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**INCOMPLETE ADJUSTMENT: FISCAL POLICY, PRIVATE
SAVINGS AND CURRENT ACCOUNT DEFICITS IN MEXICO SINCE
1982**

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INCOMPLETE ADJUSTMENT: Fiscal Policy, Private Savings and Current Account Deficits in Mexico since 1982*

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5.0 Foreword

We analyze the main characteristics of the macroeconomic program of the period 1987-94 in Mexico. One of the features of this programme was a sound money policy with the exchange rate as a nominal anchor, which in turn was accompanied by the rigorous fulfillments of announced exchange rate policy during the first four years and of the use of an exchange rate band since November 1991. In 1994, after ten months in which the exchange rate was close to or at the upper bound and capital outflows diminished by almost 40% the amount of international reserves with which the Central Bank attempted to defend the peso within established band limits, a 15% increase in the upper bound of the band for the Mexican peso was announced. This measure, announced in December 19, 1994, effectively consisted in an exchange rate depreciation of such a percentage; the exchange rate immediately jump to the new bound and, far from reverting capital outflows, the speculative attack to the balance of payments intensified with a vigor that forced the Central Bank to a freely floating exchange rate regime.

As the Central Bank withdrew from the foreign exchange market a further 25% exchange rate depreciation occurred by the end of the succeeding week. In contrast to what happened in previous exchange rate crisis, two and a half months latter the value of the Mexican Peso continued its downward trend: by march 15, 1995 the nominal exchange rate had already registered a depreciation of 100% with respect to its level three months earlier- and, due to a domestic inflation rate which was kept under control, the real exchange rate depreciation was then of the order of 70%.

It was not until the biggest-ever international financial rescue package was offered to Mexico, that financial markets tended to stabilize. That is, it was not until news of this package, together with that of an accompanying severe adjustment program reached the market, that a perception still prevailed, among market participants, that the financial situation could further deteriorate.

¹ Helpful comments from Valpy FitzGerald and Horacio Sobarzo, as well as the research assistance from Jesus Serrano are gratefully acknowledged.

* In print in: Jansen, K. and Vos, R. (eds) (1996) "External Finance and Adjustment, Failure and Success in the Developing World", McMillan Pub., London.

This study, written before 1994, did not foresee the serious balance of payments crisis that occurred late in that year (In this respect, I was in the very good company of at least two top Mexican policy makers and a large number of Wall Street foreign portfolio managers - the former lost their jobs, the latter their annual bonus).

The analysis presented here can now be seen from a different perspective. Far from recent events having shown that an important explanatory element was missing, the material contained in this chapter helps to understand why was the exchange rate depreciation so abrupt and which were the origins of the financial crisis registered in 1994 in Mexico -with its high economic costs and its domestic and international financial repercussions, known as the 'Tequila effect'.

According to our analysis, the main detonator for investors seeking safe heaven out of Mexican pesos after the 15% attempt to realign the upper part of the band was determined by a number of concomitant factors. These contributed to a multiple possible equilibria arising from the likelihood that speculative attacks, propelled by fears of a changes in policies in response to domestic bank insolvency, could have its **self-fulfilling** nature.

These factors were: First, a perception that an already fragile domestic commercial banking system could face solvency problems in the event of an increase of the domestic interest rate, an induced recession or of an adjustment in exchange rate. Second, a conjecture that if that likely event happened, the Central Bank would bail out banks in trouble. Third, the reckoning of the negative implications that bailouts would have for government solvency, inflation and exchange rate stability. To develop this point we appended a fifth section, where we back this arguments, and, except for the updating of tables and figures left the rest of the text as previously presented.

5.1 Introduction

Over the past decade Mexico has staged an impressive economic change after the switchback of oil boom in the late 1970s and financial collapse in early 1980s. One of the outstanding features of macroeconomic recovery in Mexico since the debt crisis of 1982 has undoubtedly been the reduction of public sector borrowing requirements. To this concern - and its concomitant policies of privatization, trade liberalization and banking reform - has been attributed the subsequent recovery in growth, the reduction in inflation, the stabilization of the exchange rate and the influx of foreign investment in recent years.² However, the recovery in private capital formation has been relatively slow, the current account deficit has widened and private savings rates have actually declined. This apparent contradiction - with considerable implications for long-term growth - is a

² By both independent international observers (eg OECD, 1992) and those responsible in Mexico (eg Aspe, 1993)

central theme of this chapter, and has interesting parallels with other cases discussed in this volume where private sector response to adjustment programs has been very different from what was expected in standard macroeconomic theory and orthodox adjustment practice.

In this chapter we review the main developments before the crisis of 1982, with particular emphasis on the role of public expenditure in the economy; followed by an exploration of the contrasting experience of the orthodox and heterodox stabilization programs of 1982-1987 and 1987-1993, respectively. We then go on to consider in detail the behavior of private savings and its relationship with financial wealth adjustment under external and fiscal shock in the case of Mexico, and the implications for the evolution of private investment and of its financing.

This leads us to a new interpretation of the reasons for both the success of the heterodox stabilization program as compared to its orthodox predecessor, and the decline of private savings in the early 1990s - both of which have interesting parallels in other cases discussed in this volume.

5.2 Crisis and Recovery.

5.2.1 Background to the 1982 crisis

The first two six-year presidential terms of the nineteen-sixties (1958-1964 and 1964-1970) became known as the period of "stabilizing development" in Mexico³. These presidential administrations are characterized by a number of positive features. Three of them are: (a) the rapid rate of economic growth (despite a rate of population growth of 3.0-3.5 percent per annum in these twelve years per-capita GDP increased by more than 50%); (b) the peso-dollar exchange rate remained fixed (and the domestic rate of inflation did not differ substantially from that of the U S A); (c) In contrast to subsequent periods of economic development in Mexico, domestic and foreign public debt remained at low levels and oil was not an important export product; (d) fiscal and current account deficits as a share of GDP were small relative to those registered in the 1970s (see Figure 1). However the deterioration in the distribution of income and the insufficient attention given to economic infrastructure led to severe social tension and bottlenecks on further industrial progress.

These problems were among those that the Echeverría presidency (1970-1976) set out to address. The cautious approach to macroeconomic policy of tight fiscal expenditures and small budget deficits which characterized the "stabilizing development" period was abandoned.

³Cfr. Ortiz Mena, A. (1970) for an exposition of the main characteristics of this period.

The policy for growth adopted during the early 1970s was premised on a limited integration of the domestic financial markets to the world economy and a highly concentrated and regulated banking system, which allow the state to mobilize private savings to fund public investment through reserve requirements. This system contrasts sharply with that in which the stabilization policies of the late 1980's were to be implemented, when the financial system had market determined interest rates and a very high degree of capital mobility.

In a clear contrast to what was going to happen during the late 1980s, opinions favoring more participation of public expenditure in the economy strengthened when the minimum levels of private investment required to sustain the pace of development were not forthcoming⁴. The following reference by Solis (1981) explains how, after a slump in 1971 and its associated low level of private investment, the option for stepping up the activity of the state in the economy was followed. According to this author,

"The slower growth in economic activity in 1971 meant that private banking did not use all of its increased lending capacity during the year. Due to this fact the strong injection of liquidity into the economic system by the central bank -Banco de México- and deposit banks was, to a certain degree, counteracted by the considerable increase in the excess reserves of financial and mortgage banks over and above their reserve requirements at the Banco de México....

"[This fact] added further weapons to the arsenal used by critics of the Treasury, who included the inner economic quadrangle of Secretaries, posing these questions: Since public investment had been curtailed by a lack of funds, how was it possible that there were idle funds not used to finance and expand essential public investment projects? What was the sense of not being oil self-sufficient, of increasing imports while having idle funds at the central bank? This policy was leading to an insufficient productive capacity in the nationalized industries, resulting in higher imports of fuels (crude oil, naphtha, natural gas etc.) and consumer goods (food-stuffs, etc), but, more significantly, it was causing stagnation and unemployment."⁵

Hence, with the intention to avoid stagnation, government expenditure increased by 21% in real terms during 1972. Thereafter its share in GDP had an increasing trend. Public sector deficits and the level of its domestic and foreign indebtedness augmented. Increasing rates of inflation were also registered. Echeverria's presidential term finished

⁴As it will be discussed below, as opposed to what happens during the early 1970s, during the second half of the decade of the 1980's the economic authorities in Mexico reacted to the insufficient response of private investment by retracting public expenditure and by further correcting fiscal deficits.

⁵Solis, L. (1981). p. 64-65. Underlining in the original.

with massive private capital outflows, an abrupt exchange rate depreciation and the signing of an IMF stabilization program.

Under the monitoring of an IMF program, the policy followed by president Lopez Portillo (1976-1982) during his first two years of administration reversed some of the macroeconomic imbalances left by his predecessor. The "mixed-blessing" of the discovering of the oil production potential of the country -and the access to foreign financing that this discovery brought with - led to the abandonment of the IMF sponsored-program. Instead, the resumption of growth was propelled, once again, by means of foreign indebtedness and increasing fiscal deficits.

In spite of the fact that in 1981 macroeconomic disequilibria exacerbated and oil prices dropped, the so-called "populist" economic policy was not substantially changed.⁶ During this year foreign public debt increased substantially and capital outflows mounted to a magnitude larger in absolute terms than the current account deficit.

A dramatic change in economic policy finally happened when the suspension of credit from foreign banks and the lack of resources to pay financial commitments forced the country to declare a foreign debt payments moratorium.

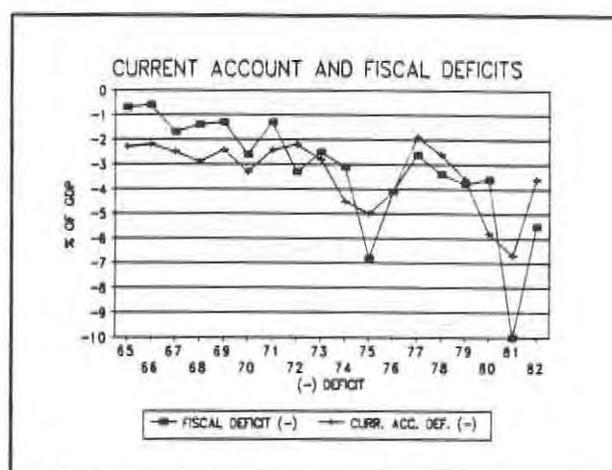


FIGURE 1

As it has already been mentioned, during the so-called "stabilizing development" period in Mexico -1964-1970- fiscal and current account deficits as a share of GDP were small relatively to those registered during the administrations of 1970-1976 and 1976-1982. The evolution of these shares can be observed in figure 1.

The process of saving, investment and financial intermediation during the presidential administration periods previous to 1988 is represented in the following flow of funds table⁷. In this table it is possible to identify

⁶ Cfr. Bazdresch, C. and Levy, S. (1991).

⁷ The table presidential administrations represented are GDO, 1964-1970, LEA, 1970-1976, JLP, 1976-1982, MMH, 1982-1987. This table is based on the work by Ize (1989). His calculations include a correction for inflationary amortization on all peso-denominated assets and liabilities, as well as a correction for eliminating valuation gains and losses on

a number of changes. Among them, that foreign financing of fiscal deficits was, as a share of GDP, during the "stabilizing period," less than half of the corresponding to the other two administrations.

dollar instruments, owing to exchange rate movements.

TABLE 1
FLOW OF FUNDS
% OF GDP

		PUBLIC SECTOR	PRIVATE SECTOR	DOMESTIC BANKS	FOREIGN SECTOR	CHANGE IN LIABILITIES
PUBLIC SECTOR	(MMH)		0.8	-3.2	2	-0.4
	(JLP)		0.4	2.7	3.9	7
	(LEA)		0	0.8	3.2	4
	(GDO)		0	1.3	1.4	2.7
PRIVATE SECTOR	(MMH)		0.9	0.2	-0.7	0.4
	(JLP)		0	0.4	1.9	2.3
	(LEA)		0	1.4	1.4	2.8
	(GDO)		0	2.4	1.1	3.5
DOMESTIC BANKS	(MMH)		-2.3			-2.3
	(JLP)		2.7			2.7
	(LEA)		1.5			1.5
	(GDO)		3.9			3.9
FOREIGN SECTOR	(MMH)		1.6	1.7		3.3
	(JLP)		2.4	-0.1		2.3
	(LEA)		1	0.1		1.1
	(GDO)		-0.1	0.2		0.1
CHANGE IN ASSETS	(MMH)		1	-1.3	1.3	
	(JLP)		5.5	3	5.8	
	(LEA)		2.5	2.3	4.6	
	(GDO)		3.8	3.9	2.5	
DEFICIT	(MMH)	0.4	0.6	1	-2	0
	(JLP)	-7	3.2	0.3	3.5	0
	(LEA)	-4	-0.3	0.8	3.5	0
	(GDO)	-2.7	0.3	0	2.4	0

In addition the yearly average increase of assets held in domestic banks by the private sector before 1970 was, as a share of GDP, almost four points. Around a third of these funds were allocated to finance the fiscal deficit and the rest returned to private sector as credit. Not only was the corresponding figures for the increase in assets lower in the periods 1970-1976 and 1976-1982, but the share of this increase that was returned to the private sector is also substantially lower.

With larger fiscal deficits and lower possibilities to finance them internally, public foreign debt was the slack variable. These mounting levels of the foreign public debt financed larger fiscal deficits and compensated for the private capital outflows that occurred during the 1970's and the first part of the 1980's as it becomes evident with the analysis of the flow of funds table.

The weight of internal and external factors determining the current account deterioration which led the economy to the 1982 financial crisis are presented in Calderón, A. and E.V.K. Fitzgerald (forthcoming)⁸.

5.2.2 The Orthodox Stabilization Attempts of 1982-87.

Since the year 1982- when the country experienced the financial crisis- macroeconomic stabilization and the search for sustainable growth has been of paramount importance in Mexico.

Two phases can be identified in these stabilization efforts. The first one, between 1982 and 1987, is based on orthodox macroeconomic policies among them a strict control of public finances. The other, between 1988-1992, which in addition to orthodox characteristics has a number of heterodox features, most noticeable among these are price and wage controls on the one hand and on the other hand, the adoption of rigid nominal exchange rate targets. In addition, by 1985 important turning points in commercial policy can be identified, in spite of balance of payments problems, international trade liberalization was accelerated as part of the strategy to achieve economic growth with financial stability.

The first year of the Orthodox phase the Mexican economy -under the IMF monitoring- has been characterized by a case study of an "overkilling", experience⁹. The rigorous compliance by the Mexican authorities with the fiscal performance clauses of its IMF sponsored program in 1983 -both in magnitude and as a share of GDP- was highly praised by the International Financial Community. But though the effect of compliance was to more than satisfy external objectives, it was much more damaging to the internal economy than anticipated. This "overkilling" experience implied that GDP declined by over 5% instead of remaining constant as forecast. Whereas the target for the accumulation of international reserves was overshoot by more than 55%.

The elimination of fiscal unbalances -to be discussed in one of the following sections -was the keybone of macroeconomic policy during the first years of the crisis. The primarily fiscal accounts turned into unprecedented surplus the first two years of the IMF conditionality program.

During 1984 a recovery of the level of GDP (growth of 3.6% in real terms) and a declining domestic rate of inflation was registered. This incipient recovery continued during the first

⁸These results include calculations for the post-crisis years and different measurements of capital outflows.

⁹Cfr. Calderón-Madrid, A. (1984) and Córdoba, J. (1986).

part of 1985. Although the domestic rate of inflation start falling, it was still well the above its rate in 1981. In turn, the surplus in the current account of the balance of payments of 1983 and 1984, reduced their size during the first part of 1985, and a trend towards its reversal to a deficit appeared.

It was during the third year of the IMF program - in 1985 - that the economic authorities allowed the primary surplus to shrink. As it is stated in a report on the Mexican Economy by the OECD, by the first half of this year the deterioration of the macroeconomic scenario was perceptible: "When the public deficit GDP ratio started raising again and the IMF program lapsed, financial markets panicked: the depreciation of the peso accelerated, capital flight continued and exchange reserves declined. By mid-1985 inflation started to reaccelerate and it was clear that the objectives of [the 1983-1985 macroeconomic program] would not meet."¹⁰

It is worth emphasizing that the macroeconomic program was perceived as unsuccessful before the earthquake of September of 1985 and the collapse in Oil prices in 1986- two events which further deteriorated the macroeconomic panorama. As it is discussed in Calderón-Madrid, A. (1995a), the speculative attack to the balance of payments registered in June 1985 was a reaction to a perceived unsustainability of the macroeconomic program.

In 1985 two important points of inflexion in external sector policy making can be detected. First, the exchange rate policy was changed as it was no longer possible to allow for a real exchange rate to appreciate in order to control domestic inflation. After the devaluation of June 1985, the nominal exchange rate was allowed to depreciate much faster than domestic inflation for two years. Second, trade policy was no longer used to reduce import penetration in times of balance of payments deterioration.

In response to the crisis of 1982, during the first three years of the adjustment program, the commercial authorities had relied on the control of imports by means of non-tariff barriers, thereby reversing import liberalization policies undertaken during the oil boom. In mid-1985, the government embarked upon a sudden and unexpected trade liberalization process: although initially ad-valorem tariffs were not reduced, the system changed radically with the elimination of the prevailing system of quotas and licensing: import license requirements for almost all intermediate and capital goods were eliminated. These measures -preceding the approach to be adopted months latter along the so-called Baker Plan- marked the beginning of a radical change in commercial policy, to be substantiated by joining the Gatt in 1986.

It appears to be the case that the lack of a perceived government commitment to a radical departure from an import substitution model toward export led growth was one of

¹⁰OECD (1992). p.30.

the main causes of the slow response of private investment Ize (1989).¹¹ Moreover, during 1986 an unexpected substantial oil price reduction severely affected public finances and exports, thereby forcing the authorities to change in their programmed use of monetary instruments.¹² The policy followed to face this shock was a further retrenchment of primary fiscal surplus and a further sharp devaluation of exchange rate. As a result, GDP fall by 3.8% in real terms and the rate of inflation mounted to 86%. This response to the oil shock was made taken in a context in which the public sector had a very limited access to foreign financing and in which the IMF support program was suspended due to the events of 1985.

In mid-1986 a second adjustment program was designed. Its objective was to achieve simultaneously real growth and the reduction of the inflation. For this purpose another IMF support program was signed, but this time the agreement contained innovative mechanisms to avoid recession, including automatic additional financing in the event of a fall in the international price of oil as well as an automatic relaxation of the fiscal conditionality clauses, if growth of GDP was below an anticipated rate. Mexico also negotiated with the World Bank the first of many structural and sectoral adjustment loans. This new approach to sustainable growth by consolidating public finances, liberalizing international trade and keeping inflation under control was launched within the context of the so-called "Baker plan", a US initiative for foreign debt rescheduling and new lending (Lustig (1992).

The commitment by the authorities to put an end to the import substitution model in Mexico was the continuation of the trade liberalization policy, in spite of the balance of payments problems registered during 1986, which became an explicit condition for Washington support¹³.

As shown in the following table, import tariffs started a sustained reduction in 1986, which was to be accentuated after 1987.

¹¹As it was suggested by this author: "Among the most important economic variables that can justify the wait and see attitude of most investors are the volatility of the structure of relative prices, the confusing signals sent by the government until 1985 concerning its commercial policies and the threat of protectionist barriers....under these situation is not surprising that investors did not want to commit themselves to large trade oriented investment projects ..." Op. Cit. p.13.

¹² According to some estimates, as a result of the adverse effect attributed exclusively to the fall in the oil price, the country lost around 8 500 million dollars -an amount equivalent to 40% of exports and 6.5% of GDP.

¹³The lending from the World Bank was given in support of structural changes, which thereby would had to be accelerated.

TABLE 2
TRADE LIBERALIZATION 1985-1990

	6/85	12/85	6/86	12/86	6/87	12/87	6/88	11/89	6/90
Import Licensing 1/	92.5	47.1	46.9	39.8	35.8	25.4	23.2	20.3	19.9
TARIFFS									
Maximum	100	100	45	45	40	20	20	20	20
Average 2/	23.5	28.5	24	24.5	22.7	11.8	11	12.8	12.5

1/ Percentage coverage of production of tradables, 1986 weights

2/ Weighted by production of tradables, 1986 weights. Excludes 5 percent surcharge

Source: Calvo, S and Mansilla, M (1993)

Growth resumed in 1987, but only 1.7% - still below the rate of the growth of population. The current account of the balance of payments, however, recovered from the 1986 deficit of US\$1.7bn to a US\$8.4 surplus in 1987, the level of international reserves rose to US\$ 13.7bn. In contrast, inflation, partly as a result of a real exchange rate depreciations at the end of the year, accelerated¹⁴.

5.2.3 Successful Heterodox Stabilization in 1987-92

The average monthly rate of inflation between January and November of 1987 was above 7.5%. After an abrupt devaluation in december 1987 it mounted to an unprecedented figure of 14.8%. The inflationary expectations embedded in the economy, implied that a reliance on orthodox policies to control the inflation-devaluation spiral would case a severe recession with very high social costs. In response to the exchange rate devaluation of November 1987 the organized labor movement demanded an emergency wage increase of 46%, stating that if this was not granted a general strike would follow.¹⁵ In order to face this situation, in December of 1987 a new program of orthodox monetary and fiscal measures was launched together with a tripartite agreement -called the "Economic Solidarity Pact". This Pact introduced the heterodox component of adjustment through measures designed to break inertial factors in the process of wage and price determination and to coordinate expectations of future inflation. In essence, it combined minimum welfare guarantees with nominal guidelines to anchor the exchange rate, wages and key prices.

These heterodox characteristics of the program were combined with a commitment of the economic authorities to follow and enhance a contractionary fiscal stance in order to reassure financial markets, the credibility of this new stance being reinforced by both

¹⁴See Calderón-Madrid, A. for an analysis of the determinants of this devaluation.

¹⁵For an account of the situation which led to the adoption of the heterodox program, Cfr. Jarque, C and Tellez, L. (1993).

large-scale privatization and the negotiations for entry into the North American Free Trade Area (NAFTA). During the first year of the Pact, the public sector primary surplus rose by 3% of GDP, through a reduction of expenditure by 1.5% of GDP and equal increase in revenue from public enterprise prices and more efficient tax administration. In addition, import tariffs and non-tariff barriers were reduced far beyond the previously announced target for 1987.¹⁶ The aim was to contribute to the disinflation program by means of exposing domestic producers to foreign competition.

Inflation decelerated immediately (from an average of 9% a month in the last third of 1987 to 1% during the same period in 1988) and although real GDP grew by only 1.3%, the previous recessionary experience had been avoided. However, it was clear that the Mexican Economy could not recover the level of investment required to return to a sustainable and inflation-free growth path while at the same time transferring resources abroad (at the current rate of 6% of GDP) in order to service the external debt.

A major element in the positive results of the heterodox adjustment program were the direct and indirect benefits of the agreement achieved within the so-called "Brady plan." Unlike previous debt renegotiations, this time the strategy was not just a rescheduling and/or refinancing of debt: it provided a reduction in the stock of debt and the debt service burden based on the explicit depreciation of debt on the secondary market. As a result of this successful debt renegotiation strategy in 1989-90, the direct benefits for Mexico were estimated to be of the order of US 14bn, equivalent to 36% of the market value of public foreign debt (valued at 40.5 cents per dollar at the time) or 15% of the face value of gross foreign debt¹⁷.

Even more important than these direct benefits were the indirect gains in terms of the enhanced credibility of Mexican policy in the eyes of not only foreign creditors but also the domestic private sector. Domestic real interest rates fell, while flight capital started to return.

Mexico renewed its access to international capital markets and domestic and foreign investment began to recover from 1990 onwards¹⁸. Thus both public and private sectors recovered access to the voluntary market for credits from the international financial community: the government tightly restrained its foreign borrowing, but private foreign

¹⁶According to the 1986 economic program, Mexico's maximum and average tariff were to be gradually reduced to 30 and 17.8 percent, respectively. The December 1987 program lowered them to 20 and 11.8 percent, respectively. In turn, the production coverage of non-tariff barriers was reduced by 40 percent instead of the announced 20 percent. *Cfr.* Calvo, S. and Mansilla, M. (1993).

¹⁷OECD (1992) p.43. *Cfr.* Gurría (1993) for a detailed account.

¹⁸*Cfr.* Van Wijnbergen, S. (1991) and (1991a).

indebtedness increased at 35% per annum between 1990 and 1992.

In addition, as part of the package of reforms intended to laid the foundations for an economic takeoff, a radical process of financial liberalization was started at the end of 1988 with two measures: commercial bank's reserve coefficient was reduced from 52% to 30% and ceiling on commercial bank's deposits interest rates were abolished. Moreover, in May 1990 the authorities announced the privatization of banks. This announcement -as well as its implementation- had an important effect in private sector confidence. It was reflected in capital inflows and a reduction of domestic interest rates.

As it will be discussed below, a reduction in financing needs of the public sector due to its fiscal operational surplus and financial liberalization measures are factors determining the private expenditure boom during the heterodox adjustment program.

5.2.3 GDP Growth and Inflation

The sustained positive real growth of GDP during the first five years of the heterodox program contrasts with the stop-go process that characterized the first seven years of the decade of the 1980s. It is only until the first half of 1989 that the real level of GDP of the Mexican Economy is above the peak level achieved during the fourth quarter of 1981. Moreover, this growth took place in a context in which the terms of trade of the Mexican economy in 1988-92 were 50% their level in 1981.¹⁹ Mexico was a conspicuous participant during seven years in the so-called "lost decade of growth in Latin America": the same level of GDP in 1987 as in 1981, but a population which increase of 10 million. Indeed, in spite of a 16% real rate of growth of GDP achieved between 1987 and 1992 (as against a corresponding increase in population of 10%) GDP per capita in 1992 was still below the level achieved in 1981- as Figure 2 all to clearly shows.

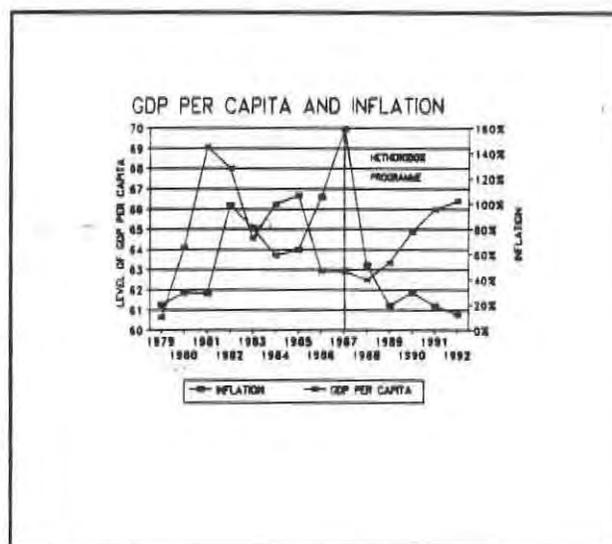


FIGURE 2

¹⁹ In 1993 inflation rate kept its declining trend (8%), real growth of GDP -for the first time in the presidential term resulted below the rate of growth of the population. In 1994 GDP per Capita grew by 1.2% and inflation was 7.1%.

5.3 Macroeconomic Adjustment Policy During the Stabilization Programmes.

5.3.1 Fiscal Adjustment and Debt Management.

Most of the studies about the Mexican adjustment after 1982 emphasize the radical changes in fiscal aggregates, which are shown in figure 3. The most remarkable change is in the gap between the income and expenditure of the public sector without considering interest payments (the 'primary balance'), which reflects discretionary efforts to achieve fiscal balance because interest payments are determined by debt accumulation in previous periods. In 1988 -the first year of the heterodox program- the primary surplus was 8% of GDP, a record that was to be repeated during the two subsequent years.

The fact that a variation of primary fiscal balance equivalent to 16 points of GDP was achieved in only seven years is even more striking in view of the fact that real GDP in 1988 was no higher than in 1981 and that oil exports were substantially lower.

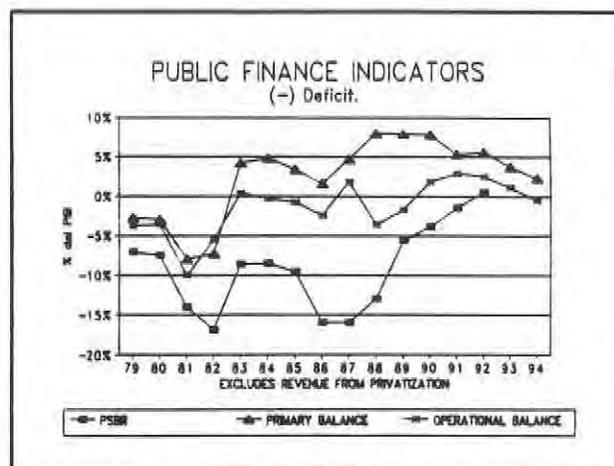


FIGURE 3

The 'operational balance' (the result of subtracting from the primary balance, net interest payments on public foreign debt and interest payments on domestic debt, net of its inflationary component) measures the fiscal claim on resources not financed by regular revenue. The operational balance and primary surplus moved in opposite directions in 1988, reflecting a major change in monetary policy. While the real level of interest paid on domestic public debt by the public had been negative in 1987, in 1988 it rose to an unprecedented positive levels of 28%. As Figure 3 indicates, the discrepancy between the operational and primary surplus declined after 1990, reflecting both a much lower domestic real interest rates and a lower share of public debt in GDP.

The discrepancy between primary surplus and the PSBR fully captures interest payments as a share of GDP, shown in Figure 4 disaggregated between interest paid on domestic and on foreign debt. Figure 4 also shows the so-called 'inflation tax', a source of revenue for the public sector which declined substantially during the heterodox program.

In 1982, capital losses for holders of monetary assets -an implicit transfer to the public sector- represented 7.4% of GDP, but during the subsequent five years this source of revenue was reduced to an average of 3% of GDP, and in 1988 it was less than 1% of

GDP²⁰.

The 'consolidated public debt' includes the development banks and Central Bank as part of the public sector; hence the net foreign position of the Bank of Mexico (i.e. international reserves less foreign liabilities) are part of the 'net' external public debt. Figure 5 shows the share of public debt in GDP and Figure 6 the annual change in this coefficient. The ratio of debt fell by nine points between 1987 and 1992 as a result of the heterodox adjustment program, bringing the debt burden down below the level of 1980.

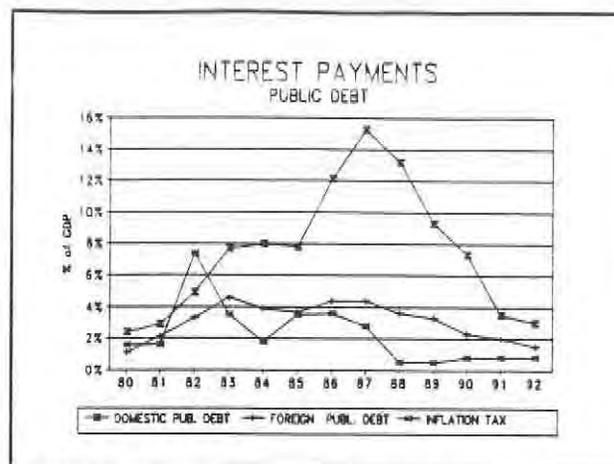


FIGURE 4

As it will be discussed below, this is a major factor in explaining why current account deficits in the balance of payments appeared despite the contractionary fiscal policies. The reduction of domestic public debt together with the financial liberalization are key factors in the explanation of private expenditure booms which were the counterpart of current account deficits. This contrasts with the management of domestic debt in the mid-1980s during the first years of the orthodox phase of the adjustment program: during 1983 and 1984 domestic debt increases its participation in GDP, contributing to the pressure for exchange rate devaluation in 1985.

Since 1987 the share of net external debt in GDP declined, mainly due to the increase in net foreign assets held by the

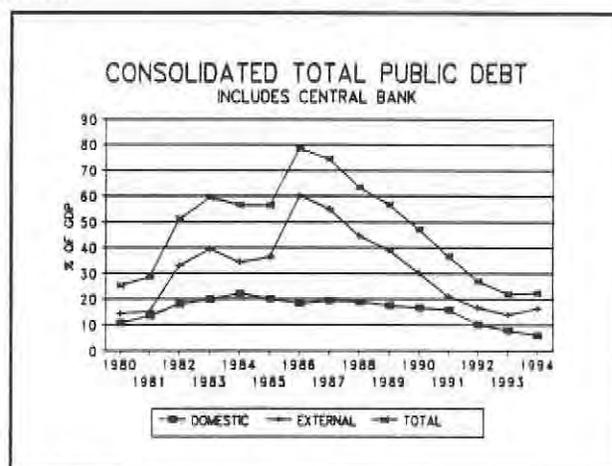


FIGURE 5

²⁰Inflation was substantially reduced from 159% in 1987 to 52% in 1988 -a level half the one registered in 1982. In addition the monetary base in 1988 as a share of GDP was a quarter of the corresponding share in 1982.

Central Bank²¹. By 1988 real exchange rate appreciation, represented in figure 7, was also contributing to the reduction of the coefficient. This astonishing reduction of 38 points in GDP between 1987 and 1992 of external debt is crucial in explaining the repatriation of financial assets held abroad by households and a recovery of private firms' creditworthiness abroad.

During the first eight years of the 1980s the perception of potential problems in balance of payments - as reflected in the increasing external debt ratio - inhibited capital inflows and affected the access to international financial markets. This ratio was closely determined, during these years, by the coefficient representing public debt as a share of GDP.

Observed and expected changes in this coefficient were used by market participants to judge the sustainability of the adjustment programs. This, in turn, was due to its relationship with unanticipated inflationary and devaluatory changes in order to close the fiscal accounts by means on induced capital losses to holders of assets in domestic currency.

The variations of the public debt ratio depend, among other factors on (a) the share of primarily surplus in GDP, (b) the discrepancy between interest rates and rates of growth of GDP, and (c) external debt renegotiation (d) the real exchange rate appreciation. In 1988 the favorable combination of these factors allowed not only for a reduction of the share of public debt in GDP but also to the expectation that it would continue falling and thus helped to improve the perception that changes contributing to the success of the adjustment program would not be reversed these issues are addressed

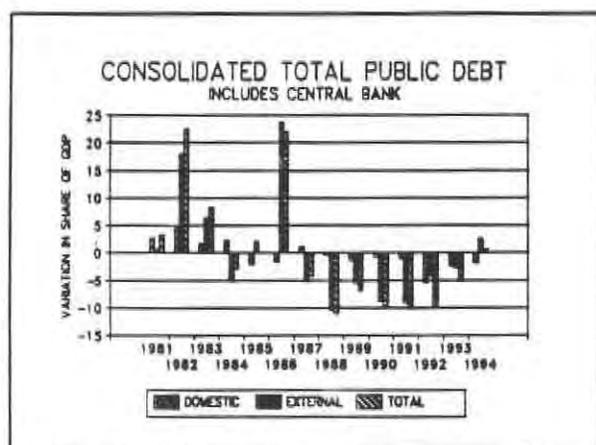


FIGURE 6

²¹When public debt excludes the Central Bank, the corresponding coefficients are 61.8%, 61.4% and 48.9% of GDP for 1986, 1987 and 1988 respectively.

REAL EXCHANGE RATE BEFORE BAI

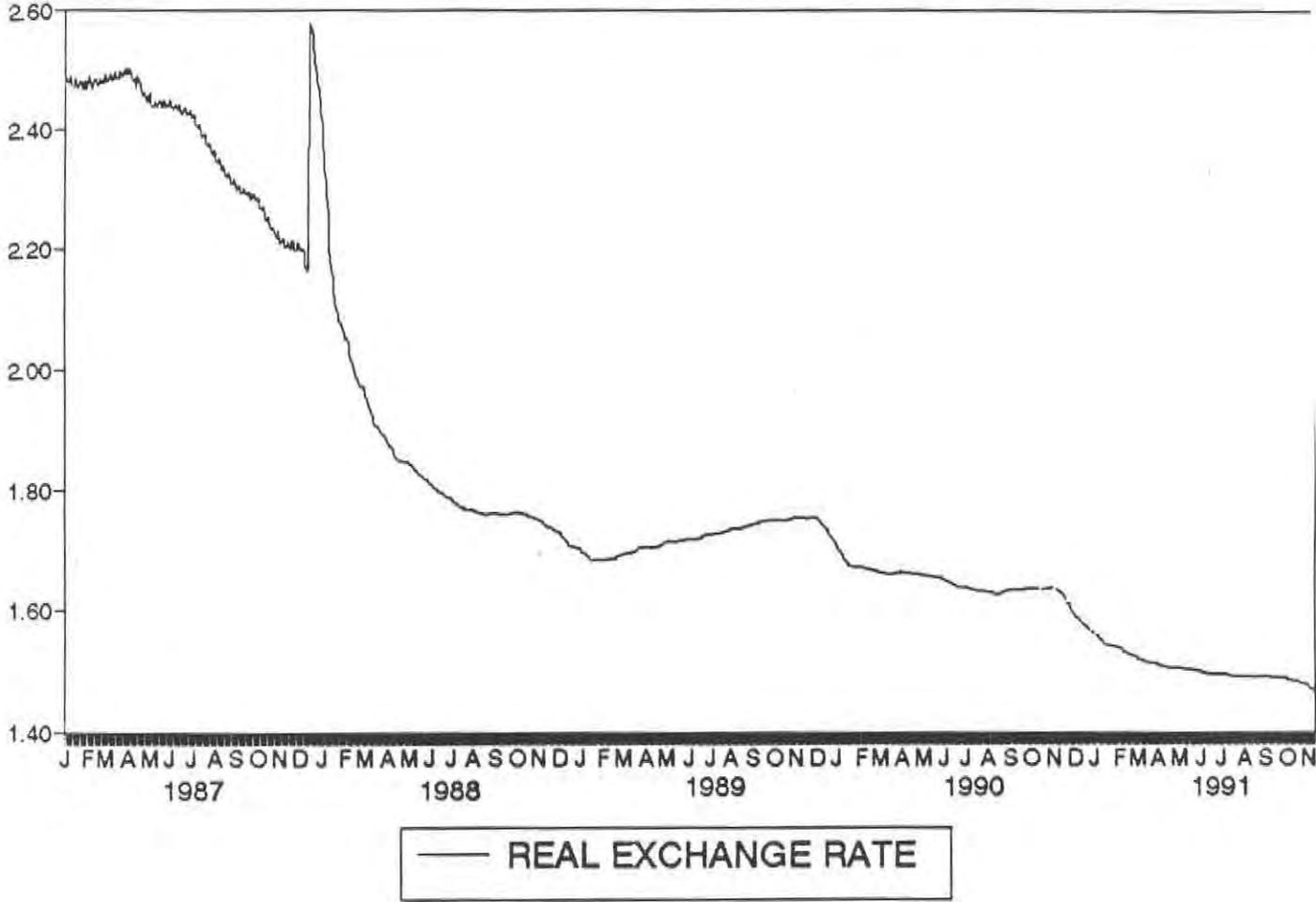


FIGURE 7

empirically by Werner (1992)²².

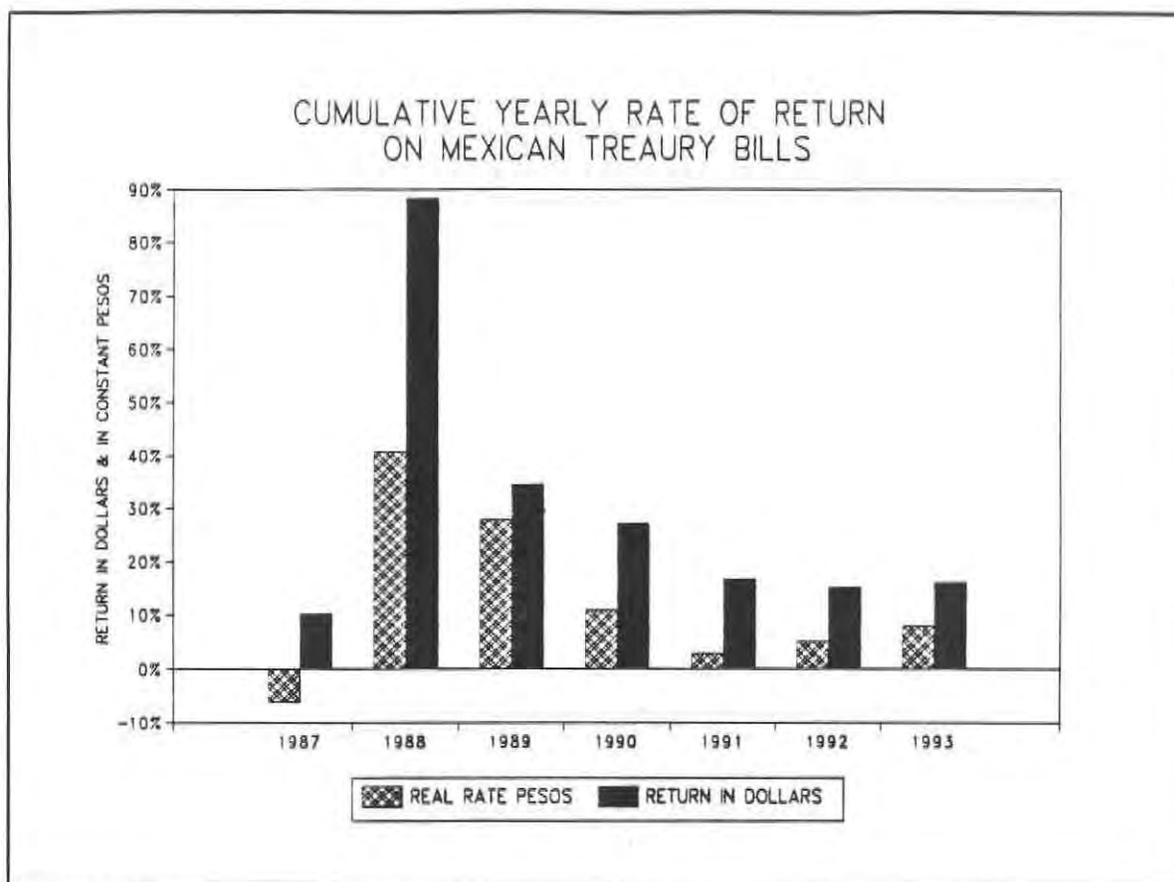


FIGURE 8

At an aggregate level, the evolution and composition of public and total country net debt

²²By means of an elaborated econometric analysis he provides an insight of their importance, searching for periods in which fiscal accounts were perceived as potentially insolvent. However, as Buitier (1992), points out, this kind of test implies that the generating process describing the evolution of discounted debt and/or deficit is stable (in the sense of parameter constancy) over time. The weakness of this approach, therefore, is that it may fail to capture structural breaks. Moreover, such test also imply forward-looking expectations on the part of private agents, "the timing of the policy reversal or possible debt defaults will be in part determined endogenously by private sector behavior in response to trigger mechanisms such as a large unexpected disturbance that may result in a speculative attack on debt". Home (1991) p.8. These two problems are particularly relevant in the Mexican case.

since 1988 suggests a radical change, of international financial markets, in the perceived sustainability of macroeconomic program in general and solvency of the country in particular. This change created the conditions for the return of private firms and Mexican commercial banks to international capital markets²³.

5.3.2 Exchange and Interest Rate Management during the Heterodox Program

A central element of the first phase of the heterodox program was the announcement by the monetary authorities of their commitment to maintain a fixed nominal exchange rate throughout 1988. This commitment was fulfilled, as were subsequent ones: As of January 1989 the nominal exchange rate was subject to a pre-announced daily depreciation - crawling peg- until November 1991, when an exchange rate band was adopted. Two important differences exist between these announcements -and their commitments to avoid surprise devaluations- and the corresponding announcements during the orthodox phase of the adjustment program. First, the management of exchange rate was considered to be part of the 'Pact'- that is a government commitment as a counterpart to the private sector commitment to wage and price controls. Second, the authorities were committed to a contractionary fiscal stance, in order to make the announced exchange rate trajectory plausible.

The objectives sought with the strict adherence from 1988 onwards to the announced management of the nominal exchange rate were: first, the provision of a credible nominal anchor for the disinflationary program; and second, the reduction of uncertainty about exchange rate movements so as to deter speculative attacks to the balance of payments.

Due to the initial lack of credibility, unprecedented domestic levels of the real interest rate became the counterpart of a monetary policy geared towards one target alone: that the nominal movements of the exchange rate do not differ from what was announced during each of the phases of the program. Figure 8 shows that the domestic real interest rate²⁴ during the first two years of the program mounted to levels above 28%.

Part of the risk-premium reflected in the high level of domestic interest rates at some stages of the heterodox program was thus associated with inertial inflation and continued

²³Cfr. Ortiz, G. (1991). OECD (1992). Oks, D. and Van Wijnbergen, S. (1992). Mansell Carstens, C. (1994).

²⁴The cumulative yearly rate of return in constant pesos of short term government bonds. These are the ex-post levels, as inflation was effectively reduced and no surprise devaluation occurred. This figure also includes corresponding returns in dollars, i.e. nominal rates in pesos less exchange rate depreciation.

expectations of an inflation-devaluation spiral, and not to unsustainability of the heterodox program as such. To substantiate this, consider the following events:

For 1989 the authorities announced a crawling-peg consisting of a one peso a day depreciation -equivalent to a yearly 16.8% nominal exchange rate depreciation- until the date for the next renewal of the 'pact'. As this date approached, expectations in financial markets were that the rate of the crawling-peg would be increased, because the cumulated domestic inflation had already appreciated the level of the real exchange rate. In a move which surprised financial markets, the renewal of the 'Pact' included a **reduction** of the rate of the crawling-peg: from a one peso daily devaluation, to a 80 cents a day (equivalent to a yearly 10% nominal depreciation). As the announcement of this change hit the financial markets, the level of the domestic interest rate unexpectedly **fell down**, in spite of the fact that, with the forthcoming domestic inflation a further appreciation of the real exchange rate will surely follow. Hence, a phenomenon worth highlighting happened: The response in the financial markets was the opposite from what would have been observed if high domestic interest rates were responding to a perception of a required real exchange rate depreciation²⁵. The same phenomenon, which further signalled the disinflationary intention of the authorities, occurred a second time six months latter, in the subsequent agreement of the 'pact'.

One of the determinants of the high levels of interest rate was therefore associated to the premium that still had to be paid for inflationary expectations. These expectations were partly due to the uncertainty by the private sector about the authorities' real objectives of economic policy: a low inflation and no exchange rate devaluation or were they just trying to talk down inflationary expectations to enhance gains from a contemplated devaluation?

To consider the risk-premium required to persuade financial portfolio holders to keep their peso denominated assets, and to induce private firms to rely on foreign and not domestic credit, the equivalent in **dollars** of the rate of return obtained for an asset held in Mexico and denominated in pesos must be compared with the return of a similar asset denominated in foreign currency.

In Figure 9 we present the annualized return in U.S. dollars of a peso denominated financial asset held for one **month**. An exchange rate depreciation registered at the end of 1987 implied that holders of peso-denominated bonds experienced during december

²⁵That is, if the high level of the domestic interest rates were including a risk-premium that was rather reflecting an expectation for real exchange rate devaluation due to unsustainable fiscal and current account imbalances, the level of the domestic interest rate would have **increased** with the announcement of slower rhythm of crawling-peg for the exchange rate. This is because an even larger exchange rate devaluation would have been feared, since expected domestic inflation for that period was surely going to further aggravate problems due to the then accentuated tendency for the real exchange rate to appreciate .

a loss of 15% in dollars. This capital loss made more difficult to persuade financial market participants to keep their peso denominated bonds, so the return in dollars on a Mexican treasury bill had to be raised during the first quarter of 1988 to rates of 11% - an annualized equivalent of 140%! Indeed from then onwards, in sharp contrast to the experience during the orthodox adjustment program, the return in dollars obtained for holding peso denominated public debt was positive and well above that obtained in the USA.

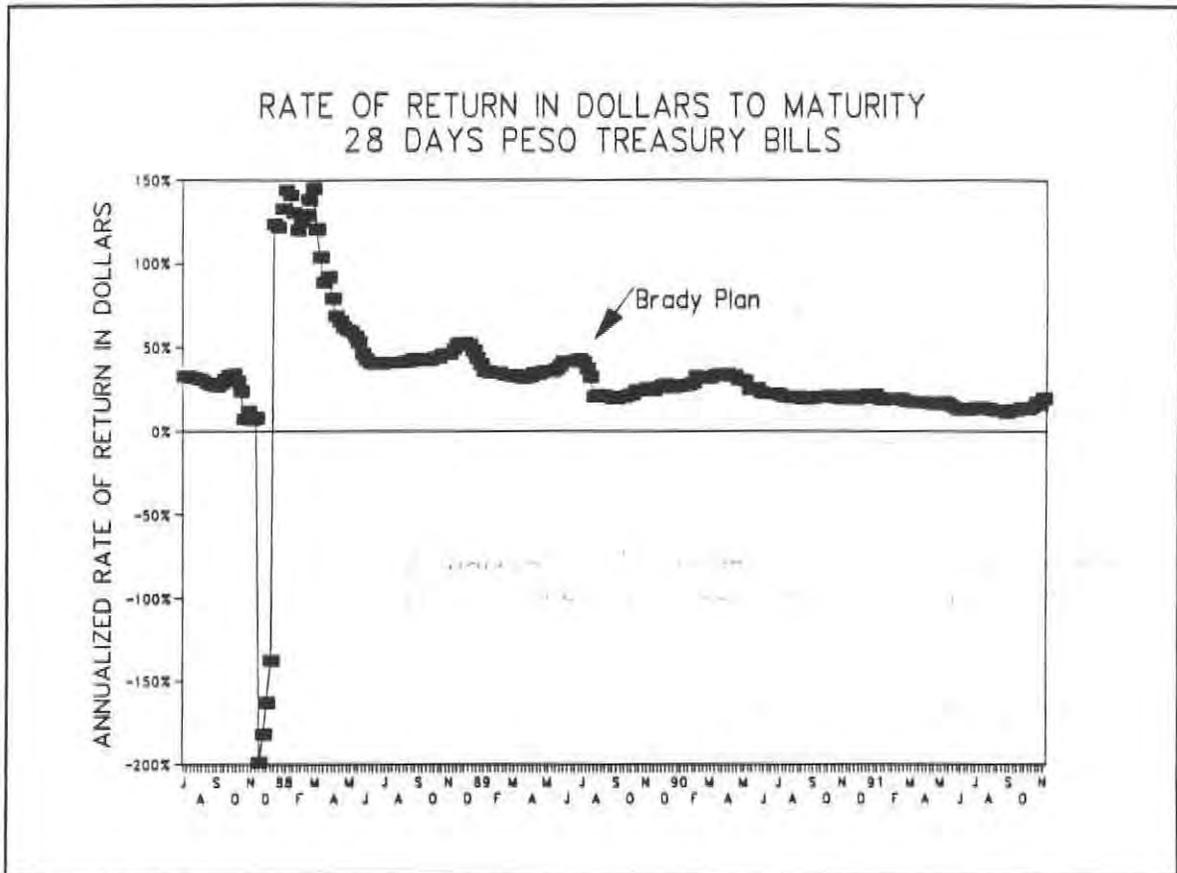


FIGURE 9

Having fulfilled the announced management of the exchange rate during the first phases of the programme were not only taken as a demonstration of the disinflationary commitment of the authorities by the participants in financial markets. It was also perceived as an attempt to convince the private sector that relying on surprise nominal exchange rate devaluations to improve competitiveness was no longer contemplated by the authorities as a desirable policy.

As suggested above, the lack of full credibility in the success of keeping a fixed nominal exchange rate throughout 1988 was reflected in a level of 38% of the domestic real interest rate in that year. This high figure suggests the very high risk-premium that had to be paid for the lack of credibility of fulfillment of the fixing of the nominal exchange rate. The announced crawling-peg for the subsequent year enjoyed more credibility, which is shown, in figure 8, by the reduction from 86% to 34.5% in the rate of return in dollars paid for the holdings of peso-denominated government bonds. In contrast to what happened in 1988, private capital inflows and an increase in international reserves were

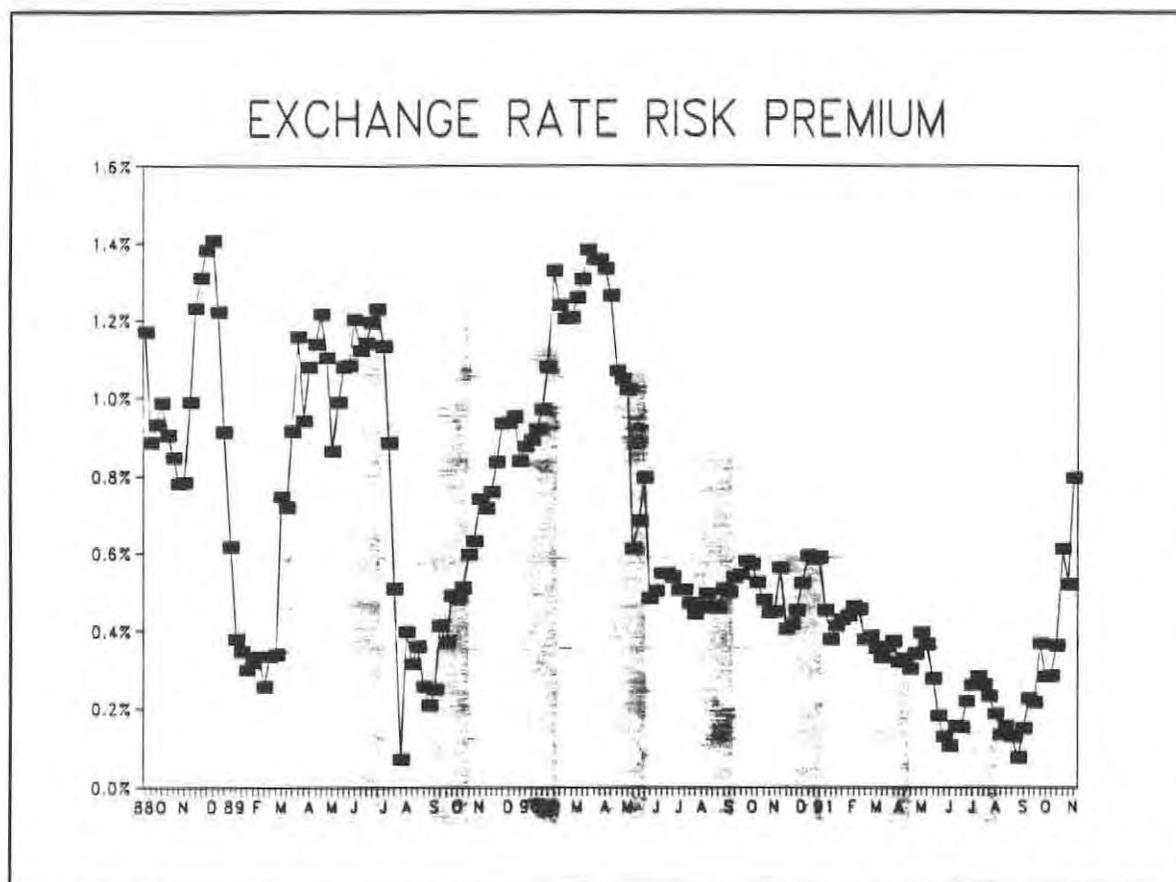


FIGURE 10

registered during 1989²⁶.

As credibility of the authorities was recovered, the risk-premium demanded for the

²⁶According to official figures, capital outflows during 1988 were 3592 million dollars, and capital inflows during 1989 mounted to 4226 million dollars. *Cfr.* Gurría (1993) Table 4.

holding of a peso-denominated debt was decreased. The cumulative process of 'reputation building' partly explains the reductions in interest rates as shown in figures 8 and 9, therefore²⁷, but this was also based on the control of the primary fiscal surplus, the announcements and actions related to divestiture of public enterprises and national banks and a renegotiation of the foreign debt.²⁸

The transferring of resources abroad to the tune of 6% of GDP to service the external debt was having, without doubt, adverse effects on the perception of sustainability of the exchange rate regime. Therefore, the renegotiation of the foreign debt, with its positive immediate and medium term effects on the reduction of balance of payments pressures, had immediate reflections on lower levels of the domestic real interest rate. Although the renegotiation officially ended in february 1990, its effects on interest rates were registered since it was first announced in July 1989. As shown in figure 9, in July 1989 the annualized real rate of return in dollars on domestic-currency denominated treasury bills resulted in 10 points lower than the rates corresponding to the first two quarters of that year- an effect which is attributed to a lower country risk premium as a result of the renegotiation of foreign debt.

The domestic bonds issued by the Mexican government were not only denominated in pesos -e.g. the so-called Cetes-, but in dollars too, called 'Pagafes'. The comparison of the return of these bonds enabled us to calculate the exchange rate risk premium, presented in Figure 10²⁹. This premium is the expected exchange rate depreciation, calculated by means of the implicit arbitrage between peso and dollar denominated debt and the preannounced exchange rate depreciation.

In Figure 10, a number of important results can be appreciated.

(a) During the last months of 1988, there was an implicit expectation of a monthly exchange rate depreciation of up to 1.4%. This is in spite of the commitment by the authorities to keep the exchange rate fixed until december 31 of that year.

²⁷For an analytical model supporting these views *Cfr.* Andersen, T. and Risager, O. (1988).

²⁸In addition, liberalization of imports and other commercial policies to consolidate an export oriented model were not only maintained, they were also complemented with the announcement and negotiations of a Free Trade Agreement with the USA and Canada. These policies induced capital inflows, thereby pushing down the level of the domestic interest rates.

²⁹Captured by means of the Cetes-pagafes differential, corrected for the observed (which coincided with the preannounced) nominal exchange rate depreciation.

(b) At the end of december 1988, a crawling-peg of one peso a day (equivalent to a yearly depreciation of 15.6%) was announced for the first months of 1989. As this announcement reached the market, the exchange rate premium fall relative to the last quarter of 1988, thereby reflecting, during the first quarter of 1989, some recovery of credibility in the commitments for exchange rate policy.

(c) As the foreign debt renegotiation process reached its conclusion (april-july 1989), exchange risk premium more than doubled the levels registered during the first three months. In July, as the renegotiation was perceived to be successful, this premium falls sharply. This downward movement was reflected in lower nominal interest rates of peso denominated debt, but the reduction in these rates was more accentuated. This is because the country risk premium -as represented by the rate of return in dollar denominated debt, relative to an equivalent instrument in the USA, fall sharply too. This is shown in figure 11.

(d) In spite of the rising trend in inflation during 1990, the reduction of the crawling-peg from one peso to 80 cents for the period may-november of that year, effectively reduced exchange rate risk during these period. As shown in figure 10, this accounts for the lower returns in dollars on peso denominated debt.

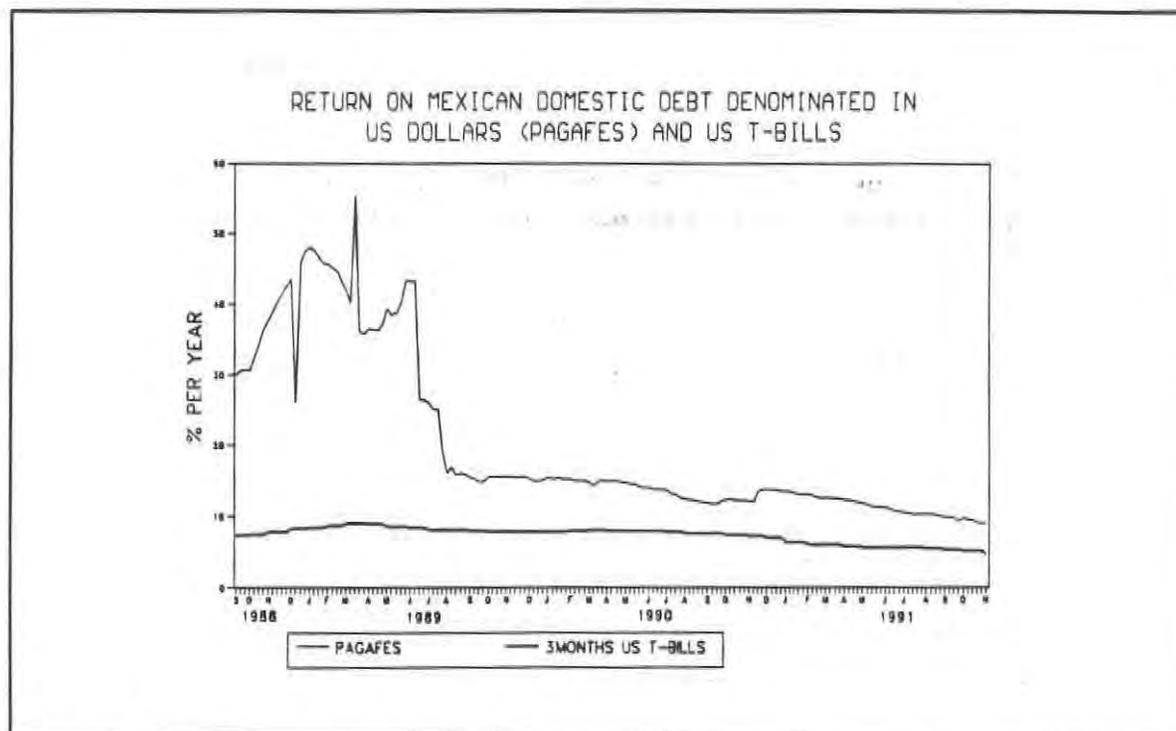


FIGURE 11

(e) A further reduction for the crawling peg from 80 to 40 cents a day for the period

november 1990-november 1991 (equivalent to a yearly nominal exchange rate depreciation of 4.9%) implied an even lower exchange rate premium and by the end of october 1991, expected and preannounced nominal exchange rate depreciation tended to coincide. It is in this date that a change from a crawling peg to an exchange rate band takes place.

5.4 Private Sector Behavior under the Heterodox Program

5.4.1 Current Account Deficits and Fiscal Surpluses

The deterioration in the current account of the balance of payments during years in which the operational surplus of the public sector has been increasing has puzzled analysts of macroeconomic events in Mexico. As figures 1 and 12 show, changes in fiscal operational deficits and variations in current account deficits had a close correlation until 1988. In 1989 the direction reverses.

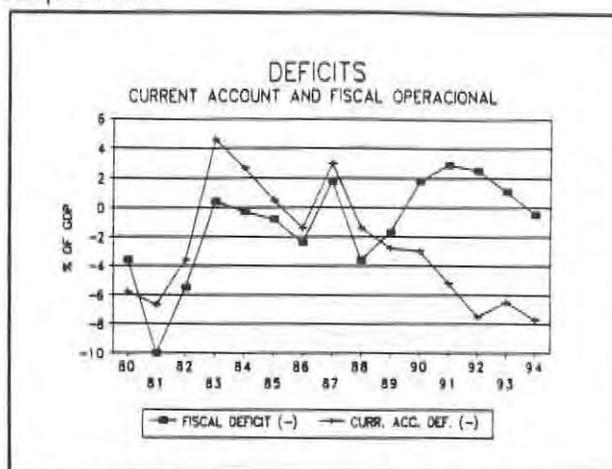


FIGURE 12

In 1983, for instance, the 'twin deficits' reflected the rigorous compliance by the Mexican authorities with the fiscal performance clauses of its IMF sponsored programme (discussed in section 5.2.2). The link between the direction and magnitude of changes in fiscal deficits and current account of the balance of payments was also registered and commented upon during the following years.²⁹ For example, Gil Diaz & Ramos (1988), suggested that just as the surplus in the current account in 1983 and 1984 were related to the fiscal corrections of these years, the lower surplus in current account in 1985 must be attributed not only to an appreciation of the real exchange rate, but to having had a reduction in fiscal surplus. During 1986, oil export revenue fell sharply as a result of a deterioration of its prices and due to the restricted access to international financial markets, most of the adjustment had to be through a more restrictive fiscal stance. Had the fiscal stance not been so contractionary, the adverse effects on the

²⁹ In its Annual Reports previous to 1988, the Bank of Mexico pointed-out this tight correlation -of positive sign- that had historically registered between operational fiscal deficit and current account of the balance of payments. Cfr. Informe Anual del Banco de México (1988) p.37. and Ize, A. (1989). "Trade Liberalization, Stabilization and Growth: Some Notes on the Mexican Experience" IMF Working Paper October.

current account would have been much more severe.³⁰ Again, in 1987 an unprecedented effort in fiscal accounts correction (an increase of 5% of GDP in the primary surplus) is correlated with a noticeable improvement in the current account of the balance of payments.

The relationship between the direction of changes in fiscal accounts and current account deficits since 1988 has been the opposite one to the registered during previous years. This can be interpreted to be a result of a "**super crowding-out**" effect of fiscal policy on private expenditure. In other words as the share of public revenue in GDP increased and public expenditure represented a lower share of absorption in total production, the sum of private expenditure in consumption and investment goods increased its share in GDP³¹. Moreover, not only was the sum of investment and consumption expenditure of the private sector greater than the flow of its disposable income during these four years, but also the changes in the discrepancy between private expenditure and disposable income exceeded the changes in fiscal surplus, thereby generating each year larger current account deficits.

Stated differently, far from having contractionary fiscal policies had an inhibiting effect on private expenditure (i.e. having 'crowding-in' effects), the

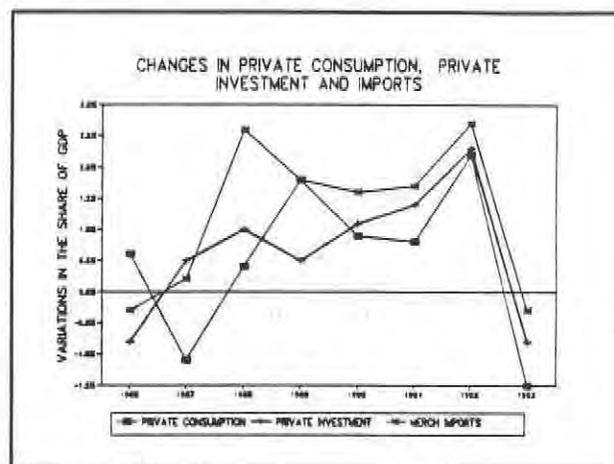


FIGURE 13

³⁰For Trigueros and Beristain, "Economic Policy during 1986 was successful in that it managed to translate a negative shock of nearly 7 points of GDP into a recession of 4%, while at the same time, a tight commitment to fiscal discipline was crucial in avoiding the lide into hyperinflation" *Op. Cit.* p.6.

³¹It is interesting to contrast these results with those presented in our first section, when dealing with the crowding-in effects searched by the president Echeverria's administration expenditure programs.

reductions in net private savings³² surpassed the increases in domestic savings associated with the reduction in fiscal surplus. Table 3 shows the consequences. Unlike what had happened previously, between 1988 and 1992 the share of exports in GDP was stable while the import share rose by over 7 percentage points of GDP; the contribution of private expenditure to this current account deterioration is shown in figure 13. Both private consumption and private investment increase their share in GDP between 1988 and 1992, the former to above its pre-1982 boom level. In contrast, it is not until 1991 that investment exhibits a share of GDP above its previous peak of 1981 - registering between 1991 and 1992 an unprecedented increase of more than 2 points of GDP.

³²That is, consolidated private savings net of private investment.

TABLE 3
COMPONENTS OF GDP (%)

	PRIVATE CONSUMPTION	PRIVATE INVESTMENT	PUBLIC INVESTMENT	PUBLIC CONSUMPTION	EXPORT	IMPORT
1980	65.1	14.1	10.7	10.0	10.7	13.0
1981	64.2	14.5	12.0	10.2	11.0	14.0
1982	63.0	12.4	9.8	10.4	13.5	8.8
1983	62.3	10.0	6.5	11.2	16.0	6.1
1984	62.1	10.5	6.6	11.5	16.3	6.9
1985	62.6	11.4	6.5	11.3	15.2	7.5
1986	63.2	10.6	5.8	12.0	16.6	7.2
1987	62.1	11.1	5.0	11.6	17.9	7.4
1988	62.5	12.1	4.7	11.4	18.7	10.0
1989	64.3	12.6	4.7	11.0	18.6	11.8
1990	65.2	13.7	5.1	10.8	18.4	13.4
1991	66.0	15.1	4.6	10.7	18.7	15.1
1992	68.2	17.4	4.3	10.8	18.2	17.8
1993	66.7	16.6	4.1	11.0	18.8	17.5
1994	66.7	17.3	4.3	10.8	19.5	19.0

5.4.2 Private Savings and Consumption Boom.

The tight control of public finance aggregates, to which the administration of president Salinas (December 1988-November 1994) is associated with, was also a characteristic of the macroeconomic policy of his predecessor. In 1987, one year before the outset of Salinas' administration, fiscal accounts had already registered an operational surplus of 1.8% of GDP and a current account **surplus** of 3% of GDP was then achieved. In contrast, 1990 was characterized by a current account **deficit** of 3%.

The change of six percentage points of GDP in the current account of the balance of payments between 1987 and 1990 reflects, exclusively, a variation in the relationship between the income and the expenditure of the private sector. This is because the relationship between income and expenditure of the public sector, as represented by the share of the fiscal operational surplus in GDP, was also 1.8% in 1990³³.

To be more specific, private investment resulted 2.6 percentages points of GDP higher in 1990 than in 1987. Had private saving resulted the same percentage of GDP in both years, the current account of the balance of payments would have still remained in surplus, in spite of the higher level of investment registered during 1990.

That is, it is a sharp drop of 3.4 points of GDP in private savings that explains why in 1990 the current account resulted in a deficit of 3%. In the subsequent years- with private savings far from recovering their 1987 level- current account deficits further deteriorated.

Implicit measurements of private saving -as the one just used to compare 1987 with 1990- are calculated as a residual from the identity relating current account deficits, public sector surplus and private investment³⁴. Because of this, it has at least two drawbacks for analytical and empirical analysis. These are: (a) it consolidates the savings of the two aggregates that compose the private sector: households and firms. (b) they are not explicitly related to the evolution of the real level of assets and liabilities held by these sectors.

A disaggregation of private savings between household savings on the one hand and undistributed corporate profits, on the other, was not available in current Mexican statistics. We addressed this problem by estimating disaggregated flow measurements of private savings. These are presented in table 4 and are an implicit calculation from - and consistent with- stock measures of private net wealth which evolves through time,

³³In 1990 the share of net dissavings of the private sector in GDP was less than the corresponding share for the current account deficit because the public sector turned its fiscal deficit into a surplus and became a net saver -thereby partly counteracting the effects on the net dissaving of the private sector on the current account. Further increases in net dissavings of the private sector during the succeeding two years were not reflected in even more pronounced current account deficits because of the additional increases registered in fiscal surplus.

³⁴This is the most common procedure to measure private savings in Mexico. Because the system of national accounts does not provide data measuring disposable income of the private sector, it is not possible to calculate its savings by subtracting consumption expenditure from such an aggregate.

which in turn are represented in figures 14 and 15.

TABLE 4
SAVING AND CONSUMPTION OF PRIVATE SECTOR
AS A SHARE OF PRIVATE DISPOSABLE INCOME

YEAR	PRIVATE ENTERPRISE SAVING	HOUSEHOLD SAVING	HOUSEHOLD INVESTMENT
1981	8.52	13.68	5.83
1985	9.43	6.89	5.84
1989	11.40	1.79	6.13
1990	12.04	0.54	6.04
1991	9.54	-1.39	6.40
1992	7.20	0.89	7.21
1993	10.52	2.66	7.21

Source: Author's calculations with data from Bank of Mexico.

With these results we can now analyze the determinants of savings and investment decisions as an attempt by private agents to achieve desired levels of stocks, as it is suggested by economic theory³⁵. It is evident from the figures representing, as a share of GDP, net financial wealth of households on the one hand and of private firms on the other³⁶, i.e. 14 and 15- that they changed in a sustained manner, as external and public savings finance the difference between private investment and private savings -as stated above, even in those years with low growth of private

³⁵The disaggregation presented here has been achieved by means of information pertaining to matrices of financial flows elaborated for the years under consideration. These flow of funds matrices, in turn, have been deduced from stocks matrices. These latter ones have been elaborated according to assets and liabilities recorded by financial institutions and to information related to other asset and liabilities held by firms and households from the public and foreign sector. For a detailed explanation of these procedure and further results see Calderón-Madrid, A. (1995).

³⁶These concepts do not include equities.

share of GDP, net financial wealth of households on the one hand and of private firms on the other³⁶, i.e. 14 and 15- that they changed in a sustained manner, as external and public savings finance the difference between private investment and private savings -as stated above, even in those years with low growth of private investment during the presidential term of Salinas, the level of saving by the private sector was not even sufficient to finance its own investment expenditure.

According to our results financial assets held by the household sector have, as a

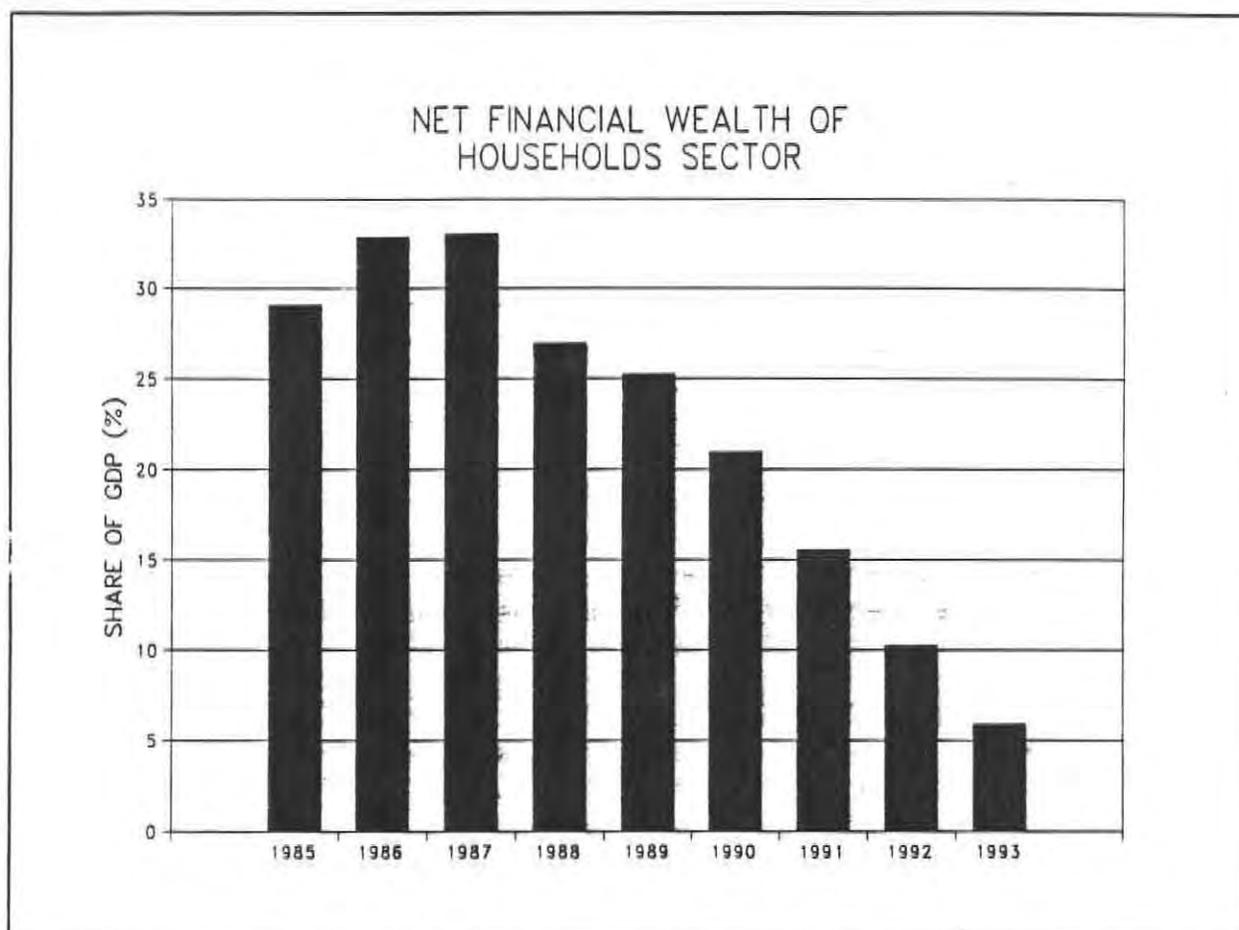


Figure 14

share of GDP, either increased or remained constant since 1988. As opposed to this, the share of credit in GDP has experienced a sustained increase. That is, in spite of the fact that the share that consumption represented in GDP increases by six points

³⁶These concepts do not include equities.

between 1987 and 1992, the share that the financial assets of the household sector represent in GDP in 1992 is not substantially different than in 1987. This result suggests that the consumption boom of these years cannot be attributed to households using their cumulated savings to finance consumption expenditure increasing faster than their disposable income. It is the liabilities component which allowed for this boom in expenditure to take place. As shown in figure 16, the stock of credit received by the household sector represented, as a share of its disposable income less than 5% before the credit boom started; but with financial liberalization this share increased in a sustainable rate by over 13 GDP points with respect to the coefficient of 1988.

In fact, if the consumption function is correctly defined in terms of disposable

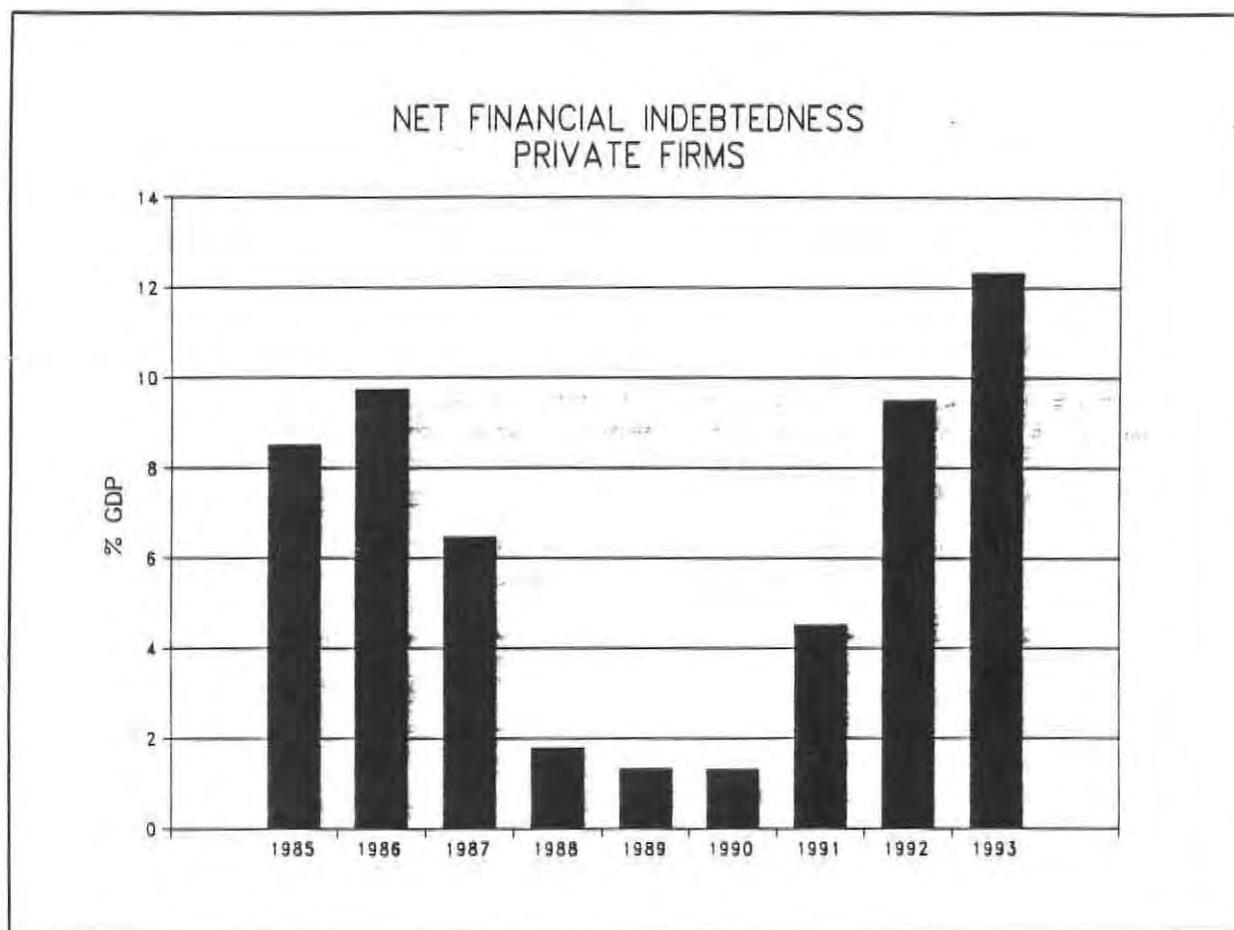


Figure 15

household income³⁷ (including interest receipts), commercial credit is included as an explanatory variable, and the wealth adjustment mechanism is modelled (through an error-correction method) then the result does support this conclusion. In effect, wealth effects and the lagged adjustment towards desired consumption under disequilibrium conditions dominate the long-term consumption coefficient which would determine savings in the steady state³⁸.

The real level of the net stock of financial assets of firms remains constant when dividend payments to the household sector are consistent with maintaining the real level of wealth of firms. In figure 15 we observe the way in which the net indebtedness of assets of firms has increased sharply in the last years, especially 1991 and 1992. This is because net investment has been growing, as shown in table 3, and probably as the result of after-tax profits being distributed in excess of the amount required to maintain the real level of wealth.

5.4.3 Private Sector Portfolio Adjustment

Figure 17 shows in US\$bn the net financial liabilities of the public sector. The total in current dollars has two components: net liabilities with the foreign and with the private sector. From 1990 regulations impeding foreigners holding domestic-currency denominated government bonds were lifted, so we show both foreign acquisition of peso-denominated debt, and that of debt in foreign currency.

An interesting result is the asymmetric behavior of public and private levels of indebtedness. Before the 1982 crisis both levels increase each year, but from 1983 onwards and until 1989 private firms **reduce** their levels of indebtedness. Public sector indebtedness, on the contrary, increases each year until 1988. In fact it is not until 1989 - when the heterodox programme and the renegotiation of foreign debt take

³⁷Capital gains and losses of the value of other (eg fixed) assets (such as houses) would still be needed for the concept to conform with the definition of savings in economic theory. Stated differently, savings is by definition the discrepancy between consumption and disposable income. In turn, the definition of this last concept is the Hicksian definition of income - defined as that which could be consumed in a given period while leaving the real value of future consumption possibilities at the end of the period the same as they were at the beginning. In consequence, the search for an explanation of the apparently perverse effect of fiscal policy on private expenditure, as well as for the analysis of the recurrence of the deterioration of the current account deficit, must take into account capital gains and be disaggregated between households and firms.

³⁸See Appendix.

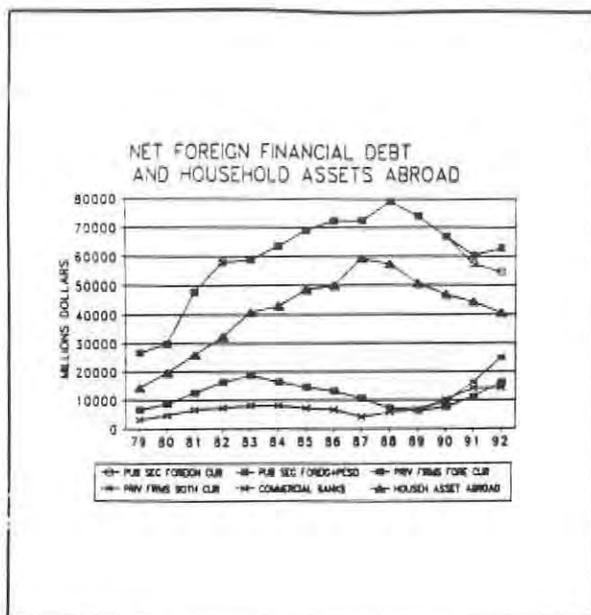


Figure 17

place - that the public sector starts to reduce its net dollar indebtedness. This is also when the private sector achieved its lowest level of foreign indebtedness since the late 1970s. Just as private and public indebtedness had opposite movements when the latter was increasing, the same opposite movement is registered when it is reduced.

The heterodox phase of the adjustment programme is also characterized by the parallel movements between the levels of total net public debt and assets held abroad by Mexicans. That is, the capital outflows which prompted the 1982 crisis continued throughout the decade until the beginning of the heterodox phase. As soon as the dollar value of the total net

public debt started to decline, private capital outflows reversed trend as well³⁹.

These nominal changes in the net stock of financial assets held by the private sector must, in turn, be explained by a combination of induced adjustments in the real level and composition of indebtedness of households and firms, as well as changes in a movement towards their desired levels of financial assets.

5.4.4 Concluding remarks about the behavior of the private sector during the heterodox program

The behavior analyzed of the private sector has no precedent in recent Mexican history. It has been sustainable for such a long time because of the distinguishing features that have accompanied the continuation of a contractionary fiscal policy by the Salinas administration. These features are: on the one hand, an import liberalization policy, which together with an appreciated real exchange rate, incentivated the acquisition of durable consumption goods. The appreciation of the real exchange rate had not only a price effect by making imported goods cheaper, it had also produced an effect on households by making them feel wealthier, this together with other factors that made them feel with more expenditure possibilities motivated the consumption spree. On the other hand, there were important changes in the economic

³⁹The amount of household assets abroad, is a concept for which there are many estimates, one of which is represented in figure 18.

CREDIT TO HOUSEHOLDS AS SHARE OF PRIVATE DISPOSABLE INCOME

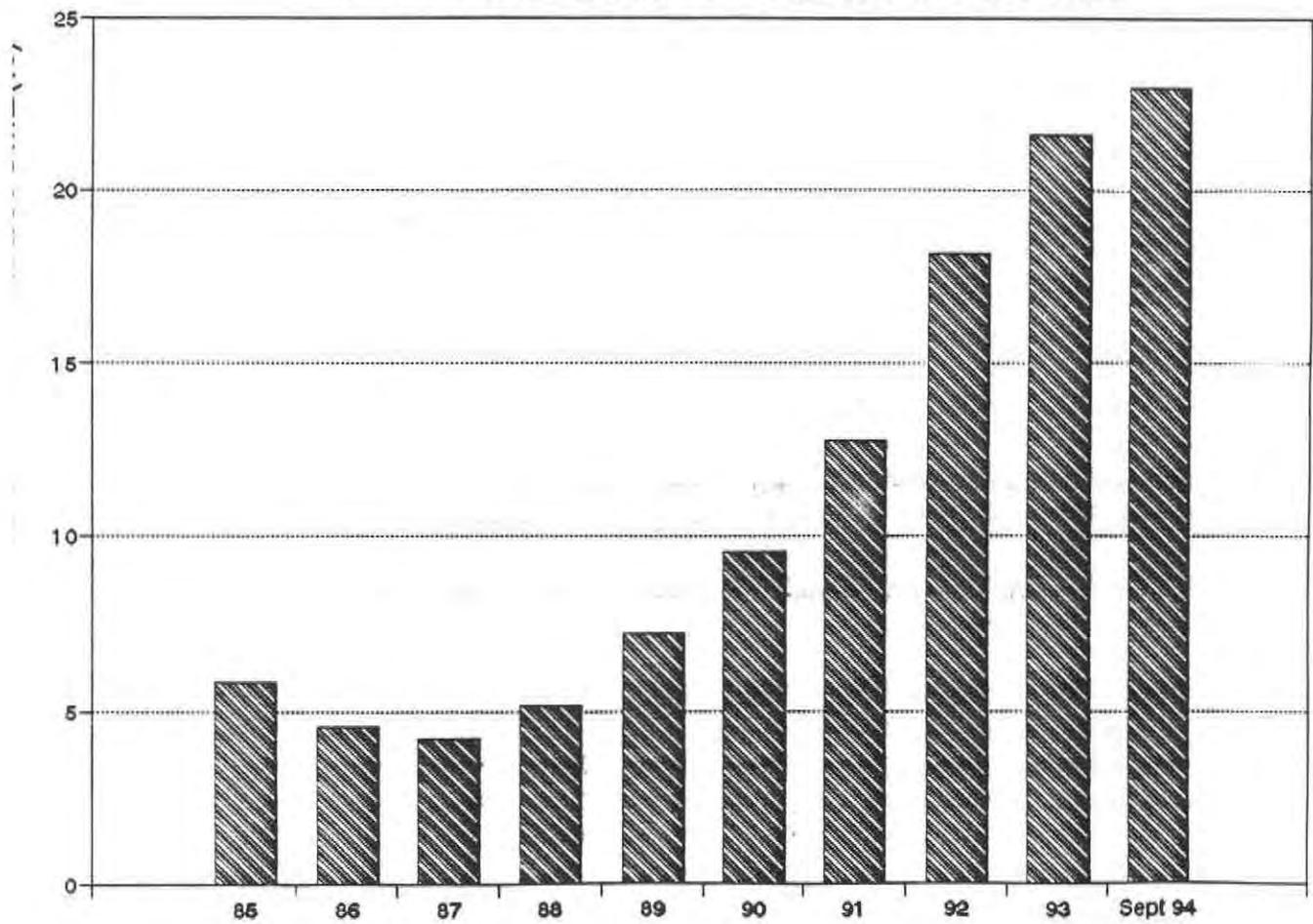


FIGURE 16

context which made the consumption boom possible. Most important among them was the unprecedented credit boom, absorbed mainly by households. This credit boom was created not only by the liberalization in the banking system and capital markets. As it is shown in matrix 1, other factors that made it possible were the reduction of public sector domestic debt -both the direct domestic debt and the indirect domestic debt held by commercial banks- and the sustained surplus of the capital account of the balance of payments, which was the result of the return of private firms to international financial markets.

The changes in the saving patterns of the private sector and of its holdings of net financial wealth are reflected in the corresponding concepts for public and foreign sectors: by identity net financial wealth of private sector has as a counterpart the sum of two stocks, namely net indebtedness of the country with the foreign sector and total public debt. Whereas the latter was reduced by means of a contractionary fiscal policy, inflationary tax, and withdrawal of public debt by means of privatization proceeds, the former changed as a result of current account deficits net of direct foreign investment.

In figure 18 we present the net financial wealth, in U.S. dollars, of the consolidated private sector, households and external sector⁴⁰.

This figure illustrates that in 1987, for example, total indebtedness of the country with the foreign sector reduces as net financial wealth of the private sector is increased. It also shows that this higher level is maintained until 1989 by the private sector. The figure pictures that, as opposed to what happens in 1987, during 1990 the net financial wealth of the foreign sector increases as the net financial wealth of the private sector diminishes. After this year, private financial wealth decreases in a sustained manner. This decline has as a counterpart an increase in foreign net financial wealth and a reduction in net total public financial indebtedness- these latter aggregate, implicit in the sum of private and foreign financial wealth exhibits a level which either diminishes or, as it happened lately it remains constant.

5.5 Determinants of the Exchange Rate Crisis of 1994

As a result of a number of events generating political turmoil and nervousness in financial markets along 1994 (peasant uprising in the south of the country, political unrest due to the assassination of a presidential candidate, elections etc) foreign funds stop flowing into Mexico. Instead of increasing the level of domestic interest rates to stop capital outflows, the monetary authorities opted first to swap domestic debt from peso into dollar-denominated instruments -Tesobonos- and to allow exchange rate reserves to fall. By december 19, not only most of the domestic debt was short term

⁴⁰Net financial wealth of the foreign sector corresponds to cumulated sum of current account deficit, net of direct foreign investment.

MATRIX I

MATRIX OF FINANCIAL STOCKS
% OF GDP

	HOUSEHOLDS					COMMERCIAL BANKS					PRIVATE FIRMS					FOREIGN SECTOR				
	1989	1990	1991	1992	1993	1989	1990	1991	1992	1993	1989	1990	1991	1992	1993	1989	1990	1991	1992	1993
HOUSEHOLDS						4.87	6.45	8.92	12.42	14.68										
COMMERCIAL BANKS	10.36	10.25	12.83	10.71	11.97						5.54	7.00	9.89	9.52	11.80	3.72	4.59	5.24	4.70	5.18
CONSOLIDATED PUBLIC SECTOR	3.93	4.49	2.41	0.37	0.54	6.98	6.51	6.65	2.88	1.36	5.27	4.99	2.55	1.24	1.88	18.95	15.30	11.05	10.88	9.15
PRIVATE FIRMS						7.61	9.48	12.08	14.37	15.97						2.54	2.59	5.05	6.90	10.43
FOREIGN SECTOR	11.63	8.44	6.45	4.76	4.06	1.05	1.16	1.24	1.17	1.35										

NOTES:

1. Columns corresponds to assets and rows to liabilities.
2. Liabilities of the consolidated public sector are net liabilities.
3. Net liabilities of the consolidated public sector with the foreign sector includes the international reserves of the Bank of Mexico.

Source: Author's calculations with data from Bank of Mexico

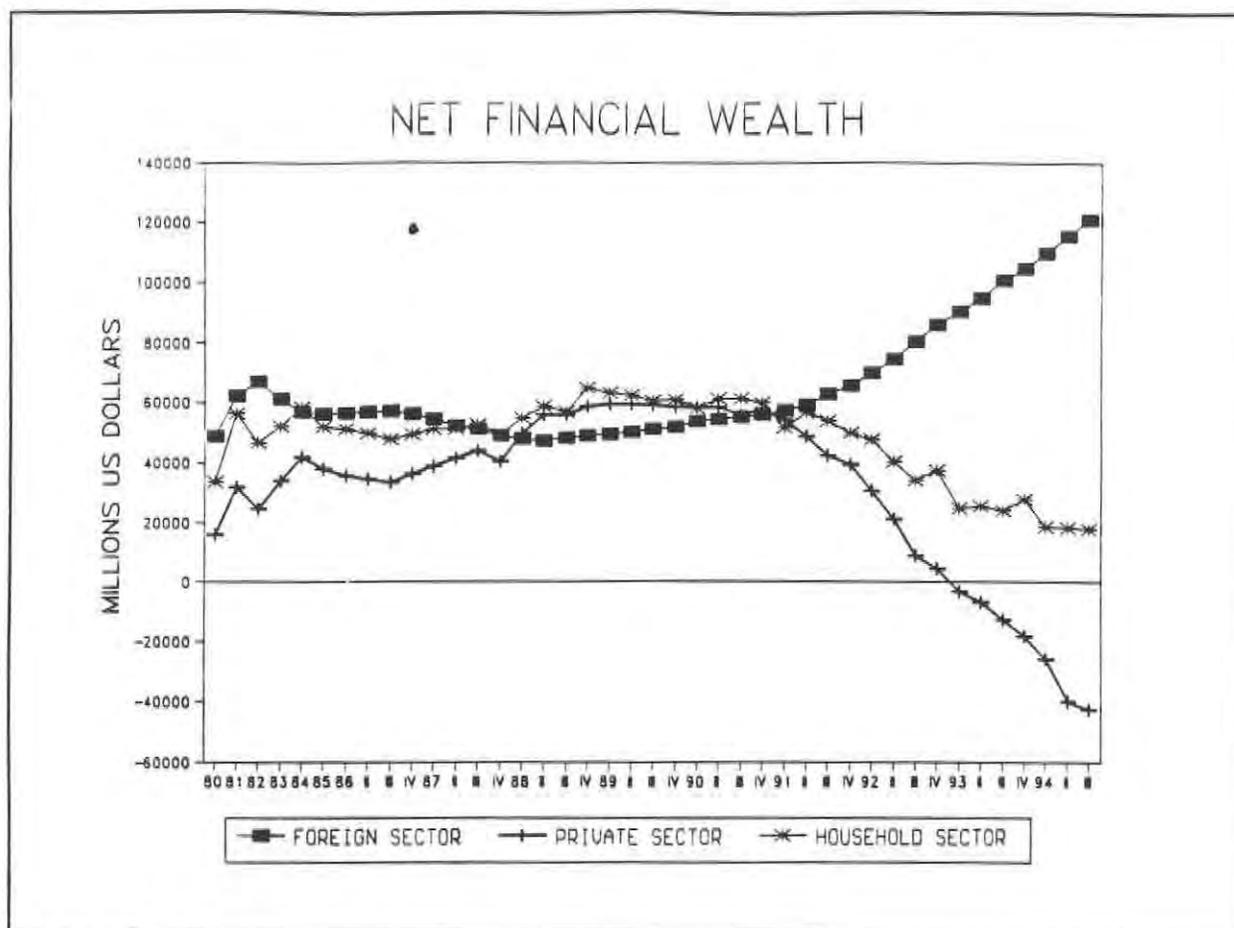


Figure 18

Source: Calderón-Madrid (1995).

dollar-denominated but also it surpassed the level of international reserves. Some authors, most noticeable Sachs et al. (1995) have suggested that this financially vulnerable position was a major detonator of the exchange rate depreciation. According to them, "[i]liquidity exposed Mexico to a **self-fulfilling** panic. Investors realized that if other investors stopped lending money to the Mexican Government, the Government would be unable to repay its debt -particularly the dollar-denominated Tesobonos- as they fell due. Therefore, each individual investor could do no better than to withdraw its funds when other investors started to withdraw their funds"⁴¹.

Krugman (1995) also suggests that a self-fulfilling prophesy can partly explain the severity of the Mexican crisis. According to him, excessive market optimism on how the reforms adopted in Mexico (explained in sections 5.2.2 -3) would generate a growth takeoff led to a temporarily self-fulfilling prophesy along with a "more subtle

⁴¹Sachs et al. (1995) p.2. Their emphasis.

political process through which the common beliefs of policymakers and investors proved mutually reinforcing".⁴²

He posits that the enthusiasm for investing in Mexico was partly a classic speculative bubble. Large capital gains and financial returns for those few investors who had been willing to put money at the early phase of the heterodox program (see our section 5.3.2) led other investors to jump in, thereby driving prices still further up and allowing for attractive financial returns. In 1994, according to his explanation, the thought by investors that the currency might be devalued (because of an overvalued exchange rate and by loosening up government spending) generated the currency crisis.

We also suggest that due to a self fulfilling prophesy, but of a different nature, namely one associated with the fragility of the domestic banking system, the balance of payments crisis of 1994 turned out having such a large dimension⁴³.

As a first element of our alternative explanation for the severity of the balance of payments crisis (which is not incompatible with the ones just mentioned above), we must consider that, even before the exchange rate realignment of December, Mexican banks were already experiencing worrying levels of non-performing loans. The ratio of overdue credit to bank reserves

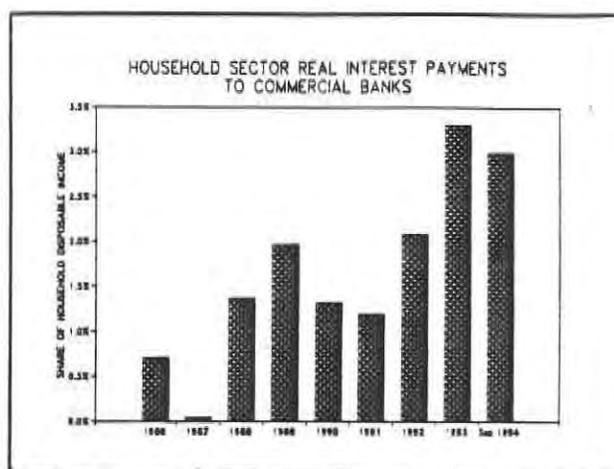


FIGURE 19

⁴²Krugman, P. (1995) p.30. As discussed in section 5.2.3, in spite of the success of the heterodox program in reducing inflation, expected effects of the reforms on economic growth recovery were not happening. Krugman suggests that these expectations were based on hope, rather than well-founded expectation. According to him, the disparity between the glittering prize promised by the reforms and the fairly dreary reality was bound to produce a revolution of falling expectations somewhere along the line.

⁴³See Calderón-Madrid, A. (1995a) for further details.

was 53% at the end of September 1994, rising to 57% by the end of that year⁴⁴. Another result that helps to explain the concern for the vulnerability of the domestic banking system is that, as a consequence of the credit boom to households described in section 5.4.2, at the end of in 1993 personal interest payments represented already a share in household disposable income that was more than twice as high as the corresponding data for 1991⁴⁵. As shown in figure 19, the high shares that interest payments for these loans represented on households disposable income partly reflected the potential difficulties to meet obligations in september 1994⁴⁶.

Our explanation of the severity of the crisis emphasizes the way in which commercial banks balances sheet -as they were at the end of 1994- contributed to the possibility of more than one expectation-led equilibrium⁴⁷.

⁴⁴In addition, the prices of houses and buildings, some of which were financed by mortgage credits were registering levels beyond any plausible relationship to a corresponding fundamental value.

⁴⁵In 1982 after a major exchange rate devaluation, president López Portillo expropriated commercial banks in an attempt to stop capital flows and to alleviate the domestic financial crisis. This experience, as well as the 1993-banking crisis in Venezuela, were probably kept in mind by most investors.

⁴⁶Househol disposable income was calculated by adding private consumption to our data of household savings. The rate used to estimate interest payments was the so-called average cost of term deposits of banks (CPP) plus five points.

⁴⁷The exchange rate band realignment of december 19 took place almost three weeks after a change in presidential administration. The new president as well as the incoming economic cabinet were clearly identified with the continuity of the economic program of the period 1987-1994. Because of this, no doubts appeared to have existed among portfolio managers and private investors about the genuine intention of the incoming administration to continue with the disinflationary policy of its predecessor, using the exchange rate as a nominal anchor. This situation could have led investors to believe that a skillful handling of the economy during the first months of the new administration could reestablish access to international capital markets thereby helping to recover credibility on the continuity of the economic program. In addition, since political problems appeared to have been already getting under control by December, there were good reasons to believe that domestic interest rates were not going to increase more and that the exchange rate would be within the established limits and perhaps even return to a lower position in the band. This suggest that an "optimistic" expectations-led equilibrium existed, in which no attack to the balance of payments occured

We posit that financial market participants perceived that the state of the banks balances reduced the room of manoeuvre⁴⁸ that the authorities had for avoiding an abrupt exchange rate depreciation. As this constraint was perceived in financial markets, it gave place to the conjecture that a speculative attack due to fears of an exchange rate depreciation would have a self-fulfilling character, in spite of the authorities' attempts to continue with their disinflationary policy.

The very little room of manoeuvre left to the authorities can be illustrated by considering what could happen in the event of a speculative attack, once reserves are no longer sufficient to face it and the domestic banking system is vulnerable to a widespread failure:

If the authorities attempt to maintain the exchange rate within established limits by means of contractionary monetary and fiscal policies, a local banking crisis could eventually be produced -skyrocketing interest rates and a domestic recession would escalate loan defaults and this could result in some banks becoming insolvent. In a situation like this an exchange rate devaluation more abrupt than the one the authorities attempted to avoid in the first place could be produced. This is due to the outflow of deposits associated with bank-panics and because emergency situations in which the stability of the banking system is threatened are generally accompanied by an expansion of money supply to bail out banks in problems⁴⁹. Hence, in this case the fears of an abrupt depreciation that initially produced the speculative attack would prove justified.

On the other hand, if the authorities opted instead for not defending the currency in the event of a speculative attack and allow for the exchange rate to depreciate, the financial health of the Mexican banking system, as it was at the end of 1994, was also bound to be threatened. As a direct effect the devaluation would make some banks experience capital inadequacy because of both, credit lines obtained in foreign currency and loans granted by them in dollars. In addition, not only domestic interest rates would increase because of the implied loss in credibility, but also access to international capital markets to finance large current account deficits will be restricted.

because there were no fears that the balances of banks could increase their non-performing loans.

⁴⁸This was in clear contrast to the one they had during the first stage of the heterodox programme section 5.3.2.

⁴⁹Not only because of the implications due to an expected increase in domestic inflation, but also due to the deterioration in perceived government solvency that these actions would have. (Among other repercussions, the payment of both Tesobonos and Cetes in hands of foreigners could have been difficult).

This access was a prerequisite for the health of the domestic banking system; growth potential associated only with the low levels of household and private firms savings (see section 5.4.2) would worsen the problem of overdue credits and increase the likelihood of a banking crisis.

According to our interpretation, when the authorities opted in december 19 for a realignment of 15% of the upper bound of the exchange rate band, they reinforced the perception held by market participants that a selffulfilling exchange rate crisis, associated with the potential for bank failures, could occur. At an analytical level, our explanation for the speculative attack is not along models that merely explain it as an anticipation of events that would eventually occur. It is within models in which the attack provokes events that would not occur in its absence. Eichengreen and Wyplosz (1993) use this model to explain devaluations in the European Monetary system. It must be emphasized that, as stated by these authors, for this kind of model to be compelling, there must be an intrinsic reason why monetary policy would shift only in the event of an attack. In their analysis, the Maastricht treaty provides that reason. In ours, as stated above, the reason was widespread domestic banks failure and the way in which monetary expansion would occur in the event that the monetary authorities bailing out the banks.

This would explain why the speculative attack intensified immediately after the realignment was announced and two days latter the Central Bank, having lost almost 50% of its remaining international reserves⁵⁰, was forced to allow the exchange rate to float freely.

Hence, speculative attacks due to fears of a sharp fall in the value of the peso prove to be justified; as the Central Bank withdrew from the foreign exchange market a further 25% exchange rate depreciation occurred by the end of the succeeding week. In contrast to what happened in previous exchange rate crisis, two and a half months latter the Peso continued its downward trend: by march 15 1995 the nominal exchange rate had already registered a depreciation of 100% with respect to its level three months earlier- and, due to a domestic inflation rate which was kept under control, the real exchange rate depreciation was of then of the order of 70%.

It was not until the biggest-ever international financial rescue package was offered to

⁵⁰The lost of international reserves in december 21 1994, was greater than the total lost of reserves during the period November 18-December 18. As stated by Lustig (1995, typically capital flight occurs before a devaluation and not after. According to this author, "The December devaluation triggered a financial crisis because foreign investors felt tricked and feared a default. In addition, the lack of competence and the absence of a coherent plan at the time the devaluation was announced, added significantly to the climate of uncertainty".

Mexico, that financial markets tended to stabilize. That is, it was not until these news reached the market, that a perception still prevailed, among market participants, that the financial situation could further deteriorate. One of the counterfactual questions that this study raises is: if the international financial rescue package had not arrived on time to Mexico, would a widespread bank failure had occurred? The affirmative answer would support our explanation that the dramatic effects of the december depreciation can be attributed to a selffulfilling crisis, which in turn was motivated by the vulnerability of the domestic banking system.

For most observers and public officials, the reason of the severe consequences of the speculative attack on the currency that occurred after the december 19 depreciation was that markets merely anticipated further balance of payments problems due the unprecedented large current account deficits, which were, in turn, associated with an overvalued real exchange rate level.

Hence, with the same postmortem spirit of those who posit that an earlier devaluation would have been beneficial, we arrive at another, different, conclusion. Namely, that the exchange rate crisis of 1994-95 would have not been as severe, if those in charge of economic policy had taken measures in other fronts, as early as 1991. Among them those oriented to reduce the speed of loan expansion to the private sector, a more active regulation and supervision of the already potential mounting levels of unsound loans granted by domestic commercial banks to households and to firms in non-tradables sectors. These actions would have reduced the perception of the potential risk of banking difficulties. Other early measures, such as changes for additional bank capitalization programs and clarification of the rules of what would happen to those bank facing problems would have also contributed in this direction.

Appendix: Econometric Estimation of a Consumption Function for the Mexican Economy.

Jappelli and Pagano (1994), showed that liquidity constraints on households raise the saving rate, strengthen the effect of growth on saving and foster growth. By means of cross-country regressions of saving and growth rates on indicators of liquidity constraints on households, they arrived to the following conclusion: financial deregulation in the 1980s has contributed to the decline in household saving and growth rates in the OECD countries. We consider another way in which relaxation of liquidity constraints, by affecting household saving, influence macroeconomic developments. This is the extent to which they contribute to unprecedented sizes of current account deficits.

In spite of the control of fiscal aggregates in Mexico, the worrying picture of low levels of private savings and large current account deficits continued to give rise to controversies in economic policy. The persistence of this phenomenon for more than four years is a reflection of a behavior of the private sector in general, and of the household sector in particular, which had no precedent in recent Mexican history. During 1990 and during the succeeding years, the rate of growth of consumption surpassed the rate of growth of private disposable income. To sustain this behavior, household absorbed the credit boom which the financial liberalization -which started in 1988 -made possible⁵¹.

Based on the work of Davidson et al. (1978), Hendry and Von Ungem Sternberg, T. (1981) and Pesaran and Evans (1984), we postulate a consumption function for the Mexican economy consistent with an Error Correction Model.⁵² The original interpretation of Error correction mechanism models is based on ad-hoc assumptions, such as a "rule-of-thumb" behavior on the part of consumers. However, authors such as Favero (1993) argues that these models can be theoretically derived from a forward-looking intertemporal optimization framework. Other authors suggest that error correction mechanism models for consumption can be compatible with assumptions of liquidity constrained agents. This is the case of Cambell (1987) and Jappelli and

⁵¹A "stylized fact" was mentioned with respect to the behavior of the household in Mexico. This is that they tend to keep as a norm a level of financial assets representing around 25% of its disposable income. Since this share tends to fluctuate around a norm, we have, as an hypothesis that consumption behavior partly reflects an attempt by agents to removing a disequilibrium of the level of their financial assets with respect to a desired norm.

⁵²*Cfr.* Villagómez, A. (1993) for a survey of econometric consumption functions estimated for the Mexican economy.

Pagano (1989) who argue that the ratio of consumer debt to aggregate consumption is one of the factors determining the relationship between this last variable and disposable income.

In our model changes in the level of consumption are determined by changes in the level of disposable income and by an attempt by households to adjust their level of both flows and assets when these differ from their desired relation to disposable income. Finally, in order to capture liquidity constraints and the effect of availability of credit we include changes in the level of credit to households as another explanatory variable.

Our estimation is based on quarterly data from the last quarter of 1985 to the third one of 1994. The equation postulated and the corresponding econometric results are:⁵³

$$\ln C_t - \ln C_{t-1} = \beta_1 (\ln YD_t - \ln YD_{t-1}) + \beta_2 (\ln YD_{t-1} - \ln C_{t-1}) + \beta_3 [(\ln D_t - \ln D_{t-1})] + \beta_4 - (\ln D_t - \ln C_{t-1})$$

Where the variables C, YD, and D state, respectively, for consumption, disposable income, credit to the household sector.

The parameters β_1 and β_2 correspond, respectively to the impact and the feedback effects⁵⁴. In addition to the feedback effect, which refers exclusively to deviation of a desired "flow" relationship of consumption with respect to disposable income, this specification captures the influence of wealth adjustment.

In addition to the feedback effect, which refers exclusively to deviation of a desired "flow" relationship of consumption with respect to disposable income, this specification captures the influence of wealth adjustment.

In order to keep desired long-run properties in our model, we posit that the change of the levels of consumption must be explained by the rate of increase in credit and the rate of increase in disposable income. A positive variation in consumption expenditure would be expected with an increase in either of these variables. When both are the same -i.e. the share of consumption credits to disposable income remains constant, no effect on consumption expenditure is produced by this variable.

In addition, we postulate that the household sector has as a desired target for its

⁵³ For a survey of previous econometric estimations of consumption and saving functions in Mexico *Cfr.* Villagómez, A. (1993) and Copelman (1994).

⁵⁴*Cfr.* Hendry, D. (1988) p.10

holding of credit as a share of its disposable income. When actual level of credit differs from its desired level, an adjustment of β_2 of the discrepancy takes place. When this adjustment is possible -relaxation of liquidity constraints- consumption increases hence this parameter is expected to be positive.

The results of our estimated regression are:

$$\Delta C_t = \left(\begin{array}{c} 0.429 \\ 3.950 \end{array} \right) \Delta YD_t + \left(\begin{array}{c} 0.469 \\ 4.324 \end{array} \right) \ln(YD_{t-1} - \ln C_{t-1}) + \left(\begin{array}{c} 0.034 \\ 3.435 \end{array} \right) (\ln D_{t-1} - \ln YD_{t-1}) + \left(\begin{array}{c} 0.132 \\ 6.296 \end{array} \right) \Delta D_t$$

$$R^2 = .6832 \quad D.W. = 2.161 \quad Q(7) = 31.04$$

Where Δ states for first difference in logarithms. The equation has no problem of autocorrelation, the elasticity of consumption with respect to disposable income has the expected sign and is significant, so is the coefficient capturing the effect of credit availability to the household sector. With respect to the variables capturing the effect of adjustment of financial assets to the desired norm, their "t" statistics indicate that they are not significant.

The "flow" feedback effect -i.e. the adjustment to the deviation of a desired "flow" relationship of consumption with respect to disposable income- is also significant. As far as the variable capturing the effect of adjustment of financial assets to the desired norm is concerned, its "t" statistic indicates that it is not significant. This was the case with different lags of this variable. Although when the variable lagged three periods increases three point the explanatory power of the regression - as it is appreciated in our regression- the "t" statistic is not significant at a 5% confidence level.

The specified model ensures that the estimated dynamic equation reproduces in an equilibrium context the associated equilibrium theory. In steady-state with no growth in disposable income, the level of private consumption remains constant and equal to the level of disposable income.

In this case, consumption function would be $C=0.932YD+0.067D$. However, since flow variables are equal to each other, we have a constant steady state ratio of D and YD. With a real rate of growth in the flow variables equal to g -i.e. $\Delta C=\Delta YD=g$ - the equation reduces to:

$$C_t = -0.7g + YD_t$$

It must finally be pointed out that in an equilibrium context with a rate of growth in credit equal to the rate of growth of private disposable income- i.e. constant share of credit in disposable income- credit availability has no influence in the rate of growth of consumption.

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