

IDS

354

Institute of Development Studies

DISCUSSION PAPER

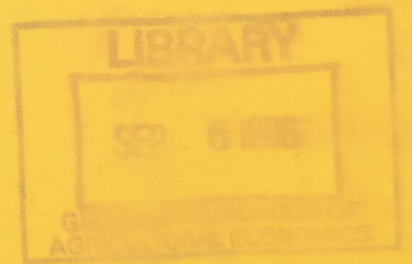


354

The Mexican Peso
Crisis

Stephany Griffith-Jones

July 1996



**INSTITUTE OF DEVELOPMENT STUDIES****THE MEXICAN PESO CRISIS**

by

Stephany Griffith-Jones

DP 354

July 1996

This paper analyses in depth the causes of the Mexican peso crisis, so as to learn relevant lessons for similar crisis occurring in other developing or transitional economies. The study follows a relatively chronological order, examining first the apparently golden period, when Mexico was acclaimed world-wide as a successful reformer. The next section analyses the period when 'clouds emerge and darken', examining policy options that could have been followed by the economic authorities. The last section focuses on the devaluation of December 20, 1994, and the resulting crisis.

In the analysis of the causes of the grave Mexican peso crisis, consensus is emerging around some of them. These include the large scale of the current account deficit, as well as the fact that a large part of it was funded by relatively short-term capital inflows. They also include the fact that a somewhat overvalued exchange rate was welcomed by a government strongly committed to rapid inflation reduction. The causes include the fact that such a high proportion of government debt paper was so short-term, such a high proportion of it was in the hands of non-residents and that - during 1994 - the government allowed the transformation of a large part of it into dollar - denominated paper. This study concludes that two other sets of factors were also important, but have been either neglected or insufficiently emphasised in the literature. The first is that the process of liberalization in Mexico, both of the financial sector and of the capital account, was perhaps too rapid and that too many changes were made simultaneously. Secondly, the severity of the Mexican peso crisis can partly be explained by imperfections in international capital markets, which can lead to huge over-reactions to relatively small changes in countries' economic fundamentals. The paper analyses, both from a theoretical and empirical perspective, the nature of imperfections in international capital markets.

© INSTITUTE OF DEVELOPMENT STUDIES 1996

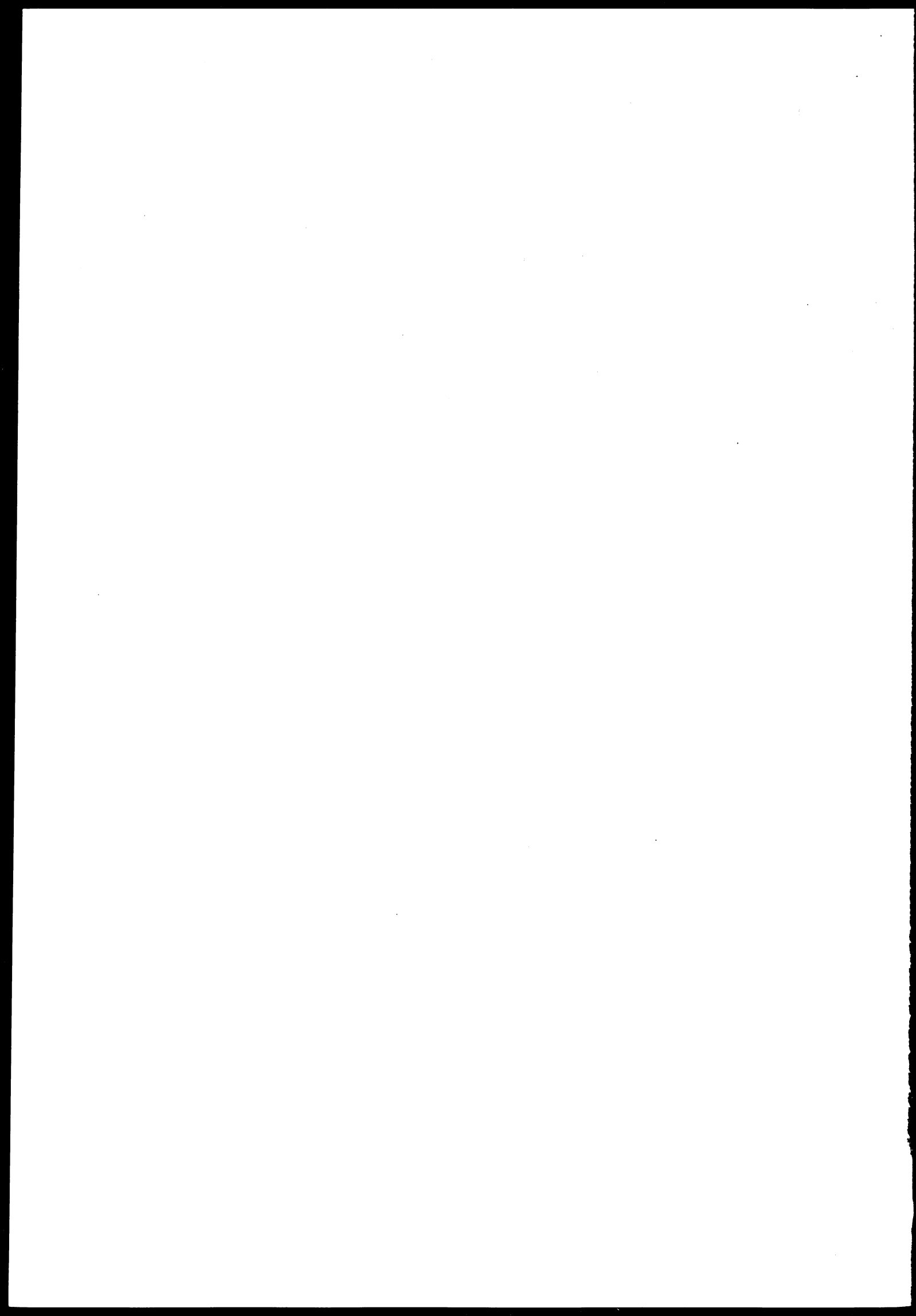
ISBN 1 85864 034 2

CONTENTS

1	INTRODUCTION	1
2	THE APPARENTLY GOLDEN YEARS, 1988 TO EARLY 1994	4
3	FEBRUARY-DECEMBER 1994: THE CLOUDS DARKEN	11
4	THE MASSIVE FINANCIAL CRISIS EXPLODES	19
	NOTES	26
	REFERENCES	28

TABLES AND CHARTS

Chart 1:	Mexico: real effective exchange rate (1980=100)	5
Chart 2:	Current account balance (% of GDP)	8
Chart 3:	Saving-investment gap and current account	9
Chart 4:	Stock of net international reserves in 1994 (millions in dollars)	12
Chart 5:	Mexico: Central Bank sterilized intervention	14
Chart 6:	Mexican exchange rate changes within the exchange rate band (November 1991 through mid-December 1994)	14
Chart 7:	Mexican international reserves and tesobonos outstanding	16
Table 1:	Composition (%) of Mexican and other countries' capital inflows (1990-93)	6
Table 2:	Mexico: summary capital accounts, 1988-94	7
Table 3:	Mexico: non-resident investments in Mexican Government securities, 1991-95	15
Table 4:	Mexico: quarterly capital account, 1993 - first quarter 1995 (in millions of US dollars)	18
Table 5:	Mexican stock exchange (BMV) 1989-1995	22



THE MEXICAN PESO CRISIS

1 INTRODUCTION¹

The speed and the massive scale of the financial crisis that followed the fairly small, initial devaluation of the Mexican peso in December 1994 started an important debate on the causes of this crisis, the scale and the international consequences. To what extent was the Mexican peso crisis different from previous crises, and why should it be characterized, by the IMF's Managing Director, as 'the first major crisis of the 21st century'? (Camdessus 1995a.) What are the main elements which make this crisis different, and what are the elements of continuity with previous crises, suffered both by Mexico and by other countries?

A precise answer to these questions is crucial, in order to help avoid 'Mexico-style' crises occurring again, and also to ensure that the management of such crises can be improved, so as to reduce the tremendous costs which the Mexican crisis has implied. This analysis is based on the assumption that the Mexican peso crisis (though it had special features) was not unique, and that there is therefore a risk that a 'Mexico-style' crisis could be repeated.

In the analysis of the causes of the Mexican peso crisis - and of its depth - consensus is emerging around a variety of factors. These include the large scale of the current account deficit, which had reached almost 8 per cent of GDP in 1993 and 1994, as well as the fact that an important part of this deficit was funded by relatively short-term capital inflows. They also include the Mexican authorities' commitment to a relatively fixed (in nominal terms) exchange rate, and the fact that a somewhat over-valued exchange rate was welcomed by a government strongly committed to rapidly reducing inflation. They also include the rather lax monetary policy pursued in 1994 as reserves fell sharply. The causes include the fact that such a high proportion of government debt paper was so short-term, such a high proportion of it was in the hands of non-residents and that - during 1994 - the government had allowed the transformation of a large part of its government debt into dollar-denominated paper. Finally, amongst the causes stressed - particularly by Mexican economists - is the 'mishandling' of the devaluation, the so-called 'errors of December'.

Though all these causes clearly provide a very important part of the explanation of the peso crisis - and its severity - it would seem that another set of factors, which were also important, has either been neglected or not sufficiently emphasized in the growing literature on the Mexican crisis. First, it could be argued that the process of liberalization which had occurred in Mexico in the early 1990s in the financial sector and in the capital account, was perhaps too rapid and, above all, that too many changes occurred at the same time for the economic system to adjust appropriately to them simultaneously, as well as cope with a large surge of capital inflows. Thus, it could be argued that the Mexican capital account should have been liberalized more slowly and/or more controls and/or taxes introduced to discourage short-term capital inflows when these surged. In this sense, it is noteworthy that both the IMF (1995a) and the BIS (1995) have recently explicitly recognized that, though having some limitations, measures taken by recipient governments to discourage short-term capital flows may - when combined with other policies that lead to sound macroeconomic fundamentals - play a positive role in managing capital flows effectively and thus reducing the likelihood of a costly financial crisis. Calvo and Goldstein (1995) even imply that measures such as controls/taxes on short-term capital inflows should become part of a revised 'Washington consensus'.

One particular aspect of the rapid liberalization of the capital account which, particularly with the benefit of hindsight, was - or became - problematic was that non-residents were allowed in late 1990 to buy Mexican government paper without any restrictions whereas previously they were not allowed to do so.² This was part of a broader liberalization, whereby foreigners were allowed to purchase bonds and money market instruments, as well as shares.

The process of rapid liberalization of the capital account coincided with a process of re-privatization of the banks. Furthermore, it coincided with a change in the conduct of monetary policy, which implied that reserve requirements were eliminated very quickly as a tool of monetary policy.³ As a result, an important constraint on credit expansion by the banks was lifted, at the same time as the banking system was re-privatized. The changes in the conduct of monetary and credit policy, accompanied by re-privatization of banks (which implied many bankers were not experienced in evaluating credit and market risks) were not accompanied by sufficient efforts at improvement of bank supervision and regulation; in any case, improvements in bank supervision tend to be a slow process. Rojas-Suarez and Weisbrod (1995) argue that, in general, effective supervision of banks is a better instrument for restraining banks' credit expansion than reserve requirements, as the former can restrict more expansion of credit of risky segments of the banking system. However, this requires pretty sophisticated supervisory skills, which take a fairly long time to develop. Thus, in Mexico, in a context of relatively weak bank supervision and regulation, rapid reduction of reserve requirements, and recent bank privatization, the stage was set for a large expansion of credit, including a large growth of consumer credit. Indeed, even though consumer credit was growing so rapidly, no measures were taken to constrain such growth, largely because this was seen as inconsistent with a more liberal stance of managing monetary and credit policy.⁴

It is interesting that similar patterns, of very rapid deregulation of the financial sector and the capital account, accompanied by expansionary impulses on macroeconomic management, leading to financial crisis, have also occurred in other countries, including developed ones. Indeed, a recent IMF study (Drees and Pazarbasioglu 1995) highlights such links - for the Nordic countries - showing for example how the elimination of both controls on lending and exchange restrictions triggered an important increase in lending to borrowers, who had previously been credit-rationed, which implied a surge of lending to them, particularly as banks noticeably increased their risk taking. Like in the Mexican case, the authorities in the Nordic countries did not tighten prudential bank regulation quickly enough. External shocks later led to quite large and costly banking crises in those countries.

Another set of factors which contribute to explain the severity of the Mexican peso crisis, but which are not sufficiently stressed in the literature,⁵ is that international capital markets, though generally efficient, do have some imperfections. These imperfections may lead them to over-invest or over-lend in certain markets; however, once the excessive nature of the over-investment is perceived (and this may be due to a fairly small change in that particular market, and not to an important change in economic fundamentals), there can be a huge **over-reaction**, with flows not only declining sharply but even becoming strongly negative.

There would seem to be four main elements in explaining this 'boom-bust' behaviour in modern capital markets. Although we will discuss them again below, it seems useful to mention them here. First, over-optimism followed by over-pessimism is explained partly by fund managers' behaviour, linked to their incentive structure.⁶ Thus, if a fund manager (or other investor) is wrong when

everybody else is right (that is he/she misses out on a very profitable opportunity that everybody else is taking), his/her institution will be punished by the market. However, if a fund manager is wrong when everybody else is wrong, this will not be so serious, as the market is less likely to punish his/her institution, and indeed, there may be a bailout, probably led by the IMF to help deal with this 'collective mistake'. This behaviour leads to 'band-wagon' effects or 'herd behaviour'.

Second, and this contributes mainly to explain the rapid withdrawal of funds out of Mexico, after the initial devaluation of 15 per cent, it can be argued that in a highly diversified world capital market, where in-depth information is expensive to obtain, it may be rational for investors to react even to 'small news'. As a consequence, as Calvo and Mendoza, *op. cit.* argue, relatively 'small bad news' can lead to a major speculative attack, even if the news is not related to any important change in economic fundamentals. This behaviour can be explained by the important trade-off that foreign investors have between diversification and information. The more diversified an investor, the lower his incentives to obtain expensive information. Indeed, as the number of countries in which to invest increases, the marginal benefit from information gathering falls. As a result of these trends, 'herding' is exacerbated by an increase in responsiveness by investors to 'market' rumours or news, rather than to in-depth analysis of fundamentals.

Third, and this contributes mainly to explain the rapid inflow by foreign portfolio investors into Mexico in 1991 to 1993, there seemed to be a conflict of interest shown between the role of investment bankers as advisors (for example to US mutual funds, which themselves had small research departments and therefore relied on advice from investment bankers) and the fact that these investment banks had their own assets in the country whose value they wanted to protect.

Even though formally they had 'Chinese walls' around their analysts, analysts recognize there are subtle pressures on the researchers.⁷ Furthermore, analysts themselves - recently brought into Latin American work - had a vested interest in promoting a positive atmosphere, as this would enhance their career prospects. Finally, most institutions were on the 'sales side'; even when they were apparently providing independent advice, institutions like mutual funds were basically trying to market their products, to obtain commissions. For this purpose, they highlighted high yields, and down played the risks. Indeed, even when information provided by the Mexican authorities was somewhat incomplete, and there were reasons to believe that the situation could be deteriorating, (e.g. in the second half of 1994), analysts chose to ignore the lack of information (which should have increased the perceived risk). Such analysts continued to rely on factors such as their confidence in the 'credibility' of the policy and, above all, of the policy makers.⁸

A fourth element relates directly to theory of financial markets, and to its concept of 'disaster myopia' (Guttentag and Herring 1984). Indeed, the **Institutional Investor** article *op. cit.*, highlights how 'observers displayed a basic inability to envision complete calamity'. It quotes, amongst others, David Lubin, an economist at Hong Kong and Shanghai Bank, London, as saying 'One finds it difficult to see disasters... you have a kind of built-in mechanism that tells you that things are going to manage themselves smoothly.'

Indeed, during the first period of over-investing, rationing constraints are excessively loosened; this implies that investors' perceptions of risk (which are subjective possibilities) can deviate from reality. Furthermore, competition can imply that as prudent lenders or investors are driven from the market they are replaced by those willing to accept what is seen as a low probability danger. This

'disaster myopia' can be explained by both psychological and institutional mechanisms. The psychological elements include what Guttentag and Herring call 'cognitive dissonance', which appears when new information becomes available which suggests that there is serious risk. However, in an attempt to justify previous decisions, - and their own self-esteem - decision makers in the market may either ignore or reject the information. This could help explain why lenders and investors in Mexico ignored negative information about the country's deteriorating current account. Psychological biases can be reinforced by institutional factors, such as the brief periods during which the performance of loan officers or investment managers is evaluated, for purposes such as salary bonuses. There is also a possible asymmetry between results for managers and loan officers (who get salary bonuses in times of extraordinary profit) and shareholders, as well as investors, who have to shoulder possible losses also.

We will follow a relatively chronological order. We will first (in Section 2) examine the apparently golden period of the early 1990s till March 1994 but point to the clouds which were already gathering, and the policy options available. In Section 3 we will analyse the period March 1994 to 20 December 1994, again emphasizing policy options. Section 4 will focus on the devaluation, (analysing possible errors in its handling), and the resulting crisis, as well as returning to the issue of capital market imperfections.

As an important part of our focus is international capital markets, we will try - where feasible - to provide information on changes in capital inflows and outflows, their origin and their composition.

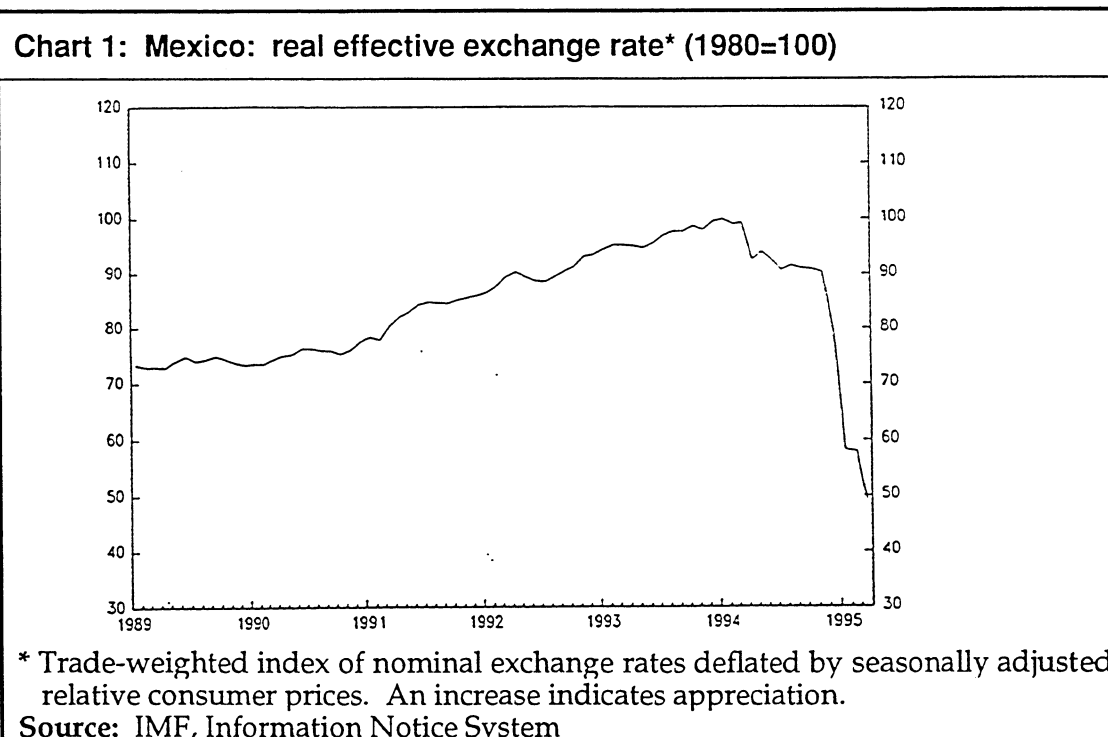
2 THE APPARENTLY GOLDEN YEARS, 1988 TO EARLY 1994

In the aftermath of the Mexican peso crisis, when so much analysis of the Mexican economy is so gloomy, it is important to stress that between 1988 and 1993, Mexico not only had many important achievements, but was above all widely praised as a major 'success story' of the process of economic reforms and macroeconomic stabilization.

Indeed, from 1988 to 1993, Mexico followed a strategy of economic adjustment and reform that strengthened fiscal consolidation and structural changes initiated after the 1982 debt crisis. The strategy, which had the active support of the IMF (Camdessus 1995b) aimed at restoring macroeconomic stability, reducing the role of the public sector in the economy and laying the foundations for private sector led growth. The key elements of the strategy were the maintenance of fiscal and monetary discipline, a major debt restructuring, and a comprehensive programme of structural reforms, including privatization and trade liberalization. The liberalization of the financial sector and of the capital account discussed above were thus part of a broader policy thrust. The implementation of NAFTA was seen as a culmination of the reform process, as a prize to the successful reformer and as providing an 'external lock' on the reform process.

Certain macroeconomic variables followed an exemplary evolution. Thus, the overall public sector financial balance reported a surplus of almost 1 per cent of GDP in 1993, compared with 11 per cent deficit of GDP in 1988. Inflation was reduced from 160 per cent in 1987 to 8 per cent in 1993.

Beginning in 1988 the exchange rate was used as the main nominal anchor, with income policies playing an important supportive role. As often occurs with such a policy, a nominal exchange rate-based stabilization results in a real appreciation of the local currency, as it takes time for the differential between domestic and foreign inflation to fall. As can be seen in Chart 1, the Mexican real exchange rate (using consumer price indexes) appreciated by around 30 per cent between the beginning of 1989 and late 1993. Even though the exchange rate regime underwent several changes, going from a fixed to a crawling peg and then to an adjustable band, the appreciation continued (which later had its boundaries widened) (Lustig 1995).



The real exchange rate appreciation was exacerbated by the large capital inflows which Mexico received in the early 1990s, which led to a 'financial Dutch disease' type of phenomena. These capital flows had two important features. First, they were very high, both in absolute amounts and as proportion of GDP (Devlin, Ffrench-Davis and Griffith-Jones 1995). Second, as can be seen in Table 1, an extremely high proportion of the capital flowing into Mexico (compared not only both with Asian countries but also with other Latin American developing countries) came as portfolio investment; it reached 67 per cent of total inflows for 1990-93. As experience later showed, but as was somewhat predictable, portfolio flows are potentially more volatile, and more prone to reversals (particularly if such a high proportion of the portfolio inflows was into very short-term government paper).

During 1990-93, capital inflows were dominated by flows to the private sector, which benefited from the internationalization of Mexican capital markets, particularly in respect of equity and bonds, which provided inflows of \$US12 billion and \$US24 billion respectively (see Table 2). Until the late 1980s, foreign equity participation in Mexican companies was restricted. At the end of 1989, non-residents accounted for just 6 per cent of Mexico's equity market capitalization. Foreign participation rose rapidly in the wake of the Stock Market Law of December 1989, which liberalized access by foreign investors. As a result of this (and other

factors) net foreign purchases of Mexican equities - which had been less than \$US1 billion annually till 1989 - reached a total of \$US28 billion during 1990-93. By the end of 1993, non-resident investors accounted for 27 per cent of the capitalization of the Mexican market, a figure which remained broadly unchanged through 1994.

	Mexico	Argentina	Chile	Thailand	Indonesia
Portfolio Investment	67	37	22	6	-3
Foreign Direct Investment	21	42	31	20	28
Other (inc. bank lending)	12	21	47	75	75
Total	100	100	100	100	100

Source: Banco de Mexico: IMF, International Financial Statistics.

Mexico returned to the international bond market in 1990, and placements rose over the following three years; during 1990-93, placements totalled \$US24 billion. Initially, Mexico's access to these markets depended on the provision of enhancements or high yield spreads over comparable industrial country bonds. However, as Mexico's credit ratings improved, the need for enhancements and wide yield spreads diminished. By this point, Mexico was regarded as 'a benchmark bond issuer'. Indeed, Mexico was one of the few former highly indebted countries to receive just below investment grade ratings from major US credit-rating agencies; interestingly, Mexico's rating was not down-graded during 1994 (when, as we shall discuss below, the situation deteriorated), but only after the devaluation and crisis.

Another important item of capital inflows was foreign purchases of Mexican government securities. During the 1980s, peso-denominated government securities were sold only to Mexican residents. In 1990, the Government allowed direct sales to foreign residents (foreign residents were already able to do some purchases previously, through secondary purchases from Mexican banks). In 1991, - the first year without restrictions - foreigners invested \$US3.4 billion in government paper. Purchases rose rapidly, totalling over \$US18 billion, during 1991-93, (see again Table 2). During this period, non-residents absorbed virtually all of the net increase in government securities. It is paradoxical that an important part of the issue of government securities was in those years **not linked to financing fiscal deficits**, but was issued largely as part of the monetary sterilization of capital inflows, and that that government paper led to new inflows.⁹ The share of government securities held by foreigners during 1990-93 rose from 8 per cent at the end of 1990 to 57 per cent at the end of 1993. It is noteworthy that foreign investors held a larger proportion of short-maturity bills (1-12 months CETES) and a smaller proportion of longer-maturity notes (1 and 2 years bonds) than did residents; as a consequence, the average maturity of non-resident holdings at the end of 1993 was estimated at 280 days, compared to 350 days for residents holdings.¹⁰

Table 2: Mexico: summary capital accounts, 1988-94

	1988	1989	1990	1991	1992	1993	Prel. 1994
	In millions of US dollars						
Current account	-989	-5,823	-7,450	-14,649	-24,439	-23,400	-28,786
Capital account	-5,774	4,745	10,889	22,232	26,361	30,491	10,866
Official capital	265	-1,124	-1,820	3,424	7,940	7,882	-400
Medium- and long-term borrowing	1,459	-29	6,371	1,226	-3,821	1,601	1,447
Commercial banks	-1,483	-1,199	4,555	-2,362	-5,744	-1,982	-725
Multilaterals	776	468	706	867	487	212	-165
Bilaterals and suppliers (excl. CCC)	556	616	688	1,422	1,246	171	-896
CCC	221	159	146	-377	-251	-166	-37
Bond placements & other	1,389	-73	276	1,675	441	3,366	3,270
Short term	219	-199	483	529	1,843	1,063	2,172
Non-resident purchases of Mexican Government treasury bills ^a	-	-	-	3,406	8,147	7,013	-1,942
Tesobonos	-	-	-	253	-62	1,063	14,338
Other	-	-	-	3,153	8,209	5,950	-16,280
Other government financial assets	-1,412	-896	-8,674	-1,736	1,772	-1,794	-2,076
Debt equity swaps	-868	-389	-85	-199	-	-	-
Long-term trade lending	-544	-507	-530	19	63	-281	-41
Debt enhancements ^b	-	-	-7,354	-604	1,165	-564	-615
Other	-	-	-706	-952	544	-948	-1,420
Private capital	-6,039	5,869	12,709	18,807	18,421	22,609	11,266
Direct investment	2,595	3,037	2,633	4,762	4,393	4,389	7,980
Equity investments	-	493	1,995	6,332	4,783	10,717	4,088
Bond placements	-	-	1,099	1,340	3,559	6,318	2,061
Banking sector	-	-	-	-143	621	1,738	-183
Non-bank private sector	-	-	1,099	1,483	2,938	4,580	2,244
Net external credits	-3,317	-170	4,647	8,576	2,577	6,260	2,417
Banking sector	-	-	4,250	6,195	449	3,428	1,181
Non-bank private sector	-	-	397	2,381	2,129	2,832	1,236
Increase in assets abroad (-)	-1,576	-1,860	-110	538	3,780	-1,809	-3,394
Interest earnings held abroad ^c	-1,576	-1,860	-1,747	-1,446	-837	-731	-1,188
Other	-	-	1,637	1,984	4,617	-1,078	-2,206
Other, including errors and omissions	-3,741	4,368	2,445	-2,740	-671	-3,266	-1,886
Net international reserves (increase -)	6,763	1,078	-3,439	-7,583	-1,923	-7,092	17,919

Notes

a Excludes repayments associated with implicit interest earnings on zero coupon treasury bills, such as Tesobonos and CETES.

b Corresponds to implicit reinvestment of interest earnings on collateral for restructured commercial bank debts.

c Corresponds to assumed reinvestment of interest earnings of foreign investments.

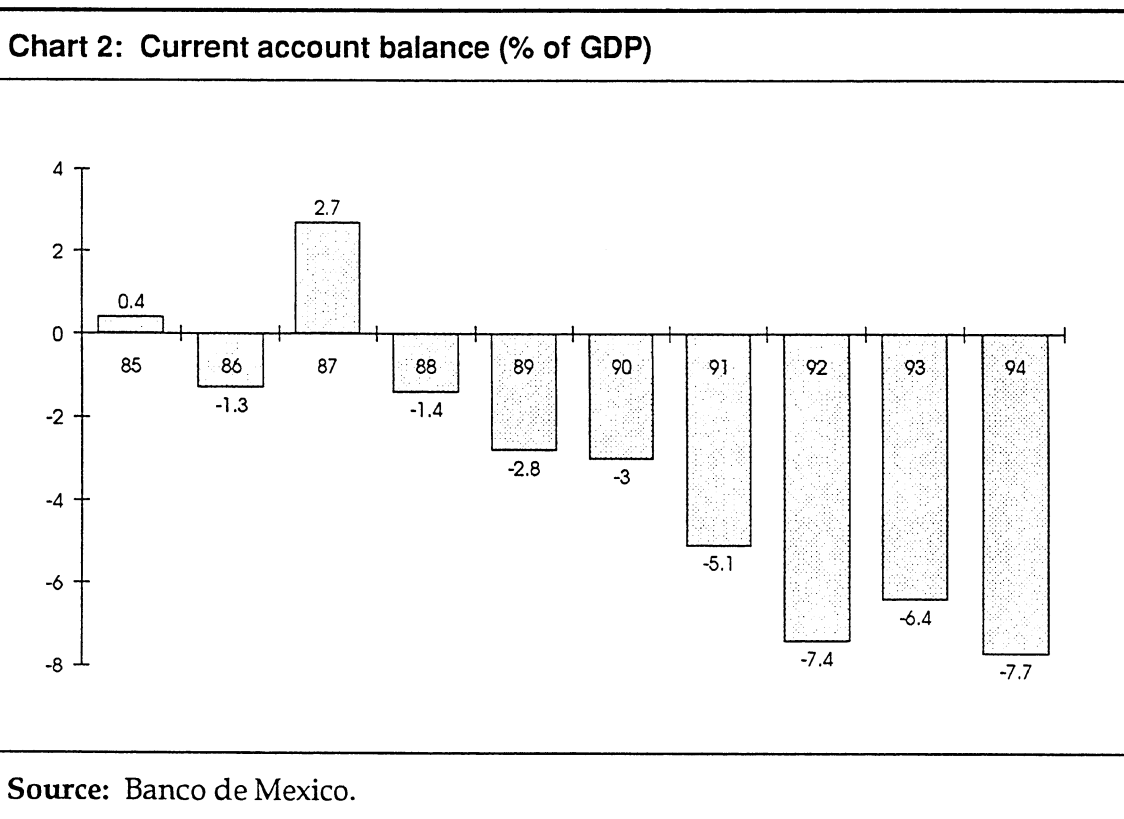
Sources: Bank of Mexico; and Fund staff estimates.

Also important during 1990-93 was that the private sector regained access to international bank financing, with new credit flows, totalling \$US22 billion (see Table 2). Two thirds of this amount represented inter-bank transactions, including dollar denominated deposits, for example Certificates of Deposits (CDs), to Mexican banks.

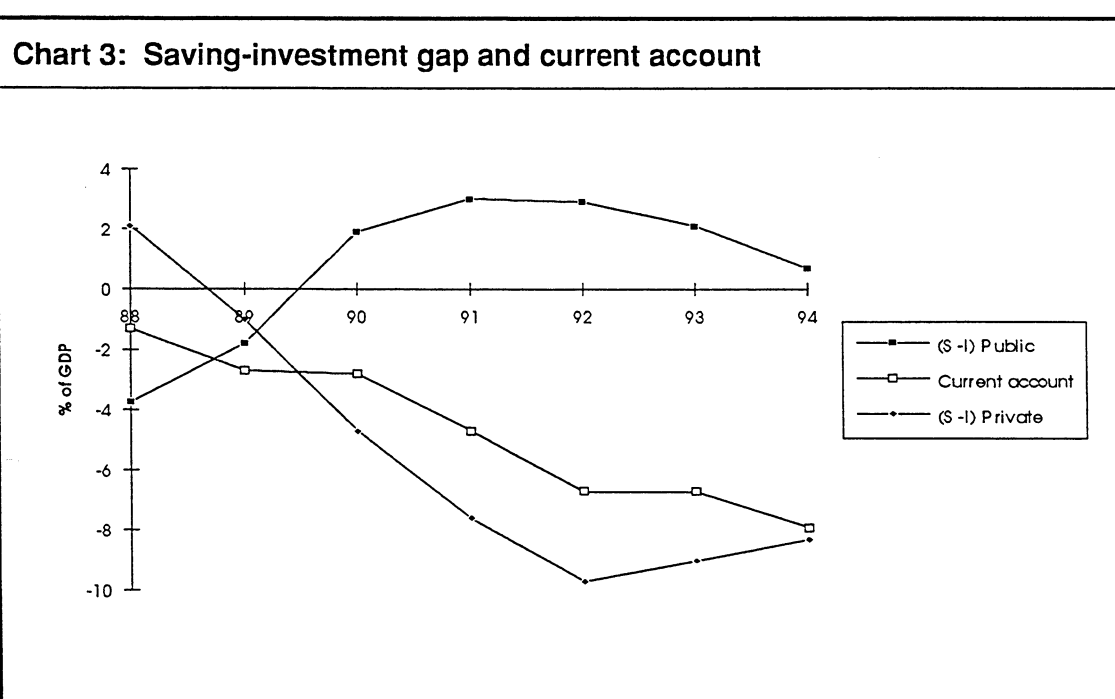
On the whole, the Mexican authorities did not discourage these capital inflows. However, faced with massive inflows into short-term dollar denominated certificates of deposit, in 1992 the monetary authorities put a cap of 10 per cent on the share of foreign liabilities in total liabilities of banks. In addition, an amount equivalent to no less than 15 per cent of foreign currency liabilities had to be placed in low-risk or risk free assets (Gurria 1995). Initially, this led to a decline (in 1992) of capital inflows intermediated through the banking system. However, after banks had adjusted their portfolios, capital inflows through the banks re-started, in line with the rapidly growing balance sheets of Mexican banks.

A rapidly and consistently growing current account deficit since 1988 (see Chart 2) peaked at 7.7 per cent of GDP in 1994. To an important extent, this growing disequilibrium in the current account was explained by the appreciation of the exchange rate. It was funded by the rapidly growing - till 1993 - net capital flows. Indeed, as net capital flows were even larger than current account deficits till late 1993, levels of foreign exchange reserves increased, even though the current account deficit was growing.

An important point to mention is the extent to which the current account deficit was explained by private or public deficits.



In 1994, the current account deficit (of around 8 per cent of GDP) was practically all explained by a private sector net savings deficit, with the fiscal accounts in a small surplus (see Chart 3). Indeed, as Chart 3 shows since 1990 the fiscal situation was in surplus; the determination of the current account reflected an excess of private investment over private savings; the majority of external borrowing in the 1990s (as discussed above) was done by private companies and banks. Until 1993, the public sector's net indebtedness did not increase much, as gross liabilities that were largely issued to sterilize the monetary effects of the capital inflows were matched till late 1993 by increasing foreign exchange reserves (Sachs, Velasco, Tornell 1995). There is here a sharp contrast with the situation that led up to the 1982 Mexican debt crisis. In 1981, there was a similar scale of current account deficit as in 1994 (of around 7 per cent of GDP), but this was related to a **fiscal deficit** of around 13 per cent of GDP and a **positive** net savings level of the private sector of around 6 per cent (Villareal 1995).



Thus, the current account deficit in the early 1990s occurred in spite of basic fiscal balance (though according to some sources there was some deterioration in the fiscal accounts in 1994), and could be practically entirely explained by dissaving by the private sector. The fact that the counterpart of the current account deficit was not a fiscal deficit but a private one, probably contributed to the 'benign neglect' with which the Mexican authorities treated the current account deficit. (A similar situation, and reaction, had happened in Chile in the early 1980s and in the UK in the late 1980s, also with problematic consequences.) The obvious lesson is that it is the scale of the current account deficit that matters, and not whether it originates in deficits in the public or private sector.

The key question is whether in the apparently golden years, Mexican economic policy could have been conducted differently, and whether this would have diminished the likelihood (and/or severity) of the crisis that later occurred.

First, exchange rate policy could have been conducted differently, as some economists suggested (Dornbusch and Werner 1994; Leiderman, Liviatan and

Thorne 1994; Ros 1994). The Central Bank could have widened the exchange rate band further and/or increased the daily depreciation of its ceiling in order to curb the appreciation of the real exchange rate. Even though this may not have immediately changed the nominal exchange rate, it would have increased the flexibility for future policy changes if capital flows slowed down or reversed themselves. Indeed, it is worth stressing that the Mexican peso crisis was precipitated, **though not caused**, by a 15 per cent movement of the band; if the band had been wider or at a more appropriate level, such an explicit shift may not have been necessary.

Why did the economic authorities not take such a course of action? First, the dominant euphoria over Mexico - and the fact that foreign exchange reserves were rising during this period - lulled the authorities into a false, but somewhat understandable, sense of confidence. The entry of Mexico into NAFTA and later into the OECD strengthened this. Second, the Mexican authorities assumed that the problem of the growing current account deficit was relatively temporary, while the surge in capital flows was relatively permanent, or at least would last until the current account deficit started to improve. Both assumptions were dubious and very high risk, as several institutions and economists warned (ECLAC 1994; Griffith-Jones 1994). Third, the Mexican authorities gave very high priority to lowering inflation to single digit figures, and saw the exchange rate regime - and an appreciating currency - as a very valuable tool for this purpose. Another of the paradoxes of using the exchange rate mainly as a tool for inflation lowering is that - by allowing a strengthening of the real exchange rate, and therefore an increase of the current account deficit - the country risks the possibility of a very large devaluation, which will then imply a significant increase in inflation. Therefore, excessive emphasis on the use of the exchange rate to lower inflation rapidly in the short-term - and insufficient attention to maintaining a competitive exchange rate - may be undesirable even from the perspective of a sustained decline in inflation.

However, it was not just exchange rate policy that should have been conducted differently, important as that was. As argued above, the timing and sequencing of liberalization and privatization in the financial sector and liberalization of the capital account could have implied more gradual changes, and less simultaneous changes. Within four years, not only was the banking system re-privatized, but the conduct of monetary policy was changed drastically, as reserve requirements had been reduced, and quantitative credit controls were eliminated in the late 1980s. Calvo and Mendoza, *op. cit.* attribute the near doubling of the M_2 money multiplier, from about 4.2 at the end of 1988 to 8 in December 1994 to these two changes; they further see this as a major factor in explaining the large rise in M_2 (in real terms) which occurred since the late 1980s. The private commercial banks - after many years of nationalization - had little experience and inappropriate organizational systems to adequately assess credit and other market risks, as well as monitor and collect loans. According to the IMF (1995b) the strengthening of public finances (which reduced public sector demand for bank credit) implied a shift towards more risky borrowers. Combined with lack of proper supervision and inadequate regulatory standards, this contributed both to a large expansion of commercial bank credit and to an increase in non-performing loans. Between 1987 and 1994, commercial bank credit grew by over 100 per cent in real terms, with credit for housing increasing by almost 1,000 per cent and credit for consumption by over 450 per cent (Ramirez de la O 1995, based on Banco de Mexico data), with a fairly large part of those large increases occurring before capital flows surged. No attempt at regulating or restricting such credit was made. The poor quality of some of these loans, even before the crisis, implied that the ratio of past due loans to total loans grew from 4 per cent in 1991 to 8 per cent in late 1994.

At the same time that large changes were taking place within the financial sector, a rapid liberalization was taking place on the Mexican capital account, (as just described). This implied that non-residents could buy shares, government paper, etc. (In part, these changes were a response to the fact that non-residents had previously been able to get round existing restrictions, for example through secondary purchases of government securities from Mexican banks. However, the fact that the authorities chose to liberalize completely rather than reinforce restrictions on non-residents reflected the liberalization philosophy.) Furthermore, regulatory changes in the US (such as rule 144-A) and elsewhere were facilitating sales of Mexican - and other Latin American shares - in international markets (Griffith-Jones 1992). The combination of all these changes facilitated and promoted the large surge in capital flows to Mexico. This surge - to an important extent intermediated through the banking system - had contributed significantly to the credit expansion to the private sector (which must play a big role in explaining the sharp decline in private net savings discussed above), it also probably contributed to the deterioration of the commercial banks' loan portfolio.

The critique here is not to the measures themselves, as they are in the long-term both correct and unavoidable, but to the pace at which they were introduced. Also, particularly with the benefit of hindsight, it seems worth asking why compensatory measures were not adopted, for example to curb excessive capital inflows via measures such as reserve requirements à la Chile (Ffrench-Davis *et al.* 1995); also why greater efforts to improve bank supervision and regulation were not made?

This latter critique cannot just be of the Mexican authorities, as so many in the economics professions - and in the international institutions - encouraged speedy and simultaneous liberalization as the most efficient path towards economic growth, and praised Mexico as a model pupil of such a path. It is thus interesting that for example the IMF in its last Staff Report for Mexico's Article IV Consultation before the crisis (issued in February 1994) praised Mexico's 'considerable success in its comprehensive programme'; it did not argue for change in the exchange rate policy; and it projected different scenarios for Mexico's Balance of Payments (till 1998) all of which assume high and steady capital inflows. To be fair, it argued for the need for flexibility and pragmatism in responding to changing circumstances in financial markets, but did not specify any more than that. However, it should be stressed that the literature on timing and sequencing of reforms had already emphasized the need to proceed more cautiously - and last - with the liberalization of the capital account.

Though one can criticize the role of the IMF before the crisis, as well as the stabilization package negotiated by it with the Mexican authorities, the role played by the IMF in controlling the crisis in December 1994-January 1995 was crucial. (For a discussion on measures internationally to prevent Mexico-style crises and manage them better, see Griffith-Jones 1995).

3 FEBRUARY - DECEMBER 1994: THE CLOUDS DARKEN

The period starts in February 1994, a month in which the level of foreign exchange reserves peaked at \$US29.2 billion (Banco de Mexico 1995). As reserves had grown so much in the first two months of 1994, there reportedly was some discussion of the need to revalue the peso.¹¹ Capital inflows in January and February were strong as political uncertainties linked to the Chiapas uprising were offset by the continuing favourable impact of approval of NAFTA by the US Congress.

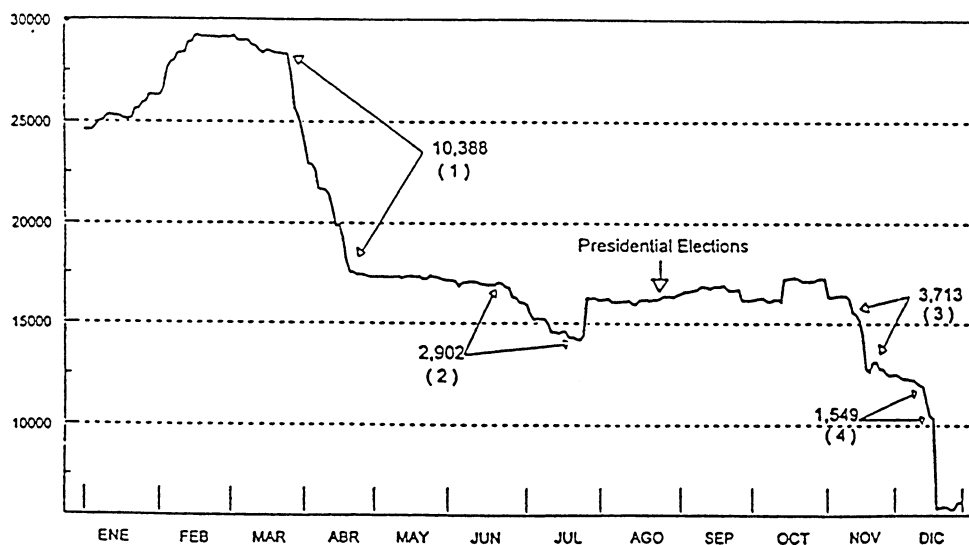
However, important changes in US monetary policy, which coincided with dramatic and unexpected political developments in Mexico, significantly diminished the attractiveness of Mexico both for foreign and domestic investors.

In February 1994, the US Federal Reserve decided to raise interest rates, from 3 per cent to 3.25 per cent. Further rises were expected, as the US monetary authorities were keen to slow the rapid pace of growth of the US economy. Indeed, throughout 1994, US interest rates increased six times, with yields on US Treasury Bills increasing from 3 per cent in January 1994 to 5.6 per cent in December 1994.

The differential between US and Mexican Treasury bills narrowed in February 1994, as US rates rose and - surprisingly - Mexican rates fell by 1 per cent as monetary conditions were eased. The differential increased further, when US interest rates increased a second time (22 March).

It was, however, the assassination of the presidential candidate, Luis Colosio, on 23 March, which seemed to precipitate more directly the large outflow of capital and a dramatic decline of foreign exchange reserves, which fell by almost \$US11 billion between 23 March and 21 April (see also Chart 4).

Chart 4: Stock of net international reserves in 1994 (millions of dollars)



Notes

- 1 Assassination of the PRI's Presidential candidate.
- 2 Resignation of the Secretary of the Interior.
- 3 Statements by the Deputy Attorney-General.
- 4 Renewed hostility by the EZLN.

In fact, throughout 1994, it was the combination of the simultaneous increase in US yields, (well above the very low US yields which had existed in the early 1990s) and the increased perception of political instability - and therefore political risk - for Mexico, which discouraged capital flowing into Mexico, and indeed caused outflows; the differential premium, compared with the differential risk (between investing in Mexico and the US in particular) had fallen significantly.

Faced with the change in perceptions - both by domestic and foreign investors - the Mexican authorities could choose one of two options. The first option would have been to tighten monetary policy significantly and increase the crawl or widen the exchange rate band more; the tightening of monetary policy would have both started to diminish the large current account deficit (though with a lag) and, more immediately, would have increased significantly the differential premium, between investing in Mexico and the US, thus making Mexico more attractive for investors. Accelerating the crawl or widening the exchange rate band would have had a positive effect on the current account, also with a lag, though its immediate effect on investors is unclear. Both measures would have dealt at a fundamental level with the decline in the willingness of foreign investors to fund the large current account, and the resulting need to both increase the attractiveness of Mexico for investors and start adjusting the economy to reduce the current account. Several observers (for example Leiderman and Thorne 1995) believe that such a shift of policy (in both monetary and exchange rate policy) in the first quarter of 1994 could have avoided much of the crisis. This seems a reasonable assumption, though we will never know for sure.

Basically the Mexican authorities did not pursue this first option. Though monetary policy was tightened a bit after the Colosio assassination, and interest rates on CETES (government securities) increased from 10.1 per cent on 23 March to 17.8 per cent one month later, there was no further tightening of monetary policy after that, and interest rates on CETES fluctuated between 16 and 18 per cent; indeed, in August interest rates declined and till late November fluctuated in the range of 13 to 15 per cent. Basically, what the Mexican monetary authorities did was to 'sterilize' the monetary impact of the outflow of foreign exchange reserves, by expanding net domestic credit quite significantly; as a result, the monetary base increased, even though reserves were falling so rapidly (see Chart 5). The increase in net domestic credit was particularly large following Colosio's assassination and in the month before the December devaluation and crisis. The reason why the monetary authorities 'sterilized' the fall in reserves, was because they assumed - wrongly as we now know *ex-post*, and taking a fairly large risk as was evident even at the time from the information then available - that the sharp slowdown in inflows, and the existence of surges of outflows, was a temporary phenomena.

Neither was the exchange rate policy modified, even though there was some real devaluation, caused by the fact that the peso moved from late March to very close to the limit of the band, and stayed near there till December (see Chart 6).

Chart 5: Mexico: Central Bank sterilized intervention

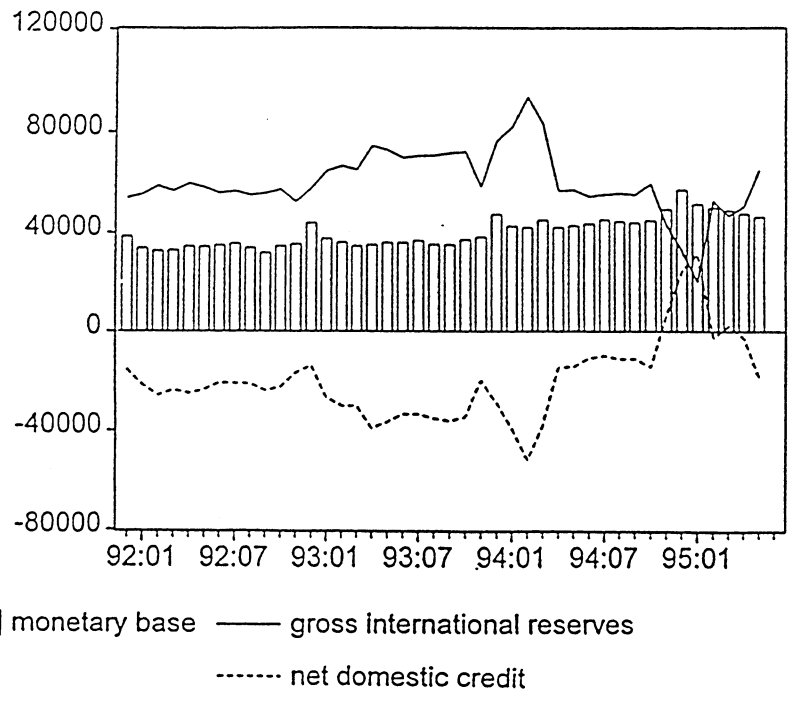
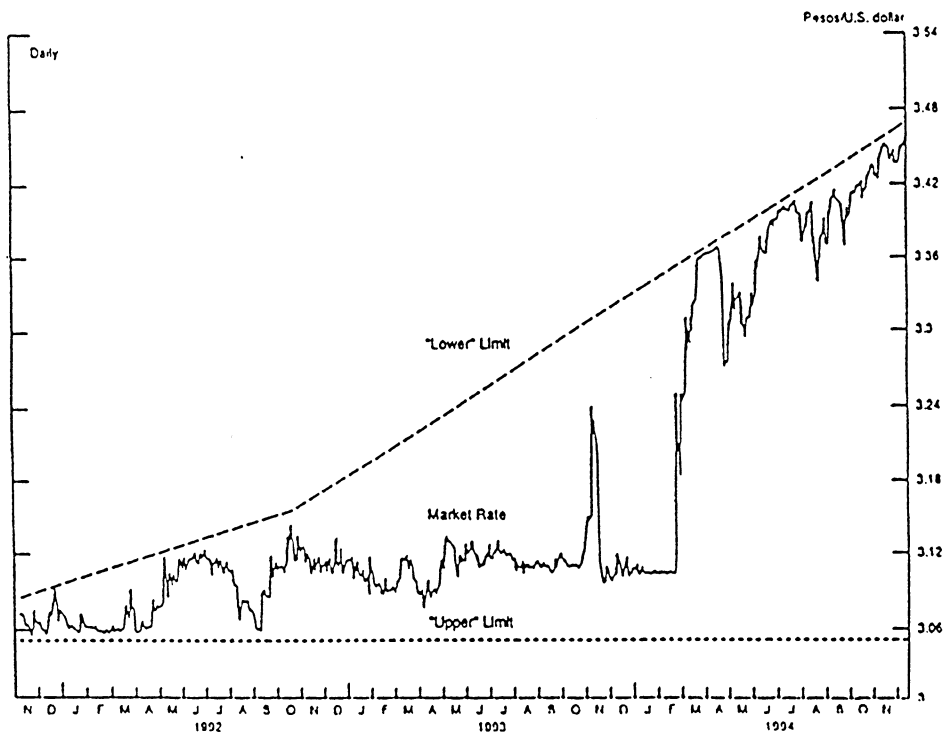


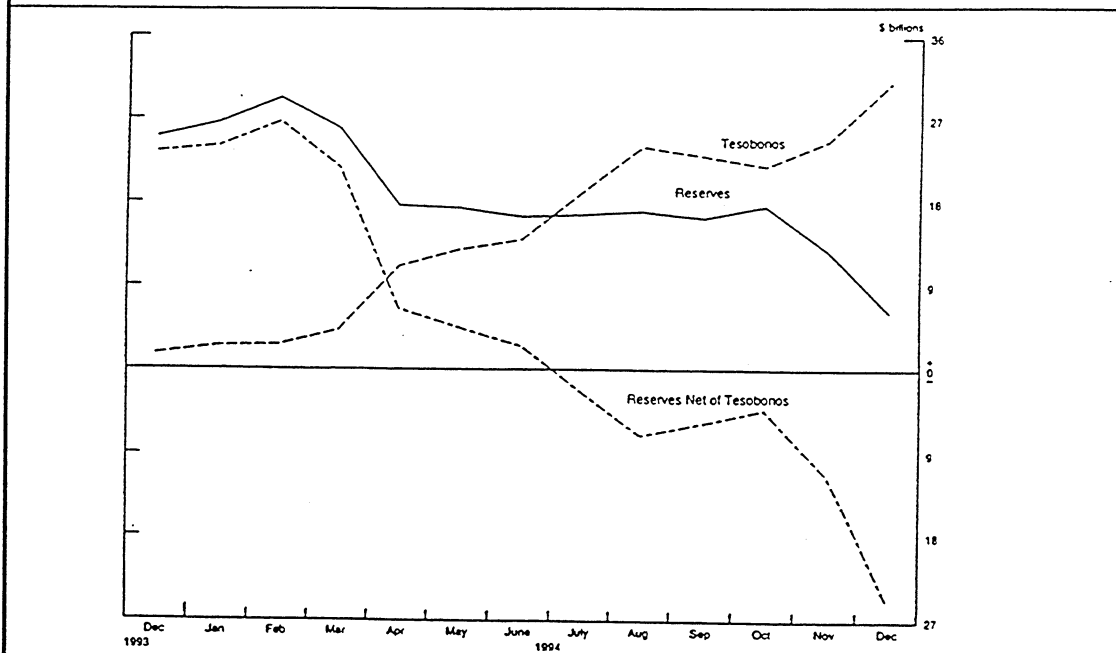
Chart 6: Mexican exchange rate changes within the exchange rate band (November 1991 through mid-December 1994)



The Mexican authorities followed a policy option, which implied allowing foreign exchange reserves to fall (the declines occurred in particular moments - see Chart 5 - with stable levels in between) and allowing a major switch by non-residents from peso-dominated Treasury Bills (CETES) to dollar-denominated Treasury Bills (Tesobonos), see Table 3. The stock of Tesobonos rose from \$US3.1 billion in March 1994 to \$US12.6 billion in June 1994; it rose further to \$US19.2 billion in September and \$US29 billion in December 1994, (see Chart 7). As a result, the composition of government debt held by foreigners was dramatically modified; in December 1993, 70 per cent was in CETES and 6 per cent in Tesobonos; by December 1994, 10 per cent was in CETES while 87 per cent was in Tesobonos (Lustig 1995).

Table 3: Mexico: non-resident investments in Mexican Government securities, 1991-95					
	CETES	Ajustabonos	Tesobonos	Bondes	Total
	In billions of US dollars				
Net non-resident purchases					
1991	2.3	1.4	0.3	-0.5	3.4
1992	5.6	2.1	-0.1	0.5	8.1
1993	5.6	0.7	1.1	-0.4	7.0
1994	-11.6	-3.9	14.3	-0.9	-1.9
Non-resident holdings^a					
January 1991	1.4	0.3	-	1.6	3.3
December 1991	3.0	1.5	-	0.7	5.5
December 1992	9.1	3.7	0.2	1.3	14.3
December 1993	15.4	4.4	1.3	0.8	21.9
December 1994	2.5	0.5	17.4	-	20.5
April 1995	3.4	0.4	10.2	0.3	14.3
	Percentage of total public holdings				
Non-residents holdings^a					
January 1991	7.3	7.4	58.9	8.4	8.0
December 1991	21.9	15.9	78.7	4.0	13.1
December 1992	75.8	41.4	58.6	12.4	45.6
December 1993	63.1	53.4	80.3	18.7	56.6
December 1994	60.2	19.1	79.0	5.0	69.3
April 1995	60.8	17.8	90.4	15.4	68.4
Note					
a Change in holdings reflects net purchases of securities, exchange rate revaluation, and the indexation features of Ajustabonos and Tesobonos.					
Sources: Bank of Mexico; and Fund staff estimates					

Chart 7: Mexican international reserves and tesobonos outstanding



Reportedly, it was institutions like the US mutual funds, which were switching from CETES to Tesobonos; it seems that Mexican capital tended, if nervous, to leave the country rather than switch to Tesobonos.¹²

The dramatic shift reflected investors' fears that the exchange rate was not sustainable, and were therefore willing to stay in Mexico only in dollar-denominated paper; what this really meant was that those investors had already - at least halfway - left Mexico. The Mexican authorities 'persuaded' them to stay in Mexico, by 'taking over' the exchange rate risk. By mid-1994 the Tesobonos combined several features (their large scale, their ownership by increasingly nervous non-residents, the fact that they were dollar-denominated, and their very short-term nature), which made them a potential time bomb in the hands of the Mexican authorities. What was also very dangerous, and proved critical, was the combination of decreasing foreign exchange reserves and short-term dollar-denominated government debt (see also Chart 7). When from mid-1994, the stock of Tesobonos became higher than total foreign exchange reserves, the situation became particularly delicate, especially because the paper was so short-term. Furthermore, the fact that the debt was dollar-denominated implied that the Mexican authorities could not deflate the value of this debt in case of devaluation. Nor could they issue money to service that debt as it was dollar-denominated. Neither could they - if investors refused to roll over the Tesobonos - service them from foreign exchange reserves, as since mid-1994 the stock of reserves was lower than the stock of Tesobonos and the gap continued to widen (see Chart 7 again). Indeed, when in December 1994, investors became aware that Mexico's ability to meet entirely its maturing short-term debt obligations was unclear, (with \$US29 billion of Tesobonos maturing in 1995 and international reserves of around \$US10 billion), roll-over of that debt became difficult, which made a major contribution to transforming the December devaluation into a major crisis.

Another - less widely mentioned - source of financial vulnerability for Mexico was the banks' increased reliance on short-term financing such as certificates of deposit from non-residents. This short-term financing rose already from 1991, (when it reached \$US19 billion) to \$US25 billion in 1994. Though less serious than the Tesobono problem in greatly magnifying the crisis, the banks' difficulties in rolling over foreign currency denominated CDs and other short-term lines of external credit became an important problem for the Mexican authorities after the devaluation. It is interesting to examine how the capital account and its composition evolved (for details see Table 4).

During the second quarter of 1994 (the period which includes the Colosio assassination and rises in US interest rates), the capital account deteriorated sharply, from \$US7.7 billion in the first quarter of 1994 (figure slightly higher than the average for 1993) to \$US2 billion in the second quarter. The only category that remained strong was foreign direct investment. However, this was more than offset by shortfalls in portfolio investments (particularly in equity but also in bonds) and by negative residents' borrowing abroad (the latter implied a decline of almost \$US4 billion from the level in the first quarter of 1994, see again Table 3). As discussed above, a record number of Tesobonos (over \$US7 billion) were sold to non-residents during April-June; these investments were matched by CETES and ajustabonos redemptions, so that net foreign purchases of government securities were virtually zero, compared to a quarterly average inflow of \$US1.7 billion, during the previous year.

Capital market inflows recovered fairly strongly in the third quarter as political conditions seemed to stabilize after the Presidential elections on 21 August. Foreign direct investment rose to a record level, while residents reportedly returned substantial amounts of capital after large net outflows earlier in the year. It is noteworthy that while non-residents' purchases of equities, bonds and government securities were stronger than during the second quarter, they were sharply lower than previously. The switch from CETES and ajustabonos to Tesobonos continued, but at a slower speed than in the first quarter. Borrowing from abroad continued to fall.

In the October - December period, capital inflows again declined drastically. In October, however, there were apparently large capital inflows, reportedly mainly explained by repatriation of flight capital.¹³ In November, however, foreigners sold equities and government securities (with the latter falling by \$US2 billion). In December, there was a further pull-back by non-residents from government securities' markets.

The Mexican authorities' response to this evolution in the capital account was to assume that the declines in capital inflows and the outflows were **temporary**, and were due to **transitory** political uncertainty (Aspe 1995; Buirra *op. cit.*). Though such an interpretation can be understood, it seems difficult to justify. It ignored John Williamson's (1994) rule, that 'negative shocks should be treated as permanent, and positive shocks as temporary'. Indeed, one could say that the Mexican authorities tended to do the opposite. The key problem was that this implied a very high risk strategy, and this is the main critique of the approach adopted by the Mexican authorities.

Within a less high risk approach, the Mexican authorities could have widened the band more and/or accelerated the crawl, they should have significantly tightened monetary policy and they should have issued far, far fewer Tesobonos. Those that they did issue they should have tried to place for longer maturities. In this context

Table 4: Mexico: quarterly capital account, 1993 - first quarter 1995 (in millions of US dollars)

	1993				1994				1995
	I	II	III	IV	I	II	III	IV	I
Capital account	7,959	7,639	6,955	7,938	7,729	-2,040	7,754	-2,576	-6,253
Official capital	4,678	367	2,648	191	2,730	-474	2,278	-4,933	-1,935
Medium- and long-term borrowing	-98	679	653	367	826	520	-189	290	-1,421
Commercial banks	-343	-607	-256	-776	-230	-280	-7	-209	-307
Multilaterals	-68	2	38	240	-102	-42	-169	147	-231
Bilaterals and suppliers ^a	-233	207	-42	74	-381	-256	-291	-4	-652
Bond placements and other	546	1,077	913	830	1,539	1,098	278	355	-232
Short-term borrowing	1,347	29	-317	4	834	154	984	200	-1,969
Exchange Stabilization Fund	-	-	-	-	-	-	-	-	5,236
Non-resident purchase of Mexican Government treasury bills ^b	3,718	1,227	1,694	374	1,487	35	1,163	-4,627	-4,652
CETES	2,330	-205	2,175	1,304	-60	-5,509	-1,955	-4,063	933
Tesobonos	-120	-25	515	693	1,732	7,108	4,628	870	-5,578
Other	1,508	1,457	-966	-1,623	-185	-1,564	1,510	-1,434	-7
Other Government financial assets	-288	-1,567	618	-555	-417	-1,183	320	-796	872
Long-term trade lending	-119	-274	-4	115	-41	-112	92	20	69
Debt enhancements	-137	-140	-143	-146	-149	-152	-155	-159	-162
Other	-33	-1,154	764	-525	-227	-919	383	-657	965
Private capital	3,281	7,272	4,307	7,748	4,999	-1,566	5,476	2,357	-4,318
Direct investment	1,164	954	550	1,721	1,846	1,618	2,325	2,191	607
Equity investment	1,269	1,312	1,879	6,257	3,466	248	744	-369	119
Bond placements	994	1,865	1,968	1,491	1,486	74	446	55	-1,185
Banking sector	-	325	1,253	160	173	-62	-136	-158	-14
Non-bank private sector	994	1,540	715	1,331	1,313	136	582	213	-1,171
Net external credits	1,943	2,337	536	1,445	3,352	-381	-1,199	645	-1,188
Banking sector	675	2,125	298	330	1,953	-317	-1,278	823	-2,315
Non-bank private sector	1,268	212	238	1,115	1,399	-64	79	-178	1,127
Increase in assets abroad (-)	-482	528	-230	-1,625	-2,695	-632	588	-655	-1,286
Interest earnings held abroad	-204	-170	-166	-192	-199	-287	-323	-380	-407
Other	-278	698	-64	-1,434	-2,496	-345	911	-275	-879
Other, including errors and omissions	-1,605	276	-395	-1,541	-2,456	-2,493	2,572	491	-1,385

Notes

a Includes CCC.

b Short- and medium-term financing provided by the US and Canada under the North American Framework Agreement (NAFA).

c Excludes repayments associated with implicit interest earnings on zero coupon treasury bills, such as Tesobonos and CETES.

d Corresponds to implicit reinvestment of interest earnings on collateral for restructured commercial bank debts.

e Corresponds to assumed reinvestment of interest earnings on foreign investments.

Source: Bank of Mexico; and Fund Staff estimates

it is worth stressing that the average maturity of 'domestic' public debt, which had risen from less than 40 days in 1985 to more than 400 days in 1992, was to be allowed to **fall sharply**, and by end-1994 almost 60 per cent of this debt was maturing in less than 12 months.¹⁴ Longer maturities would have meant higher financial costs, but smaller financial vulnerability. Reportedly,¹⁵ the Mexican authorities **did not even try** to issue more long-term Tesobonos, though it is not completely sure that they would have been able to place significant amounts. Had that been the case (which seems unlikely), the preferred choice would have been not to issue so many Tesobonos! Indeed, the need to increase Tesobonos so much should have been a clear indication of the lack of credibility of the exchange rate policy, in particular, and the overall macro-stance in general.

The relatively loose (in the circumstances) monetary policy could have some political explanation - though no justification - till the August elections. A puzzle is why did monetary policy continue to be loose after the PRI won a clear victory. If the preference was to maintain the exchange rate policy, why was monetary policy not tightened? Reportedly one of the main reasons was the concern for the destabilizing effects of higher interest rates on a rather fragile banking system.¹⁶ Were that the case (and of course measures can always be taken to strengthen banks, as the Mexican authorities have done on a dramatic scale in 1995), the exchange rate policy could have been modified in August.

4 THE MASSIVE FINANCIAL CRISIS EXPLODES

On 20 December, the Mexican authorities widened the intervention limit for the peso by 15 per cent. Because this led to such a massive outflow of funds (during 20 and 21 December, foreign exchange reserves in Mexico fell by over \$US4 billion) and reserves fell to fairly low levels, the peso was then allowed to float.

Even though the Mexican authorities on 20 December did what many observers had said was necessary (a devaluation of around 20 per cent), this decision precipitated an incredibly large financial and Balance of Payments crisis for Mexico, with strong ripple effects not just in Latin America, but throughout the developing world and even in some of the weaker developed economies.

Though the Mexican authorities had made mistakes in the conduct of macroeconomic policy and in the pace of liberalization (see above) and though the devaluation itself (see below) could have been both better timed and better handled, the reaction of the financial markets to the devaluation - which in itself was a correct policy move - was both absolutely brutal and quite unexpected. From practically one day to the next, the perception of Mexico by the financial markets changed dramatically from 'model economy' to 'traitor of foreign investors', even though the economic fundamentals had not changed: nor had there even been an important further deterioration of political fundamentals (though the situation in Chiapas had marginally deteriorated in early December 1994). For this reason, a full understanding of the Mexican peso crisis cannot just (or perhaps even mainly) emphasize the policy mistakes of the Mexican authorities, but needs to focus on the imperfections of international capital markets also. Before exploring these in more depth, we will analyse how the devaluation was handled, and outline briefly the impact on the Balance of Payments.

Having said that the initial devaluation actually was in many ways an appropriate response to a very large current account deficit, which could no longer be financed by large capital outflows, how was the devaluation mishandled?

First, it can be argued that it was **done too late**. The widening of the band was only announced when reserves had fallen to \$US10 billion. If it had been done earlier (either from a position of strength, for example in late February 1994, with reserves at \$US29 billion, or after the murder of Colosio, when reserves fell systematically to \$US17 billion by mid-April, or in August, when reserves had increased from a previous low, to \$US16 billion), the authorities would have been in a stronger position to defend the currency. Furthermore, if done earlier, there would have been no or a smaller overhang of Tesobonos maturing, and therefore the difference between reserves and Tesobonos would have been either positive or mildly negative (see again Chart 7).

Second, and again this is clearer with the benefit of hindsight, several mistakes were made in the way the devaluation was handled. These are called 'the errors of December' in Mexico, where many analysts attribute great importance to the 'mishandling' of the devaluation.¹⁷ However, the importance of this 'mishandling' should not be exaggerated. Furthermore, these 'mistakes' are far more obvious with the benefit of hindsight, and with the knowledge of the dramatic scale of the crisis.

Among the possible mistakes on how the widening of the band was handled are the following:

- a perhaps most importantly the measure was announced in a bit of a policy vacuum; there was no broader adjustment package simultaneously announced (which could have included for example tightening of monetary policy); nor was a programme of further privatizations announced. Both of these measures would have reassured investors. In defence of the Mexican authorities it should, however, be noted that agreements between business and labour leaders in Mexico to restrain wage and price increases were announced at the same time as the devaluation. However, this was not enough to satisfy the markets;
- b the moving of the band was not linked to a loan agreement with the IMF, again such a loan agreement could have helped to reassure investors, especially foreign ones. To be fair to the Mexican authorities it should be mentioned that, simultaneously with the devaluation, the activation of a \$US7 billion swap line with Canada and the US was announced, as an important line of defence. It was only because the crisis was so big, that this swap line became insufficient;
- c the devaluation was first discussed in a long meeting within the Pacto (Pact of Economic Solidarity). The 'Pacto' is a forum of representatives of the government, the business sector, workers and agricultural producers, used for agreeing macroeconomic policy, including an incomes policy which covers wages, prices and the exchange rate. Though the Pacto is a valuable instrument for achieving consensus on Mexican economic policy, discussing a specific change in exchange rate policy in a situation of rapidly falling reserves in such a forum seemed inappropriate at two levels. First, it is best practice that the Governor of Central Bank (with agreement of the Finance Minister only) takes such a decision on devaluation, so as to avoid rumours spreading, which can destabilize financial markets. Second, in the specific case of the Mexican devaluation, there are unverified reports that some of the business representatives participating in the meetings themselves immediately used the information of a forthcoming devaluation to buy dollars. This not only increased pressure on the peso, but also reports of it angered foreign investors, who argued that they did not have access to this 'inside information'; reportedly, this accelerated their withdrawal of dollars;¹⁸

- d the measure was implemented by a new Finance Minister who had not had time, and not devoted enough efforts, to establish close links with the foreign investor community as the previous Finance Minister had;
- e it was decided only to widen the band; only when the band was attacked, so strongly, was the decision taken to float the peso. Several analysts argue that it would have been better to have shifted immediately to a float, as the Banco de Mexico had proposed and the Pacto had rejected;¹⁹
- f the decision was taken very near Christmas, when markets tend to be very thin.

However, the significance of the 'errors of December' should not be over-played, as the more structural features of the situation surely played a dominant role. Nevertheless, understanding them may offer useful lessons for other countries which in future may face similar situations.

After the 15 per cent devaluation, and even more after the floating of the peso, investors rushed for the 'exit', with the incredible speed of a stampede. As mentioned above, \$US4.5 billion of reserves were lost between 20 December and 22 December; reportedly much of this was money belonging to Mexican residents.²⁰ However, the flight was increasingly joined by foreign investors, who panicked. As can be seen in Table 5, for example the dollar value of foreign investment in the Mexican Stock Exchange fell dramatically, from \$US50 billion in November 1994 to \$US18 billion in February 1995; however, the decline in the share of foreign investment in the Mexican Stock Exchange fell by only around 1 per cent in that period (from 25.7 per cent in November 1994 to 24.5 per cent). The explanation lies in the fact that the total value of the Mexican Stock Exchange fell sharply in \$US terms, mainly due to the falling peso, but also because of some decline in prices of stocks.

However, the main impact of capital flows on the crisis was especially via the Tesobonos but also via the banking system. It is interesting that investors, both foreign and domestic, actually initially increased their holdings of Tesobonos after the devaluation. Thus, foreign holdings of Tesobonos, which amounted to \$US16.1 billion on the day before the first devaluation, peaked at \$US17 billion on 27 December, (mainly reflecting a further shift from peso denominated CETES). Holdings of Tesobonos by non-bank residents also rose, initially from \$US3.9 billion to a peak of \$US5.1 billion on 23 December.

However, as the crisis continued, towards the end of December investors (and especially foreign ones, who held the majority of Tesobonos) became increasingly concerned about the amount of Tesobonos that would mature in the first few months of 1995. There was suddenly strong focus on the fact that a total of \$US9.9 billion was expected to mature in the first quarter, while foreign exchange reserves had fallen to \$US6.3 billion at the end of December 1994. Panic spread that the Mexican government could perhaps be forced by events to default on its obligations. As a result of these fears, three weekly auctions of Tesobonos starting in 27 December 1994 were well short of the amount of Tesobonos offered at auctions. Bid-cover ratios (proportion of amount bid to amount offered) **bottomed at a disastrous 5 per cent** on 27 December 1994, when \$US600 million in Tesobonos were offered, and bids for only \$US28 million were received! Though demand for CETES was a bit higher, bids at several CETES auctions also fell short of the amount offered.

Table 5: Mexican stock exchange (BMV) 1989-1995

Year/Month	Market Value		Foreign Investment		Share of Foreigners	IPC	
	Amount (000,000) \$US	Variation	Amount (000,000) \$US	Variation %	BMV %	Points	Variation
December 1989	26,562.71	-	808.00	-	3.04	418.93	-
December 1990	40,939.86	54.13	4079.45	404.88	9.96	628.79	50.10
December 1991	101,718.65	13.59	18,542.51	9.07	18.23	1,431.46	3.42
December 1992	138,749.07	4.68	28,668.00	3.66	20.66	1,759.44	2.55
December 1993	200,613.34	18.70	54,623.05	26.97	27.23	2,602.63	17.46
January 1994	215,383.00	7.36	60,924.55	11.52	28.29	2,781.37	6.87
February 1994	202,646.12	(5.91)	56,166.82	(7.81)	27.72	2,585.44	(7.04)
March 1994	186,301.92	(8.07)	50,296.03	(10.45)	27.00	2,410.38	(6.77)
April 1994	181,114.11	(2.78)	48,328.32	(3.91)	26.68	2,294.10	(4.82)
May 1994	188,229.96	3.93	51,032.43	7.17	27.52	2,483.73	8.27
June 1994	174,633.22	(7.22)	46,445.26	(10.32)	26.60	2,262.58	(8.90)
July 1994	184,371.77	5.58	51,032.43	9.88	27.68	2,462.27	8.83
August 1994	202,574.72	9.87	55,394.16	8.55	27.35	2,702.73	9.77
September 1994	204,480.98	0.94	55,913.07	0.94	27.34	2,746.11	1.61
October 1994	195,429.07	(4.43)	50,747.94	(9.24)	25.97	2,552.08	(7.07)
November 1994	195,838.05	0.21	50,393.06	(0.70)	25.73	2,591.34	1.54
December 1994	129,850.36	(33.70)	34,395.16	(31.75)	26.49	2,375.66	(8.32)
January 1995	88,124.25	(32.13)	22,973.06	(33.21)	26.07	2,093.98	(11.86)
February 1995	77,300.67	(12.28)	18,946.20	(17.53)	24.51	1,549.84	(25.99)
March 1995	74,349.02	(3.82)	19,935.00	5.22	26.81	1,832.83	18.26
April 1995	90,499.83	21.72	23,125.15	16.00	25.55	1,960.554	6.97
May 1995	82,747.61	(8.57)	21,952.44	(5.07)	26.53	1,945.13	(0.79)
June 1995	93,471.87	12.96	23,844.27	8.62	25.51	2,196.08	12.90
July 1995	106,265.19	13.69	26,826.11	12.51	25.24	2,375.17	8.15
August 1995	106,508.83	0.23	27,179.39	1.32	25.52	2,516.99	5.97
September 1995	100,885.73	13.69	25,165.44	(7.41)	24.94	2,392.26	(4.96)

Source: Bolsa Mexicana de Valores/Dirección de Información y Estadística. I thank Mr Victor Rojas for providing this information. ICP represents the stock market index

The unwillingness of (mainly) foreign investors to buy Tesobonos greatly accentuated the crisis, as their fears became potentially self-fulfilling. It was only the massive US Treasury - IMF package agreed in late January 1995, that stopped the risk of a potential default.

In any case, the total of investment in all Mexican government securities (including Tesobonos, CETES, Ajustabonos and Bondes) fell from \$US21 billion in December 1994 to \$US14 billion in April 1995, to \$US7 billion in September 1995; this decline was almost totally explained by the sharp fall in foreign investors' holdings of Tesobonos, which fell from their peak in December 1994, at \$US17.8 billion, to \$US1.8 billion in late September.²¹

There was another source of potential vulnerability, which is hardly mentioned in the literature, but which also played an important (though smaller) role in the crisis than the Tesobonos.²² In January 1995 Mexican banks faced severe dollar liquidity problems, as they faced difficulties in rolling over foreign currency denominated CDs and other short-term lines of external credit, due to the higher country risk perceived by foreign lenders, accentuated by the fact that many of these loans were using Tesobonos as collateral. To ease the difficulty of banks rolling over their external credit lines and maturing foreign currency CDs, the Bank of Mexico had to provide a special window for collateralized dollar loans for banks. Total drawings of this facility peaked at \$US3.6 billion in April 1995, and declined afterwards.

During the first quarter of 1995, the weakness of capital flows intensified and became generalized to different categories. We have already discussed the problems of renewing Tesobonos (which the Mexican authorities tried to stop selling mid-February 1995) and of the difficulties for commercial banks to renewing credits and inter-banks liabilities. Also, state agencies and companies faced difficulties in rolling over short-term lines of credit and the non-bank private sector faced bond payments that could not be rolled over (see again Table 4). During the first quarter of 1995, net capital outflows totalled \$US11.5 billion (excluding the special loans via IMF and US Treasury, as part of the massive rescue package for Mexico), compared to an average quarterly inflow of \$US7.6 billion during 1993, and an average quarterly inflow of around \$US2.5 billion in 1994.

As we have discussed above, the speed and scale of the response of international capital markets to the December devaluation cannot fully be explained by a sharp deterioration of economic (and even political) fundamentals - as this did not occur in December 1994 - nor by the increase in financial vulnerability (e.g. Tesobono to reserves ratio), though all these factors played an important part. An important factor in explaining the magnitude and speed with which international markets reacted, are certain imperfections in these markets, which made them overreact to the devaluation.

Kindleberger (1978) has developed an approach which considers financial crises as a response to previous excesses linked to 'euphoria'. In the case of Mexico, the 'euphoria' was linked to the country being a 'model reformer', as well as its access to NAFTA and OECD. As in Kindleberger's model, monetary and credit policy in Mexico played a role in exacerbating the boom, but behaviour was also conditioned

by dramatic changes in perceptions. The importance of 'perceptions' or 'animal spirits' implies that even had 'optimal' policies been followed, there could still have been a problem linked to perceptions, first excessively rosy and then excessively black.

Kindleberger, *op. cit.*, also shows - both via theoretical analysis and drawing on historical experience - that in a crisis, or panic, credit, at any price, may become unavailable. In such circumstances, (which illustrate what happened in Mexico in late December 1994 and early 1995), markets are cleared by rationing; indeed, when panic is severe, as occurred in Mexico, obtaining funds (via borrowing or other mechanisms) may become impossible.

Shafer (1986) further develops relevant theoretical analysis of financial crises, by emphasizing the role of uncertainty. The role of uncertainty is particularly great in a context of financial innovation, when behaviour of new instruments/mechanisms is not well tested, and where such new instruments are not well or incompletely regulated. It can be argued that instruments such as emerging markets' mutual funds were both fairly new and not appropriately regulated. Theory shows that negative surprises - in a context of uncertainty - can provoke shifts of confidence, and therefore runs that **affect markets more than appears warranted by the intrinsic significance of the event**. Indeed, as discussed in Section 1, this effect is further reinforced by the fact that investors now have very diversified international opportunities. As a result of the relatively high cost of in-depth information on countries, it may become rational for investors to react very negatively (and exit) even to small bad news, even if that news is not related to any important change in economic fundamentals. As a result, a relatively small devaluation and a very small deterioration in the political situation in Chiapas, in December 1994, led to a major speculative attack on the Mexican peso. This experience leads to the conclusion that investment behaviour in such an internationalized global economy can have highly problematic effects on individual countries, as 'small news' or even rumours can provoke massive capital outflows, both because international diversification encourages ignorance and because the development of new, not properly regulated, investment instruments encourages volatility.

Herding behaviour - or band-wagon effects - in international capital markets are further explained by fund managers' behaviour, related to their incentive structure. Individual fund managers have strong incentives to 'follow' other fund managers, as their performance is always assessed at very short intervals by the markets according to how it compares with an average or 'benchmark' index. This pushes fund managers to follow others, both in the inflow and in the outflow stage.

In the case of specific instruments, there were special reasons for rapid withdrawal. For example, as the result of the Mexican devaluation, two causes pushed emerging market mutual funds to pull out of Mexico. First, the funds got smaller because of redemptions (or were expected to get smaller due to future likely redemptions). Second and more importantly, the share which the smaller fund wished to hold in Mexican paper also fell.²³

Some mutual funds operate almost like banks, guaranteeing, at a minimum, to return 100 per cent of the initial deposit to their investors.²⁴ As a result, they need to avoid important losses and/or volatile markets. These types of funds pulled out of Mexico very quickly as the crisis started.

Finally, as discussed above, 'disaster myopia' reportedly played a big role in investors' behaviour. Because there was so much (unjustified) faith that there would be no devaluation, this also helps to explain why there was so much over-reaction to the devaluation, when it did occur. Such 'disaster myopia', and subsequent over-reaction seems to have been accentuated by the sheer inexperience and youth of many of the people both analysing and deciding on investment in Mexico and Latin America in the early 1990s; the fact that many would not have been adults when the 1982 debt crisis occurred may have implied that they had little knowledge of the region's history of capital flows and Balance of Payments crises (**Institutional Investor**, *op. cit.*).

NOTES

- 1 I would like to thank Swedish SIDA for financial support of this research in the context of the project on Regulating Global Capital Flows. I am also grateful to several colleagues for their insights and support for this research; these include Ariel Buirá, Angel Calderon, Guillermo Calvo, Ricardo Hausman, Shafik Islam, David Peretz, Arturo Porzecanski, Claudia Schatan, Barbara Stallings, Tom Trebat, Joaquim Tres and Rene Villareal. I thank Hans Singer for his valuable comments.
- 2 Interview material. See, also, French-Davis and Agosin (1995).
- 3 I thank Carmen Reinhart, from the IMF, for this point.
- 4 Interview material.
- 5 An important exception can be found in Calvo and Mendoza (1995).
- 6 I thank David Peretz from the UK Treasury for valuable insights on this point.
- 7 Interview material. See, also, **Emerging Markets Investor**, 1995, and **Institutional Investor**, 1995.
- 8 Interview material.
- 9 I thank Ricardo Hausman for this point.
- 10 Interview material.
- 11 Interview material.
- 12 Interview material.
- 13 Interview material.
- 14 Source: IMF.
- 15 Interview material.
- 16 Interview material. See also Lustig (1995).
- 17 Interview material.
- 18 Interview material.
- 19 Interview material.
- 20 Interview material.

21 See Table 3 again, and data prepared by Bolsa Mexicana de Valores.

22 Interview material.

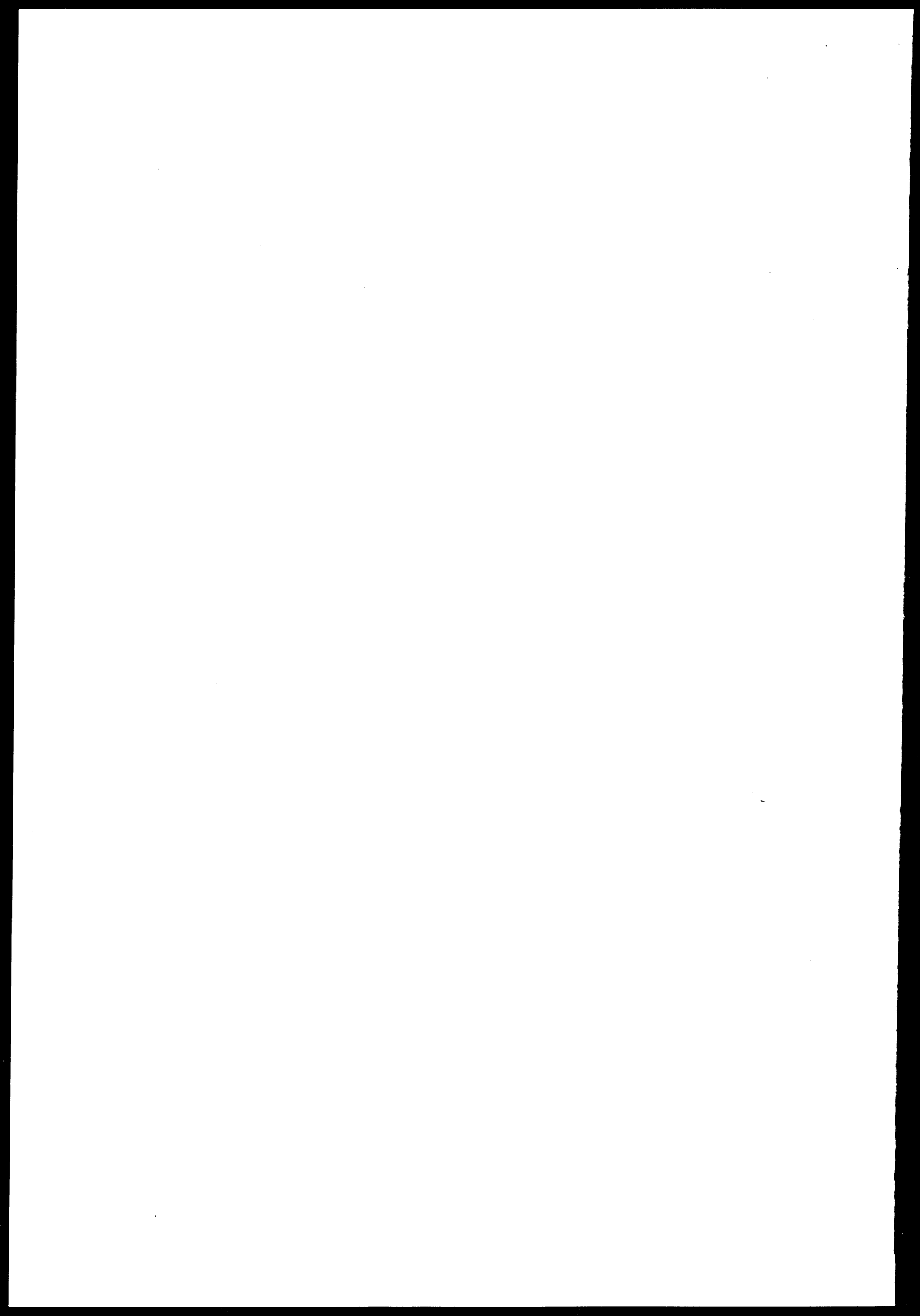
23 Interview material.

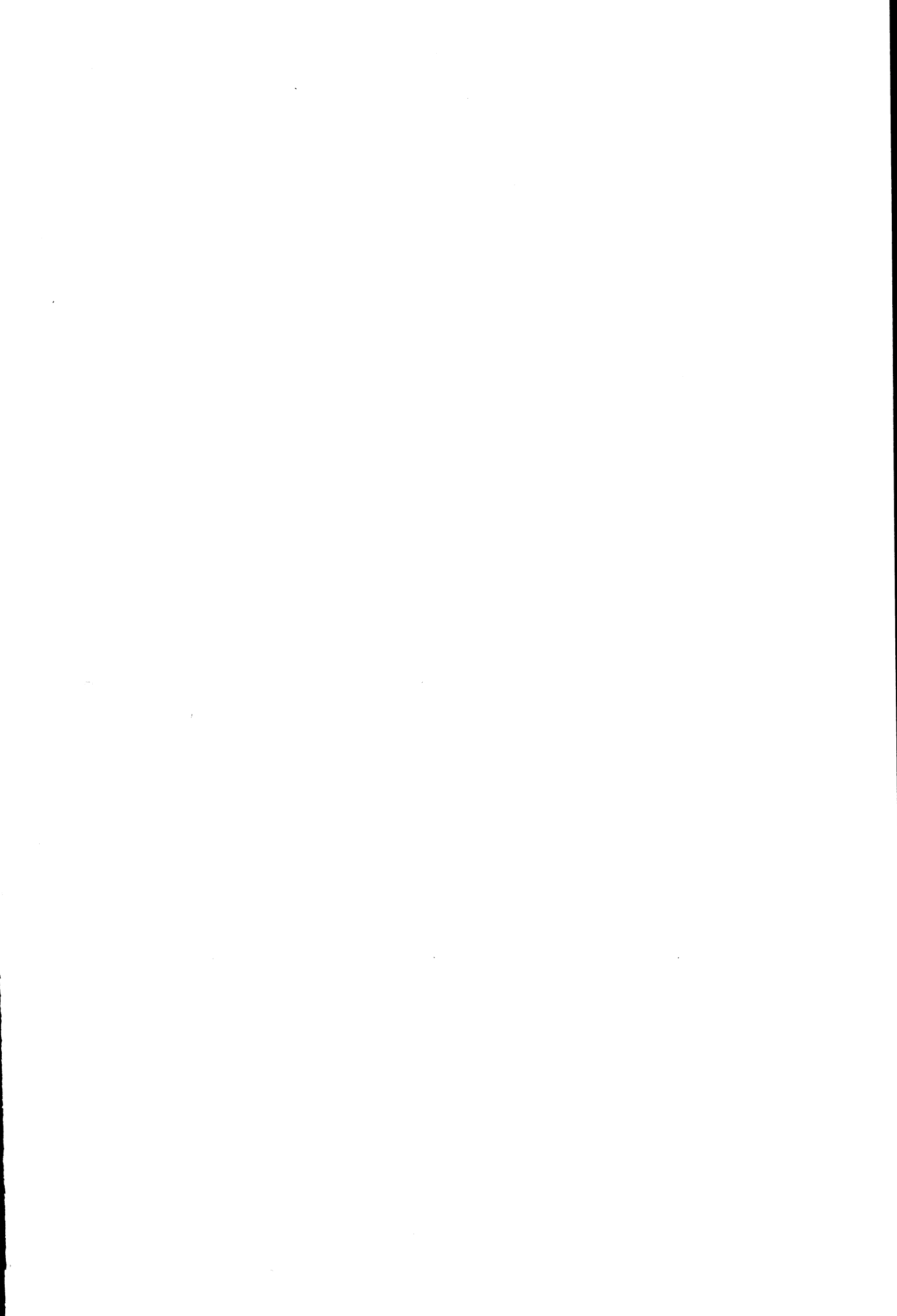
24 Interview material.

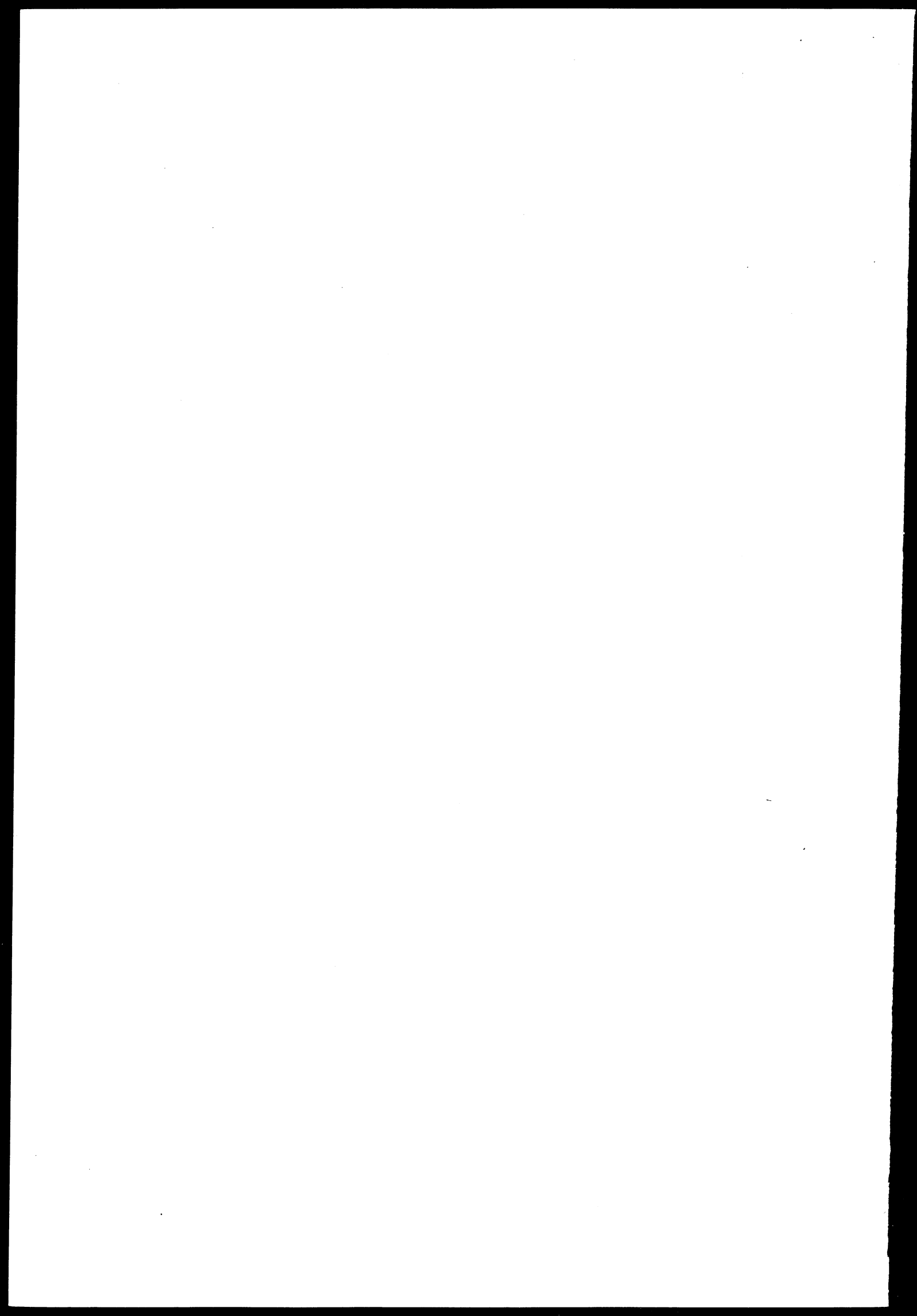
REFERENCES

- Banco de Mexico, 1995, **Informe Anual 1994**
- Bank for International Settlements, 1995, **Annual Report**
- Buira, A., 1995, 'The Mexican Crisis of 1994: an assessment', paper presented to FONDAD Conference. The Hague
- Calvo, G. and Goldstein, M., 1995, 'Crisis prevention and crisis management after Mexico', paper presented at the September Conference on Private Capital Flows after the Mexican Crisis, Vienna: Institute for International Economics
- Calvo, G. and Mendoza, E., 1995, 'Reflections on Mexico's balance of payments crisis', mimeo, University of Maryland, October
- Camdessus, M., 1995a, 'Press conference of Managing Director, IMF', mimeo, February
- 1995b, 'Drawing lessons from the Mexican crisis', address to the 25th Washington Conference of the Council of the Americas, May
- Devlin, R., Ffrench-Davis, R. and Griffith-Jones, S., 1995, 'Surges in capital flows and development', in R. Ffrench-Davis and S. Griffith-Jones (eds) **Coping with Capital Surges: The Return of Finance to Latin America**, Boulder: Lynne Rienner
- Dornbusch and Werner, 1994, 'Mexico: stabilization, reform and no growth', **Brookings Papers on Economic Activity**, The Brookings Institute
- Drees, B. and Pazarbasioglu, 1995, 'The Nordic banking crises: pitfalls in financial liberalization', **IMF Working Paper**, June
- ECLAC, 1994, **Policies to Improve Linkages with the Global Economy**, Santiago: United Nations
- Ffrench-Davis, R., Agosin, M. and Uthoff, A., 1995, 'Capital movements, export strategy and macroeconomic stability in Chile', in R. Ffrench-Davis and S. Griffith-Jones (eds) **Coping with Capital Surges: The Return of Finance to Latin America**, Boulder: Lynne Rienner
- Ffrench-Davis, R. and Agosin, M., 1995, 'Managing capital inflows in Latin America', mimeo, October
- Emerging Market Investor, 1995, 'Who lost Mexico', Vol 2, No 2, February
- Galant, D., 1995, 'Why Wall Street missed Mexico?', **Institutional Investor**, May
- Griffith-Jones, S., 1992, 'The return of private capital to Latin America: the fact, an analytical framework and some policy issues', in J. Williamson *et al.* **Fragile Finance: Rethinking the International Monetary System**, FONDAD, The Hague

- ____ 1994, 'European private flows to Latin America', in R. Ffrench-Davis and S. Griffith-Jones (eds) **Coping with Capital Surges: The Return of Finance to Latin America**, Boulder: Lynne Rienner
- Gurría, A., 1995, 'Capital flows: the Mexican case', in R. Ffrench-Davis and S. Griffith-Jones (eds) **Coping with Capital Surges: The Return of Finance to Latin America**, Boulder: Lynne Rienner
- Guttentag, M. and Herring, R., 1984, 'Credit rationing and financial disorder', **Journal of Finance**, No 39
- International Monetary Fund, 1995a, **International Capital Markets, Developments, Prospects and Policy Issues**, (D. Folkerts Landau and T. Ito *et al.*), August
- ____ 1995b, 'Mexico: recent economic developments', June
- Kindleberger, C., 1978, **Manias, Panics and Crashes: A History of Financial Crises**, New York: Basic Books
- Leiderman, L., Liviatan, C. and Thorne, A., 1994, 'Shifting nominal anchors: the experience of Mexico', mimeo, November
- Leiderman, L., and Thorne, A., 1995, 'Mexico's 1994 crisis and its aftermath: is the worst over?', paper presented at the September Conference on Private Capital Flows after the Mexican Crisis, Vienna, Institute for International Economics
- Lustig, N., 1995, 'The Mexican peso crisis: the foreseeable and the surprise', **Brookings Discussion Paper in International Economics**, June
- Ramirez de la O., 1995, 'Special report on Mexico', Ecanal, September
- Rojas Suarez, L. and Weisbrod, S., 1995, 'Banking crises in Latin America: experience and issues', paper for IDB - G30 Conference on Banking Crises in Latin America, October
- Ros, 1994, 'Mercados Financieros y Flujos de capital en México', in J.A. Ocampo (ed.) **Los capitales externos en las economías latinoamericanas**, Fedesarrollo and BID
- Sachs, J., Velasco, A. and Tornell, A., 1995, 'The collapse of the Mexican peso, what have we learned?', **NBER Working Paper**, No 5142, June
- Shafer, J., 1986, 'Managing crises in the emerging financial landscape', **OECD Economic Studies**, No 8
- Villareal, R., 1995, 'Los Desequilibrios Macro-económicos y el Ajuste Fiscal', **El Financiero**, April
- Williamson, J., 1994, 'Managing capital flows', mimeo, Institute for International Economics









IDS



Institute of Development Studies
University of Sussex
Brighton BN1 9RE, UK

tel: (01273) 606261 (Intl +44 1273)

fax: (01273) 621202/691647

e-mail: ids@sussex.ac.uk

For publication purchase enquiries,
please contact:

Publications Office
Institute of Development Studies
University of Sussex
Brighton BN1 9RE, UK

tel: (01273) 678269

fax: (01273) 621202/691647

e-mail: ids.books@sussex.ac.uk