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Loan and Bond Finance in Argentina, 1985-2005

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Abstract: Loan and bond finance during 1985-2005 can be divided into three sub-periods. After the 1982 debt crisis, which mainly involved domestic and foreign bank loans to both the corporate and government sectors, there was practically no credit. This situation of lack of credit persisted until the domestic economy was stabilized in 1991 with the Convertibility Plan, and foreign debt renegotiation was completed in 1993 with the Brady Plan. Loan finance recovered to unprecedented levels since the 1950s, and bond finance became for the first time an important financing vehicle for both the national government and large firms in the corporate sector. Credit came to a sudden stop in 2001, with widespread default on both corporate and government bonds. The 2001 debt crisis was not followed by runaway domestic inflation, and by 2005 Argentina was able to return to foreign capital markets.

JEL classification codes: G1, H6
Key words: bank loans, sovereign bonds, provincial bonds, central bank bonds, corporate bonds, pension funds, yields, liquidity

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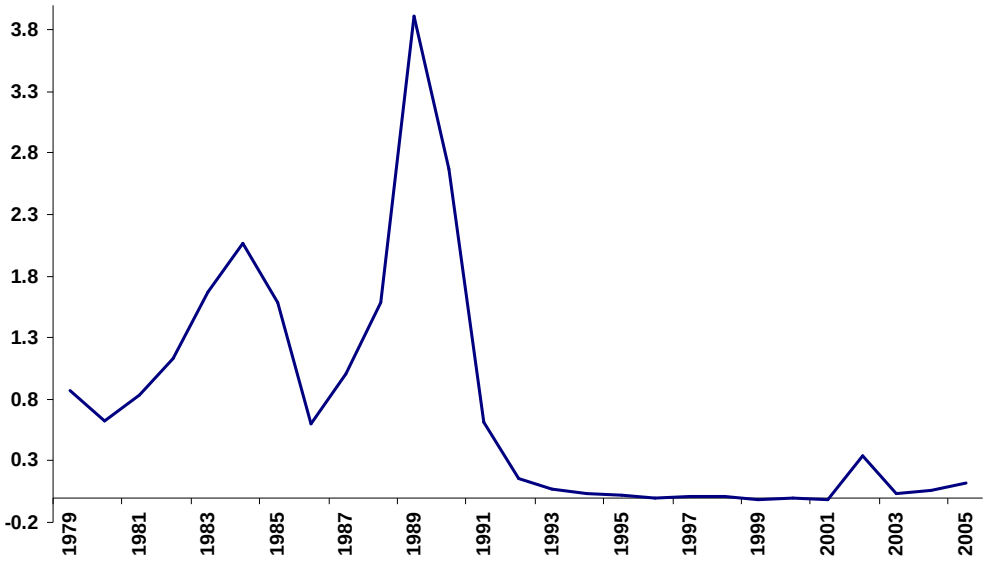
I. Introduction

This document describes the evolution of loan and bond finance over the 1985-2005 period. The period can be roughly divided into three sub-periods that differ widely with respect to monetary regime, fiscal policy and access to credit.

As to inflation, at first it was very high, exploding into hyperinflation. Over the 1991-2001 period, Argentina stabilized the economy through the Convertibility Plan, which pegged the peso to the US dollar at a one to one rate. Since 2002, the country has reverted to a floating exchange rate, but inflation has remained at moderate levels (Figure 1).

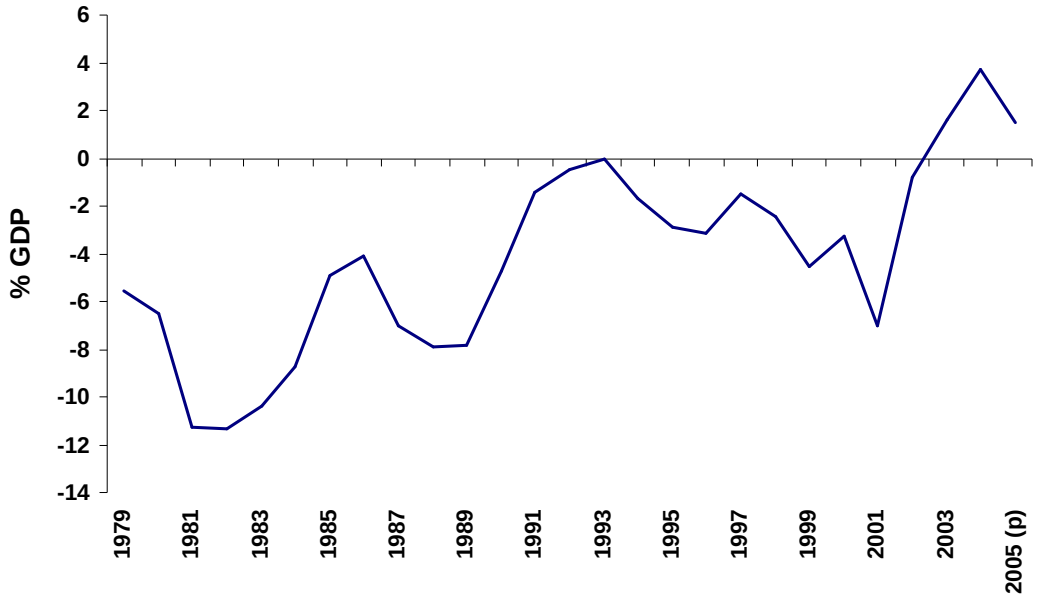
Figure 1. Annual inflation rates (log difference of end-year CPI)



Source: based on Instituto Nacional de Estadísticas y Censos (INDEC), Argentina.

This monetary evolution is paralleled by the fiscal evolution (Figure 2). The public sector initially had a large budget deficit, and resorted to inflationary finance because it was cut off from credit. Afterwards, the public sector was able to reduce the budget deficit and recover access to credit. Finally, after the national and provincial governments lost access to credit and defaulted in 2001, fiscal accounts went into an unprecedented surplus.

Figure 2. Consolidated budget deficit of national and provincial governments (as a percentage of GDP)



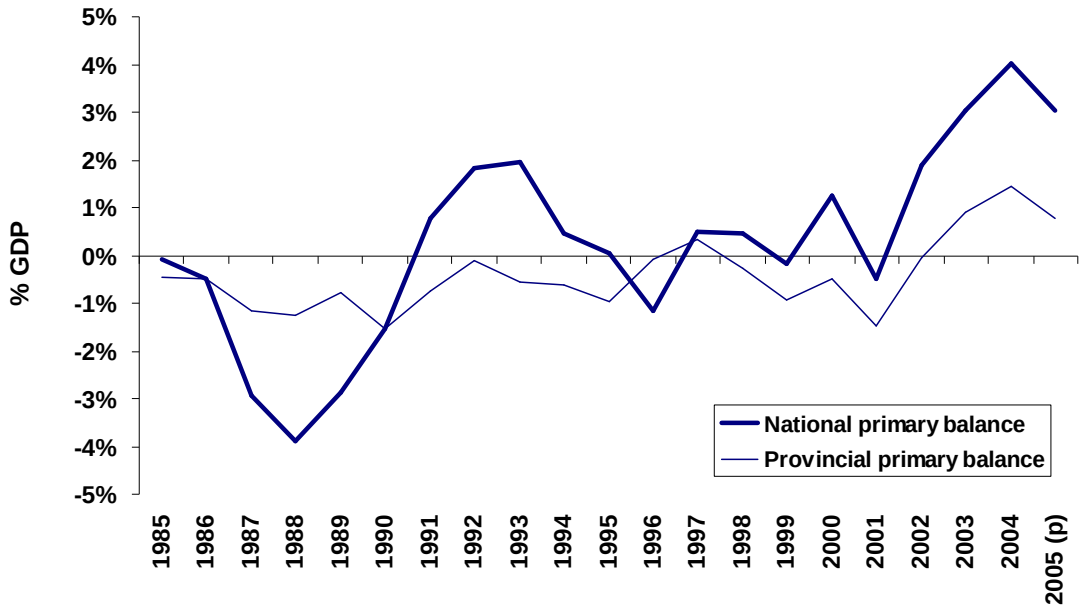
Source: based on budget accounts, accrual basis, from Ministerio de Economía (2004) and web site.

The post-Convertibility period is peculiar in that, unlike previous episodes of fiscal crises and very high devaluations, the economy did not return to a regime of high inflation. Initially, this was helped by the quantitative restrictions on bank withdrawals (*corralito*, *corralón*). The public sector also managed to keep the fiscal accounts in order, thanks to the relief provided by default, the important tax increases instituted in 2001 and 2002 through taxes on checks and on agricultural exports, and the fact that pensions, which have a very large share in national expenditure, were not adjusted with inflation.

The change in fiscal situation is patent when one looks at the deficit of the public sector at the national and provincial levels. Though some provinces had displayed sound fiscal management, the aggregate of provinces had fiscal deficits from 1985 to 2002. Moreover, financing requirements kept on mounting in many provinces until the situation collapsed at the end of 2001, leading to partial or total default in almost all provinces. However, from 2002 on the fiscal position of the provinces improved. Provincial accounts recovered due to a surge in receipts, following the increasing trend of national income and inflation, which went hand in hand with a retarded adjustment of expenditure. However, since taxes on checks and agricultural exports were not shared with provinces, Figure 3

shows that the increase in the primary surplus of the national government was especially strong, giving it leverage to control and put provincial finances in order.

Figure 3. Primary balance of national and provincial governments (as a percentage of GDP)



Source: based on budget accounts, accrual basis, from Ministerio de Economía (2004) and web site.

In relation to the evolution of credit, when the government nationalized the foreign debt of private firms in 1981/82, the debt crisis translated into a huge fiscal crisis. During the 1980s no lasting solution was found to the 1982 debt crisis and Argentina remained cut off from foreign capital markets. Domestic capital markets were highly regulated and the banking system was financially repressed, with negative real rates of interest. Banks were mostly used to keep savings in dollars in the bank's safety vaults, while there was only a limited use of current accounts and time deposits with short maturities.

In the 1990s, pro-market reforms fostered the development of domestic financial and capital markets. Corporate bonds (*obligaciones negociables* or ON), which had legally existed since 1988, started to become important as a financing vehicle after the government instituted tax changes in 1991. There was an opening of the country to international capital flows after the restructuring of the government's foreign bank debt was completed in 1993, leading to a large issue of the so-called Brady bonds.

Credit came to an abrupt stop in March 2001. A salient problem was the difficulty of the national and provincial governments to service their debt, after several years of sluggish growth, with rising interest payments and falling tax revenues since 1998. The corporate sector was also highly indebted, so the value of both government and corporate bonds plunged sharply after March 2001, and was followed by widespread default. By mid-2005, the national government was able to renegotiate its debt. Most of the provincial governments and corporate debtors had also stepped out of default by the end of 2005.

In what follows, we briefly review the behavior of domestic bank loans, before analyzing the evolution of the stock of bonds issued by the national government, the provincial governments, the central bank and the corporate sector. We then look at pension funds, the most important institutional investors. Finally, we describe the evolution of secondary bond markets.

II. Domestic bank loans

The domestic financial sector has been particularly affected by the macroeconomic evolution of Argentina. In the 1980s, the process of increasing inflation that ended in the 1989/90 hyperinflations practically reduced to nothing the monetization of the economy, and the size of the financial sector. The price stability brought about with the Convertibility Plan launched in 1991 eventually lead to monetization levels not reached since the 1950s, and the financial sector experienced a great boom.

These domestic developments went hand in hand with the opening up of international capital markets that had been closed since the 1982 debt crisis. However, new foreign credit during the 1990s predominantly took the form of bond finance, not of bank finance as in the past.

The recession that started in 1998 became a deep plunge of economic activity after March 2001, making the financial system face more and more non-performing debt from the private sector, at the same time that the public sector was cut off from international credit and resorted increasingly to the financial resources most at hand. With the widespread default of the public and private sectors in 2002, the financial system went completely broke. However, the government actions to defuse the effects of the financial

crisis, together with the strong economic upturn since 2002, have slowly lead the financial sector to recover.

A. Loans to the private sector

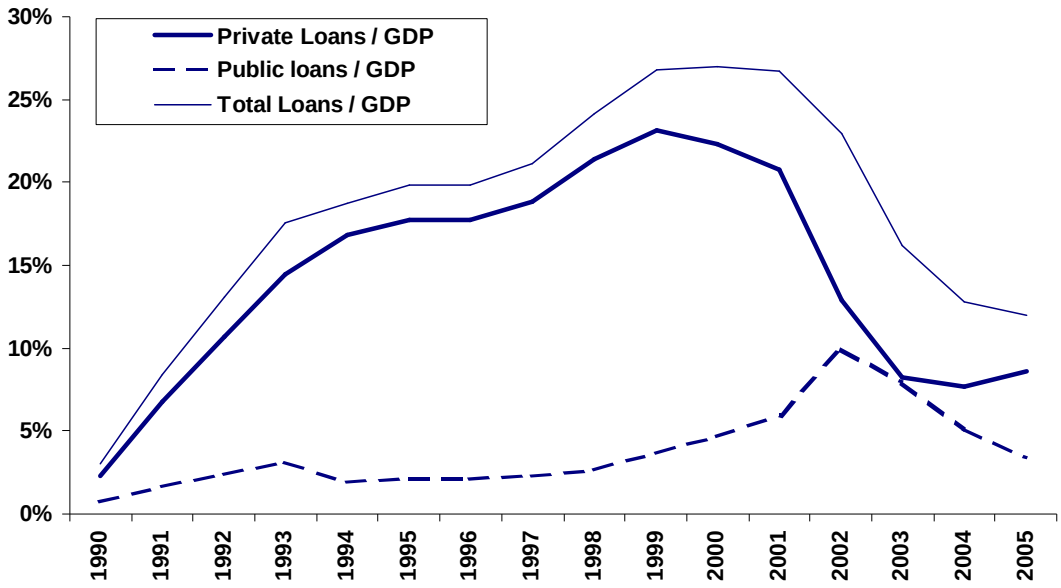
Most of the 1980s was characterized by a system of directed credit, where the central bank forced the financial system to hold high reserve requirements that it channeled though rediscounts to national and provincial public banks. Public banks gave loans to specified productive activities, or mortgages at subsidized rates. This system collapsed with the 1989 hyperinflation.

Gradually, some of the most important public banks were closed because of gross mismanagement, for example the Banco Nacional de Desarrollo, the national development bank that had been used to subsidize investment projects with disastrous financial results. Others reduced their scale and were privatized, for example the Banco Hipotecario and most provincial banks. However, the two largest public banks, namely Banco de la Nación Argentina and Banco de la Provincia de Buenos Aires, remained untouched and keep operating until today (both concentrated 21 % of the credit to the private sector in 2005).

The stability brought about by Convertibility with the pegging of the exchange rate, together with financial liberalization, allowed the financial sector to develop quickly and the coefficients of monetization to recover from the record low of 1990. Except for a brief interruption during 1995, with the Mexican crisis, deposits and loans grew constantly during this period. The average stock of bank loans reached a peak of 27% of GDP between 1998 and 1999. At that moment, loans to the private sector represented 86 % of total loans.

As Figure 4 shows, between 1999 and 2004, loans to the private sector fall continuously as a percentage of GDP, practically shrinking to one third of their former size. Unlike smaller firms, larger firms at first had the option of financing themselves at lower rates through the placement of corporate bonds, and the use of credit lines from foreign banks. The fall of bank loans to the private sector accelerated with the system-wide crisis started in 2001 and the devaluation of the peso.

Figure 4. Bank loans (as a percentage of GDP)



Source: based on average of end-of-month stocks from January to December, Banco Central de la República Argentina.

The precipitous fall has several explanations. First, the net cancellation of debt that was encouraged by banks when they started to experience liquidity problems that eventually lead to a generalized bank run. Second, the strong growth of non-performing debt, which started to be written off in recent years. Furthermore, some of the debtors voluntarily cancelled their loans, taking advantage of the possibilities provided by the government in 2001 to firms with delinquent loans of canceling debt at the face value of public bonds, a very attractive option since this implied a large discount. The cost was imposed on banks, which were obliged to receive insolvent government debt that later went into default instead of (potentially insolvent) private sector debt. In 2002, this option was extended to all debtors with the use of reprogrammed deposits (Cedros, that could also be bought at a discount). In this case, the subsidy was provided by the depositors that decided to get rid of their Cedros at a large discount. Loans to firms dropped more strongly than loans to families. In early 2002, loans to the private sector were pesified at an exchange rate of 1 to 1. On the other hand, loans to the public sector, as well as government bonds held by banks, were pesified at an exchange rate of 1.4 pesos for dollar, as were dollar deposits. That implies that domestically indebted private firms experienced the greatest deal of debt relief with pesification.

After the reduction of the debt burden with pesification (75 % of domestic loans were denominated in foreign currency), in the post-Convertibility years the private sector did not rely much on bank loans. Loans only started to recover later. Between 2004 and 2005, the average loans to the private sector grew at 32 % annual rates, in nominal terms, though the starting point was very low. The reestablishment of the supply of loans reflected the gradual improvement in the liquidity, solvency and profitability of the financial system. Despite these improvements, the financial system had structural problems, like the scarceness of long-term financing (80% of deposits were at most 30-day deposits), the absence of an indexing mechanism that cold limit uncertainty, and the increased risk after the generalized breach of contracts in 2002.

B. Loans to the public sector

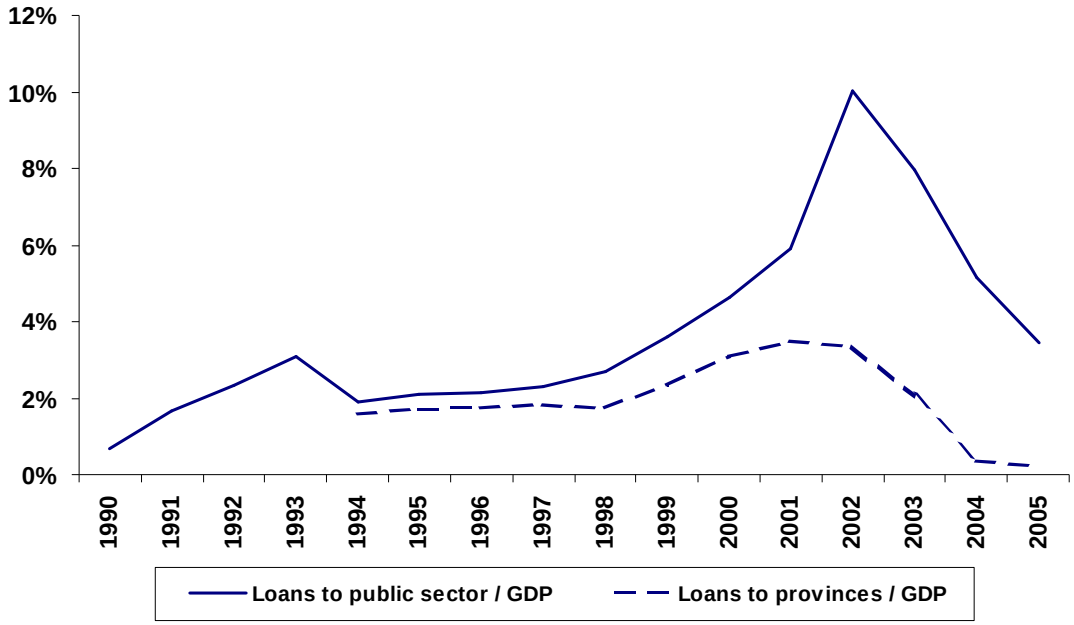
At the same time that loans to the private sector started to fall in the late 1990s, with the deterioration of public accounts the public sector started to demand more funds, to which were added the problems of placing government bonds in 2001 (though the public sector might have been crowding out the private sector, in light of economic slowdown many banks wanted to reduce their exposition to private firms anyways).

Especially important in the late 1990s was the growth of loans to the provincial government sector, which in certain moments explains more than 70% of the credit to the public sector. These loans were favored by a fiscal pact reached by Minister of Economy Cavallo with the provinces in 1992 to approve the tax reforms in Congress. In exchange for this agreement, the provinces were assured a revenue floor of 725 million pesos a month (this floor was raised to 740 million in 1994, jumping to 1,350 million pesos in 2000, and 1,364 million pesos in 2001, levels which amid the recession and fall in tax revenues became impossible for the national government to comply with). On the other hand, the national government never tapped the financial system much during the 1990s, and bank loans never exceeded 2 or 3% of national debt.

Loans to the provinces amounted on average to 2% of GDP (5 billion pesos) in 1994, as shown in Figure 5. One can also infer that in the early 1990s most outstanding

loans to the public sector corresponded to provinces. Bank loans to provincial governments as a share of GDP remained constant between 1994 and 1998, but from then until 2001 they doubled. In 2001, 90% of bank loans to provinces were denominated in foreign currency.

Figure 5. Loans to provinces and total public sector (as a percentage of GDP)



Note: based on average of end-of-month stocks from January to December, Banco Central de la República Argentina.

After November 2001, loans to the public sector grow due to the distortions introduced by the government, with the asymmetric pesification and the compulsory transformation of bank assets. In 2002, bank debt was first pesified at a rate of 1.4 pesos for dollar, as mentioned above. As to the compulsory transformation of assets, the government bonds held by banks were transformed into Guaranteed Loans (Préstamos Garantizados). Inversely, old loans to the public sector, basically made up of loans to provinces, were exchanged for a new bond, the Bogar. Both are described in more detail in the sections on national and provincial government debt. Though the bank statistics are obscured by all these transformations, it is important to emphasize that there have been no new bank loans to the public sector since 2002.

III. National government bonds

The Ministerio de Economía, the ministry of economics of the national government, has an official series with a detailed breakdown of the stock of bonds issued by the national government since 1994. However, there are more aggregate figures since 1992. Table 1 shows the evolution of the stock of bonds as a percentage of GDP.

Table 1. Stock of national government bonds (as a percentage of GDP)

	Domestic bonds (debt issued using domestic law)								Foreign bonds (debt issued under foreign law)						Total national govt. bonds
	Foreign currency		Domestic currency					Total domestic bonds	Foreign Currency		Domestic currency			Total foreign bonds	
			Nominal		Indexed						Nominal	Indexed			
	Short term	Long term	Short term	Long term	Prices		Overnight Interest rate		Short Term	Long Term		Prices	Overnight Interest rate		
					Short term	Long term									
1992	n.a.	n.a.	n.a.	n.a.	0	0	0	7.3	0	0.3	0	0	0	0.3	7.7
1993	n.a.	n.a.	n.a.	n.a.	0	0	0	8.8	0	11.7	0	0	0	11.7	20.5
1994	0	5.2	0	2.7	0	0	0	7.9	0	11.7	0	0	0	11.7	19.6
1995	0	6.5	0	2.3	0	0	0	8.8	0	13.7	0	0	0	13.7	22.5
1996	0	5.9	0.3	2.6	0	0	0	8.8	0	16.3	0.1	0	0	16.4	25.2
1997	0.6	5.8	0.4	2.4	0	0	0	9.2	0	15.6	0.4	0	0	16.0	25.2
1998	1.1	5.3	0	2.3	0	0	0	8.7	0	18.2	0.3	0	0	18.5	27.2
1999	1.5	6.7	0	1.9	0	0	0	10.1	0	21.3	0.3	0	0	21.6	31.7
2000	1.8	8.6	0	1.2	0	0	0	11.6	0	22.6	0.3	0	0	22.9	34.5
2001	2.5	3.2	0	0.3	0	0	0	6.0	0	16.7	0.3	0	0	17.0	23.0
2002	0	13.8	0	0.8	0	13.3	0	27.8	0	52.0	0	0	0	52.0	79.8
2003	0	10.2	0	0.6	0	16.4	0	27.2	0	49.9	0	0	0	49.9	77.1
2004	0	9.2	0	0.8	0	14.0	0	23.9	0	39.0	0	0	0	39.0	62.9
2005	0	9.6	0.9	0.2	0	25.9	0	36.6	0	10.1	0	0	0	10.1	46.7

Note: based on Ministerio de Economía, Argentina. Stocks refer to year-end figures. Short term is maturity up to one year, long term more than one year; n.a. is not available. Data for period 1985-1992 is not available.

The statistics of debt compiled by the Secretaría de Financiamiento of the Ministerio de Economía are based on a cash criterion: debt is registered when the bond is given to the creditor, not when the liability is generated. This difference is important in understanding the evolution of debt in Argentina, since each round of macroeconomic turmoil in the last two decades has lead to a pileup of unpaid liabilities that only show up in official statistics several years later, when the government normalizes the financial situation (López Isnardi and Dal Din 1998). The flow measures of the budget deficit, which are measured both on a cash and an accrual basis, do not register and reflect these skeletons in the closet either.

Besides the information on outstanding bonds, most of which went into default at the end of 2001, we present in Table 2 a detail of bonds in arrears, holdouts, and guaranteed loans (which were originally issued as bonds) to get a comprehensive picture of the whole scene.

Table 2. Adjusted stock of national government bonds (as a percentage of GDP)

	Total national govt. bonds	Arrears on bond principal (domestic and foreign law)	Holdouts (domestic and foreign law)	Guaranteed Loans (domestic law) 1/			Total bond-related debt
				Foreign currency	Domestic currency		
					Nominal	Indexed	
2000	34.5	0	0	0	0	0	34.5
2001	23.0	0.0	0.0	15.7	0	0	38.7
2002	79.8	8.4	0.0	0.0	0.3	24.5	113.0
2003	77.1	12.6	0.0	0.0	0.2	10.7	100.7
2004	62.9	18.1	0.0	0.0	0.2	9.6	90.8
2005	46.7	0.0	9.9	0.0	0.1	8.1	65.1

Notes: 1/ Guaranteed loans were in US dollars until the end of 2001; thereafter they were pesified.

Tables 3 and 4 present the information of Tables 1 and 2 in millions of dollars.

Table 3. Stock of national government bonds (in millions of dollars)

	Domestic bonds (debt issued using domestic law)								Foreign bonds (debt issued under foreign law)						Total national govt. bonds
	Foreign currency		Domestic currency					Total domestic bonds	Foreign Currency		Domestic currency			Total foreign bonds	
			Nominal		Indexed						Nominal	Indexed			
	Short term	Long term	Short term	Long term	Prices		Overnight Interest rate		Short Term	Long Term		Prices	Overnight Interest rate		
					Short term	Long term									
1992	n.a.	n.a.	n.a.	n.a.	0	0	0	16,434	0	750	0	0	0	750	17,184
1993	n.a.	n.a.	n.a.	n.a.	0	0	0	20,705	0	27,696	0	0	0	27,696	48,401
1994	0	13,485	0	6,878	0	0	0	20,363	0	30,213	0	0	0	30,213	50,576
1995	0	16,893	0	5,882	0	0	0	22,775	0	35,396	0	0	0	35,396	58,171
1996	0	16,062	859	7,059	0	0	0	23,980	0	44,294	250	0	0	44,544	68,524
1997	1,762	16,939	1,275	6,975	0	0	0	26,950	0	45,661	1,250	0	0	46,911	73,861
1998	3,295	15,850	0	6,800	0	0	0	25,945	0	54,372	1,000	0	0	55,372	81,317
1999	4,174	18,938	0	5,407	0	0	0	28,519	0	60,360	983	0	0	61,343	89,862
2000	5,108	24,474	0	3,482	0	0	0	33,065	0	64,165	928	0	0	65,092	98,157
2001	6,746	8,551	0	810	0	0	0	16,108	0	44,967	694	0	0	45,661	61,769
2002	0	12,642	0	729	0	12,194	0	25,566	0	47,768	0	0	0	47,768	73,334
2003	0	13,105	0	808	0	21,172	0	35,086	0	64,240	6	0	0	64,246	99,332
2004	0	13,762	0	1,149	0	21,004	0	35,914	0	58,649	6	0	0	58,655	94,569
2005	0	16,841	1,555	353	0	45,277	0	64,025	0	17,695	0	0	0	17,695	81,720

Note: our construction, based on Ministerio de Economía, Argentina. Stocks refer to year-end figures. Short term is maturity up to one year, long term more than one year; n.a. is not available. Data for period 1985-1992 is not available.

Table 4. Adjusted stock of national government bonds (in millions of dollars)

	Total national govt. bonds	Arrears on bond principal (domestic and foreign law)	Holdouts (domestic and foreign law)	Guaranteed Loans (domestic law) 1/			Total bond-related debt
				Foreign currency	Domestic currency		
					Nominal	Indexed	
2000	98,157	0	0	0	0	0	98,157
2001	61,769	0	0	42,258	0	0	104,027
2002	73,334	7,715	0	0	252	22,545	103,845
2003	99,332	16,292	0	0	288	13,813	129,724
2004	94,569	27,179	0	0	279	14,367	136,393
2005	81,720	0	17,966	0	192	14,075	113,953

Notes: 1/ Guaranteed loans were in US dollars until the end of 2001; thereafter they were pesified.

A. Domestic bonds

Bonds had a low participation in national government debt during the 1980s, hovering between 5 and 8% of the total, with a declining tendency, and amounted to only 3 billion US dollars in 1988 (Melconian and Santángelo 1996). Domestic bonds did not go into default during this period. In contrast, there were no bond placements abroad, since international capital markets were closed to the country.

Though domestic debt was not an important source of finance during this period, sizeable liabilities not recognized at that time were generated. These liabilities, plus unconsolidated debt, were explicitly registered during the next decade and cancelled with government bonds.

First, as a consequence of the crisis of the financial system in early 1990, the Bonex Plan was launched. The crisis originated in the so-called quasi-fiscal deficit that had piled up at the Central Bank. The banks had to immobilize deposits (*depósitos indisponibles*) to sterilize monetary expansion generated by local and national government as well as state owned enterprises. These funds received a market interest rate and represented 50% of all deposits. There was no fiscal stabilization, so inflation started to rise, and so did interest rates.

At the end of 1989, the government decreed an exchange of these immobilized deposits for ten-year government bonds in dollars, the Bonex 89 (Bonos Externos 1989). In turn, the banks gave depositors these bonds in place of their time deposits (sight deposits were not affected), and it was mandatory for depositors to accept them. The Bonex 89 were also used in exchange of other government debt instruments. There was an issue of 4.5

billion dollars, about 8 % of GDP at the time. The Bonex 89 was a very familiar domestic debt bond, because despite its compulsory origin, when it started to be quoted in stock exchanges it quickly recovered par value and debt services were paid in full.

Though only a small proportion of the population was affected, because monetization was extremely low and deposits of the private sector were a mere 4 % of GDP in 1990, the compulsive exchange shook the weak trust in the financial system and may have affected the speed of remonetization once the economy stabilized. Though the deposits of the private sector recovered to 25% of GDP in the best period of Convertibility, this was still low by Argentina's standards of the 1940s and early 1950s. The fear of new measures with bank deposits materialized during the 2001 crisis. By 2005, the ratio of private deposits to GDP grew to around 15 %.

In a parallel fashion to the Bonex 89, the government issued bonds to consolidate previous liabilities: the Bocones (Bonos de Consolidación) Previsionales, after the courts ruled against the government in lawsuit after lawsuit because pensions had been paid below what the law mandated; and the Bocones Proveedores, because of unpaid debt with state suppliers. By Law 23.982 of 1991, the government was able to consolidate the obligations that were due before April of that year, when the Convertibility Plan was launched. As the 1990s progressed, up to the present day, several new bond series of Bocones have been issued (including such things as reparation to the families of missing people in the 1970s). Their common characteristic is that they capitalize interests for a certain period of time, before they start to gradually repay principal. The Bocones were issued both in dollars and in pesos.

Most of the domestic bonds issued during the first years of Convertibility was this compulsory or consolidated debt. As mentioned above, in Table 1 this debt is registered according to the cash methodology followed by the official statistics of the Ministerio de Economía, that is, they are registered the moment that the bond is issued and given to the creditor. In the study by López Isnardi and Dal Din (1998), they show that a great deal of the growth of debt in the 1990s was in fact explained by the recognition of debt generated in previous periods.

In the mid-1990s, there were also important domestic bond issues, both in pesos and in dollars. The Letes (Letras del Tesoro) were issued as short-term instruments, the Bontes

(Bonos del Tesoro) had longer maturities. The domestic debt in government bonds also grew marginally due to the recognition of new liabilities, reaching a total of 33 billion US dollars, 12% of GDP, at the end of 2000.

B. The Brady Plan and foreign bonds

In the late 1970s, most international Argentine government debt was in the form of loans from foreign banks. These loans became non-performing after the Malvinas/Falklands war, kicking off the debt crisis of the 1980s.

During the following years, there was a slow and lengthy process to try to restructure this debt with commercial banks. The financial programs that were negotiated implied major financial support from international financial organizations, which strongly increased their exposure to Argentina during this period, while commercial banks reduced their participation. However, in 1988 Argentina went into complete default with commercial banks. The IMF cut its support that same year, the World Bank in early 1989.

After the stabilization brought about by the Convertibility Plan in 1991, the country advanced in the normalization of its international debt, completing the process with the implementation of the Brady Plan in 1993. Under the Brady Plan, government liabilities with foreign banks that were in default were refinanced through guaranteed bonds. In all, 25.5 billion US dollars were issued in three types of bonds. The agreement included an extension of maturities, a reduction of interest rates, and a reduction of the principal in the case of the Discount Bonds. The first two bonds, the Par and Discount Bonds, had a thirty-year maturity. The principal payments, as well as one year of interest payments, were secured with zero coupon bonds from the US Treasury. The funds to secure these payments were basically provided by international financial organizations. Interest rate arrears were cancelled with a third bond, the FRB. This floating rate bond was issued with a lower maturity and with partial redemptions. In the following years, it became a reference point to gauge the risk of Argentine bonds because of its high market liquidity.

The settlement with commercial banks reached through the Brady Plan changed the profile of Argentine debt, marking an inflexion point. From that point on, most of the debt switched from bank loans, concentrated in the hands of a few creditors, to government

bonds, held by many dispersed investors. Between 1992 and 1993, government debt in bonds went up from 7.7% to more than 20 % of GDP. On the other hand, this inaugurated a strong comeback to international capital markets by the government, which opened the way to the private sector.

After the agreement, the government centered its source of financing in capital markets. The good internal and external conditions that encouraged capital flows contributed to this, as well as the need to finance the fiscal deficits. Though the fiscal deficit was at a record low in comparison to the decades of 1960, 70 and 80, it was still positive. This was in part because of reform of pension system, by which country partially switched in 1994 from a pay-as-you go pension system to a capitalization system. These changes lead to an increase of the registered fiscal deficit after 1994. That is, the reduction of future government liabilities from the pay-as-you go pension system were not registered either in the budget deficit measured on a cash basis, nor for that matter in the budget deficit measured on an accrual basis. However, since the pay-as-you go pension system has an "implicit bond" that pays its debt services with taxes, just like regular government debt, the reduction of this "implicit bond" had the same characteristics as an increase in the fiscal surplus.

The debt instruments issued in international markets became more sophisticated with time. Eurobonds were issued in different currencies, markets and legislations. Several series of Global Bonds were also issued. In the late 1990s, some debt was redeemed before maturity, and there were some voluntary exchanges of debt with the aim of improving the profile of debt services. A voluntary exchange is usually done with the net present value (NPV) of the old bond being equal to the new bond. Thus, in terms of NPV debt does not change, but in nominal terms it increases significantly because most exchanges try to increase duration; in addition, the yield curve is usually upward sloping. By the end of 2000, bond debt under foreign legislation reached 65 billion US dollars, 23% of GDP.

C. The 2001 debt crisis

At the end of 2000, Argentina started to encounter serious financial problems. Though there had been a failed hint of recovery during the second semester of 1999, the economy had

failed to recover from the recession started in 1998. In December 2000, a rescue package (*blindaje*) of sovereign debt was signed, basically an agreement with international financial organizations that provided cheaper funds to refinance debt amortizations, precluding a possible debt default.

This financial "armoring" was not enough, so in mid-2001 the so-called Mega-exchange (Megacanje) was implemented. This exchange was still carried out under market conditions: 46 types of sovereign bonds, with a face value of around 30 billion US dollars, were exchanged for 6 different types of bonds, mostly in foreign currency. The Mega-exchange sought to reduce the financial needs of the government over the next five years, capitalizing interests and extending the maturity of debt.

From the point of view of the fiscal intertemporal budget constraint, the fiscal crisis perhaps had more to do with the failed handling of a sudden stop, than with the problem of debt overhang. Though in terms of present value the debt did not rise, since short term debt was being exchanged for long-term debt, and the interest rates Argentina faced shot up to very high levels, nominal debt increased significantly without any actual financing of public sector expenditure, raising the debt to GDP ratio. Even if the present value of debt did not rise, at the interest rates of Mega-exchange, the present value of government tax collection shrunk precipitously. Hence, what at lower rates might have been a sustainable debt level, became at these new rates impossible for the government to continue servicing.

Given that this exchange was not successful, by November a new exchange was launched to provide debt relief. In the November 2001 exchange, sovereign bonds were converted into Préstamos Garantizados, guaranteed loans. The objective was to reduce the liquidity of sovereign bonds, since these instruments could not be negotiated in capital markets. Each bond exchanged at par value for a guaranteed loan extended its maturity three years, and the bondholders could choose between a fixed and a variable rate, lower than the original rates. The currency was a function of the original bond. This new exchange determined a reduction in the present value of debt. Eligible bonds had a residual face value of 64.4 billion US dollars, of which 41.7 billion were converted, over 40 % of sovereign bonds. This conversion of sovereign bonds into guaranteed loans explains the strong drop in the stock of bonds between the end of 2000 and 2001. This amount is presented in a separate column in Table 2. A great deal of the investors that accepted to

receive guaranteed loan were the great domestic bondholders, basically banks and pension funds, who believed that by entering into this exchange they could help mitigate the critical situation the economy and the government faced at the end of that year.

By that point in time, Argentina had no access to international capital markets. By then the IMF had also stopped to fund Argentina, due to the non-compliance of the conditions of the agreement. The crisis finally exploded in the financial system, when capital flight accelerated, and the government imposed restrictions to withdraw funds from banks, the so-called *corralito*, at the beginning of December 2001. Default was inevitable. On December 24, 2001, the Argentine Government declared default on the great majority of public debt, basically that part comprising sovereign bonds. On the other hand, debt obligations with international financial organizations continued to be serviced.

In February 2002, after leaving Convertibility and devaluing the peso, the government decreed the pesification of debt. By that decree, all bonds issued under domestic legislation and all guaranteed loans were converted to pesos at a parity of 1.4 pesos per dollar. Pesified debt was indexed by the Coeficiente de Estabilización de Referencia (CER), an index that reflected CPI inflation, plus a 2% spread. The holders of guaranteed loans were recognized a higher real interest rate, which varied between 3 and 5% according to the maturity of the original bond.

It is worthy of notice that, even though domestic bonds that had been pesified were still in default, the holders of guaranteed loans that explicitly accepted the pesification received interest payments in a timely manner. The government gave the holders of guaranteed loans the explicit option of accepting the pesification under the conditions imposed, or returning to the original bond holdings. As a consequence, debt for approximately 13 billion US dollars reverted back to the original bonds in foreign currency, implying an increase in the stock of registered foreign bond debt between the end of 2002 and 2003.

This was not the only reason why the stock of sovereign bonds that appears in Table 1 started to climb, despite the debt reduction that pesification had implied. Though the government was in default, domestic sovereign bonds started to be issued to compensate the financial system and the depositors for the income transfers that had arisen from the pesification of deposits and loans, more than 15 billion US dollars were issued for these

reasons as shown in Table 5. The new bonds issued were the Boden (Bonos del Gobierno Nacional) in pesos and in dollars. The Boden were also issued to compensate the 13 % reduction in government salaries and pensions carried out in 2001, and to retire provincial monies from circulation. All bonds issued in pesos after 2002 were indexed to the CER index.

Table 5. Issue of Boden since 2002 (in millions of dollars)

	Nominal value issued	Value as of 31/Dec/05
Compensation to financial system 1/	8,809	7,578
- in pesos	1,181	857
- in dollars	7,629	6,721
Compensation to depositors	6,479	5,625
- in pesos	115	75
- in dollars	6,364	5,550
Rescue of provincial quasi-monies		
- in pesos	2,114	1,949
Compensation to public employees and pensioners 2/		
- in pesos	874	651
Total 2002-2004	18,276	15,802
- in pesos	4,283	3,531
- in dollars	13,992	12,271
Later issues 3/	5,324	5,391
- in pesos	2,446	2,808
- in dollars	2,878	2,583
Total issue	23,600	21,193
- in pesos	6,730	6,339
- in dollars	16,870	14,854

Notes: 1/ Compensation for asymmetric pesification and indexation (including coverage for pesification of foreign currency loans tied to international credit lines); 2/ Restitution of 13% nominal cut in pensions and salaries of public employees; 3/ Direct placements, as well as some market issue and exchanges for Letes.

There were also new series of Bocones that continued to be issued after default to consolidate debts with pensioners and state suppliers. This post-default debt (Boden, new Bocones and Préstamos Garantizados) has been timely serviced.

Due to the diverse agreements with the provincial governments to alleviate the financial difficulties faced by the provinces, the national government took over a great deal of their debt, both bank loans and provincial bonds. This debt was consolidated through a 16-year bond called Bogar, indexed to the CER index. Though the Ministerio de Economía classifies this as indirect debt under the heading of guaranteed debt (*deuda garantizada*),

we include this bond as a national government bond in Table 1. Its value at present adds up to 10 billion US dollars, around 6% of GDP, and has very great liquidity.

Besides this, foreign legislation bonds, almost all in default, tripled their value in terms of GDP as a consequence of the devaluation of the peso and the consequent increase of the real exchange rate. The principal arrears on bond debt are presented separately, since there is no disaggregate information on the composition of this debt according to domestic or foreign legislation, or to currency.

D. Debt renegotiation

The recent exchange and restructuring of Argentine sovereign debt is one of the most well reviewed events, so we will be brief. The final exchange offer was launched in January 2005 and lasted until March. The sovereign bonds eligible for exchange represented 81.8 billion US dollars, including interest arrears until December 2001. Three types of bonds were issued: Par, Discount and Quasi-par, the last one specially designed for domestic pension funds. All these bonds additionally included coupons indexed to GDP growth, a new negotiable debt instrument, and were issued in four currencies (pesos, dollars, euros and yens) under four different legislations. The Discount Bond had a 66% reduction of nominal value, the Quasi-par Bond a reduction of 30%, and the Par Bond was issued at the same face value, but with lower interest coupons. The reduction in net present value of the exchanged debt was around 70%.

The exchange had an acceptance rate of 76%. The settlement was made in June 2005. New bonds were issued for a total amount of 35.2 billion US dollars, 15 billion in Par Bonds, almost 12 billion in Discount Bonds, and 8.3 billion in Quasi-par bonds. 46% of that debt is nominated in pesos, and is under jurisdiction of domestic law.

The holdouts, which include eligible debt not presented to the exchange, represented 18 billion US dollars in December 2005. We are not considering it in the total stock of bonds in Table 1, putting it instead in a separate column in Table 2. This debt is mostly comprised of Eurobonds and Global Bonds in the hands of foreign bondholders that decided not to participate in the debt exchange. If these bondholders are treated according

to the pari passu clause, they should at least receive the same offer as holders of Discount Bonds, i.e., they should be paid around 6.1 billion US dollars (34% of original debt).

IV. Provincial government bonds

Historically, many provinces resorted to their official provincial banks for loans. These provincial banks had counted with support from the central bank (BCRA) through rediscounts. However, this changed when the Banco Provincia de Buenos Aires almost closed in January 1990, when the BCRA excluded it from the Clearing House (Cámara Compensadora). The Banco Provincia was able to reach an out-of-court agreement with its creditors to restructure its debt. While this large public bank restructured, during the 1990s many of the smaller provincial banks were privatized.

Table 6. Stock of provincial government debt (as a percentage of GDP)

	Bonds		Total Bonds	FFDP	National government	International org.	Banks	Other debt	Total debt
	Domestic Bonds	Foreign Bonds							
1995	n.a.	n.a.	0.4	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1996	n.a.	n.a.	0.9	0	0.8	0.7	2.3	0.4	5.1
1997	n.a.	n.a.	1.3	0	0.1	0.8	1.5	0.3	4.0
1998	n.a.	n.a.	1.3	0	0.1	1.0	1.8	0.2	4.4
1999	n.a.	n.a.	1.7	0	0.1	1.3	2.3	0.4	5.8
2000	n.a.	n.a.	2.4	0.5	0.1	0.9	2.7	0.8	7.4
2001	n.a.	n.a.	4.4	1.1	0.1	1.2	3.5	0.9	11.2
2002	n.a.	n.a.	6.3	11.2	0.1	3.4	0.5	0.4	21.9
2003	n.a.	n.a.	3.8	10.2	1.5	2.5	0.4	0.4	18.8
2004	n.a.	n.a.	3.3	9.2	1.5	2.2	0.3	0.4	16.8
2005 (p)	n.a.	n.a.	2.6	8.1	1.3	1.7	0.2	0.3	14.2

Note: based on Ministerio de Economía, Argentina, and IEERAL for 1995. n.a. is not available. Data for period 1985-1994 is not available.

Table 7. Stock of provincial government debt (in millions of dollars)

	Bonds		Total Bonds	FFDP	National government	International org.	Banks	Other debt	Total debt
	Domestic Bonds	Foreign Bonds							
1995	n.a.	n.a.	1,124	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1996	n.a.	n.a.	2,532	0	2,122	1,920	6,276	1,072	13,921
1997	n.a.	n.a.	3,909	0	389	2,296	4,469	739	11,802
1998	n.a.	n.a.	3,826	0	233	3,071	5,315	719	13,164
1999	n.a.	n.a.	4,911	0	236	3,737	6,459	1,223	16,565
2000	n.a.	n.a.	6,859	1,363	151	2,647	7,563	2,409	20,992
2001	n.a.	n.a.	11,894	2,882	144	3,202	9,460	2,485	30,067
2002	n.a.	n.a.	5,766	10,301	137	3,092	463	398	20,156
2003	n.a.	n.a.	4,842	13,157	1,989	3,262	464	455	24,169
2004	n.a.	n.a.	4,986	13,865	2,245	3,257	378	527	25,258
2005 (p)	n.a.	n.a.	4,708	14,890	2,349	3,183	381	552	26,064

Note: based on Ministerio de Economía, Argentina, and IEERAL for 1995. n.a. is not available. Data for period 1985-1994 is not available.

There are no official consolidated registers of total provincial debt before 1996. That year, a national decree made it mandatory for provincial governments to report their internal and external debt. Tables 6 and 7 show the evolution of provincial debt as a percentage of GDP and in millions of dollars.[1] We not only include the evolution of bonds, but also of other debt to get a better picture of the whole situation, because part of this other debt was restructured and transformed into bonds after 2001.

According to the information of the Ministerio de Economía, at the end of 1996 the total stock of provincial debt amounted to 13.9 billion pesos (5.1% of GDP), of which 2.5 billion (0.9% of GDP) were bonds. In the early 1990s, provinces relied mostly on the financial sector loans. While loans represented 45% of total debt in 1996, bonds only represented 18%.

In June 2005, total provincial debt represented 14.2% of GDP, after having reached a peak of 21.9% of GDP in 2002. The reduction of debt as a percentage of GDP since 2002 is due in part to the fall of the real exchange rate, which reduced the weight of external debt, including bonds under foreign legislation that could not be pesified. Another important factor was the change in the fiscal situation.

A. Bonds under domestic legislation

A program to convert provincial government debt was instrumented in November 2001, due to the financial restrictions most provincial administrations were suffering. The only source of financing for provinces was the national government through a special fund, the FFDP (Fondo Fiduciario para el Desarrollo Provincial), because the financial system and capital markets had been closed to them since the year before. The goal of the conversion was to diminish the financial cost and extend the maturities of debt services. The conversion comprehended mainly domestic bonds and bank debt. The process was interrupted in December due to the national economic and political crisis that exploded then; most provinces also went into default. In November 2001 values, eligible debt

[1] We are not able to make a breakdown of the evolution of provincial government bonds according to law of issue, since that would require a detailed database of provincial bonds. However, at the end of 2001 there were about 4.3 billion US dollars in bonds issued under foreign law, so that would imply around 7.6 billion US dollars in bonds issued under domestic law.

amounted to 15.8 billion dollars, of which 92% was nominated in dollars and 50 % were bank loans.

The national decrees that pesified the debt of the public sector at the national, provincial and municipal levels at the beginning of 2002, after the declaration of public emergency, affected provincial government debt in dollars, which was pesified at a rate of 1.40 pesos per dollar, and indexed to inflation through the CER index.

To handle the accumulated stock of provincial debt, in August 2002 a new process of debt conversion was launched through which eligible provincial debt, i.e., provincial bonds under national legislation and bank loans, could be voluntarily exchanged for a new national government bond. The conversion was also open to bonds under foreign legislation that were in the hands of domestic investors willing to accept the exchange. The new bond, denominated Bogar (Bono Garantizado), was a 16-year bond in pesos indexed to CER plus a 2% annual interest rate. The Bogar carried a guarantee from tax coparticipation, the share of national tax collection that corresponds to provinces. Up to 15% of national tax coparticipation received by each province could be used to service the Bogar.

The national government launched this program of financial assistance through the FFDP subject to conditionality, the so-called Programa de Financiamiento Ordenado. Since 2002, this has been the only source of finance of provinces. As a consequence of the conversion of provincial debt, in nominal terms 19.6 billion pesos in Bogar were issued. The recipients were basically the financial system, pension funds and some private investors. As Table 8 shows, the Province of Buenos Aires concentrated almost 40 % of the restructured debt.

Table 8. Amount issued of Bogar (in nominal value)

Provinces	Millions of pesos	% of total
Buenos Aires	7,397	38
Cordoba	2,337	12
Chaco	1,101	6
Formosa	995	5
Entre Rios	916	5
Other provinces	6,816	35
Total	19,562	100

Note: based on Ministerio de Economía, Argentina.

In June 2005, 75% of total provincial debt (10.7% of GDP) was constituted by debt with the FFDP and bonds. The FFDP became responsible of servicing the debt of the original holders of provincial debt. Bonds issues under foreign legislation did not enter the debt conversion process, except for the cases noted above. Initially it was decided by an agreement between the national government and the provinces in early 2002 that the renegotiation of these debts would follow the same guidelines as national government debt, but soon after the provincial administrations started to handle the renegotiation process autonomously.

B. Bonds under foreign legislation

The city of Buenos Aires and seven Argentine provinces had issued bonds under foreign legislation before the 2001 crisis.[2] These bonds added up to 4.3 billion US dollars. Some local bondholders accepted to exchange them for Bogar, as part of the conversion of provincial debt under domestic legislation.

Initially the nation reached agreements with the provinces to renegotiate this provincial debt abroad under the same terms as the national debt. However, due to the delay in the renegotiation of national debt until 2005, each province followed its own renegotiation strategy. Some provinces reached settlements that were more like the settlements of the private sector, i.e., friendlier than the solution reached by the national government. Moreover, some provinces never defaulted on these bonds.

The provinces that fully complied with their debt services were Tierra del Fuego (Bono Albatros for 55 million US dollars, already cancelled) and Salta (Bono Hidrocarburífero for 234 million US dollars, with an annual interest rate of 11,5 %), who issued these bonds under New York law, guaranteed by oil royalties, and always serviced debt punctually.

The province of Santiago del Estero was the first to restructure its debt in June 2002. It had issued Bonos Ley 6379 for 108 million US dollars at a fixed interest rate of 15,875% per year. The interest rate was maintained, and there was no reduction in

[2] This sub-section draws on accounts published in provincial newspapers, as well as information from provincial governments, Economía & Regiones and Sosa and Farah (2005a, 2005b).

principal, but the maturity was extended to June 2016, with equal amortization payments every six months starting June 2005. The bond carries a guarantee of coparticipated taxes.

The city of Buenos Aires was the second to restructure its debt, in March 2003. It had issued Bonos Tango for 600 million US dollars, reaching an agreement to extend the maturity 3 years and to reduce the interest coupons (there was a 30% reduction in interest, starting with a 4% annual rate in 2003, and annual rates between 6,65 y 8,05% in the following years).

The province of Mendoza, which had issued the Bonos Aconcagua for 250 million US dollars, faced a complicated renegotiation process that was threatened on two occasions by lawsuits from external bondholders. An offer to extend the original maturity from 2007 to 2018, and to reduce the interest coupons by half was made in October 2004, with an acceptance above 70% that was achieved in successive stages. There are still around 70 million dollars of the original Bono Aconcagua pending, so there are plans to reopen the exchange process in 2006 to avoid new judicial proceedings.

The province with the largest stock of bonds issued under foreign legislation was Buenos Aires. This province suspended all debt services in January 2002. In the restructuring offer, 2.7 billion US dollars were presented from sixteen bonds, issued in dollars, yens, Swiss francs and euros, under the legislation of Germany, Switzerland and the United States. Most of bondholders were small. The restructuring process took longer than that of the national government, finishing in early 2006 with an acceptance rate of 94%. Three types of bonds were issued, Bono Descuento, Bono Descuento a Corto Plazo, and Bono Par a Largo Plazo, for 2.3 billion US dollars, extending the original maturity and reducing the interest rates. The offer implied a haircut of 55 % on a net present value of 4.3 billion US dollars (total debt, including interest arrears).

There are two provinces for which we only have partial information about the renegotiation process: the province of Tucuman, which issued a Eurobond (series 4) for 200 million US dollars, on which it did not default initially; and the province of San Juan, which issued one of its two series of Bono Los Caracoles under foreign legislation. The bond was for 50 million US dollars and went into default, but presently San Juan is studying alternatives to restructure this debt.

C. Bonds that circulated as provincial monies

Already in the 1980s some provincial governments had started to issue bonds that in practice were used to pay transactions within each province. These provincial monies competed with the pesos in circulation, and when issued beyond a certain point they started to be quoted at a discount in relation to the peso (these bonds were not legal tender outside their own province).

Though these issues were important within each province, in 2000 they represented a total of 600 million pesos, less than 4% of total circulation of pesos. From 2000 on, the circulation started to grow since the national government issued Lecop, and the province of Buenos Aires Patacones, to finance their deficit.[3] Both totaled 5.9 billion pesos by 2002. The overall stock of quasi-monies (*cuasimonedas*, provincial monies plus Lecop) had then reached 7.8 billion pesos, 4.5 billion of which in provincial monies. This represented 42% of total monetary circulation in pesos.

In 2003, the national government created a program of monetary unification by which it issued bonds (Boden 12 and 13) to turn over to the central bank, in exchange for pesos with which to rescue the provincial monies. This provincial debt entered the FFDP, and carried a guarantee of tax coparticipation, the part of national taxes distributed to provinces. By the end of 2003 there were no more quasi-monies in circulation. The rescue did not have inflationary effects, since these provincial monies had already been integrated de facto into monetary circulation, besides the fact that it was a period of increasing money demand.

V. Central bank bonds

Tables 9 and 10 show the evolution of the stocks of bonds issued by the central bank, as a percentage of GDP and in millions of dollars. Previous to Convertibility, the Banco Central de la República Argentina (BCRA), the central bank of Argentina, conducted most

[3] The national government issued Lecop to cancel debt with the provinces. The problem was that tax coparticipation, the tax-sharing scheme with the provinces, had been replaced by fixed payments. When tax receipts plummeted in 2001, there was a shortfall of receipts in relation to the fixed compromises assumed by the national government with the provinces.

monetary policy operations through changes in reserve requirements. During the 1992-2001 period, the BCRA was forbidden from issuing interest-paying bonds, but this has changed since 2002.

During Convertibility, the liquidity of the financial system was regulated through international reserves, as well as through very limited open market operations, which are discussed below. During the 1995 Tequila crisis, some modification of reserve requirements were used, and some rediscounts were granted to commercial banks. Also, as additional instruments to regulate liquidity, the BCRA has been active with repos since 1995.

During the 1990s, the central bank started emphasizing minimum capital requirements based on Basle guidelines for capital requirements according to the riskiness of a financial institution's portfolio. Reserve requirements were replaced in 1995 by liquidity requirements that could be invested in certain specified low risk assets. However, reserve requirements were reinstated in 2001.

Table 9. Stock of central bank bonds (as a percentage of GDP)

	Domestic bonds (debt issued using domestic law)										Foreign bonds (debt issued under foreign law)	Total central bank bonds
	Foreign Currency 1/		Domestic currency							Total domestic bonds		
			Nominal		Indexed							
	Short Term	Long Term	Short term	Long Term	Prices		Interest rate 2/		Overnight interest rate			
					Short term	Long term	Short term	Long term				
1991	0	0	0	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	0	0	0	0	0	0
1996	0	0	0	0	0	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	0	0	0	0	0	0
1998	0	0	0	0	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0	0	0	0	0
2002	0.21	0	0.98	0	0	0	0	0	0	1.18	0	1.18
2003	0.06	0	0.97	1.20	0.14	0.37	0	0	0	2.74	0	2.74
2004	0.04	0	0.93	0.80	0.42	1.15	0	0	0	3.33	0	3.33
2005	0.02	0	2.30	0.41	0.39	1.25	0	0.57	0	4.94	0	4.94

Notes: Stocks refer to year-end figures. Short term is maturity up to one year, long term more than one year, calculated using database on individual bonds from BCRA; n.a. is not available. 1/ Corresponds to domestic currency bonds indexed to the exchange rate. 2/ The interest rate is a variable rate, namely, the Badlar rate. The Badlar rate is a wholesale rate, an average of the interest rates for time deposits above one million pesos offered by commercial banks, based on BCRA survey. Data for period 1985-1990 is not available.

Table 10. Stock of central bank bonds (in millions of dollars)

	Domestic bonds (debt issued using domestic law)										Foreign bonds (debt issued under foreign law)	Total central bank bonds
	Foreign Currency 1/		Domestic currency							Total domestic bonds		
			Nominal		Indexed							
	Short Term	Long Term	Short term	Long Term	Prices		Interest rate 2/		Overnight interest rate			
					Short term	Long term	Short term	Long term				
1991	0	0	0	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	0	0	0	0	0	0
1996	0	0	0	0	0	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	0	0	0	0	0	0
1998	0	0	0	0	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0	0	0	0	0
2002	191	0	897	0	0	0	0	0	0	1,087	0	1,087
2003	83	0	1,244	1,550	177	473	0	0	0	3,527	0	3,527
2004	54	0	1,394	1,202	625	1.734	0	0	0	5,009	0	5,009
2005	29	0	4,214	748	711	2,296	0	1,052	0	9,050	0	9,050

Notes: Stocks refer to year-end figures. Short term is maturity up to one year, long term more than one year, calculated using database on individual bonds from BCRA; n.a. is not available. 1/ Corresponds to domestic currency bonds indexed to the exchange rate. 2/ The interest rate is a variable rate, namely, the Badlar rate. The Badlar rate is a wholesale rate, an average of the interest rates for time deposits above one million pesos offered by commercial banks, based on a BCRA survey. Data for period 1985-1990 is not available.

A. Monetary policy before and during Convertibility

During most of the 1980s, the BCRA basically acted as the printing press for the national government, providing the main funding at a time when the country was in default and cut off from international credit (some provinces also issued provincial monies to get a share of the proceeds from the inflation tax). During this period, deposits had extremely high reserve requirements. This meant that in practice credit was directed by the BCRA, not the financial sector. Most of the credit was used to fund the national government. There were also rediscounts to provincial government banks, to failed private banks intervened by the BCRA, and to other policy priorities as defined by the national government.

As the decade progressed, the process of inflationary finance accelerated, before finally collapsing amidst the hyperinflations of 1989 and 1990. In their aftermath came institutional reforms to give the central bank independence, and to prohibit the issue of money to finance government expenditure.

The 1990s were dominated by the Convertibility Law, approved in March 1991 (Law 23.928), which set strict guidelines for the monetary policy to be followed by the BCRA. Monetary policy during Convertibility was endogenous. The law pegged the peso to the US dollar at the rate of 1 peso = 1 dollar. International reserves had to back 100% of monetary base, constituted by monetary circulation plus sight deposits of commercial banks at the BCRA (Braessas and Naughton 1996, chap. 4).

In 1992 the charter (*carta orgánica*) of the BCRA was reformed in accordance with the Convertibility Law. The charter allowed the central bank to hold negotiable Argentine government bonds as part of international reserves, valued at their market price, but with two limits. First, a flow restriction by which government bonds holding could not grow more than 10% per year (article 20). Second, a level restriction in relation to what constituted "convertible reserves", by which government bonds had to be nominated in US dollars and they could not back more than 33% of monetary base (article 33). Hence, the creation of money was tied to the increase of international reserves. Though international reserves had to back 100% of the BCRA's monetary base, the backing of financial liabilities (*pasivos financieros*) in pesos, constituted by monetary circulation, sight deposits of commercial banks and of the government at the BCRA, and the net position of reverse repos (*pases pasivos*) with the financial system was also monitored (Braessas and Naughton 1996, chap. 4)

The BCRA was forbidden from extending credit either to the government sector or to the private non-financial sector. During the 1992-2001 period, the BCRA was also forbidden by its charter from issuing any kind of interest-paying bonds or debt.

B. Open market operations with government bonds

Table 11 shows that since 1995 the liquidity of the financial system has been regulated through open market operations with the financial system, except for a brief interruption during 2002 and 2003. These open market operations are undertaken using repos and swaps (*pases activos*) and reverse repos and swaps (*pases pasivos*). These operations have a guarantee in government bonds, which during Convertibility was mainly constituted by US T-bills or T-notes.

Table 11. Reverse repos and swaps

	Millions of pesos	% of GDP
1995	3,305	1.28
1996	5,119	1.88
1997	6,386	2.18
1998	9,932	3.32
1999	10,000	3.53
2000	9,317	3.28
2001	0	0
2002	0	0
2003	0	0
2004	5,524	1.23
2005	5,659	1.07

Notes: Stocks refer to year-end figures.

When the BCRA surrendered 9.5 billion US dollars in reserves to the national government in January 2006, to cancel the outstanding debt with the IMF, it received in exchange a non-marketable government bond with zero liquidity denominated "letra intransferible". Something similar had happened in the 2003-2004 period, when the provincial monies were rescued and replaced by pesos. The Central Bank received two non-marketable government bonds for 7.1 billion pesos, indexed by CER, as compensation.

C. Central bank bonds issued since 2002

After the abandonment of Convertibility, and the devaluation that ensued at the beginning of 2002, in March of that year the BCRA started to undertake auctions of bonds denominated Lebac (Letras del Banco Central). Initially these bonds had 7-day maturities. These bonds helped to start normalizing a financial system that was completely jeopardized by the devaluation of the peso, amid pre-existing restrictions to withdraw cash from the financial system (the corralito). After the complete breakdown of credit, the Lebac auctions provided a reference rate for the domestic market in pesos.

A second role the Lebac started to fulfill, from the second half of 2002 on, was that of monetary sterilization. At first it was necessary to neutralize the monetary expansion caused by the rediscounts to the financial system, when ample support was given to avoid a system-wide crisis. A third role of the Lebac was to sterilize exchange market money

creation, as the BCRA became a net demander of foreign currency. There were concerns that inflation might keep on accelerating, as it had during the first half of 2002,. Subsequently, the great surplus of exchange from the external sector led to a more general policy of absorption that has been growing over time, as Table 12 shows.

Table 12. Factors of expansion and absorption of Extended Monetary Base (in millions of pesos)

Variation of EMB 1/	2002 2/	2003	2004	2005
Total	8,247	9,713	5,800	2,233
Private external sector	436	16,488	23,168	28,227
Net internal credit	7,811	-6,775	-17,368	-25,994
- Lebac and Nobac	-2,698	-5,040	-3,880	-10,031
- Other factors	10,510	-1,735	-13,489	-15,963

Notes: Our construction based on BCRA. 1/ EMB=Monetary Base in pesos + provincial monies. A negative sign indicates absorption. 2/ since February 11.

To adapt to changing market circumstances, a longer-term instrument started to be issued, the Nobac (Notas del Banco Central). These bonds were issued both at fixed and variable rates. The variable rates were indexed to the US dollar, to the CER, and more recently to the Badlar rate, a rate for time deposits in pesos above 1 million pesos.

During 2003 and 2004, the BCRA was able to extend the maturity of the stock of Lebac, at the same time that it paid lower interest rates. In 2005 the situation started to change. To avoid paying higher interest rates, the maturities started to be shortened, as Table 13 shows. Additionally, in the last months of 2005 the BCRA started to issue more Lebac and Nobac at variable rates, instead of explicitly paying higher fixed rates.

Table 13. Average maturity of Lebac and Nobac issued each year

Year	Maturity in days
2002	37
2003	230
2004	425
2005	204

Note: our calculation, using database of individual bonds from BCRA.

At the end of 2005, the stock of bonds (excluding reverse repos) of the BCRA exceeded 9 billion US dollars, almost 5% of GDP. There is a large secondary market for

Lebac and Nobac. In 2005 they represented 18% of total value of government sector bonds negotiated in the MAE (Mercado Abierto Electrónico), the local market where most of government sector bonds are traded.

The placements of Lebac and Nobac are undertaken through auctions divided in two tranches, a competitive tranche, where financial institutions and institutional investors participate in the determination of the cut-off rate, and a non-competitive tranche, where individuals and corporations participate through the intermediation of financial institutions.

The main holder of Lebac and Nobac is the financial system, which concentrates almost 80% of the stock, using it as the instrument to place its excess liquidity. Lately, however, the strong growth of credit to the private sector has tended to reduce the appeal of these BCRA bonds. On the other hand, pension funds (AFJP) only have a small proportion of their investments in Lebac and Nobac.

VI. Corporate bonds

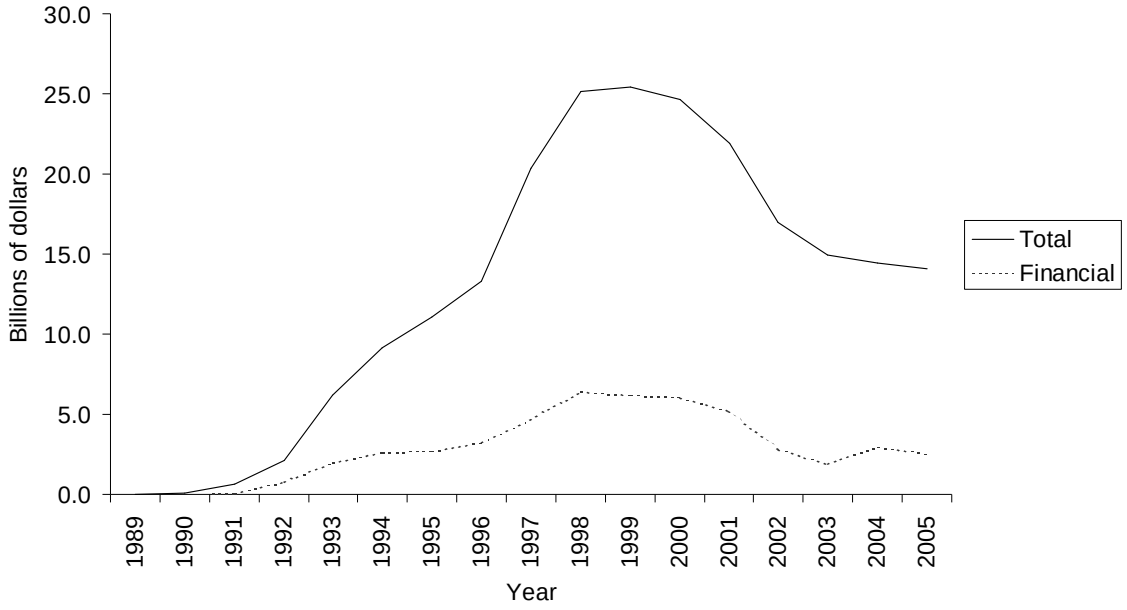
The possibility of issuing corporate bonds (*obligaciones negociables* or ON) appeared when Law 23.576 was approved in 1988. Before that, bank loans where the main source of funding for the private sector. The law allowed corporate bonds to be issued by incorporated companies, cooperatives and other organizations. The principal could be indexed, interest rates could be fixed or variable, issues could be in foreign currency, payments could be made abroad, and there was free entry and exit from the country.

This law on corporate bonds was modified in 1991 by Law 23.962. It was only then that the market for bonds started to take off and develop. The modification introduced in 1991 basically had to do with tax exemptions of the value-added tax (VAT), the income tax and taxes on the transfer of bond instruments (*títulos valores*), giving corporate bonds the same tax treatment as sovereign bonds. All this had a positive impact on the incentives to issue corporate bonds. This leveled the field with bank loans; before that, companies basically preferred bank loans because of tax deductions allowed.

Small and medium enterprises (SMEs) were provided soon after with a simplified system to issue bonds that could be quoted on stock exchanges, to broaden their financing sources. By Decree 1.087 of 1993, SMEs were authorized to issue bonds, with the

obligation of registering the bonds in the Comisión Nacional de Valores, the local securities exchange commission, and of complying with certain specific requirements of that commission. The restrictions which this simplified system imposed on SMEs had to do with the amount issued, the maturity and the type of investors. The maximum amount per firm was set at 5 million pesos. The bonds issued under this regime for SMEs could only be purchased by qualified investors within certain categories, for example, public organizations, pension funds, and individuals with certain minimum capital. Despite this simplified regime, bond finance is typical of large firms rather than SMEs.

Figure 6. Amount outstanding of corporate bonds and amount issued by financial institutions (in billions of dollars)



Source: our database of corporate bonds from Argentina.

Figure 6 shows the composition of corporate debt in terms of financial and non-financial isuers. Table 14 shows the evolution of corporate bonds as a percentage of GDP, while Table 15 shows their evolution in millions of dollars. These figures are based on data from the Bolsa de Comercio de Buenos Aires (BCBA), the main board of trade were many corporate bonds are registered to trade, the Comisión Nacional de Valores (CNV), the commission that authorizes corporate bond issues, and the Mercado Abierto Electrónico,

the largest over the counter exchange in Argentina. Bedoya et al. (2007) discuss in detail the construction of this database of corporate bonds.

Table 14. Stock of bonds issued by the corporate sector (as a percentage of GDP)

	Domestic currency			Foreign Currency	Total
	Nominal	Indexed to prices	Indexed to interest rate		
1989	0	0	0	0	0
1990	0	0	0	0.05	0.08
1991	0.05	0	0	0.31	0.36
1992	0.06	0	0	0.94	1.00
1993	0.05	0	0	2.57	2.61
1994	0.04	0	0	3.53	3.57
1995	0.04	0	0	4.23	4.27
1996	0.03	0	0	4.86	4.89
1997	0.11	0	0	6.82	6.93
1998	0.09	0	0	8.32	8.41
1999	0.15	0	0	8.82	8.96
2000	0.15	0	0	8.50	8.66
2001	0.19	0	0	8.00	8.19
2002	0.15	0	0	17.03	17.17
2003	0.12	0.01	0	11.97	11.75
2004	0.17	0	0	9.31	9.48
2005	0.14	0	0	7.63	7.78

Notes: This information does not distinguish between domestic and foreign law issues. The database was constructed with information from Bolsa de Comercio de Buenos Aires (BCBA), Mercado Abierto Electrónico (MAE) and Comisión Nacional de Valores (CNV).

Table 15. Stock of bonds issued by the corporate sector (in millions of dollars)

Year	Domestic currency			Foreign Currency	Total
	Nominal	Indexed to prices	Indexed to interest rate		
1989	6	0	0	0	6
1990	37	0	0	62	99
1991	89	0	0	514	603
1992	126	0	0	1,980	2,106
1993	117	0	0	6,072	6,189
1994	105	0	0	9,083	9,187
1995	93	0	0	10,933	11,026
1996	82	0	0	13,227	13,309
1997	325	0	0	20,013	20,338
1998	258	0	0	24,896	25,154
1999	407	0	0	25,014	25,422
2000	445	0	0	24,182	24,626
2001	522	0	0	21,346	21,867
2002	151	0	0	16,804	16,954
2003	153	11	0	14,787	14,951
2004	260	10	0	14,136	14,405
2005	259	8	0	13,829	14,096

Notes: Year-end data. This information does not distinguish between domestic and foreign law issues. The database was constructed with information from Bolsa de Comercio de Buenos Aires (BCBA), Mercado Abierto Electrónico (MAE) and Comisión Nacional de Valores (CNV).

The issue of corporate bonds was nil until 1989. The market started to become significant in 1991. After ten years of rapid growth, a sudden stop came in 2001. The stock of corporate bonds from 2002 on is preliminary, because it is based on the original conditions at time of issue and does not reflect pesification and default. The increase in nominal terms in 2002, both as percentage of GDP and in millions of pesos, merely reflects the threefold devaluation of the peso, with a stock that was almost completely in dollars.

The 2002 devaluation was different from past experiences in the 1970s and 1980s. In that period, a devaluation "melted down" company debt denominated in domestic currency, leaving the company in a better financial situation. On the contrary, the 2002 devaluation provoked a financial suffocation, since companies had begun to get deeply indebted abroad. Though bank debt in dollars was pesified at a rate of 1 to 1, this debt had lost participation in total debt since loans to the private sector had been continuously falling since 1998. During the Convertibility years, the ease of access to external credit and the good international financial conditions stimulated the growth of this kind of debt.

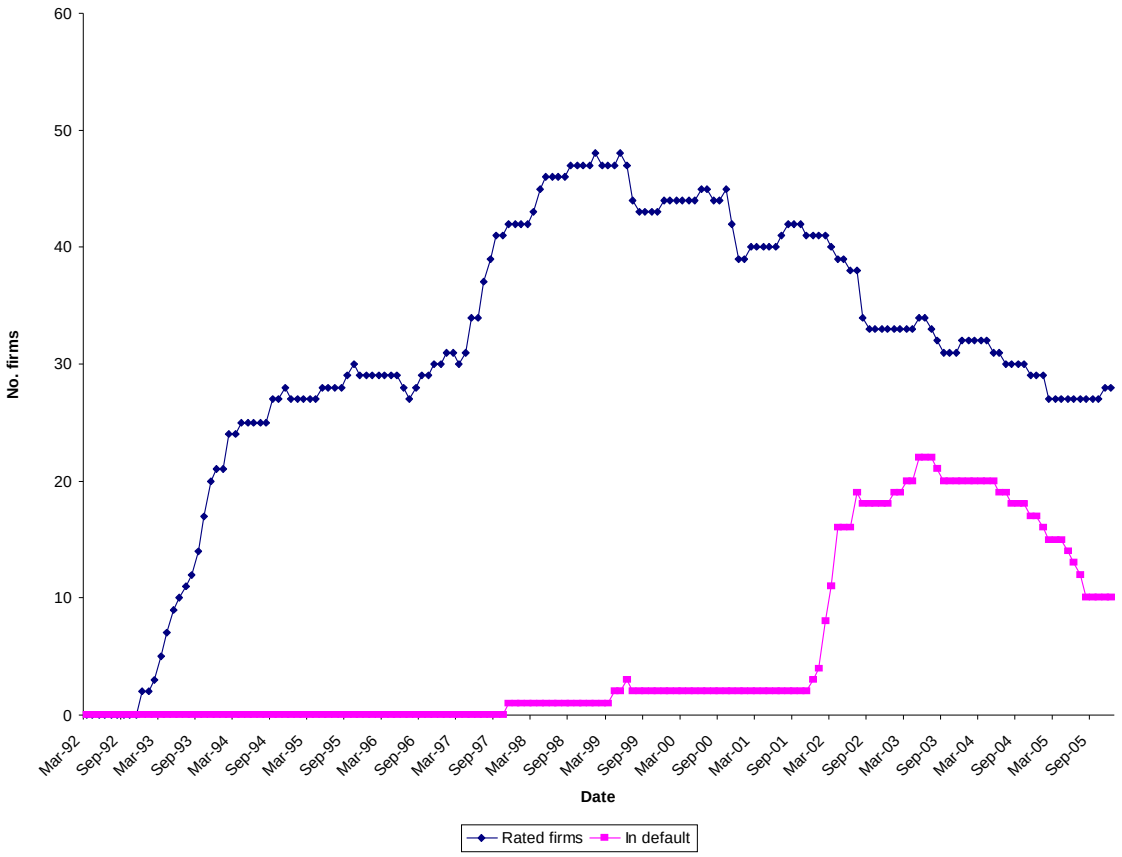
Though almost all corporate bonds were issued in dollars, we do not have a breakdown of these bonds according to domestic or foreign legislation. This breakdown is a key issue, because by Decree 214 of 2002, Article 8, all debt in foreign currency not related to the financial system (as was the case of corporate bonds) was converted to pesos at a ratio of one dollar equal to one peso, and the resulting amount was indexed by CER (Article 4). Of course, this decree only applied to debt under domestic legislation, not to debt under foreign legislation, so this marks a huge difference between domestic and foreign law corporate bonds.

In early 2002, risk-rating agencies placed most firms in selective default as regards liabilities in foreign currency. This rating was based on the fact that with the 2001 crisis, besides the devaluation, a series of government restrictions were put in place. Foremost, the central bank started to control the remittance of foreign currency abroad, and an authorization was required to make payments abroad. This came together with great uncertainty about the final effects of the abandonment of Convertibility, in a context of government default, generalized violation of contracts, restrictions to withdraw funds from the financial system, and pesification of public service rates, deposits and debt. However, some companies were a lot less exposed than others to these risks. The greatest probability

of default was for the firms that had suffered the pesification and freezing of their rates, and that served the domestic market, such as the distributors of gas and electricity, and the telephone companies. These firms were all heavily indebted in foreign currency.

Due to widespread corporate default, after the 2001 debt crisis the corporate bond market came to a standstill. As Figure 7 shows, about 2/3 of corporate issuers rated by Standard & Poor's went into default during 2002, and the process of renegotiation was pretty lengthy. However, by the end of 2005 most firms had renegotiated their debt.

Figure 7. Corporate bond issuers and number in default, March 1992- December 2005



Source: based on firms rated by Standard & Poor's in Argentina.

Though at first the majority of firms did not comply with payments of principal, a great majority did meet interest payments. In this dimension, the default on private debt was much less severe than the default of government debt. The financial sector, which had

issued short-term bonds (valores de corto plazo), whose maturity was less than a year, mostly complied with the payments of principal.

By mid-2002, there were already renegotiations underway in some important firms (Pecom, Banco Hipotecario, Impsa, Capex, Aeropuertos 2000), with a high percentage of acceptance by bondholders. The new conditions were relatively good and did not include either haircuts on principal or pesification, though there were extensions of maturity and, in some cases, reductions of interest rates.

Subsequently, the restructuring of private debt came in all sorts of combinations: extension of maturities, lower interest rates, repayment of principal in installments, haircuts on principal, early redemption at a discount. In all cases this implied a larger or smaller loss, in terms of present value, to the bondholders. Around 2003, with several restructurings already completed, the market value of these bonds started to improve. This was due to improved economic conditions and the normalization of markets, as well as the anticipations of future debt renegotiations.

VII. Pension funds

At present, the most important institutional investors in Argentina are the pension funds (*fondos de jubilaciones y pensiones*, FJP). Other important institutional investors are insurance companies (*compañias de seguros*) and mutual funds (*fondos comunes de inversión*). The pension funds were born when the Argentina pension system was reformed by Law 24.241 in 1993, adding a new capitalization system to the old pay-as-you-go system (*sistema de reparto*).

Despite some recent talk of undoing the 1993 pension reform, for the time being the capitalization system co-exits with the defined benefits system, which at present is being expanded to provide pensions to elderly people with no coverage. This reflects the fact that around 50% of employment in Argentina is informal, and many workers never made contributions either to the capitalization or the the pay-as-you go systems. They are now being provided pensions to alleviate widespread poverty among elderly people.

Table 16. Annual contributions to pension funds

Year	Billions of pesos	% of GDP
1995	1.3	0.51
1996	1.9	0.69
1997	2.4	0.80
1998	2.8	0.92
1999	3.0	1.06
2000	3.1	1.08
2001	3.1	1.14
2002	1.8	0.58
2003	1.3	0.35
2004	2.2	0.50
2005	2.8	0.53

Note: based on information from Superintendencia de AFJP. The figures correspond to fiscal years ended on June 30.

The capitalization system began to operate in mid-1994. The workers capitalize mandatory contributions in a personal account at the AFJP (Administradoras de Fondos de Jubilaciones y Pensiones) of choice. They also have the option of adding voluntary contributions. Table 16 shows the evolution of the total contributions to the pension systems. Since voluntary contributions are not in the least bit significant, the aggregate basically reflects mandatory contributions.

Due to the pension reform, the official budget deficit, which is measured on a cash basis, is not comparable before and after 1994. The 1993 reform led to a shift from a budget system that underestimated budget deficits by the increases in the accumulated unrecorded future government liabilities, to a budget system where the government explicitly issued government bonds in lieu of these unrecorded liabilities; the recorded budget deficit basically increased by the amount of the contributions to AFJP since 1994. However, as more and more people are incorporated to the old pay-as-you go system, in recent years there is an underestimate of the deficit for the inverse reason.

There are two distinct stages in the evolution of the pension funds. The first stage goes from the creation of the funds until 2001, the second from the moment before the sovereign default until the final debt renegotiation. During the first stage of the new system, there was at first a very sharp increase in the contributions (net of charges) to the capitalization system, due to the massive switch of workers from the old pension system to the new. The inflows then stabilized at around 1% of GDP, until the debt default in 2001.

Table 17. Evolution of stock of pension funds

	Fund valuation		as percentage of total					
	Billions of pesos	%GDP	Government bonds	Asset back securities	Stocks and corporate bonds	Time deposits	Foreign stocks and bonds	Cash and others
1995	1.4	0.5	54.9	0.0	8.7	27.1	2.8	6.5
1996	3.8	1.4	54.1	0.0	24.2	17.6	0.4	3.7
1997	7.3	2.5	50.6	3.1	26.6	16.4	0.4	2.9
1998	10.1	3.4	46.0	3.0	23.3	23.0	0.4	4.3
1999	13.9	4.9	52.8	2.7	19.9	18.1	0.2	6.3
2000	18.7	6.6	54.4	2.7	19.2	15.2	4.4	4.1
2001	22.2	8.2	54.5	9.1	14.0	15.6	3.4	3.4
2002	35.1	11.2	78.6	0.4	9.7	2.3	5.6	3.4
2003	42.9	11.4	75.9	0.5	9.7	3.5	8.3	2.1
2004	47.7	10.6	68.1	0.2	12.6	4.5	9.4	5.2
2005	58.4	11.0	60.3	0.8	15.1	7.7	9.9	6.2

Note: based on information from Superintendencia de AFJP. The figures correspond to fiscal years ended on June 30.

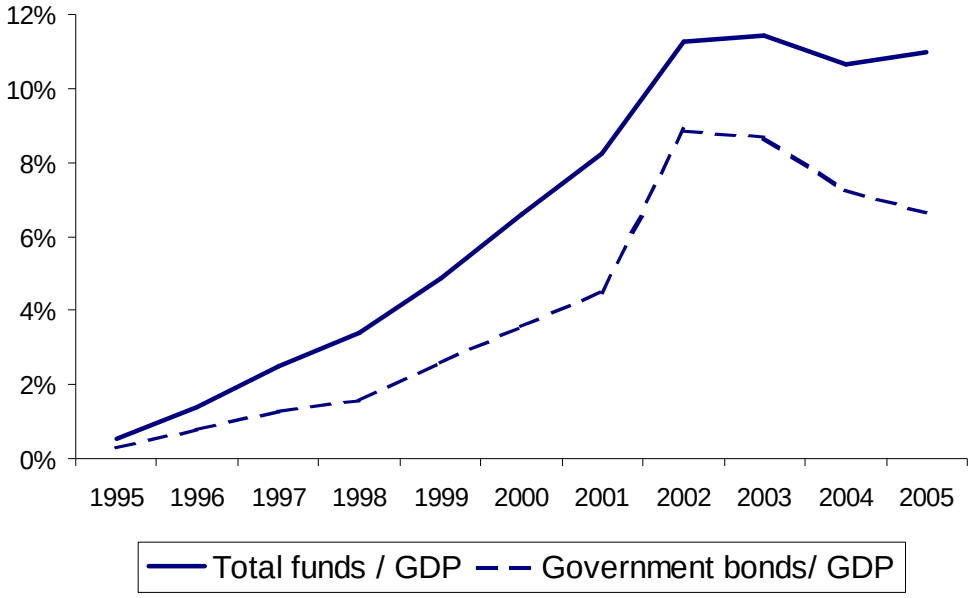
From the beginning, the AFJP had a high share of their portfolio invested in government bonds. As Table 17 shows, between 1994 and 2001 the share almost reached 55% of the portfolio (except for small dip in 1997 and 1998, at time of Asian crisis and the Russian devaluation). As a percentage of GDP, the portfolio of government bonds reached 4.5% in 2001. The pension funds were one of the main institutional investors that helped to finance the increase in cash budget deficit that their creation had provoked. Time deposits and equity were second in importance in the portfolios. Investments in corporate bonds (*obligaciones negociables*) had a minimal participation.

The AFJP could not avoid being hit by the financial crisis that affected Argentina in 2001, and the institutional and regulatory changes that ensued. In particular, in November 2001 the contributions to the pension funds were reduced from 11% to 5% of wages, increasing again to 7% in March 2003. Regulatory changes also affected insurance in case of handicap or death.

The contributions after 2001 fell not only because of the reduction in the contribution rate, but also because of recession that led to a decrease in the number of regularly employed workers (in 2005 almost half the work-force was not registered, so it neither contributed to the system, nor was covered by it).

During 2002, the share of government bonds in the total portfolio of pension funds almost reached 80%. This was the consequence of a series of events. First, trying to help avoid sovereign default, in November 2001 the AFJP in full entered the exchange that converted government bonds into guaranteed loans. Soon after, the government compulsorily made them invest in a short-term bond, Letras del Tesoro, which represented 10% of their portfolio at the end of 2001. At the beginning of 2002, default of sovereign debt was followed in a series of short steps by devaluation, the pesification of dollar deposits and the pesification of sovereign debt under domestic legislation. These changes lead to a 40 % rise in the nominal value of assets in domestic currency, an increase of 3 percentage points of GDP between 2001 and 2002, as Figure 8 shows.

Figure 8. Pension funds and share allocated to government bonds (as a percentage of GDP)



Source: based on information from Superintendencia de AFJP.

Despite the increase in nominal valuation, almost the whole portfolio of government bonds was in default, so this increase did not reflect a market valuation. Only one of the AFJP, Nación AFJP linked to Banco Nación, formally accepted the pesification of its portfolio of government bonds (guaranteed loans at that point in time). The other pension funds reverted to the original bonds and participated in the global restructuring process,

despite the warning of the government that this would imply worse conditions than the terms initially offered for guarranteed loans.

In the process of sovereign debt renegotiation, a special bond was finally designed for the pension funds, the Quasi-par bond. With the exchange, the portfolios were normalized in 2005 since all the AFJP participated in the debt exchange. The Quasi-par bond, which matures in 2045, represented about 70% of total holding of government bonds. These bonds were valued in the portfolios at face value and there was no secondary market where they could be negotiated.

An interesting development in the post-default portfolios was the gradual increase of investments in other asset classes. In 2005, shares and bonds of private firms represented 15% of the portfolio, though this was mostly concentrated in shares; corporate bonds were only 2% of portfolio. Investment in foreign shares, with 10 % of total, was the third asset class in terms of its importance.

In 2005 there were twelve AFJP, half the pension fund administrators that existed when the capitalization regime was launched. The degree of concentration increased over time, since the four largest AFJP managed 67 % of the funds, up from 45 % in 1995.

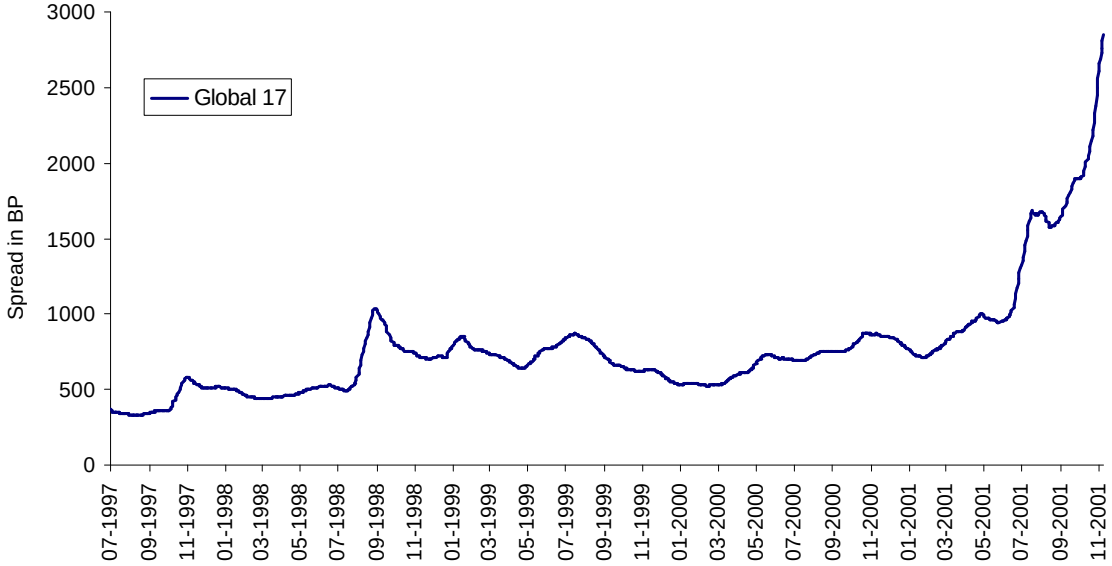
VIII. Secondary markets

In this section, we review the evolution of the yields of sovereign bonds and corporate bonds, as well as the liquidity of the secondary markets in Argentina.

A. Yields on sovereign bonds

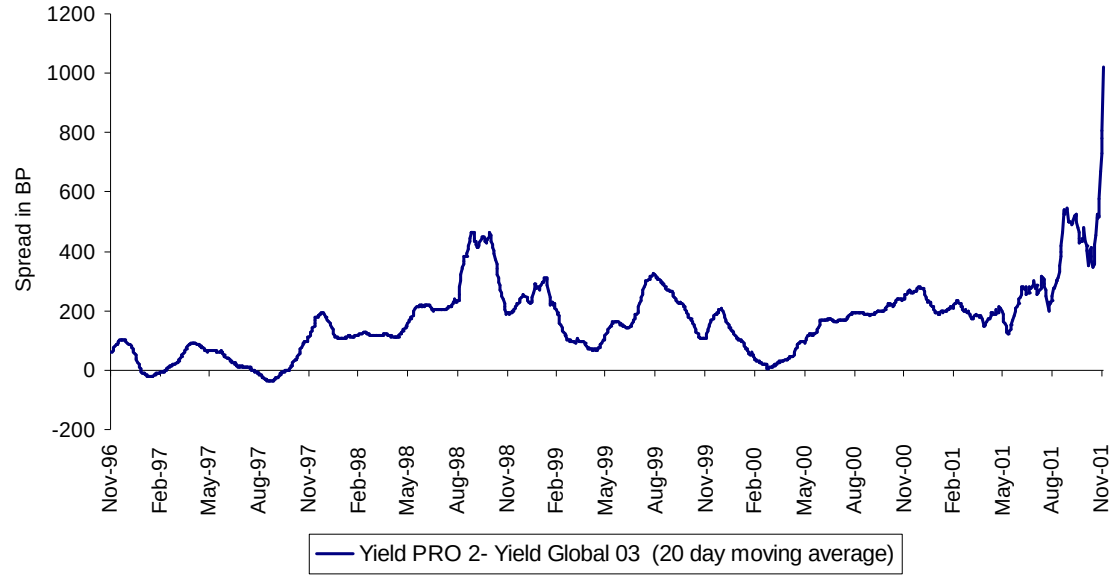
Figure 9 shows the evolution of the spreads of global government bonds (subject to foreign law) over US treasuries. The spread was at 500 basis points in early 2000, and reached 1000 basis points by May 2001. After that, the spreads skyrocketed. Figure 10 shows that the spread between government bonds issued under domestic and foreign legislation (taking PRO2 and Global03, two government bonds of similar duration) increased in late 2001, after having hovered around 200 basis points in the previous years.

Figure 9. Spread of foreign law government bonds over US treasuries of similar duration (20-day moving average)



Source: based on MAE and Reuters.

Figure 10. Spread between government bonds subject to local and foreign law (20-day moving average)



Source: based on MAE.

After the formal declaration of default on government debt at the end of 2001, and the pesification of domestic debt in foreign currency, there was a huge devaluation of the peso, which shot up to a 4 to 1 ratio to the dollar, before stabilizing at the current 3 to 1 ratio. Table 18 shows the prices of government bonds during the default period.

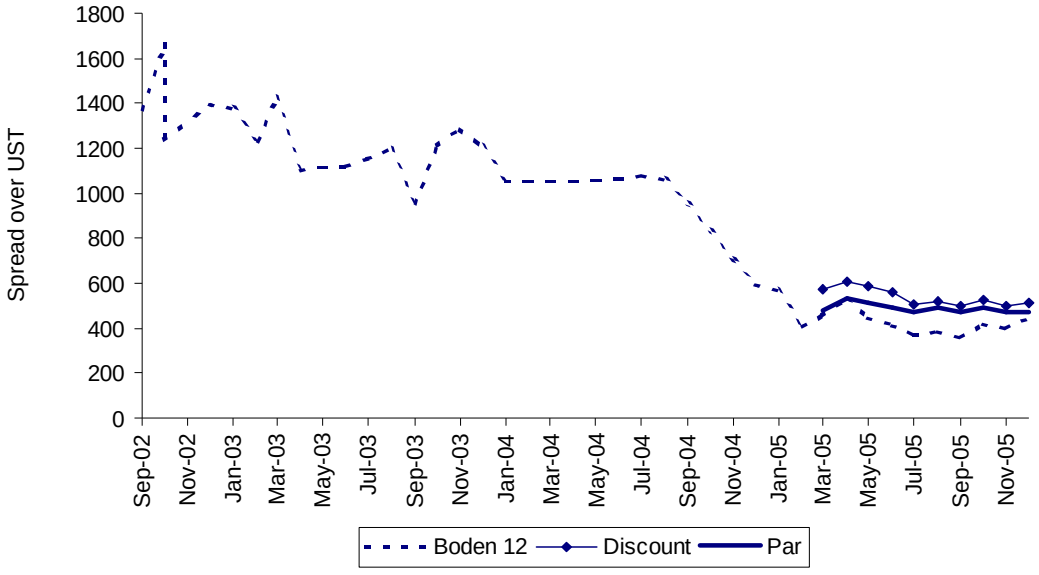
Table 18. Government bond prices during default period

	Domestic law			Foreign law		
	Compulsory issues		Market issues	Brady	Market issues	
	in pesos	pesified (from dollars)	pesified (from dollars)	in dollars	in dollars	in dollars
	Pro1	Pro2	Bonte04	FRB	Global03	Global17
Parity at the end of November 2001 (%)	18.4	26.3	40.7	43.5	43.7	35.5
Price in dollars, monthly averages						
- Jan-02	9.6	10.8	19.9	30.5	28.0	27.5
- Jun-02	1.9	2.3	15.5	20.8	21.4	20.7
- Dec-02	6.7	9.2	19.6	20.4	21.4	23.1
- Jun-03	8.0	14.7	30.6	30.7	31.4	33.2
- Dec-03	6.1	12.9	23.0	28.2	24.9	27.7
- Jun-04	7.1	13.8	26.3	27.9	-	30.4

Source: based on MAE.

Figure 11 shows that spreads of government bonds over US Treasuries fell once the country approached debt renegotiation (the exchange was finally settled in June 2005).

Figure 11. Spread of domestic law government bonds in dollars over US Treasuries

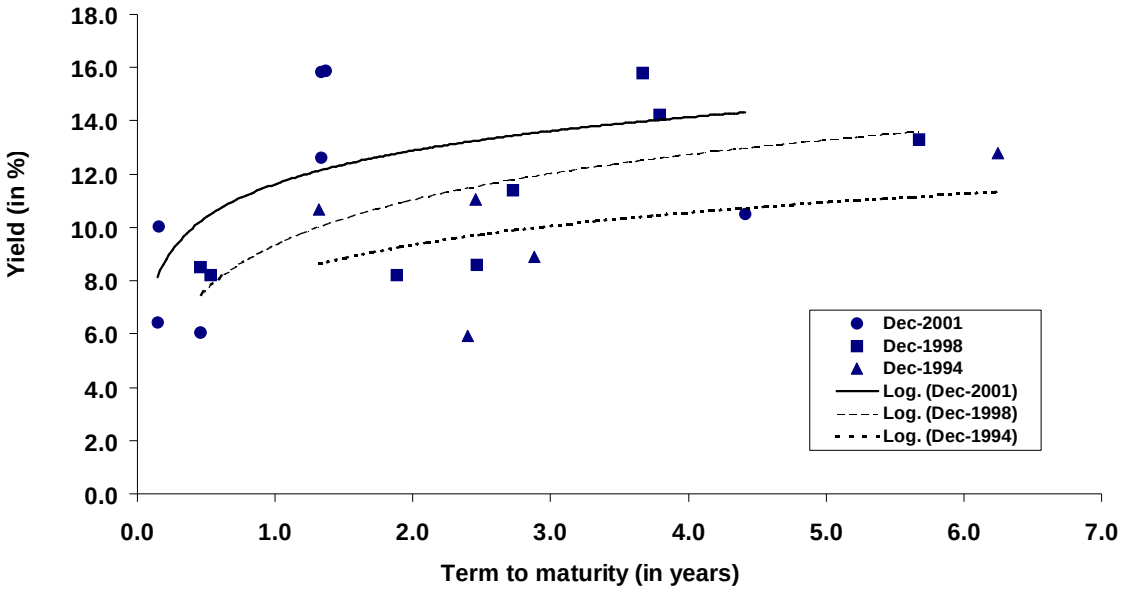


Source: based on MAE.

B. Yields on corporate bonds

Figure 12 shows the yield curves for most liquid corporate bonds traded on the Mercado Abierto Electrónico (MAE). When a log curve is fitted to the data, one can clearly see that the curves shifted up over time, between 1994 and 1998, and again between 1998 and 2001.

Figure 12. Yield curves for corporate bonds

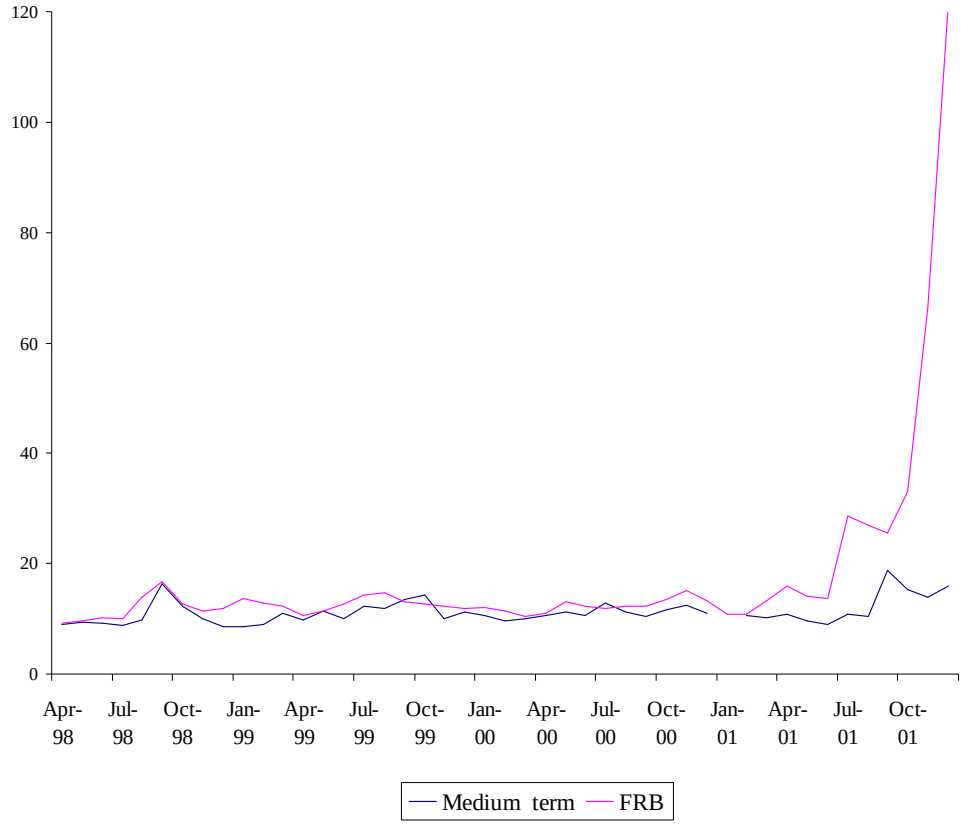


Source: based on most liquid corporate bonds, individual trades on Merval for 1994 and *Hechos*, MAE for rest.

We would have expected to see higher rates of return on corporate bonds in view of the impending crisis, and of the widely announced and impending death of Convertibility. Figure 13 compares the evolution of a reference rate for medium term corporate bonds between April 1998 and December 2001, when the crisis burst and the market practically disappeared, with the rate of return on a representative sovereign bond, the FRB. The FRB had maturity of 7 years in April 1998, and of 3.3 years in December 2001. To construct the reference rates for medium term corporate bonds, we used the median of the rate of return of the bonds with maturities above one year and up to three years that were most liquid. The median was taken from a list of between one and six bonds whose rates of return were

computed by MAE and reported in the monthly issues of *Hechos* (note that the set of corporations changes over time).

Figure 13. Rate of return on sovereign and medium term corporate bonds



Source: based on *Hechos*, MAE, April 1998-December 2001.

The reference rate of return for medium term corporate bonds moved together with the FRB over most of this period. This is in agreement with the conventional view in Argentina that the risk of private and public sector are not separable, but rather that they move together with country risk. However, as of April 2001 the rate of return on the sovereign bond started rising steeply, while that of corporate bonds rose much more gently.

In Figure 14 a similar procedure was followed to define a reference rate for long term corporate bonds. However, in this case there are usually only between one and three bonds, and in several months there is no data at all, especially during 2001, so this long term reference rate is even less representative than the medium term reference rate. The

behavior of both series over time was much closer. However, one again sees that there is a point where the series drift apart, in this case in July and August 2001.

Figure 14. Rate of return on sovereign and long term corporate bonds

Source: based on *Hechos*, MAE, April 1998-December 2001.

Table 19. Trades of long-term bond from Transener on MAE

Month	Maturity (in years)	Rate of return (%)	Days traded	Amount traded (in dollars)	Turnover (amount traded /amount outstanding)
Sep-98	9.6	14.55	6	10,744,194	7.2
Oct-00	7.5	11.79	4	4,948,133	3.3
Feb-01	7.2	11.64	8	9,822,179	6.5
Nov-01	6.4	20.68	2	1,252,504	0.8

Source: *Hechos*, Mae and our database.

Table 19 gives as an example one particular long-term market bond issued by Transener, a company engaged in the transmission of electric energy. As the table shows, the rate of return rose slightly in November 2001. However, there were very few trades, and

the amount traded was negligible in relation to the 150 million dollars of outstanding bonds.

A possible explanation for the discrepancy between both sets of rates of return is that the prices of corporate securities were not as representative as sovereign bonds. The domestic market for corporate bonds was small to start with, and it shrank even further during 2001. Table 20 shows the evolution of trades on the MAE over this period. This helps explain why there were no almost any quotes of long term corporate bonds at the end of 2001, so the increasing risk might not have been fully reflected in market prices.

Table 20. Amounts traded on MAE (in millions of dollars)

Period	Sovereign bonds	Corporate bonds
1996	318,067	717
1997	337,937	903
1998	169,975	808
1999	153,295	778
2000	217,297	859
January 2001	18,345	94
February	19,951	86
March	20,111	35
April	9,155	28
May	12,365	92
June	18,252	39
July	9,601	36
August	8,032	42
September	3,983	47
October	5,980	50
November	4,389	45
December	282	29
2001	130,446	622
January 2002	54	3
February	178	1
March	485	3
April	507	1
May	1,026	1
June	196	1
July	557	0
August	806	0
September	296	5
October	204	8
November	379	15
December	393	14
2002	5,082	52

Source: *Hechos*, MAE.

Another explanation for the discrepancy between corporate and sovereign bonds might be due to the fact that the market considered that corporate bonds were not as risky as government bonds. Though in most of the Convertibility period both rates of return tended to move together, some corporate issuers indeed did not go into default in 2001 and

after. Of those that did, the renegotiation of corporate bonds usually implied smaller haircuts for bondholders than the haircuts applied to sovereign bondholders. We believe this might explain another part of the discrepancy in the yields between corporate and sovereign bonds in 2001, together with the fact that there were very few trades on domestic secondary markets so prices were not too representative.

The yield curves for corporate bonds from 2004 on show that the yield on corporate issuers that did not default, for example firms from the oil industry like Petrobras Energia and YPF, was lower than those that defaulted like Autopistas del Sol, Banco Hipotecario, Banco Galicia. The difference was around 600 basis points in August 2004, and fell to 300 basis points in November 2005 (BCRA 2004 and 2005). We believe this spread basically reflects the fact that the firms that did not default were in better financial shape that those that did, and hence they presented a lower risk.

C. Liquidity

The Mercado Abierto Electrónico (MAE) and the Mercado de Valores (Merval), are the most important domestic exchanges for bonds. Other exchanges outside of Buenos Aires are not very important in bond trading (Bolsa de Rosario and Bolsa de Bahía Blanca, for example, specialize in commodities).

The Merval is the exchange closely linked to the Bolsa de Comercio de Buenos Aires (BCBA), were many of the corporate bonds are listed. On the other hand, MAE is an over-the-counter exchange whose members are mainly financial institutions focused on fixed income securities. To be negotiated on the MAE, corporate bonds have to be previously listed at the BCBA or some other board of trade in Argentina. Table 21 shows that the participation of MAE in the market for corporate bonds in Argentina is a bit larger, though the difference with Merval has dwindled with time (as to company shares, the two markets reached an agreement by which shares are only traded on the Merval since 1996).

The issues of national government bonds tend to be much more liquid than provincial bonds, which are sometimes traded only two or three times per month (if at all). The same holds for corporate bonds. Indeed, despite the fact that in 2000 the stock of

corporate bonds was 24 billion dollars, compared to 98 billion dollars of sovereign bonds and 4 billion dollars of provincial bonds (a ratio of 1 to 4), the total volume of corporate bonds traded represents a mere 1%, or less, of the amount traded in government bonds (a ratio of 1 to 100).

Table 21. Trades on MAE and Merval, 1996-2004

Total volume operated in MAE and MERVAL (in millions of dollars)				
	Government bonds	Shares	Corporate bonds	Total
1996	448,744	35,221	717	484,683
1997	407,102	41,188	1,351	449,641
1998	204,287	30,528	1,169	235,985
1999	187,485	12,685	1,122	201,292
2000	245,486	9,691	1,469	256,646
2001	147,104	7,554	1,022	155,680
2002	16,803	1,570	111	18,484
2003	31,468	2,897	185	34,549
2004	51,005	4,489	601	56,095
Share of MAE in volumes operated in MAE and MERVAL				
	Government bonds	Shares	Corporate bonds	Total
1996	0.71	0.00	1.00	0.66
1997	0.83	0.00	0.67	0.75
1998	0.82	0.00	0.69	0.71
1999	0.82	0.00	0.69	0.77
2000	0.89	0.00	0.58	0.85
2001	0.89	0.00	0.61	0.84
2002	0.30	0.00	0.47	0.28
2003	0.63	0.00	0.73	0.58
2004	0.70	0.00	0.58	0.64

According to our database of corporate bonds, there were 68 companies with bonds outstanding in 2004, and 56 in 2005. In relation to corporate bonds that were actually traded, we looked at companies whose bonds traded at least once during 2004-2005 (until August) in both MAE and Merval. There were 18 such companies, of which 7 were banks and 11 were non-financial companies. Of the 11 non-financial companies, Table 22 shows the liquidity of the 8 on which we had information on revenues. Except for two of the corporate bonds in Table 22, there were very few trades, and the rates of turnover were extremely small. The great majority of corporate bonds in Argentina resemble private placements, which are often tailored to specific investors and have extremely low liquidity.

Table 22. Liquidity of corporate bonds of eight non-financial firms in 2004

Firm	Revenue (millions of pesos)	Outstanding stock (millions of pesos)	Days traded in year	Total traded (millions of pesos)	Turnover (%)
Autopistas del Sol S.A.	154	325	5	10	3
Cablevisión S.A.	642	525	5	1	0
Edesur S.A.	920	120	7	3	3
Metrogas S.A.	720	321	2	2	1
Multicanal S.A.	575	450	359	465	103
Petrobras Energía S.A.	5494	1672	197	102	6
Transener S.A.	220	518	1	1	0
Transportadora de Gas del Sur S.A.	905	503	11	7	1

Source: based on database in Bedoya et al (2007), and information from Guia Senior on annual revenue.

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