesis the distinction between the two methods is not trivial. In effect, to infer an asset's future characteristics from its past behavior is to implicitly assume that the past will repeat itself in the future. Given the history of economic instability that prevailed in Argentina over the last two decades, the limits of this

approach are apparent. For one, the chances that Argentina's future will follow past trends are few. Secondly, the real estate investment vehicles that we need to analyze have never existed in the Argentine market.

6.2. HISTORICAL PERFORMANCE.

We will briefly take a look at the performance of different assets over the last 13 years, with the help of the table presented below. This information was provided by the offices of Smith Barney in Buenos Aires. The first column show two macroeconomic variables: consumer inflation rate and exchange rate. The percent changes are semiannual and need to be compounded to arrive at an annual rates. If you do this you will find that in 1989 the total inflation rate was 3,993% (yes, prices increased by 40 times). The second column presents the price of second hand apartments in the Federal District. The properties of this series, which was compiled by a local brokerage firm, are concentrated in middle and upper income residential districts in the Federal District⁴³. It is not based on actual transactions but on prices published in newspaper ads. The prices are expressed in US dollars which is the way prices have been traditionally quoted in Argentina. The next column to the right present the return on different investments: real estate, stocks, bonds, and short term deposits. Returns have been calculated in Argentine currency adjusted by inflation. Therefore, they express the returns and volatilities on a consumption bundle.

⁴³ Inmobiliaria Giménez Zapiola: Revista Mensual.

6.2.1. Table: Return On Different Investment Types (semianual).

Period	Macroeconomic Variables		Property Values (in dollars)	Return on Investments (Pesos adjusted by inflation)			
	Inflation	X Rate		Property	Stocks	Bonex	CD (pesos)
Jun-81			589				
Dec-81	150.93%	155.23%	554	-2.47%	-33.04%	2.60%	-4.89%
Jun-82	125.41%	81.44%	276	-48.46%	-30.32%	5.64%	-27.59%
Dec-82	252.25%	258.32%	311	17.04%	-33.18%	-15.50%	-24.75%
Jun-83	312.92%	61.76%	389	29.40%	70.32%	18.12%	42.19%
Dec-83	451.17%	126.99%	378	0.75%	17.64%	0.34%	36.79%
Jun-84	578.82%	163.30%	430	18.05%	-1.35%	4.04%	-11.46%
Dec-84	786.46%	154.24%	438	5.51%	-33.85%	19.73%	35.97%
Jun-85	1150.26%	278.62%	342	-18.94%	-30.91%	2.40%	-24.25%
Dec-85	268.20%	73.19%	456	37.99%	165.38%	11.91%	35.87%
Jun-86	80.04%	-2.34%	511	16.12%	20.92%	13.05%	23.12%
Dec-86	58.86%	41.16%	450	-8.59%	-43.22%	4.23%	-14.40%
Jun-87	105.31%	53.75%	434	0.02%	7.92%	12.57%	13.91%
Dec-87	209.40%	95.38%	434	3.61%	-17.24%	-9.15%	-10.33%
Jun-88	280.41%	101.31%	431	2.94%	55.62%	17.42%	6.47%
Dec-88	556.51%	93.48%	456	9.62%	13.58%	4.56%	23.33%
Jun-89	952.58%	893.80%	424	-3.62%	31.13%	9.64%	-56.42%
Dec-89	3993.71%	538.85%	446	9.13%	42.40%	2.29%	-12.91%
Jun-90	6232.91%	388.50%	458	6.35%	-19.60%	38.53%	335.55%
Dec-90	417.77%	26.74%	516	16.67%	4.33%	16.21%	84.59%
Jun-91	213.75%	70.30%	671	34.85%	67.36%	20.67%	-21.23%
Dec-91	41.53%	-0.09%	843	30.34%	144.61%	13.20%	9.43%
Jun-92	21.88%	0.75%	943	15.83%	48.11%	6.87%	6.64%
Dec-92	13.27%	0.00%	952	4.66%	-44.94%	5.55%	10.00%
Jun-93	11.27%	0.00%	951	3.62%	2.79%	14.48%	2.89%
Dec-93	3.59%	0.00%	968	5.48%	39.55%	5.91%	3.50%
Jun-94	2.45%	0.00%	975	4.40%	4.60%	1.98%	3.60%
Dec-94	5.27%	0.00%	960	2.05%	-14.42%	3.69%	3.90%
Average return (December 82)				9.73%	19.90%	8.91%	20.08%
Standard Deviation				13%	53%	11%	71%

Property returns are the result of changes in prices plus an imputed rent of 10% per year. As in the other cases, the dividends are assumed to be reinvested in the same asset. The return on stocks is calculated on the basis of an index published by the *Bolsa de Buenos Aires* ex dividends. The column under Bonex shows the returns on a dollar-denominated government bond. The last column on the right presents the returns on short term bank deposits in Argentine pesos.

The investment with the highest average return are the peso CDs. Of course, the only one that could pay such interests was the state which in 1990 froze and refinanced the deposits. The second best performer was the stock market with an average return of 20%. Then comes real estate. that shows a return of above 9.73% over the period considered. The volatility is artificially reduced by how the data was collected and how rents were built into the returns. Last comes the government bond with a return of 9% and a standard deviation a little under 23%.

The information that this numbers convey with respect to the future is limited. To use the historical information to predict the future behavior of financial assets is to underscore the magnitude of the changes that Argentina has experienced in the last few years.

6.3. RESIDENTIAL MORTGAGE BACKED SECURITIES.

⁴⁴In this section we will outline the characteristics of residential mortgage backed securities to determine their potential contribution to the pension fund's portfolio.

In Argentina, unlike the US, residential mortgages are not insured by the government and are not required by law to be pre-payable. In practice, however, almost all the residential mortgages are originated in US dollars and are pre-payable. Moreover, the law requires that mortgages generated as *letras hipotecarias*, should be prepayable.

This allows us to derive the main variables upon which the value of residential mortgage backed securities (RMBS) will depend. Residential mortgages are typically non-recourse. Therefore, we can expect that the value of a residential mortgage-backed security will depend on three factors: 1) the currency exchange rate; 2) the interest rate and 3) the value of the underlying collateral (i.e. property prices).

⁴⁴ Bruce, Brian R.: Real Estate Portfolio Management/ edited by Brian R. Bruce. Printed in 1991.

It is important to understand how prepayment and default behavior will be affected by changes in any of the three variables. The table below summarizes prepayment and default behavior under the more likely scenarios, which we immediately discuss. Naturally, if the parameters move in the opposite direction, the changes to be expected are the opposite (between brackets).

6.3.1. Table: Prepayment And Default Behavior Under Different Scenarios.

1. Argentine peso devalues (revaluates)	Default:	Increases (diminishes)
	Prepayment:	Diminishes (increases)
2. Interest rates fall (rise)	Default:	Diminishes (increases)
	Prepayment:	Increases (diminishes)
3. Property prices go up (fall)	Default:	Diminishes (increases)
	Prepayment:	Uncertain

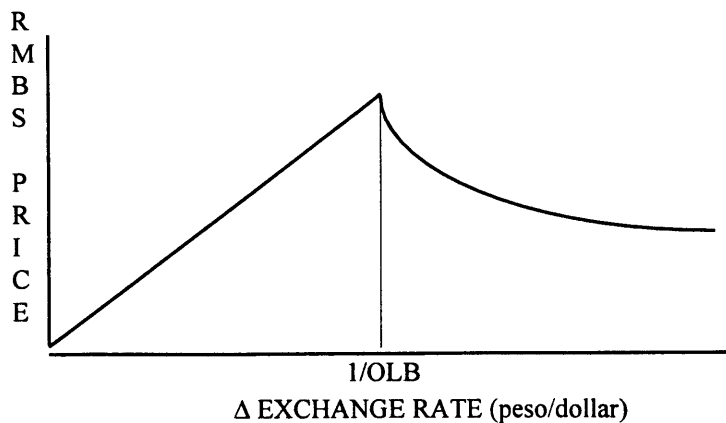
1. Argentine peso devalues: If the Argentine peso devalues, the value of properties measured in dollars will fall. If the dollar-value of properties falls below the outstanding loan balance it, borrowers will have an incentive to default on their loans. Those who do not default will be less likely to prepay because their earnings measured in dollars will have decreased.

As usually, we are concerned with the value of assets measured in local currency. To understand the graph below, imagine a gradual decline of the interest rate. As the peso goes down the value of a RMBS will experience two consecutive effects. First the value of the security measured in pesos will go up (i.e. the dollars generated by the mortgage will allow one to buy more pesos). However, as the peso devalues, the outstanding loan balance (OLB) will start to approach the value of the collateral, increasing the probabilities of default. In other words: the value in pesos of the mortgage can only go up to a certain point. From then on, borrowers start defaulting, and the value of the mortgage starts going down. Of course, the devaluation does not need to be gradual.

To keep things simple, assume that the borrower defaults as soon as the OLB exceeds the value of the property, and that there are no cost of foreclosure for the lender. The payoff would look like the graph below.

Under the simplifying assumptions, the default boundary will be the inverse of the original LTV ratio. For instance, a 50% LTV will require a 100% devaluation in order to trigger default.

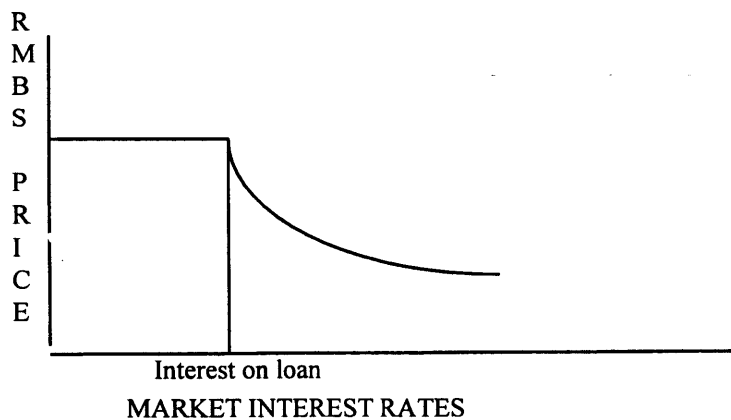
6.3.2. Graph: Value of RMBS as a Function of Exchange Rate.



In theory and in practice, the decision to default is more involved. The option to default has often been compared to a put option that the lender writes in favor of the borrower. In effect, by mortgaging the house, the borrower has acquired the right to “sell” the house to the lender at any given time for the outstanding loan balance. It is unlikely that even the most unscrupulous borrower would default the minute the OLB exceeds the value of the property (for the same reason that options are not exercised as soon as they are in the money: they are worth more alive than dead). Moreover, to determine the default boundary other factors have to be taken into account, like foreclosure costs and moral issues, which may not be observable to the lender..

2. Interest rates fall: Forget about option theory and assume perfect markets (i.e. perfect information and no transaction costs). The RMBS will behave like a callable bond. If interest rates decline, everybody will cancel the loan and borrow at the new -lower- rate. This puts a cap the upside of a RMBS. On the other hand, if interest rates go up, the RMBS will have to sell at a discount to make up for the difference between the market rate and the RMBS' rate (Of course, nobody will prepay).

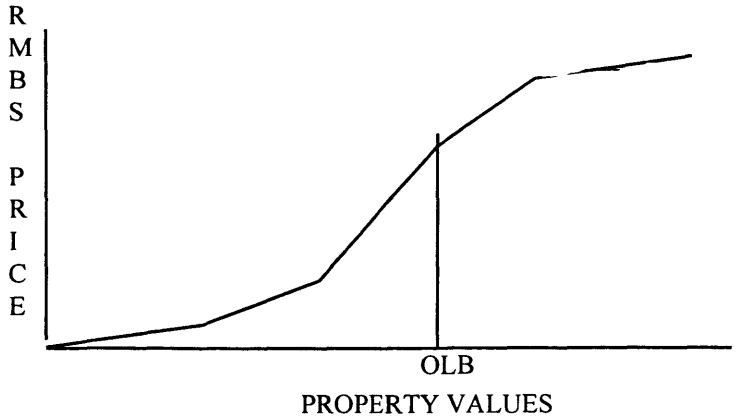
6.3.3. Graph: Value of RMBS as a Function of Interest Rates.



The reader should be aware that prepayment will be subject to several factors, for instance: 1) When interest rates go up some borrowers will still prepay (for instance, to move to another house). 2) When interest rates go down some borrowers will not refinance (for lack of information or refinancing costs). It is largely these imperfections that make RMBS unique and thus attractive to investors.

3. Property prices go up. If property prices go up, the probability of default will diminish and vice versa. The impact on the RMBS's is significant when the property value is close to the OLB (on either side) and is negligible when the property values are far from the OLB. This is represented by the curved schedule in the following graph.

6.3.4. Graph: Value of RMBS as a Function of Property Values.



However, even if property values become zero, some borrowers will continue to pay their loans. On the other end, some might default not because the property value has gone down but because there are cash constrains that do not allow to meet the loan service.

As can be seen, the value of RMBS will depend on 3 different factors. To make matters more complicated, these factors are interrelated. In the following table I present what I consider to be the sign of the correlation between the variables. Those that are positive will tend to move in tandem, and those that are negative will tend to move in opposite directions.

6.3.5. Table: Correlation Between Variables:

	1. Exchange Rate	2. Mortgage Interest Rate (in dollars)	3. Property Prices (in pesos)
1. Exchange Rate	=	Positive	Positive
2. Interest Rate	Positive	=	Negative
3. Property Prices	Positive	Negative	=

Let me succinctly explain the table above looking at the relationship between the variables. As we have done so far, we will illustrate the most likely scenario.

1 & 2. A depreciation of the peso, will probably be accompanied by higher uncertainty about the country's economy. To compensate for country risk, local and foreign investors will demand higher yields on their investment in RMBS.

1 & 3. The Argentine property market seems to be determined to some extent in dollars. The reason for this may be found in the fact that Argentines keep their savings in US dollars and make use of them when buying property. Therefore, property prices will tend to lag a depreciation of the peso resulting for a while in higher property prices in local currency.

2 & 4. The interest rates and the property prices are negatively correlated. In the residential market, which is dominated by homeowners, lower interest rates allow more people to afford to purchase houses, pushing prices up.

6.4. REAL ESTATE EQUITY

The distinction between real estate debt and real estate equity is not clear cut. The reader should be aware that, given the contractual nature of leases, real estate equity has imbedded debt components. Therefore, we can think of real estate as an asset with stock and bond-like features.

Debt Components:

Real estate leases have bond-like features. The tenant agrees to pay a predetermined amount of money for a specified period of time. From the perspective of an investor, it can be similar to a bond that pays monthly coupons. In Argentina, a commercial lease can range between three and ten years, and can be signed in pesos or in dollars. Rents cannot be indexed by inflation. However, upon lease rollover, real estate new rents and values

are determined by replacement costs which approximate inflation. In retail projects, overage rents are very common. Subject to market constraints, real estate investors have some control over the characteristics of the lease contract.

When a landlord decides between a short and a long term lease, he is rebalancing the debt and equity components of his real estate portfolio. If he is bullish on the rental market, he will try to sign a short term lease and hope to renovate at a higher price when the contract expires.. If he is bearish, he will sign a long term contract and thus weather the bad market with the building occupied. This is not unlike what a Wall Street investor does when he decides to buy stocks or bonds.

Our previous discussion of pension fund investment in bonds has a parallel in the rental market. Thus, short term leases will provide a better hedge against unanticipated inflation than long term leases. Similarly, the longer the average maturity or duration of a lease the higher its sensitivity to interest rates. This is a fact that is not commonly recognized because lease contracts are not publicly traded. If they were, a lease with an average maturity of two years would show the same price volatility as that of a bond with the same duration.

Finally, a word on retail leases. Overage rent provides one of the few ways to lock-in a long term contract that is somewhat adjusted by inflation. Think of an overage rent on a supermarket chain that sells a broad variety of consumer products. Although subject to the fortunes of the tenant retailer, a plain overage lease would generate a rent that will keep track of inflation. Such a retail lease contract could be structured in a way as to provide the security of a debt contract and at the same time a good hedge against inflation. Pension funds, whose investment goal is to provide for the retirement needs of their beneficiaries, might find attractive to invest in such a lease contract.

We can conclude by saying that notwithstanding the long term nature of real estate investment, real estate can be structured in such a way as to provide a convenient inflation hedge.

Equity Components:

You can think of the equity component of real estate as the value of the building when the lease expires. However, if the building can only be used to generate leases, its value will be determined by discounting the expected future leases. This looks like the chicken and egg question. Instead try to think of the equity component of real estate as the feature that allows the property owner to periodically adjust the rents to prevailing market values. As discussed in Chapter 4, given that it takes time to produce real estate and that, once put in place, it takes time to consume it, the real estate market tends to generate its own cycles. This cycle (particularly in the office market) is somewhat independent from the general cycle of the economy. Repeatedly studies have shown very low (and even negative) correlations between real estate and other components of the market portfolio, like stocks and bonds. This implies that investors can considerably reduce their market risk in their portfolios by investing in real estate.

6.5. PUTTING IT ALL TOGETHER.

The Argentine pension fund investor, when deciding the asset allocation of his or her portfolio, is concerned with three sources of risk that are intimately interrelated:

Market risk: This is the risk associated with the cycles of the Argentine economy. Stocks will be the most sensitive asset to market risk.

Interest rate risk: Under the fixed exchange rate, this parameter has a foreign component (the interest rate prevailing in the US) and a local component (country risk.).

Default risk: This is the risk that the Argentine government will not hold to its promises.

From the description of the Argentine economic policy in Chapter 2, it is clear that the three sources of risk will tend to be positively correlated. The inability of the government to influence interest rates, results in that the three factors are positively and strongly correlated. Therefore, an economic recession in Argentina will typically be accompanied by higher interest rates and higher default risk. On the other hand, a boom will be accompanied by lower interest rates and lower default risk. This has very important consequences for the development of an investment strategy because it implies that correlation will tend to be high.

In order to illustrate an investment strategy we will consider only four different types of assets: stock, bonds, real estate and cash. For every class we have determined an expected return under different scenarios. We have determined an investment horizon of three years and have estimated the probabilities for different states of the economy. Growth will take place if the government weathers the consequences of the Mexican crisis and will be characterized by the inflow of capital, a bullish stock market and lower interest rates that will push property prices up. We have assigned to this scenario a probability of 50% occurrence. Recession will take place if the current situation persists over the investment horizon. This scenario is characterized by scarce capital inflows, a bearish stock market and high interest rates that drive property prices down. The third scenario, which I called “Trouble” is characterized by the deepening of the current crisis leading to default on government bonds. The bond and the stock market would crash. This scenario would result in a financial crisis, that is likely to affect bank deposits (which in the other scenarios are immune from risk). Real estate is less affected. The expected return for each investment and the probability of outcome of each scenario are presented below.

6.5.1. Table : Return on Investments Under Different States of the Economy.

<i>State of the Economy</i>	<i>Probability</i>	<i>Stocks</i>	<i>Real Estate</i>	<i>Bonds</i>	<i>Cash</i>
<i>Growth</i>	50%	70%	40%	25%	13%
<i>Recession</i>	40%	-30%	-10%	10%	13%
<i>Trouble</i>	10%	-40%	-30%	-60%	-40%
<i>Expected return</i>		19.00%	13.00%	10.50%	7.70%
<i>Variance</i>		26%	6%	8%	3%
<i>Standard deviation</i>		51.08%	27.59%	24.54%	15.90%

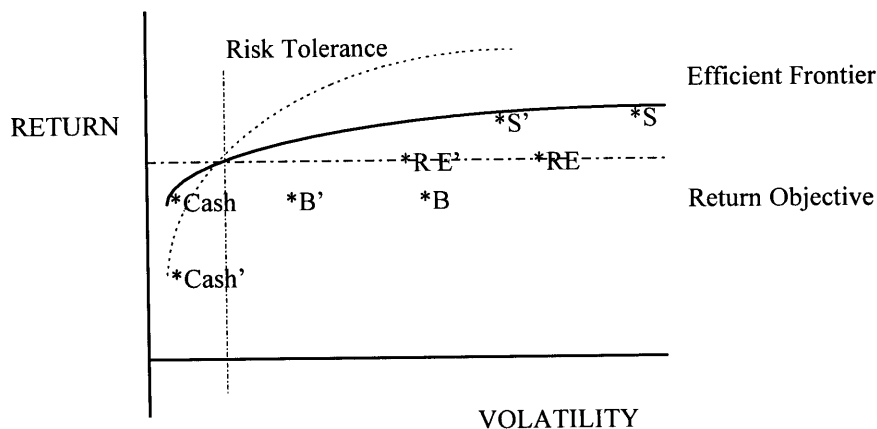
All the above assets will do well during booms and bad during recessions. Of the assets analyzed real estate is the most likely to survive a macroeconomic crisis characterized by a default on government bonds, a financial crisis and a crash of the stock market (an improbable but possible scenario, to which we have assigned a probability of 10%). In effect, while government default will typically be accompanied by a freezing of bank deposits and will certainly make the stock market collapse, real estate will be less severely affected. This is consistent with common wisdom that holds that land and buildings are a safe refuge for savings in times of trouble. However, under normal circumstances real estate equity would add volatility to pension fund portfolios which, as of today, consist mostly of debt. Given the return of each investment under each scenario, and the probability of occurrence of each scenario, we can calculate the standard deviation of each investment which is a proxy of risk. Although the methods of calculation differ, the standard deviations of stocks and bonds are not too different from the standard deviation observed in price fluctuations. Naturally, in order to combine different assets into a portfolio we need to determine the correlation coefficients. By assigning to each pair of assets a correlation coefficient, different portfolios were compared in terms of return and standard deviation. However, given the quality of the information available, the validity of this mathematical models to make investment decisions is doubtful. Instead, in the next section a graphical description of pension funds

portfolios is presented. This allows us to see the investment choices that pension funds currently face and how these choices are likely to evolve over time.

6.6. A GRAPHICAL EXPLANATION.

This section illustrates the ideas developed in section 2.6 of this thesis. The graph below orders the four assets analyzed according to their risk and return. The full line represents the current situation and the dotted line the future evolution. Higher volatility tends to be associated with higher returns. The asset with the lowest volatility is cash (assumed to be riskless) followed in order of increasing volatility by stocks, bonds, and real estate (represented by the letters S, B, and RE). Current economic instability implies that the assets will be far to the right. As a result of the high correlation between different assets, the efficient frontier (which represents the best possible combination of assets for each level of risk) lies close to the individual assets (the lower the diversification benefits, the flatter the curve). Pension funds' risk tolerance (represented by a vertical dotted line) allows them to achieve a maximum return by holding a large proportion of cash and a small proportion of risky assets.

6.6.1. Graph: Evolution of Pension Funds' Portfolios.



As the economy evolves and stabilizes, risky assets move to the left (the new position is indicated by the letters S', B' and RE' followed by an apostrophe). The correlation between assets diminishes, and diversification benefits increase, steepening the efficient frontier's slope. Interest rates go down represented by a downward shift of the asset "cash". It is assumed in this illustration that pension funds' risk tolerance and associated returns remain unchanged, although this need not be the case. The point to notice here is that the composition of the portfolio will have changed. In order to leverage returns cash and bonds are partially combined with stocks. The portfolio becomes now exposed to market risk which needs to be diversified away by investing in real estate that in a stable economy, tends to follow a cycle that is somehow independent from the general business cycle.

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