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The Role of Monetary Policy in  
Israel's 1985 Stabilization Effort

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Abstract

Comparing the performances of the Austral, Cruzado and Sheqel programs shows that the latent suggestion that a "heterodox" stabilization program can be implemented without tight fiscal discipline to support a restrictive monetary policy, though welcome in the political arena, is unwarranted. Freezes, pegs and controls alone are bound to lead to dismal failure. A highly restrictive monetary policy sustained by a tight fiscal policy persisting for a lengthy interval (in terms of the political horizon), supported by a stable exchange rate as a highly visible nominal anchor and by a temporary but significant erosion of real wages, have succeeded to contain a runaway inflation in Israel.

JEL Classification Numbers:

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Summary

The Austral, Cruzado, and Sheqel plans launched in 1985/86 involved devaluations with pegging of the exchange rates, as well as price and wage freezes supported by controls and improved fiscal and monetary discipline.

While the Cruzado and Austral plans failed to reduce inflation to an annual rate of 10-20 percent, the Sheqel plan reached its target, even though somewhat later than expected, and inflation stayed within that range for four years. The data show that the failure of the two South American plans and the success of the Sheqel plan can be attributed to the absence or, at best, weak application of traditional aggregate demand control instruments in the first two cases and their strict and persevering application in the Israeli case.

Israel's monetary policy was much more restrictive, from the very beginning, as underlined by very high real interest rates. Its crucial role was imposed by the outstandingly high liquidity overhang and the very openness of the economy. Monetary policy was used to lure highly liquid economic agents away from real assets into financial instruments, and at the same time it increased the cost of maintaining inventories and forced goods into the markets. The rapid decline in the sizable government deficit allowed the Bank of Israel to keep money scarce, and this was the only way to maintain the dollar peg in the short run without reversion to foreign currency allocation and to sustain it in the longer run as the influx of funds improved the foreign reserve position.

Scarce money inevitably meant a prolonged spell of high real interest rates, which gives rise to the issue of "overshooting"--whether the same purpose could have been reached with high but less onerous real rates.

Retrospectively, it is clear that there was some overshooting as underlined by real marginal lending rates in the upper two-digit range for almost one year. Assigning the highest priority to the credibility and success of the program, the Israeli monetary authorities (in contrast to the Argentinian and Brazilian) preferred, on the whole, to err on the side of caution, that is, on the side of high real rates.

## I. A Comparative Review of the Austral, Cruzado, and Sheqel Plans

In a 1988 Economic Focus "Hype on Inflation," the Economist described the Israeli stabilization effort as follows: "Israel's stabilization plan was launched in July 1985, a month after Argentina's. It contained roughly the same ingredients. The budget deficit was to be cut, while prices, wages, and the exchange rate were frozen." 1/ In the same article, which refers also to the Cruzado Plan, the three stabilization programs of Argentina, Brazil, and Israel are classified as "heterodox" inflation cures, designed to overcome inertial inflation at a minimal cost in terms of output and employment. None of the three paragraphs outlining the design and implementation of the Israeli program and its comparative success in reducing inflationary momentum mention monetary policy. Similarly, an article of March 1987 that describes the demise of the Cruzado Plan, also squarely attributes the Israeli success to "wage and price controls... and big cuts in the budget deficit." 2/

This image of Israel's stabilization policy is widespread even among economists. Thus, the preface of a volume of proceedings of the recent Toledo Conference on Inflation Stabilization states that "there are strong similarities among the programs in different countries--for example, Argentina, Israel, and Brazil--but evidently major differences in the outcomes." 3/

The imposition of price and wage controls, the pegging of the exchange rate, and the planned substantial reduction of the budget deficit that were part and parcel of the three programs, do indeed create the appearance of similarity. The fixing of the exchange rate was, however, a sine qua non of "orthodox" stabilizations, involving a return to the gold standard implemented in the 1920s, and of several of the post World War II stabilizations carried out on the basis of the Bretton Woods rules. The same applies to the reduction of the budget deficit. The distinguishing feature that accordingly warrants the "heterodox" label for these three plans is presumably the universal price controls that were to break or at least weaken inflationary inertia. It was hoped that these controls would allow the economy to move quickly and without substantial cost in forgone output to a (comparatively) stable price environment.

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1/ Economist, July 16, 1988, p. 59.

2/ Economist, March 14, 1987, p. 69.

3/ M. Bruno, G. Di Tella, R. Dornbush, S. Fischer (eds.), Inflation Stabilization: The Experience of Israel, Argentina, Brazil, Bolivia, and Mexico, Cambridge, Mass.: MIT Press, 1988), p. vii (hereafter referred to as Bruno). References to the three programs of Argentina, Brazil, and Israel as "heterodox" in the papers and comments in this book are numerous. See, for instance, p. 102.

1. Exchange rates and price patterns

Table I-1 and Chart I-1 show price and quantity data for two pre-stabilization quarters and eight post-stabilization quarters for the three countries. <sup>1/</sup> It was designed to bring out the similarities and also some of the crucial differences in the modus operandi of these attempts at stabilization. Table I-1 and Chart I-2 show that the official exchange rate--a major policy instrument--was virtually stopped in its track at the beginning of the program in all three countries.

This was also true for the parallel exchange market in Argentina, but not in Brazil. In the latter, only the rate of change of the "official" exchange rate dropped from a monthly rate of 11.4 percent in the last pre-stabilization quarter to a 1.5 percent rate in the first and to zero in the second post-stabilization quarter. A reduction of the premium on the exchange traded in the comparatively free parallel market occurred in Argentina but not in Brazil, where this premium initially stayed at 40 percent (see Table I-1, and Chart I-3), suggesting that in Argentina the credibility of the policy at the beginning of the process might have been higher.

In Israel the substantial 30 percent devaluation supported by the highly publicized first tranche of special U.S. aid of \$750 million were most effective in calming expectations in the Israeli exchange market. In the first quarter after stabilization, depreciation of the domestic currency in the official (and dominant) exchange market slowed down immediately, from monthly rates of 10 percent or more to a virtual crawl. Even more significant as an indicator of expectations was the substantial reduction in the black market rate from monthly rates of 15 percent and 12 percent in the two pre-stabilization quarters to 2 and zero percent, respectively, in the two post-stabilization quarters. This is underlined by the immediate reduction of the black market premium from 26 to 8 percent (Table I-1), the further reduction to 7 percent in the second post-stabilization quarter, from which it then remained stable through the succeeding three quarters, and finally its virtual disappearance during the fifth to the eighth quarters. This pattern suggests a gain in the credibility of the program over time.

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<sup>1/</sup> The Argentine and Israeli programs were launched at approximately the same time--June 14 and July 1, 1985, respectively. The Brazilian plan was launched later--in February 1986. The quarterly data presented in Table I-1 are therefore effectively identical in terms of calendar time for Argentina and Israel. Their first post-stabilization quarter is accordingly the third quarter of 1985, whereas the first post-stabilization quarter for Brazil was defined to cover the four months March through June 1986. The data for Brazil refer to five post-stabilization quarters only.

Table 1-1. Argentina, Brazil, Israel: Pre- and Post-Stabilization, Price, Employment, Fiscal, and Monetary Quarterly Indicators

	Pre-Stabilization			Shock	Post-Stabilization			VIII			
	I	II	III		IV	V	VI		VII		
(Average monthly rates of change--percent)											
A. Prices: CPI											
1. Argentina - CPI	24.1	27.3	30.2	41.8	0.0	0.0	2.9	6.3	4.9	8.3	3.4
ii. parallel	30.6	24.0	--	--	-0.8	-3.1	-0.6	11.0	8.6	6.2	3.3
iii. ratio	3/	1.27	1.23	--	1.14	1.07	1.02	1.06	1.14	1.21	1.23
2. Brazil - CPI	11.2	13.5	14.4	14.4	0.8	1.5	4.1	15.0	23.4	...	...
iii. ratio	10.2	13.6	27.5	27.5	3.4	2.2	0.6	2.2	1.0	2.3	1.3
3. Israel - CPI											
B. Exchange rates											
1. Argentina: i. official	25.7	30.2	30.2	41.8	0.0	0.0	0.0	2.9	6.3	4.9	8.3
ii. parallel	30.6	24.0	--	--	-0.8	-3.1	-0.6	11.0	8.6	6.2	3.3
iii. ratio	3/	1.27	1.23	--	1.14	1.07	1.02	1.06	1.14	1.21	1.23
2. Brazil:											
i. official	9.6	11.4	15.2	15.2	1.5	0.0	1.7	13.0	...	...	...
ii. parallel	8.2	14.3	--	--	4.4	4.2	5.6	3.7	...	...	...
iii. ratio	1.13	1.40	--	--	1.40	1.67	1.94	1.59	...	...	...
3. Israel:											
i. official	10.3	11.8	30.6	30.6	0.1	-0.1	0.0	0.2	-0.2	0.0	-0.3
ii. black market	15.0	11.9	--	--	2.4	-0.2	0.3	-0.9	-1.4	0.0	0.8
iii. ratio	1.20	1.26	--	--	1.08	1.07	1.08	1.08	1.02	1.01	1.01
(Rates--Percent)											
C. Unemployment:											
1. Argentina 4/	6.3	5.9	n.a.	n.a.	5.9	n.a.	n.a.	5.2	6.2	6.2	6.2
ii. ratio	(7.5)	(7.4)	(6.4)	(6.4)	4.1	3.4	2.6	3.3	3.9	7.3	(8.2)
2. Brazil	4.7	3.7	3.7	3.7	4.1	3.4	2.6	3.3	3.9	7.3	(8.2)
3. Israel	6.1	6.5	6.5	6.5	7.4	6.8	7.5	7.7	6.6	6.6	6.0
(Percent of GDP)											
D. Deficit of public sector:											
1. Argentina 5/	7.5	6.9	6.9	6.9	1.8	1.3	2.4	0.9	0.8	5.4	3.4
a. Argentina	11.9	11.9	11.9	11.9	3.0	2.2	4.2	2.2	2.1	7.6	5.3
b. Israel 6/	9.4	4.2	4.2	4.2	0.5	-0.5	0.5	-3.9	0.5	-2.1	-2.2
Annual lending rates--percent											
E. Real interest rates:											
1. Argentina: i. regulated	-30	-26	-26	-26	15	26	18	2	-13	18	-16
ii. nonregulated	2	38	38	38	53	43	27	1	-14	43	-1
2. Brazil: overnight rate 7/	-11	2	2	2	5	12	-10	-9	-34	...	...
3. Israel: 8/ i. overdraft facilities	41 9/	76	76	76	97	118	66	17	35	20	41
ii. total bank credit	4 9/	9	9	9	12	15	26	1	15	4	34

Sources:

- A. Price Series: Line 1: Argentina, Canavese and Di Tella "Inflation Stabilization or Hyperinflation Avoidance: the Case of the Austral Plan in Argentina", in M. Bruno and others (eds) Inflation Stabilization: (Cambridge, Mass. MIT Press, 1988), Tables 4A-2, pp. 174-75. Line 2: Brazil, E. M. Modiano, "The Cruzado First Attempt: The Brazilian Stabilization Program of February 1986, in Bruno, Table 5A-3, p. 247. Line 3: Israel, Bank of Israel, Recent Economic Developments, No. 44, September 1988, Table 21. Line 3 iii, IMF, WP/86/10, N. Liviatan, "Inflation, Stabilization in Israel", November 4, 1986, p. 21, Table 5.
- B. Exchange Rates: Line 1: Argentina, in Bruno, Table 4A-2, pp. 174-75; and J. L. Machinea and J. M. Fanelli, in Bruno, Table 3.14, p. 143. Line 2: Brazil, Modiano, in Bruno, Table 5A, 10, p. 254; Line 3: Israel: unpublished data from the Bank of Israel.
- C. Unemployment: Argentine: Argentine National Statistical Office; Brazil: Banco Central do Brasil, Boletim Mensal, 3/88, Tab. 2.2.21; Israel: in Bruno, Table 10.
- D. Deficit of Public Sector: Line 1: Argentina, Machinea and Fanelli, in Bruno, Table 3.10, p. 137; Line 3: Israel, in Bruno, Table 17, Columns 5 and 6.
- E. Real Interest Rates: Line 1: Argentina, Machinea and Fanelli, in Bruno, Table 3.9, p. 135; Line 2: Brazil, see footnote 7; Line 3: Israel, in Bruno, Table 21, Columns 1, 5, 11.

1/ Refers to price and exchange rate changes in two out of the three months of the quarter. It thus excludes the premediated price and exchange rate shocks in the first month of implementation. In Argentina and Israel the entry accordingly excludes the price change of July 1985, and in Brazil that of February 1986. These are entered in the "shock" column (for Argentina the "shock" column represents June 1985).

The Argentine plan was launched in the middle of June. Its June price figure reflects presumably a component of the implementation price shock and the June price data is excluded from the last quarter before implementation.

2/ The Cruzado Plan was launched in February 1986. The pre-stabilization quarters accordingly refer to August-October 1985 and to November 1985-January 1986. The entries for the first post-stabilization quarter, are the average price and exchange rate changes for the March-June 1986 four-month interval.

3/ Mean quarterly ratio of parallel market dollar exchange rate to official rate.

4/ Unemployment data for Argentina are semiannual estimates. For 1985, they were available for May and November; in 1986 for June and November; in 1987, for April and October. The figures in the table accordingly apply to two quarters. The top line represents the national average unemployment rate, figures in parenthesis are "underemployment rates" for Buenos Aires, which offer additional relevant information on the state of the labor market.

5/ a. Deficit of the nonfinancial public sector, cash basis. b. Total deficit inclusive of the "central bank deficit.

6/ Deficit of the nonfinancial public sector, cash basis. Interest payment on domestic national debt are included in the expenditures.

7/ The Brazilian series has been derived from a series of overnight rates and a corresponding series of inflation rates in terms of CPI. Both series are from data of Central Bank of Brazil and from Getulio Vargas Foundation; Conjuntura Economica. This interest rate series sets the floor to the interest rate structure. The very great variance of Brazilian inflation, and an interest rate sometimes leading and sometimes lagging after prices generate substantial monthly changes in real rates, the variance of which is not fully revealed by the quarterly average of ex post real interest rates. The ex ante, and economically more relevant rates, were therefore presumably quite variant.

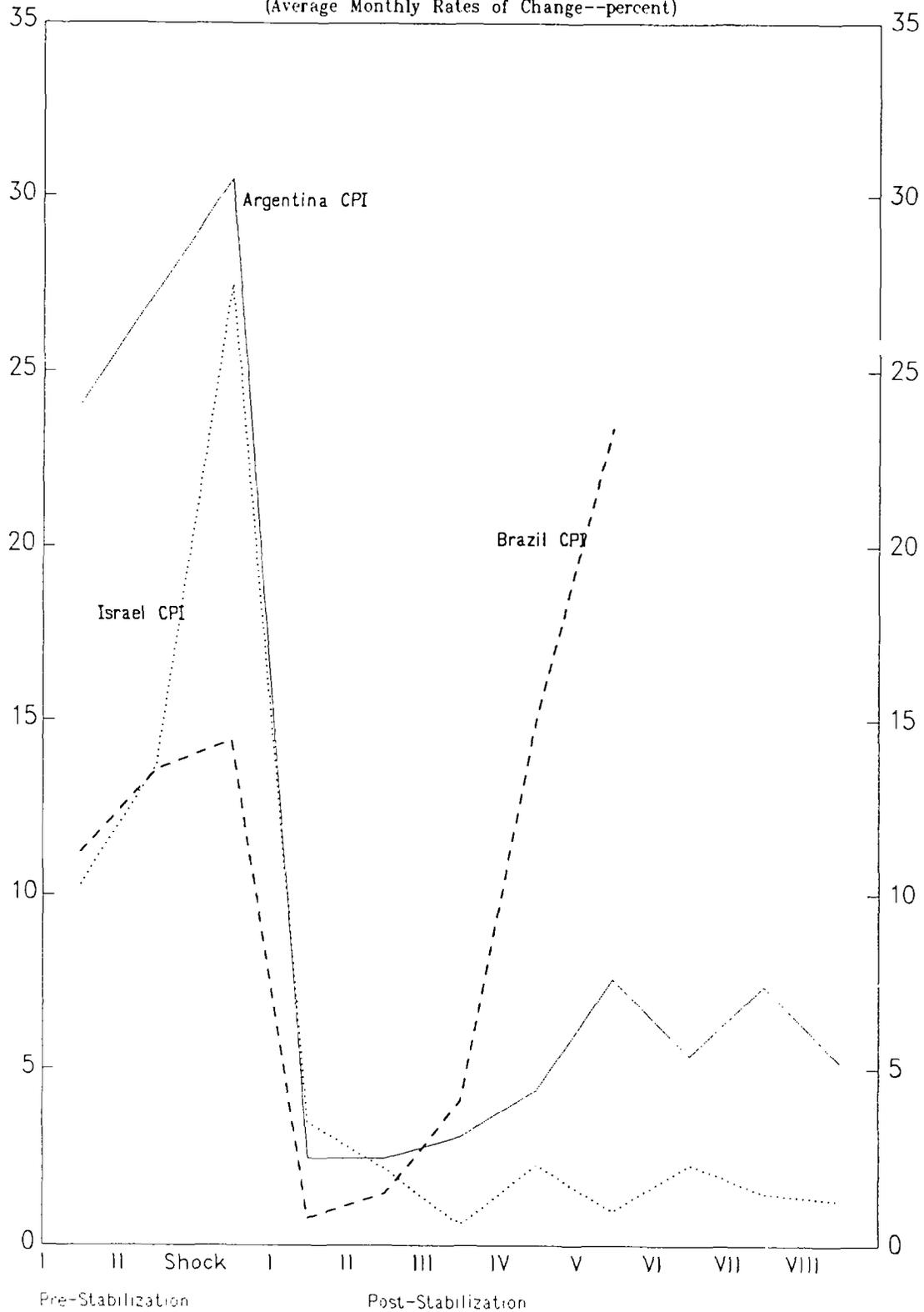
8/ The series represents interest rates on bank credit. The overdraft series is a weighted mean of rates charged for overdrafts, and penalty rates for exceeding the "agreed" limits of such facilities. It is therefore a close approximation to the marginal rate of interest, though somewhat lower than that rate. The total bank credit series represents a weighted average of interest rates charged on short- and medium-term bank credit. It is significantly lower than the corresponding overdraft rates, since overdrafts were (initially) only about 10 to 11 percent of total outstanding bank credit.

9/ Mean of February-March, 1985.

Chart I-1

### ISRAEL Price Patterns (CPI)

(Average Monthly Rates of Change--percent)



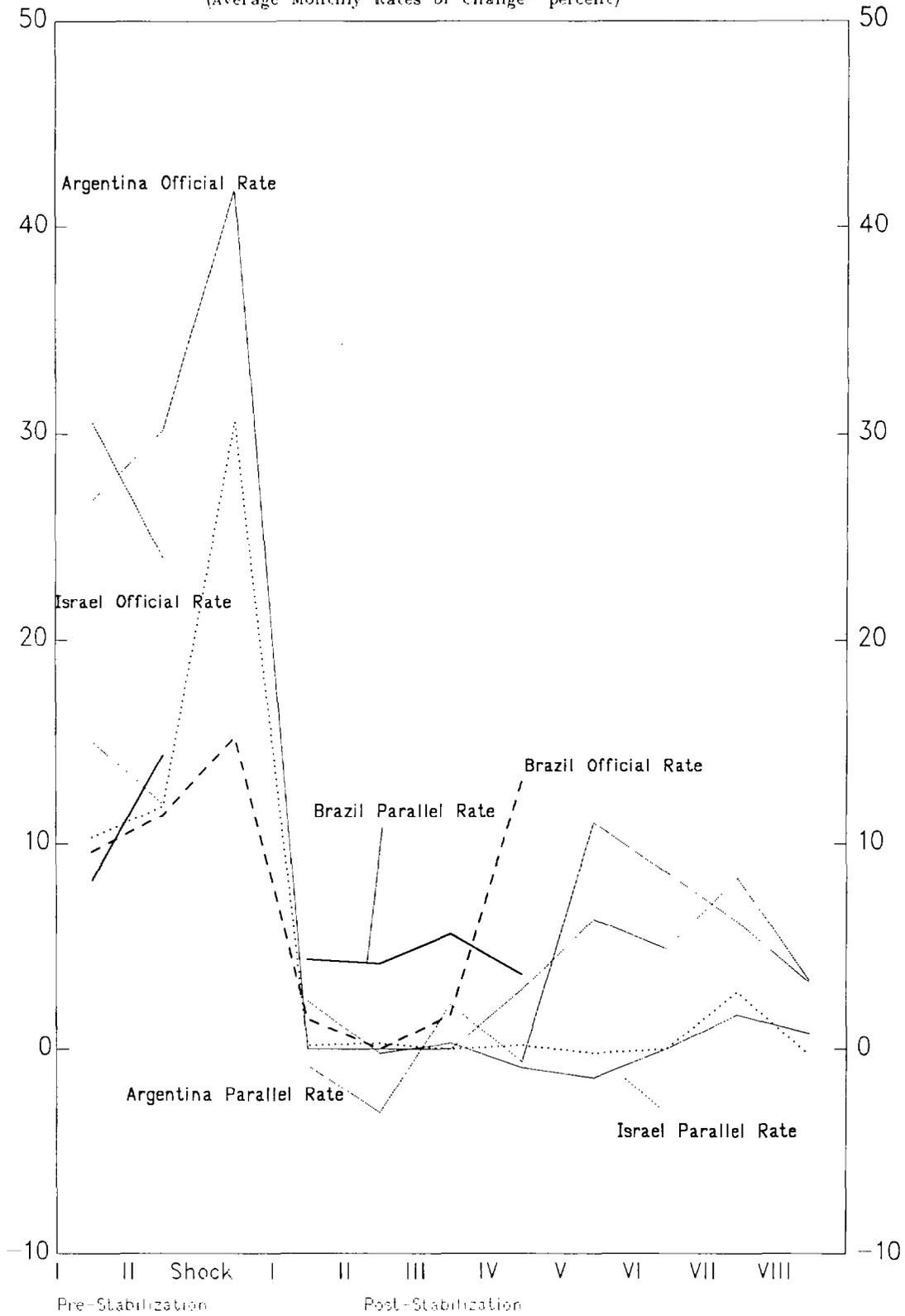
Source: Table I-1.



Chart I-2

### Exchange Rates: Official and Parallel

(Average Monthly Rates of Change--percent)

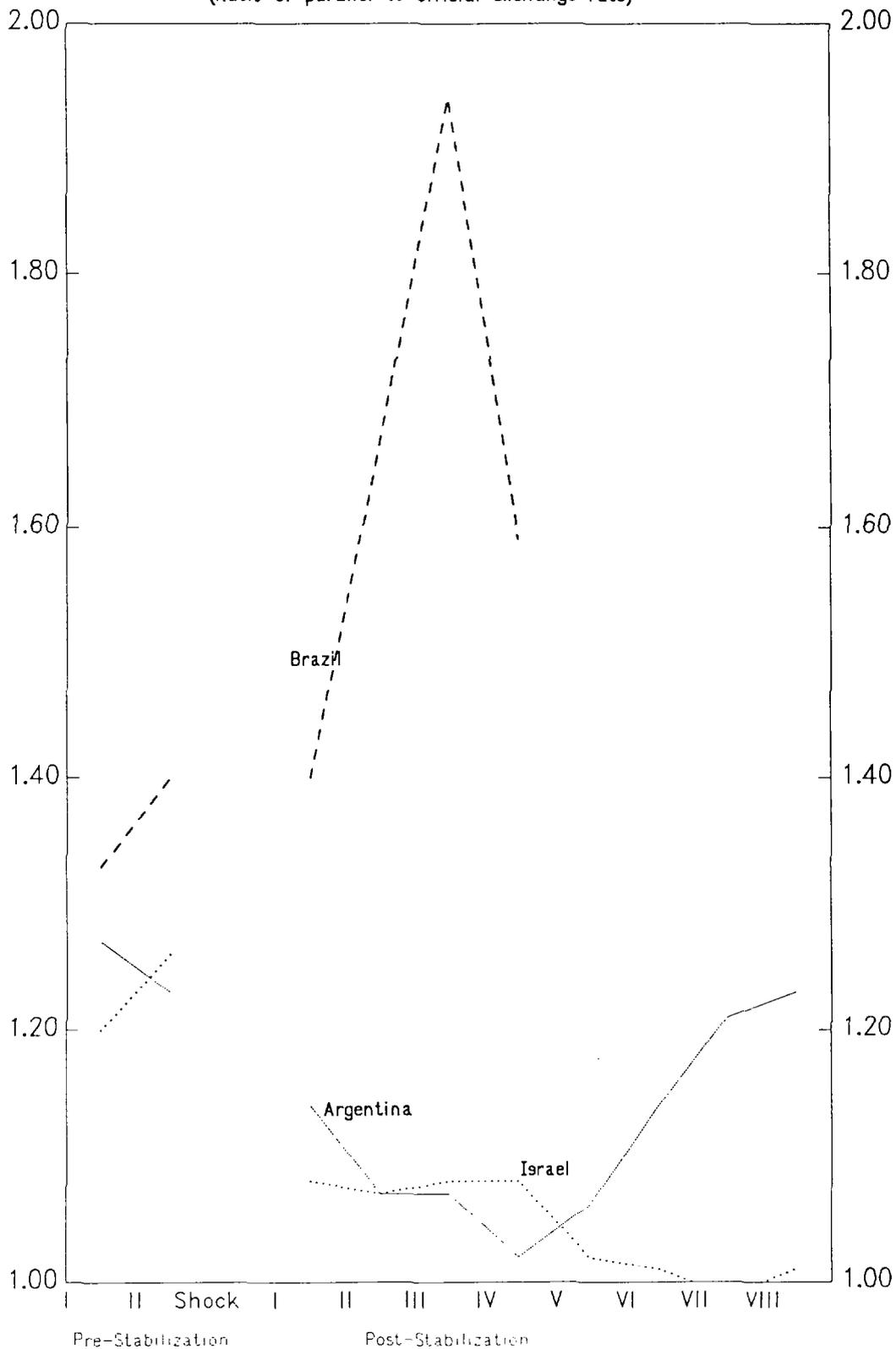


Source: Table I-1.



Chart I-3

### Premium on Unofficial Rate of Exchange (Ratio of parallel to official exchange rate)



Source: Table I-1.



At these premiums the price of black market foreign exchange was substantially lower than the price of the "passenger" dollar in the official exchange market. 1/

Since official exchange rates were to serve as instruments, the slowdown of devaluation to a virtual standstill in the first quarter or two after the launching of the programs is evidently not even an approximate test of the policy. The target was prices: the trend of their rate of change could at an early stage provide some inkling of which way the wind was blowing and could ultimately serve as an indicator of success.

However, with controls in place, price data are not the only relevant indicator of the market process. Under these circumstances only relevant quantity indicators could offer the required supplementary information. The appearance and persistence of shortages would suggest suppressed inflationary pressures not captured by the price data. This happened in Brazil in the first stage of implementation, where, between March and June 1986 (the first quarter of the Cruzado Plan) shortages of milk and meat and waiting lists for automobiles became widespread. 2/

A comparison of the first post-stabilization quarter in the three countries suggests that Brazil, with a rate of price increase of less than 1 percent, came out first in terms of the prime target of the exercise. 3/ These official price index figures, presumably, led its finance minister at the time to describe Brazil "as a country with Swiss inflation and twice the Japanese growth rate." The appearance of shortages, however, was hardly consistent with such a reading of these signals. In any case, an inspection of the decomposed wholesale price index should have suggested, by June 1986 at the latest, that prices of some components of the wholesale price index basket were far from settling down to the predicted low-inflation pattern. The price series for agricultural products was by June already rising for the second consecutive month by 0.7 percent, while the other major component of this index--industrial products, the much more stringently controlled sector--had declined through May and rose in June by 0.3 percent.

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1/ A surcharge of 15 percent was imposed on exchange for foreign travel. Designed as an equivalent to a value-added tax, it was to serve as a source of fiscal revenue, a measure of equity, and simultaneously raise the relative cost of foreign travel.

2/ See E.M. Modiano, "The Cruzado's First Attempt," in Bruno, pp. 234-45; and M.H. Simonsen, "Price Stabilization and Incomes Policies: Theory and the Brazilian Case Study," in Bruno, p. 282.

3/ The entries for the first post-stabilization quarter are a mean of price changes for two months out of three for Argentina and Israel, and for three months out of four for Brazil. The price change during the first month after the launching of the programs has been excluded. The rate of change in prices and exchange rates in the first month of implementation is entered in the "shock" column of Table I-1.

By August and September, with agricultural prices rising at a monthly rate of about 2.5 percent, the game was already lost, though the consumer price index, rising at a rate of only 1.5 percent in the second post-stabilization quarter (Table I-1), was still "reasonable" in terms of the plan's price targets. <sup>1/</sup> With inflation as measured by the consumer price index again rising and at monthly average rates of 4.1 percent in the third post-stabilization quarter (7.3 percent in December), the last quarter of 1986, it was evident that the Cruzado Plan was a flop.

Argentina's inflation at the time of stabilization was significantly higher than that of Brazil and also higher than the 14 percent monthly inflation rate of Israel. Though the Argentine inflation rate dropped to about 2.5 percent in the first two quarters after stabilization--higher than the initial Brazilian rates--the process of disinflation was even steeper than that of Brazil (Chart I-1). The 2.5 percent inflation of the first post-stabilization quarter--down from the very high rate of 28 percent for the preceding quarter--could therefore rightly be rated satisfactory. The absence of shortages also supported this reading.

The signals from the comparatively "free" parallel exchange market were also reassuring. For the first three post-stabilization quarters, this rate, which presumably did not serve as an instrument, as its official counterpart, was declining at monthly average rates of 0.6 percent (Table I-1). Furthermore, the premium on the official rate went down from 23 percent to 7 percent in the second and third post-stabilization quarters. Similarly, the black market rate declined toward the official market rate and hardly moved during the three first quarters after the launching of the program. <sup>2/</sup>

Charts I-1 and I-2, in which the rates of change of prices and exchange rates, respectively, are displayed, show that the Austral Plan survived somewhat longer than the Cruzado Plan. The price entry for the third post-stabilization quarter in Argentina, 3.1 percent average monthly inflation (Table I-1), overstates the timing of reversal, since it mainly reflects the high figure for the rate of price change at the end of the quarter (March 1986). Yet an average monthly inflation rate of 4.4 percent for the fourth post-inflation quarter meant in effect that within less than a year the Austral Plan, which was initially promising, was a disaster.

This occurred while the exchange rate instrument--the pegging of the official rate--was kept in place throughout the third quarter. Since the parallel market rate did not stray out of line even through

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<sup>1/</sup> The wholesale price series is derived from Fundação Getulio Vargas data.

<sup>2/</sup> On the black market rate, see Canavese and Di Tella, "Inflation Stabilization or Hyperinflation Avoidance" in Bruno, p. 159.

the fourth post-stabilization quarter (when inflation was rising by leaps and bounds to an annual rate of more than 65 percent), the official rate during these two quarters is fairly representative of the cost of foreign exchange. The reasons for this substantial lag of the exchange rate after prices are undoubtedly of some interest for the study of the dynamics of the process in the Argentine environment. But what is relevant in this context is the lag in the adjustment of the parallel exchange rate to prices. <sup>1/</sup> This indicates that the reacceleration of inflation can hardly be imputed to balance of payments factors.

Compared with the price series for the other two countries, the Israeli series does not decrease as much immediately (Chart I-1). Though the unofficial target was to have inflation down to a range of 1-2 percent a month in the second month of implementation, price resistance shows up clearly in the 3.5 percent monthly average for the last two months of the first post-stabilization quarter. Only in the third quarter did price inflation dip to a quarterly average of less than 1 percent a month, the target that Brazil apparently succeeded in reaching in the first quarter. In the fifth quarter after stabilization the rate declined again, to the 1-2 percent a month target, and stayed within this range through the succeeding four quarters and ever since (Table I-1 and Chart I-1).

Thus, though somewhat slower in reaching the low inflation target, Israel succeeded where the other two failed--to stay within the stabilization program's prescribed price range as price controls were relaxed in successive stages. This process, which involved the exclusion of groups of commodities and services from the controlled list, began in January 1986, i.e., the beginning of the third post-stabilization quarter. An inspection of the price series in Table I-1 and Chart I-1 indicates that inflation in this quarter did not surge upward. On the contrary, it declined to its trough in terms of rates of change.

The next and major stage in the relaxation of controls came in April-June 1986, i.e., during the fourth post-stabilization quarter. This is reflected in the rise of the quarterly mean of the monthly inflation rate, which moved upward somewhat beyond the upper limit of the 1-2 percent target range. With inflation at 1 percent through the fifth quarter it was obvious that the economy did not succumb to a new bout of high inflation, though a further relaxation of controls was implemented during this quarter. This stage, like the earlier stages of the dismantling of controls, inevitably involved some upward adjustment of prices frozen by fiat and of prices of public utilities and essen-

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<sup>1/</sup> The so-called parallel markets for foreign exchange in Argentina and Brazil transact a comparatively substantial volume and are not just a fringe of the official market. Though quantitative data on volume are hard to come by, the rates established in these markets are, by common consent, a meaningful signal on the flows of exchange and on economic trends.

tials directly determined by the Government. The Israeli price curve in Chart I-1 and the series in Table I-1 indicate that by the beginning of the fifth post-stabilization quarter the system was well within the Sheqel Plan's inflation target.

A comparison of the Argentine and Brazilian price data for the third and fourth post-stabilization quarters suggests that it was sometime during this time that these stabilization programs began to break down. The viability of the programs was subjected at this time to a crucial test--the attempt to allow for a realignment of relative prices by relaxing price controls. Relative prices were, of course, not necessarily at their longer-term equilibrium values when the price freeze was imposed, which created pressures expressed in terms of shortages (mainly in Brazil), and in a loss of profitability in the industrial sector in particular. It was this attempt to adopt more flexible price controls, at which prices reflect costs more closely, that caused the seams of the straitjacket imposed by fiat on the price system in these two economies to burst wide open. 1/

But this did not occur in Israel, where, at the same stage (the third post-stabilization quarter) and in quite rapid stages, price controls were abolished, which suggests that the failure of the Austral and Cruzado Plans was not necessarily the result of the tampering with controls. These controls were, in any case, designed as a temporary, mainly demonstrative, device.

## 2. The macroeconomic environment

A review of the macroeconomic environment and the policies pursued by the three countries during the early stages of the stabilization attempts offers some insight into the reasons for the success of one and for the failure of the other two programs.

### a. Economic activity and employment levels

The differences in the long-term pattern of prices inevitably reflect differences in macroeconomic developments. Without comparative quarterly GNP series, unemployment rates are the most relevant indicator of the level of activity. This socially sensitive indicator could also shed some light on the political strains and stresses of implementing such a program.

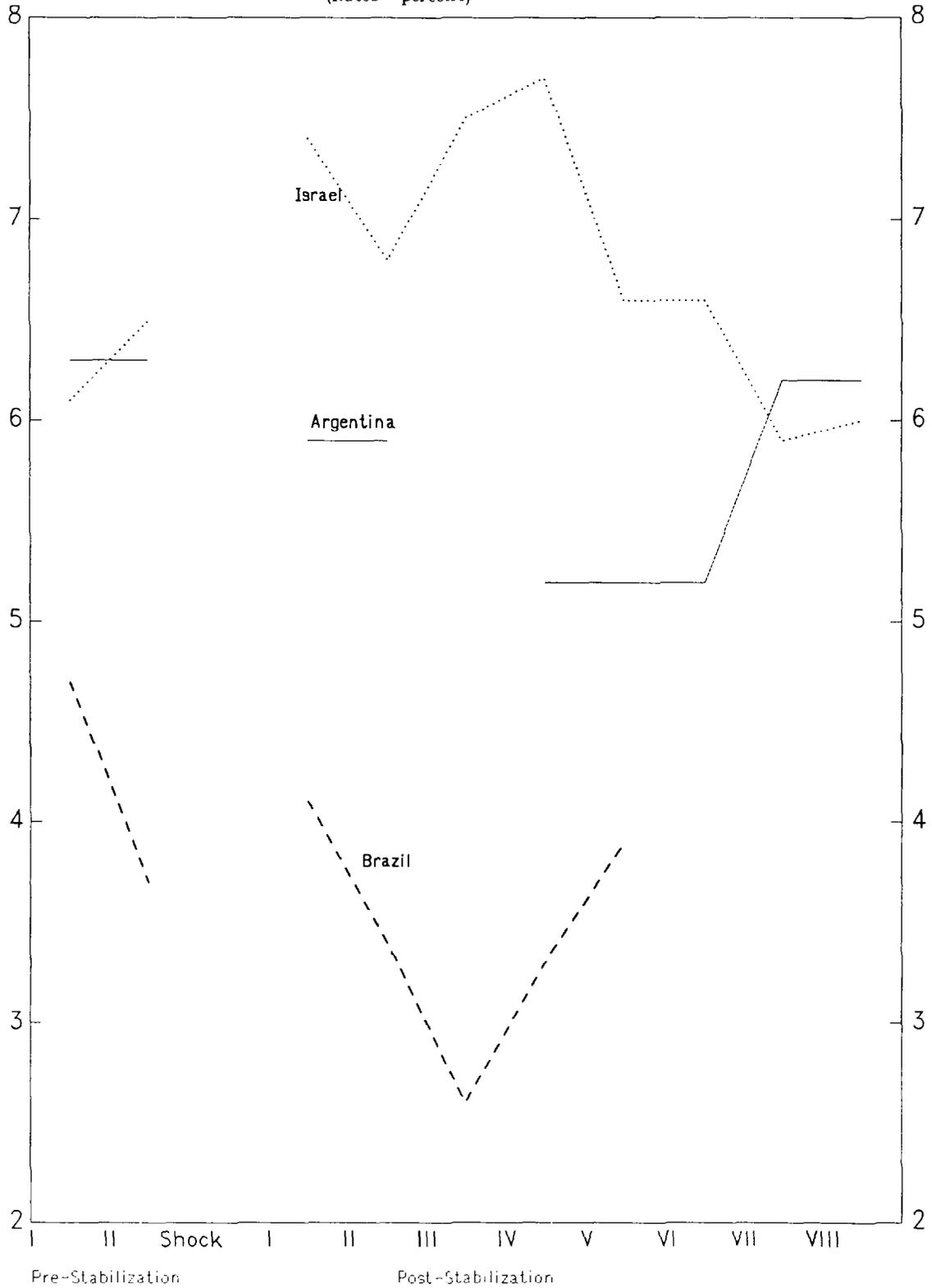
Chart I-4 and the corresponding series in Table I-1 underline the contrast in the macroeconomic situation between the two South American economies and Israel. The Argentine unemployment figures (their techni-

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1/ See Machinea and Fanelli, "Stopping Inflation: The Case of the Austral Plan in Argentina, 1985-87," in Bruno, pp. 141-42; Canavese and Di Tella, in Bruno, 159-61; Modiano, "Brazil--Recent Economic Developments," in Bruno, pp. 2-3.

Chart I-4

### Unemployment Levels (Rates--percent)



Source: Table I-1.



cal deficiencies notwithstanding) do not show a lower level of activity through the crucial first quarters of the Austral Plan. For the first two quarters they even suggest a slight improvement in the labor market. GDP figures indicate a small slowdown in the third quarter of 1985--the first post-stabilization quarter--but this disappeared altogether in the next quarter. 1/

The case of Brazil, with better coverage of unemployment data, is even more outstanding. The unemployment figures for the three first quarters after the launching of the Cruzado Plan reveal a clearly falling trend of unemployment. Moreover, industrial production series showing annual growth rates of more than 12 percent during each month of the first three post-stabilization quarters, and the 8.2 percent growth rate of GDP in 1986 (also in 1985) suggest a booming economy. 2/

The situation was different in Israel. The 6.3 percent average unemployment rate in the two pre-stabilization quarters was exceptionally high by Israeli standards. Declining employment in manufacturing, while the real capital stock of the industry was still growing (at an annual rate of about 5 percent), indicates excess capacity in this sector. Data for the whole business sector suggest that this was true everywhere during these two quarters. 3/ Thus, in stark contrast with the situation in Argentina and Brazil, the macroeconomic setting in Israel at the launching of the stabilization program was hardly one of full employment.

An inspection of the unemployment record in the immediate aftermath of stabilization through the succeeding five quarters underlines a crucial feature of Israel's stabilization policy on the macroeconomic plane: it was carried out from a base of relatively high unemployment and within an environment of declining activity. 4/ The immediate rise in the unemployment rate to an even higher level of more than 7 percent for the next four quarters was therefore meaningful. Yet the perception of declining activity and employment through the first two or three crucial quarters was worse than the reality. The corresponding increase

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1/ See GDP series in Canavese and Di Tella, in Bruno, p. 179.

2/ Industrial production and GDP figures are presented in Modiano, in Bruno, Table 5A-1, p. 245, and Table 5A-4, p. 248.

3/ Relevant production and employment data for the business sector and the manufacturing industry is presented in Bank of Israel, Annual Report, 1985. Detailed employment and unemployment data from 1983-86 through 1986 is presented in Bank of Israel, Recent Economic Developments, Vol. 39, (April 1986), and in succeeding volumes.

4/ GDP declined in the first two post-stabilization quarters by 6.2 percent, after rising in the first two quarters of 1985, the two prestabilization quarters, by 4.5 percent. At a rate of 2.2 percent for the whole of 1986, not much more than the population growth, the economy was hardly booming. For GDP and other production data, see Bank of Israel, Annual Report, 1986.

in uncertainty about employment and income as inflation was rapidly declining helped rather than hampered in pushing the economy toward the stabilization targets. The tightening of markets for goods and services reduced the temptation to mark up prices and correspondingly weakened the resistance to the substantial (temporary) cuts in real wages that, following an agreement with the unions, were an integral element of the program.

An objective measure of the immediate stabilization costs in terms of output and employment would not be as high as the impression that they made at that time on economic agents--households and business--and on the political community. Yet it was this contrast between the initially low and subsequently declining pattern of activity in Israel and the boom conditions in Argentina and Brazil that created an altogether different environment for the attempt to reach lower inflation.

b. The fiscal dimension

The series in Table I-1 for government deficit and real interest rates offer a first approximation to an explanation of the contrast between the macroeconomic environments within which the Sheqel Plan on the one hand and the Austral and Cruzado Plans on the other were implemented. Consider first the government deficit--the reduction of which had been an integral element of all the so-called heterodox stabilization plans.

Quarterly series of a real measure of government deficit for Brazil are unavailable. Annual series of the public sector borrowing requirement (PSBR) suggest a slight improvement (from 4.3 percent of GDP in 1985 to 3.7 percent in 1986) in the "operational" deficit, defined to exclude the monetary correction element of the interest cost of the public debt. The planning team of the Cruzado program had assumed that a December 1985 fiscal package would reduce the operational fiscal deficit to almost zero as the plan progressed. However, this did not happen in 1986 as the public sector did neither reduce expenditures nor keep the operational deficit below the 1985 level. 1/

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1/ The operational deficit excludes what is identified as the "monetary correction," that element of the interest cost of the domestic national debt that the government pays to adjust the value of outstanding debt for inflation. Only a fraction of the latter are current payments that, together with the operational deficit, are financed by printing money and/or by new borrowing.

The planning team's operational assumption on the size of the deficit is stated by Modiano, in Bruno, p. 232. Simonsen refers to a 4.7 percent fiscal deficit in his contribution to the Toledo Conference on Inflation Stabilization. See Bruno, p. 282 and 284, in which he refers to "loose fiscal policies." The comments of Cardozo, the highly critical comments of Macedo, and the comment of Urrutia, in Bruno, pp. 288, 295-96, and 302, support this reading of the actual fiscal stance.

In contrast, the public sector deficit curve of Argentina in Chart I-5 and the corresponding series in Table I-1, do show that price controls were supported by the second element of the Austral program--a reduction in the government deficit. During the first post-stabilization quarter, the government deficit on a cash basis declined from 7 percent and more to only 1.8 percent of GDP. With deficits that in only one of the first five post-stabilization quarters slightly exceeded 2 percent of GDP, the nonfinancial public sector undoubtedly exerted a restraining influence on aggregate demand during this period. A deficit series that includes the central bank's operations (interest payments on the national debt) shows correspondingly higher deficit ratios. Yet the pattern of the total is similar to that of the deficit of the nonfinancial sector. And even those ratios, except for one quarter, are well within the 2-3 percent of GDP range, suggesting therefore that during the first five quarters the fiscal policy stance was on the whole restrictive.

This policy was, however, implemented indirectly. Government expenditures on goods and services were only slightly reduced, if at all. The significant scaling down of the deficit was achieved by measures designed to increase revenues of the government and public enterprises: a substantial cut in the subsidies to public utilities supplemented by a rise in foreign trade and income taxes and by the fiscal benefit of the (reverse) Tanzi effect that comes into effect as inflation rates decline. 1/

The restrictive impact of rising government revenues affects aggregate demand indirectly: it reduces disposable income and thus might affect expectations by creating, or increasing, uncertainty about the disposable income pattern in the near future. Both the lower income and particularly the higher uncertainty are expected to reduce, instantaneously, consumption expenditures. An even more important immediate effect of a lower government deficit is monetary. A lower deficit means lower borrowing requirements by the public sector, which first allow for the scaling down of central bank accommodation, which in turn reduces base money creation. Lower borrowing requirements may also reduce the issuing of more (indexed) highly liquid government debt. The significant reduction of the Argentine Government deficit maintained through the first five post-stabilization quarters undoubtedly supported attempts at monetary restraint designed to reduce aggregate demand pressures.

On the whole, fiscal policy was also assigned and implemented this role in Israel. Chart I-5 shows the drastic reduction of the government deficit, which was even larger than the significant effort by Argentina. The deficit moved from more than 9 percent of GDP, in the first pre-

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1/ See Machinea and Fannelli, in Bruno, pp. 127 and 134; Canavese and Di Tella, in Bruno, p. 160; de Pallo, in Bruno, Table 1, p. 146.

stabilization quarter to 0.5 percent immediately after stabilization, and even became a small surplus in the second post-stabilization quarter. Yet, in contrast with Argentina, which, yielding to pressures, gave up its attempt at fiscal discipline in the sixth post-stabilization quarter, and with Brazil, which barely attempted it, the Israeli Government stuck to its guns. Strict fiscal discipline was maintained, as the series indicates, through the second year of stabilization when the public sector was again in surplus.

Israel's deficit reduction also involved only a small cut in expenditures. Real government demand for goods and services, inclusive of labor services, was hardly cut. Most of the cut in expenditures reflected the significantly lower public sector wage cost made possible by an agreement with public sector employees to allow a substantial, though temporary, cut in their real salaries. At the trough, in the second quarter after stabilization, wages and salaries of public sector employees were lower by about 20 percent in real terms. <sup>1/</sup> A substantial increase in net tax absorption, involving the escalation of gross tax revenue to 50 percent of GNP, served as the main instrument in the imposition of fiscal constraint.

Thus, in Israel also, the impact of fiscal policy on aggregate demand was on the whole indirect, implemented mainly by means of temporary reductions in disposable income, and by what amounts to a strong demonstration effect. The major cut in food subsidies, the obverse of the initial price shock, and the corresponding substantial temporary cut in real wages and salaries sent a highly visible message to economic agents that restraint was to be the order of the day. This helped to increase the credibility of both government finances and the stabilization policy.

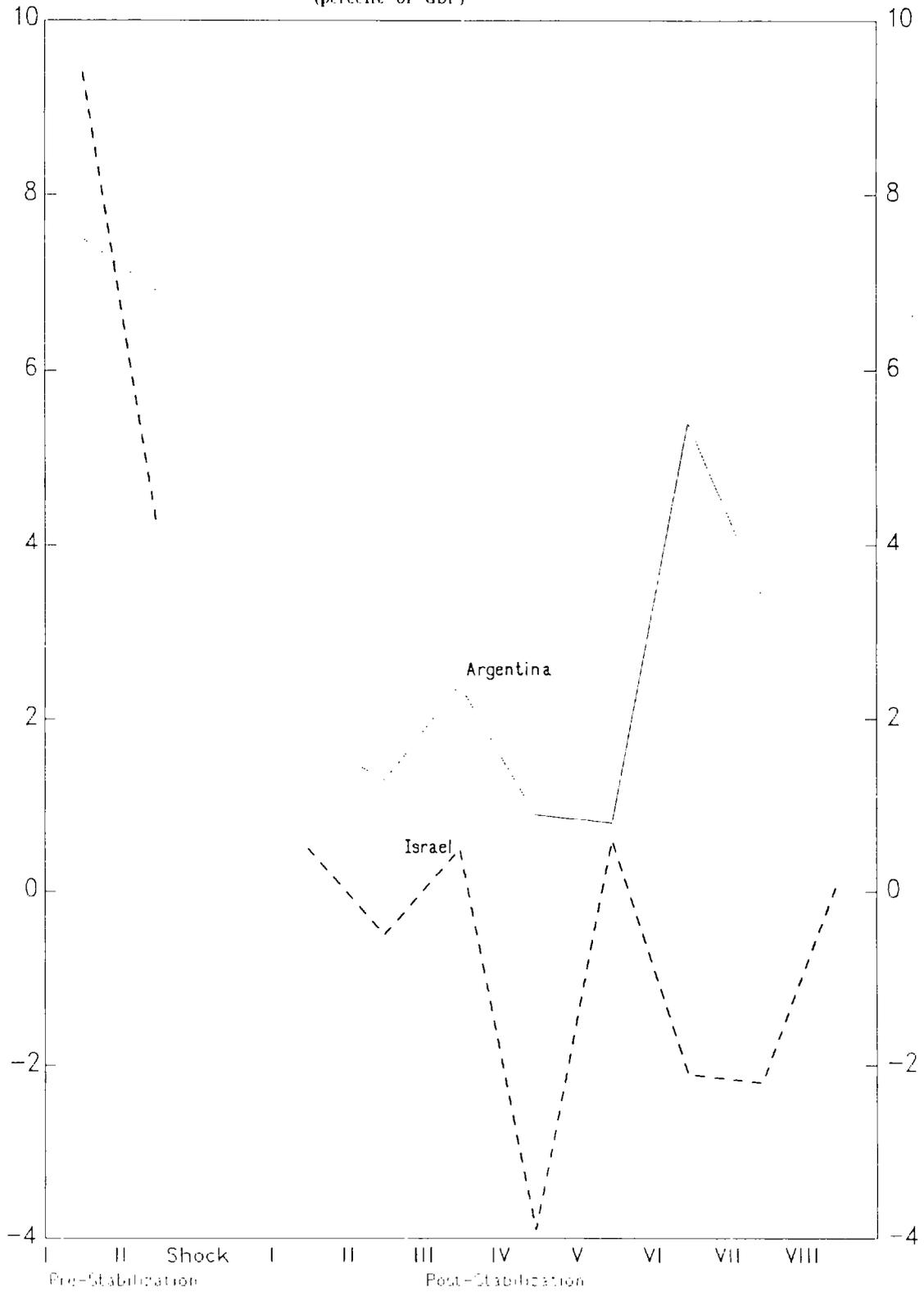
The monetary impact of this drastic change of absorption from highly negative values to (low) positive ones was undoubtedly far-reaching. The central bank could almost stop accommodating the Treasury, thereby reducing a major source of base money creation. It also initially reduced, and at a later stage stopped altogether, government net absorption of funds from the capital market, affording significantly greater access to business which hitherto had been crowded out. Finally, the corresponding stabilization of the real level of the dom-

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<sup>1/</sup> Beginning with the third post-stabilization quarter, this cut was gradually restored, but only after eight quarters did wages return to the April-June 1985 level. The temporary reductions in wage rates were implemented according to the contract signed with the unions on the launching of the plan. This contract also applied to the business sector, though the size of the cut, about 12 percent at its trough in the second post-stabilization quarter, was lower, and its duration shorter. The real wage data are Treasury estimates (Treasury memos of September 16, 1987 and August 7, 1988).

Chart I-5

### Public Sector Deficits (percent of GDP)



Source: Table I-1.



estic national debt offered much greater leeway for the pursuance of a restrictive monetary policy.

c. The monetary dimension

The above discussion of the fiscal stance underlines the major difference between Brazil's fiscal policy--which did not offer any support to the stabilization effort--and that of the other two countries. It points also to the differences in terms of persistence and duration between the Israeli and Argentine attempts at fiscal restraint. The Brazilian boom and Argentina's high level of economic activity compared with that of Israel during the first stage of implementing their respective programs might also reflect differences in the monetary stance. If this was indeed true, it should have an obvious expression in terms of the monetary dimension of each of these economic systems.

An insight into the comparative developments in the money and capital markets in the three countries is offered by the real interest rate series in Table I-1 and Chart I-6. <sup>1/</sup> Such a series has several well-known technical deficiencies. The use of an ex post deflator, reflecting ex post real interest rates, means that at best it is only a proxy. The choice of a proper deflator is another matter. Substantial variance of the inflation rate, typical of time periods in which stabilizations are attempted, raises a question mark on the significance of quarterly averages. Finally, the availability of information on interest rates in credit markets highly segmented by government fiat imposes an obvious constraint on cross-country comparative analysis. In spite of all their shortcomings, these series offer substantial insight into the reasons for the far-reaching differences in the macroeconomic environments within which these three programs were tested.

Brazil has the poorest data coverage on (nominal) interest rates. This forced the use of a very short-term rate--the interest rate for overnight money--as a gauge for the cost of credit. Though the absolute level of the real rates is also significant for a cross-country analysis of the functioning of money markets, the time trend of this price measure is the more meaningful indicator of developments in financial and in real markets.

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<sup>1/</sup> Nominal quantity data--the quantity of money according to various definitions, or the quantity of bank credit--are unsatisfactory indicators of the transactions in money markets at times when stabilization policies are implemented. The cost of money--relevant interest rates--is accordingly an alternative gauge of the state of these markets, the mood and expectations of the financial community, of business, and of households. Data on the net inflow of foreign short-term funds and particularly the direction and volume of the flow of funds of the banking system, if available, would also be helpful for this purpose.

In retrospect, with the knowledge of the Cruzado Plan failure, an inspection of the pattern of the Brazilian overnight rate should not cause any surprise. Even though the 5 percent average annual real interest rate maintained through the first post-stabilization quarter, represents the floor of the Brazilian interest rate structure, it still seems very low. The cost of short-run bank credit was evidently higher. Yet even if real rates on longer-term bank credits were twice or even three times as high, so that the cost of short-term bank credit was 10-15 percent (in real terms), such interest rates would indeed seem low at the point when an attempt to reduce inflation from annual rates of 300 percent to low single-digit rates is being made. An inspection of Chart I-6 displaying the levels and patterns of real interest rates in the three countries at the same stage of implementing their specific programs shows these dramatic differences. The corresponding Argentine rates, and even more so the Israeli rates were several times higher than even a 10-15 percent real rate.

The most important insight offered by the Brazilian interest rate series is its pattern. The rate was raised from the rather low negative level of 11 percent, the quarterly average two quarters before stabilization, to 2 percent in the quarter before stabilization. It rose to 5 percent when the stabilization price shock was implemented and further to 12 percent in the second post-stabilization quarter and subsequently turned negative. Another series available--interest rates on certificates of deposit (CDs)--shows similar features: extremely low absolute rates following a similar declining time pattern. 1/

These data suggest, of course, that whether by design or by not attempting to prevent accommodation, the monetary stance adopted by the Brazilian authorities was at best neutral, and later on, in the third post-stabilization quarter, even expansionary. There can thus hardly be any doubt that the Cruzado Plan was launched and implemented without any (effective) attempt of monetary restraint. A supporting restrictive monetary policy was apparently considered unnecessary by those in charge of designing and implementing the program. 2/ Rising demand pressures that exploded in the third post-stabilization quarter, and the failure of what three months before was considered the Brazilian miracle by some people should not have been a surprise in view of the pent-up demand pressures that monetary and commodity market monitors were clearly showing.

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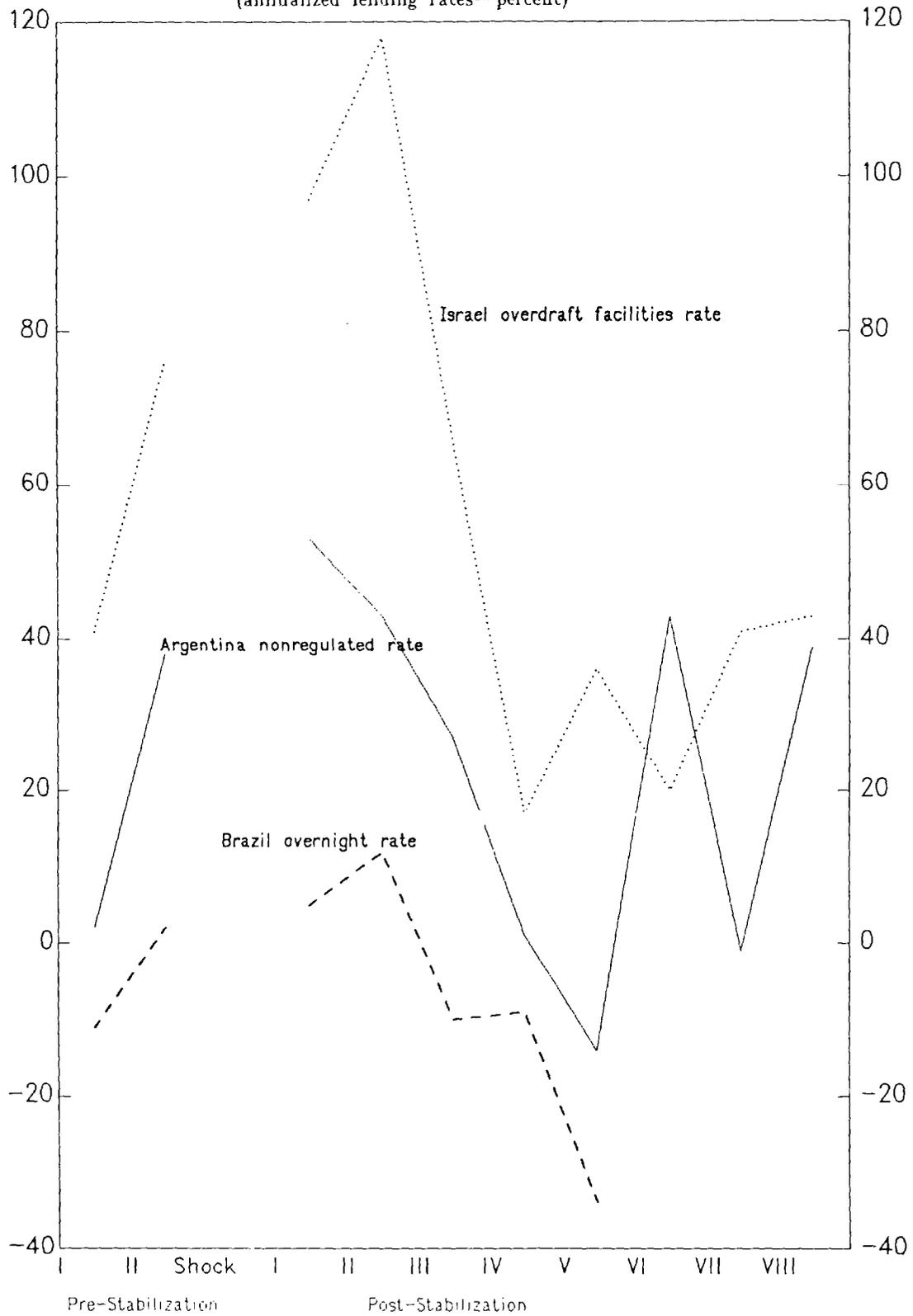
1/ See Modiano, in Bruno, p. 253, Table 5 A 9.

2/ This is strongly suggested by Modiano, in Bruno, p. 232. In his postmortem of the program, Simonsen, one of the contributors to the Toledo Conference, refers to the belief that "Brazilian inflation of January and February (1986 H.B.) was purely "inertial," and not due to "loose monetary and fiscal policies..." See Bruno, p. 285. A similar remark on the identification of the nature of inflation by "policy makers" is made in Cardozo's comment, in Bruno, p. 227.

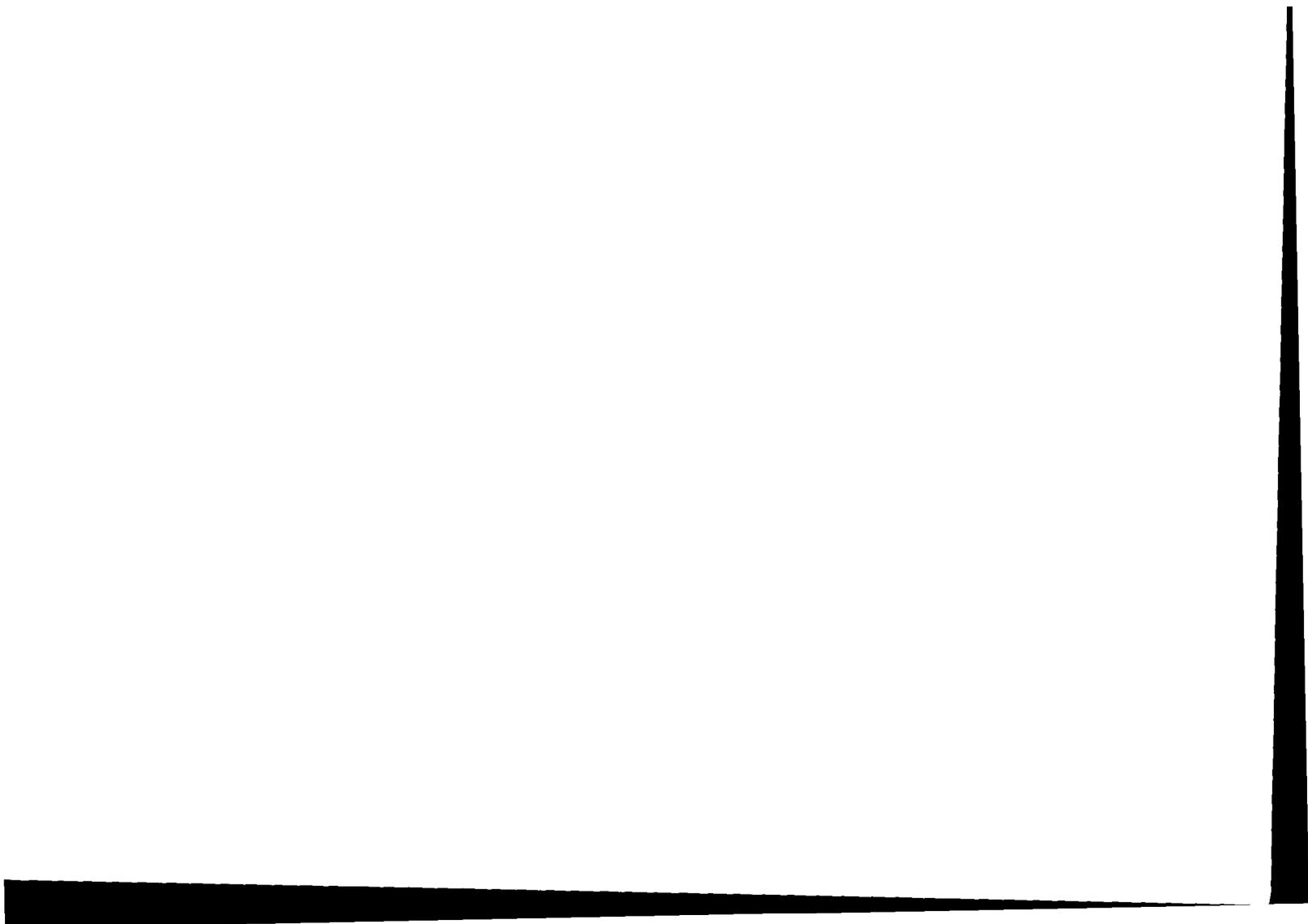
Chart I-6

### Pattern of Real Interest Rates

(annualized lending rates--percent)



Source: Table I-1.



An inspection of the continuous Argentine and Israeli monetary indicators emphasizes this reading of the Brazilian series. 1/ The accelerating price inflation of Argentina preceding stabilization involved highly negative interest rates in the regulated (effectively, though perhaps not formally, subsidized) segment of the credit market. This was, however, not true of the nonregulated market, where a real annual interest rate of 38 percent in the last pre-stabilization quarter was high--indeed skyrocketing--by Brazilian standards. What is even more significant is their very steep jump to 15 percent and 53 percent in the regulated and nonregulated markets, respectively, coinciding with the launching of the program, which suggests that a highly restrictive monetary stance was initially adopted by the authorities. Note in particular the move to the 15 percent real interest rate on "regulated credit," the largest component of the Argentine credit market, in the immediate aftermath of stabilization. 2/

These figures suggest that the monetary screw was tightened initially to support the Argentine stabilization effort, though the segmentation of the credit market meant that these high rates did not apply across the board. This squeeze was undoubtedly quite persuasive, and inevitably resented by industry and particularly by trade because of the unusual hike in the cost of carrying stocks. The latter were presumably quite high in terms of the annual flow of production and sales--a typical feature warranted in economies with rampant inflation. Real rates of interest of such magnitudes also have long-run effects: they reduce investment levels and thus impede or prevent growth, and of course also mean a high cost of servicing internal debt.

Long-run considerations on the level of real investment, the budgetary costs of debt service with high interest rates, the influence of business as a result of the economic cost of carrying inventories, and presumably also the political clamor building up on the fear of recession combined to suggest some relief from the monetary squeeze. Though the authorities did not take active steps as suggested by a quantity measure--the rate of growth of the nominal money supply did not accelerate--they did not lean against the trend of lower nominal lending rates. (This might have reflected lower demands for domestic credit owing to an increased inflow of foreign funds.) Though following a downward pattern, real interest rates in the third post-stabilization quarter were still formidable--18 percent and 27 percent in the regulated and nonregulated money markets, respectively (Table I-1). Yet some relaxation of price controls pushed inflation rates upward to a

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1/ The Argentine and Israeli data are effectively coterminous not only in terms of the stabilization stages but also in calendar time. The latter does not apply of course to the Brazilian series in view of the eight-month difference in the launching date of the Cruzado program.

2/ The nonregulated market accounted for about 45 percent of total credit. See Machinea and Fannelli, in Bruno, p. 149, footnote 13.

3.1 percent monthly average for the quarter, and thus reduced ex post and, more operationally significant, expected real interest rates.

At this stage, when further relaxation of the price freeze was inevitably in the offing, the major consideration should have been the short-run requirements of stabilization. Yet the warning signals from the commodity markets in which prices were again rising at monthly averages of 3 percent and more were disregarded. Monetary expansion was hardly slowed down, to make it more commensurate with demand for money during the third and fourth post-stabilization quarters. Nominal interest rates in both markets thus did not rise, so that the somewhat more rapid price increases which undoubtedly reawakened only partially dormant inflationary expectations, pushed real interest rates rapidly downward toward zero in both the regulated and the unregulated markets during the fourth post-stabilization quarter.

Stable nominal interest rates while prices were rising more rapidly than before should have been a warning. <sup>1/</sup> But monetary expansion continued at the same rate as previously through the fifth post-stabilization quarter, in which rising inflation rates pushed real interest rates into negative figures. An inspection of Chart I-6 shows a strong reversal of the trend of falling rates in the sixth post-stabilization quarter (toward the end of 1986). But this so-called monetary crunch, which was to save the day and pull inflation down again, came too late. With inflation at 4.4 percent in the fourth quarter and 7.6 percent in the fifth, the Austral Plan was dead. <sup>2/</sup>

The timing of monetary relaxation just when the price freeze was being relaxed could not have been worse. But the error was not due to an actively expansionary policy pursued by the authorities. This is suggested by the fiscal stance: the fiscal deficit reached its trough in the fourth and fifth quarters after stabilization (Chart I-5) when real interest rates turned negative and inflation accelerated, suggest-

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<sup>1/</sup> The rate of growth of  $M_1$  and  $M_2$ , which came down from monthly rates of more than 20 percent before stabilization to a rate within the 5-6 percent range in the second post-stabilization quarter, did not change at all through the seventh quarter, but it shot up in the eighth quarter to 9.4 percent. These data alone are not a reliable indicator of the state of the money market in these specific circumstances (see also footnote 1, p. 11, and particularly section III.3.b below).

The  $M_1$  and  $M_2$  series are from Canavese and Di Tella, in Bruno, Table 4A.2, p. 174. Nominal interest rates are from their Table 4A-10, p. 186-87. See also Machinea and Fannelli, in Bruno, Table 3A, p. 135.

<sup>2/</sup> On the government (monetary) stabilization dilemma, see Canavese and Di Tella, in Bruno, pp. 160-61. See in particular their suggestion, based on information from opinion polls, that after the launching of the program ex ante real interest rates were lower than ex post rates, which means that the credibility of the will of government to see the policy through was rather low.

ing This does suggest that it was not fiscal laxity leading to an expansion of the monetary base that turned the inflation tide at this crucial juncture.

This fact is supported by the data on the (nominal) monetary aggregates. The rate of growth of  $M_1$  and  $M_2$  did not increase at all during the fourth and fifth post-stabilization quarters. Thus, though not an error of commission, it was undoubtedly one of omission. Ignoring the nominal interest rate signals, which implied lower real rates, the authorities presumably did not consider that the natural initial leap in demand for money in the immediate aftermath of a currency reform should settle down to a lower rate of increase. With growth of money supply maintained at the same rate in these crucial post-stabilization quarters, and the rate of growth of demand falling, nominal interest rates were held at a level that involved a downward drift of real rates. At the beginning of the fourth post-stabilization quarter, deposit rates turned negative. By the beginning of the succeeding quarter, debit rates were also negative, which of course, suggests that in this situation the monetary authorities should have tightened their grip on the market and reduced the rate of expansion of monetary aggregates. 1/

A stronger case in support of the interpretation that it might have been an error in monetary policy at a crucial juncture that led to the demise of the Austral Plan is, of course, the Israeli example. 2/ A quick reference to the interest rate series presented in Table I-1 and Chart I-6 underlines the two most important features of the monetary policy pursued by Israeli authorities during the crucial period at which stabilization policies were initiated. First, in terms of interest rate measures, Israel's monetary policy was much more restrictive than Argentina's. Israeli marginal interest rates were also much higher before and in the early stages of the program--not to mention the Brazilian rates at the same stage. 3/

What is perhaps even more significant is the persistence of the Monetary policy expressed in the long duration--the eight quarters for which data are presented in Table I-1 and in effect through 1988--during which the cost of money was kept very high. This restrictive monetary stance is reflected also in the average interest rates on total bank credit. The average rate rose through the third post-stabilization quarter, even though marginal interest rates were already allowed to decline to an average annual rate of 66 percent, so that in spite of this decline, rising interest rates for 90 percent of outstanding bank

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1/ See interest rate data in Machinea and Fannelli, in Bruno, p. 135.

2/ The lack of political stamina of the Argentine Government might have also contributed to the relaxation, by omission rather than by commission, of a highly unpopular policy.

3/ Line E-3 i in Table I-1 and the corresponding curve in Chart I-6 offer a close approximation to the marginal interest rate, in the free credit market. The actual marginal rate was even somewhat higher.

credit were maintained through this quarter too. 1/ In any case, the average interest rate series indicates that, through the eight post-stabilization quarters, even the most favored bank customers had to pay a real interest rate of, say, 8 percent, while most credit accommodations involved an interest cost of about 10 percent at least in real terms. Similarly, marginal rates on deposits (CD rates) were maintained through the first three post-stabilization quarters within a range of annual real rates of 10-40 percent. 2/

### 3. Image and reality

The above comparative review clearly indicates that price and exchange rate freezes are not enough to carry a stabilization policy through. It does suggest that monetary policy made feasible by fiscal discipline, in the Israeli case, saved the day. This policy stance maintained the lower rate of price increase as controls were being consecutively relaxed from the third post-stabilization quarter onward. Whether the Israeli stabilization effort, which involved an incomes policy too, should be classified heterodox is of course a matter of semantics. A more detailed study of the design and implementation of the Israeli program and of the economic and institutional environment in which it was carried into effect is made in the following sections.

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1/ The free Sheqel credit lines, which carried the (almost) marginal interest cost, involved at the time about 10 percent of total outstanding credit. An outline of the structure of the Israeli credit market is presented below in Section II and in Table II-2.

2/ Real rates on CDs are presented in Table III-4.

## II. Factual and Conceptual Background of the Sheqel Plan

### 1. The inflationary setting

The stabilization plan of July 1985 was launched after a 15-year spell of inflation, which took off in 1970 at an annual rate of 6 percent. By the end of the decade it was running at 80 percent. The three-digit threshold was crossed in 1980 and, with inflation accelerating to an annual rate of almost 400 percent in the last quarter before stabilization, the cumulative rise of the price level in the five preceding years reached a factor of about 335.

The duration, the high rates and the force of the price thrust as inflation accelerated toward hyperinflation rates meant that by 1985 the economy had long ago adopted and adapted a full complement of defense mechanisms. Though surfacing piecemeal, these "technical arrangements," initially designed to immunize specific activities or groups from the direct impact of inflation, grew over time into an elaborate web of contracts, formal and implicit, which were to prevent a mismatching of relative price signals facing economic agents in the private and public sector. A complementing feature of these arrangements was the appearance of a host of linkages for a continuously growing number of financial assets, finally covering almost the whole spectrum of the capital and money markets including money.

The actual expression of these structural features was the almost universal price and exchange rate linkages of flows and of stocks. Linkages of wages and cost of living, wages and prices, and exchange rates were the most significant relating to the flow of production, employment, and foreign transactions of goods and services.

A related technique to overcome the inflationary erosion of incomes and revenues appeared in the early 1980s. It involved reducing the time of nominal contracts. Thus, from January 1984 on, cost of living allowances were paid every month. Similarly, banks began to debit the accounts of credit card holders every two weeks. Finally, to reduce the impact of the Tanzi effect on government revenues, the lag of business sector tax transfers to the Treasury on account of sales and income taxes was reduced to one month only. Arrears were indexed and subject to high interest rates. The implementation of these rules from 1983 onward signified the transition to universal price or exchange rate linkages. 1/

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1/ The availability of continuous exchange rate information for every business day turned the latter into a coefficient for adjusting sheqel prices on a daily basis. More and more transactions, many of which had only a small direct foreign exchange component, moved into this dollar related pricing orbit.

After an unwarranted delay, in view of the upper-bracket two-digit inflation, medium- and long-term government credits for housing and business investment were finally fully indexed in 1981. Similarly, nominal interest rates for short-term bank credits were gradually adjusted to price changes. From the first quarter of 1984, interest rates on overdraft facilities, the marginal rates (on bank credit), moved within nominal brackets that implied positive, though low, real rates. The indexation of all types of long-term government credit and the continuous adjustment of nominal interest rates to prices completed the process. 1/ Stock variables such as financial assets thus finally joined indexed flow prices.

The obverse of this evolving process of universal price linkage was a continuous process of erosion in the volume of domestic money--the nonlinked money balances which come under the M2 heading. This shows up in the time series of the ratios of "money" to "domestic uses" and is reflected also in the "foreign currency assets" ratios presented in Table II-1. 2/ Note in particular the almost complete demise of the M1 ratio, which reached its trough by the middle of 1985, and the corresponding decline of M2, which is composed of nonlinked sheqel assets. M3, which is the sum of M2 and foreign-currency-linked deposits (PATAM), was in effect the relevant "money" variable in the early 1980s. Note that the M3 ratio in 1984 and 1985 is quite similar to, indeed somewhat lower than, the M2 ratio in 1970--this supports the suggestion that M3 had taken over most of the M2 functions. 3/

The foreign currency component of M3 was only about 13 percent of total monetary assets in 1970. At its all-time peak just before stabilization in 1985 it was between two thirds and three fourths of the total. In contrast with 1970, one of its components was highly liquid

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1/ Government long-term debt has been price-or foreign-exchange-linked since the middle 1950s.

2/ The various money ratios are evidently the reciprocal of corresponding income velocities. This does not apply of course to the entries in columns (4) and (5) of Table II-1.

In view of the substantial import surplus of about 15 percent of GDP, "domestic uses," which are the sum of GDP and the import surplus are evidently the better "income" measure of what monetary theory identifies as the income-determined component of demand for money.

3/ The lower M3 in the 1980s could reflect the beginning of widespread use of credit cards, which of course reduces the demand for "conventional" money. This is evidently a structural change which has only a slight link, if any, with inflation. A supplementary argument to explain the falling and later rising pattern of the M3 ratio through 1984 could refer to the time required for the process of adjustment--substituting one kind of money (foreign currency-linked) for the other.

Table II-1: Selected Monetary Indicators  
(percent)

	Ratios of "Money" to Nominal Domestic Uses 1/				Foreign Currency
	M1	M2	M3	M3 - M2 2/	Financial Asset Ratio 3/
	(1)	(2)	(3)	(4)	(5)
1966	14.9	n.a.	n.a.	n.a.	n.a.
1970	11.9	22.2	25.6	3.4	n.a.
1976	7.6	13.3	18.2	4.9	n.a.
1980	4.3	5.7	18.5	12.8	n.a.
1981	3.5	5.2	17.2	12.0	n.a.
1982	3.0	5.4	16.9	11.6	14.5
1983	2.5	5.5	17.9	12.4	22.5
1984	1.7	4.8	20.4	15.6	32.1
1985	2.2	8.8	22.7	13.9	--
1st half	1.5	4.6	...	...	36.6
2nd half	2.9	13.2	...	...	28.3
1986	3.5	12.2	20.8	8.6	--
1st half	2.9	10.6	19.6	9.0	26.5
2nd half	4.1	13.6	21.7	8.0	24.0
1987	4.3	16.1	21.7	5.6	18.4
1988	4.9	16.9	21.7	4.8	19.8

Source: Bank of Israel, Annual Report, 1986, column (1) through (3) Table H-8, p. 249; data for 1987 and 1988 are from the same table in Annual Report, 1987 and 1988, p. 242 and p. 247, respectively. Column (5), Table H-13, p. 289 (Hebrew).

1/ Domestic uses equals GDP plus import surplus. Since the  $M_i$  figures--from which the annual corresponding "money" entries were calculated--were means of monetary data, the ratios entered in the table refer approximately to the middle of each period.

The definitions of M1 and M2 are the conventional definitions. M2 is "non linked sheqel money"--currency and bank deposits inclusive of CDs. M3 is the sum of M2 and PATAM (foreign-currency-linked) deposits, which from 1977 onward were highly liquid. The value of the M3 ratios depends also on the comparative movement of prices and the nominal official exchange rate.

2/ The entries in this column represent the ratio of foreign-currency-linked "money" to domestic uses.

3/ Entries represent ratio of (net) assets linked to foreign currency (excluding bank shares) to net financial asset portfolio of the non-financial sector. The data refer to end-of-period balances.

current accounts denominated in terms of foreign exchange. <sup>1/</sup> The time pattern of the foreign currency/financial asset ratio (Table II-1, column 5) shows similar features. By June 1985, 37 percent of long-term and short-term financial assets were directly linked to the exchange rate. A large part of these assets, such as savings accounts, were not as liquid as the PATAM accounts, but even these less liquid accounts were more than an expression of the financial environment within which a policy of stabilization had to be implemented and had a potentially direct monetary implication owing to the immediate proportional wealth effect of a devaluation, a standard component of a stabilization program. PATAM accounts had, in addition a potential immediate liquidity effect, if and when a devaluation was put into effect.

The impact of the latter can be directly inferred from Table II-1. With foreign-currency-linked assets of about 14 percent of net domestic uses in June 1985, a 10 percent devaluation would directly, through its effect on "base money," increase M3 by 1.4 percent of domestic uses. The full monetary potential due to the workings of the monetary multiplier are obviously higher. An estimate of the wealth effect requires in addition the net financial asset GDP ratio. Since the net financial asset portfolio was in 1985 about the same as GDP, and the foreign currency/-financial asset ratio was 40 percent, the expected direct increase in wealth of a devaluation of 10 percent was about 4 percent of GDP. <sup>2/</sup> The

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<sup>1/</sup> Initially, effective until 1977, foreign currency accounts were a privilege accorded to residents receiving compensation payments from Germany. These accounts were accordingly not (fully) subject to foreign currency controls. They could be used to purchase foreign currency for foreign travel and were thus in effect (long) term accounts, similar in nature to foreign-currency-denominated bonds and less liquid. The so-called 1977 economic turnabout, which liberalized exchange control regulations, allowed residents to open foreign-currency-linked current and long-term accounts. (Initially, these could be transferred, in terms of foreign currency, to other Israeli residents.) The high inflation as a result of the energy crisis and the almost complete liquidity of these accounts made them the most popular liquid, relatively inflation-resistant asset. The advent of three-digit inflation in 1980 turned them into the dominant component of total monetary assets.

<sup>2/</sup> The net financial asset to GDP ratio was derived from data for the 1986 values of these two variables. The ratio of assets to GDP for this year is about 1.17 percent. The asset data are from Bank of Israel, Annual Report, 1988, Table H-17, p. 287; the current prices/GDP data are from Annual Report, 1986, Table B-1, p. 12. An estimate for the 1985 asset portfolio is unavailable.

Note that this estimate of the wealth effect of a devaluation does not refer to the indirect price-induced wealth effect. The impact of price rises works through the price-linked component of the financial assets portfolio. M2 figures for June 1985 in Table II-1, which imply that the M2 ratio to GNP was close to 10 percent, and the corresponding entry for the asset ratio in column (5) suggest that price-linked financial assets were 50 percent of the total of net financial assets. The indirect wealth effect depends accordingly on the size of the induced price effect.

wealth effect on demand in real markets is obviously the product of this magnitude and the wealth elasticities of demand.

An induced immediate and substantial liquidity effect and, on top of that, a corresponding wealth effect caused by a devaluation endowed the system with a significant inertial monetary potential, which would, of course, be activated only if the stabilization program involved a devaluation. This was, however, a foregone conclusion. In Israel, as elsewhere, a stabilization program was put in place only when the political community was forced by the sheer dynamics of inflation to attempt to contain it. As in other countries, it was launched in Israel when its driving force had created an unbridgeable gap in the current account and accompanying capital flight. Correspondingly, and in a sense its obverse image by that time--the first semester of 1985 in Israel--inflation had also played havoc with government finances, generating an unmanageable fiscal deficit. The long haul along a high inflation track was by that time reflected in a structural setup involving economic contracts pegged to myriad price linkages. The usual acceleration of price inflation induced by discussion of a stabilization program strengthened the inflationary expectations of economic agents that generate inertial forces that are hard to contain.

The Sheqel program of June 1985 was accordingly an attempt to cope simultaneously with the fundamentals and the inertial forces of the system: (a) a balance of payments crisis, a large fiscal deficit, price inertia induced by expectations and by the wage contracts pegged to previous rates of inflation; and (b) the accommodation of the price thrust provided by induced monetary expansion due to the price-linked setup of the financial and monetary sectors.

## 2. The program and its monetary facet

The main elements of the stabilization program designed to deal with the various dimensions of the crisis were spelled out in a document--"A Comprehensive Economic Stabilization Program"--submitted for government deliberation in the last week of June 1985. They included a substantial devaluation of the sheqel to take care of the balance of payments problem and a substantial cut in the budget deficit. The latter, which was to induce a reduction in aggregate demand, and thus lend support to the attempt to correct the balance of payments, would be implemented mainly by an increase in government absorption. 1/

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1/ The reduction of the deficit was to be implemented mainly by raising net taxes--by the reduction of subsidies to "goods and services inclusive of public mass transit." Gross taxes were also raised, though the major "source" of this increase in absorption was a hefty cut in subsidies to "essentials," which early in 1985 reached an all-time high of 5 percent of GDP. These were to be cut by more than 50 percent, to close to 2 percent of GDP. (Bank of Israel, Annual Report, 1985, p. 125, (Hebrew)).

Concurrently, a reduction in the size of the deficit would help to reduce the liquidity of the system by lowering its requirements for central bank accommodation (creation of base money), and its borrowing requirements from the capital market.

These two steps were to generate a major price shock at the very launching of the program on account of devaluation-induced rise of import prices and the inevitable significant price boosts required to reduce the level of the fiscal subsidy to "essential" goods and services. 1/ This opening move was thus the opposite of the declared target of the exercise--to reduce the momentum of inflation. In any case, it was the image it was expected to create by its immediate effect on prices. Bitter experience suggested this kind of public reaction in view of the several previous attempts to reduce inflation that had involved price shocks yet had pushed inflation rates even higher.

In this case the image was warranted by the absence of a monetary anchor. With M2 balances at their lowest--4.6 percent of "domestic uses"--the demise of nonlinked money balances had by then almost reached the hyperinflation threshold. The deflationary real balance effect of a rise in the price level--the "classical" factor helping to contain inflation in nonlinked monetary systems--would have been negligible. 2/

A universal price freeze supported by legally enforceable controls was therefore an inherent plank in this program. Economically, this freeze was to rely on the one hand on the pegging of the nominal post-devaluation dollar exchange rate, which was to serve as a highly visible signal of "stability," and was simultaneously to prevent cost-push effects caused by further rises in import prices. On the other, it was to be supported by a substantial (temporary) cut in real wages, to be implemented by means of (two) adjustments of nominal wages at a rate lower than the initial price shock, to be followed by a three-month freeze at the newly set nominal level. The wage arrangements and particularly the wage freeze were formalized for the private sector through union contracts and for public sector employees through a legal device. The price freeze was to be legislated, but no physical control system to police the freeze was instituted. It was assumed, at least tacitly, that, except for some flagrant abuses that would be brought to the courts, the price freeze would be implemented by market forces, marginally supported by legal enforcement.

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1/ The expected price shock of the planned cut of subsidies by more than one half can be visualized from the support levels of specific commodities: the subsidy for some dairy items was in January 1985 125 percent of the price to the consumer. Public bus transportation was subsidized by 250 percent. Bank of Israel, Annual Report, 1985 p. 125.

2/ The obverse of this is the high ratio of foreign-exchange-linked money (M3 - M2), and the price-linked longer-term financial instruments which, in this financial and monetary setup, offer immediate automatic monetary accommodation.

Though the relevant item in the section on the "main elements of the program" says that the government will "... act to impose a freeze on wages, prices, the exchange rate and credit ...," the price-wage freeze and the exchange rate peg were deliberately put in the lime-light. They were to serve as the major instruments to contain inertial forces by reducing inflationary expectations. The stable dollar exchange rate, a highly visible, continuously available price of great significance in Israel's highly open economy, was to serve as a main instrument underlining the novel stable price environment. <sup>1/</sup> Since the exchange rate was tightly controlled by the authorities, its stability would serve as an indicator of government perseverance in maintaining the policy.

Monetary policy was assigned an instrumental role in the implementation of the program. <sup>2/</sup> The relevant item in the main elements section says that "the Bank of Israel will initiate a policy which is to restrain the nominal amount of Bank credit." This facet of the program, which evidently required a quantitative specification, was formulated in the last days before implementation in consultation with the central bank, which was brought at that time into the deliberations. Its targeted ceiling was specified simultaneously with the rate of devaluation, set at close to 20 percent (about 25 percent if the depreciation of the sheqel in the last days of June is included), and the size of the cut in subsidies. The decision on the size of the latter was in effect a decision on the magnitude of the price boost of "essentials."

The proposed magnitude of the devaluation and the aggregate cut in subsidies were spelled out in the section, the "main elements of the program," while the designed credit restrictions were outlined in the

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<sup>1/</sup> The foreign exchange rate has a much greater significance in substance in Israel than in Argentina and Brazil. It reflects the fact that with an import bill of more than 40 percent of GDP and export revenues close to 30 percent of GDP, Israel's economy is much more dependent on its foreign trade than the two South American economies. It applied in particular to the dollar exchange rate to which most of the foreign-exchange-linked financial assets were pegged.

<sup>2/</sup> This feature is discussed in a paper presented in September 1984 which says: "The freeze period would allow for transition to monetary restraint..." See N. Liviatan "A Policy for Lowering Inflation with Reference to Past Experience" (Israeli Center for Social and Economic Progress, September 1984, Hebrew).

In a diagram summarizing the essentials of the stabilization policy used in the presentation of the program to the cabinet meeting, monetary policy specified in terms of "credit restriction" is accorded equal footing with the wage freeze and the pegging of the exchange rate as determinants of "stabilization of the price level." The diagram is presented in M. Bruno, "Stabilization of the Economy: The First Steps of the Emergency Program," Economic Review, No. 126 (October 1985, Hebrew), p. 213. See also p. 212 and footnote 6.

following section, the "details of the program." Total bank credit was specified as the intermediate operational target. The nominal volume of bank credit during the first month of implementation was to grow at a rate lower by 10 percent than the price rise during that month. The volume of bank credit on August 1 (the beginning of the second month of implementation) would serve as the credit ceiling for the next three months. Thus bank credit was designed to serve as an additional nominal anchor--the nominal (temporarily pegged) dollar rate and nominally frozen wages were the other two--which, by "roping in" the system, were to lead to a deceleration of inflation.

The setting of the monetary target in terms of bank credit meant, prima facie, that the other component of the supply of "money" (M2 or M3)--base money--was left on its own. Yet this did not apply to short-term Bank of Israel credit to the Government--hitherto a regular source of additions to base money--which had previously served as a regular source of government financing, restricted only by the size of the government budget. To prevent the Treasury from operating the printing presses directly, the clause in the Bank of Israel Law of 1954 allowing direct access to the Bank was repealed. <sup>1/</sup> Though apparently under the heading of fiscal policy, this item of the stabilization program had mainly monetary implications. It did not prevent, of course, the creation of base money on the basis of other "sources"--changes in foreign currency reserves, open market operations, or business sector accommodation by the discounting of commercial paper.

Finally, the program included another element with direct monetary implications. The eligibility of residents to open new current account PATAM deposits or to increase the sums invested in existing deposits was repealed. Owners of such accounts were not forced to close them; existing current PATAM accounts were to carry no interest. Residents could still open and maintain interest-bearing PATAM deposits invested for a year or more.

This move to encourage a process of de-linkage was fully in line with the major longer-term target of the program--lower price inflation. De-linkage for these accounts or for any other financial contracts was never imposed. It was left to the volition of individuals. By

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<sup>1/</sup> According to this clause, repealed several weeks before implementation of the plan, the Government was permitted to borrow, short term from the Bank, up to 10 percent of its total expenditure (on goods and services). At the end of the fiscal year, this short-term "debt" to the central bank was "repaid" by means of a book entry--the short-term debt was converted to long-term outstanding debt. This clause effectively endowed the Government with money printing rights. The central bank could attempt to sterilize such money printing by, say, open market sales of government securities. This never happened and could hardly be implemented in the Israeli capital market owing to the small quantity of negotiable government bonds in the portfolio of the central bank.

maintaining the option of long-term linkage and avoiding any change in the linkage of existing financial assets--a highly sensitive nerve and a major variable of Israel's economic body--the public's confidence in the security of its financial assets was to be upheld. This meant, however, that monetary policy had to cope with a potential onslaught of massive movements from linked to nonlinked accounts and their immediate expansionary monetary implications. 1/

3. Institutional and structural constraints

a. The Bank of Israel and the Treasury

The executive power of the Government in the realm of macroeconomics is exercised in Israel, as in most European countries, by the Treasury. Yet, owing to the responsibilities of the central bank, which is in charge of operating the exchange market and is to control the supply of money, the day-to-day practice requires coordination between the secretary of the treasury and the governor of the central bank. In Israel, this is formally implemented by the (nonvoting) membership of the Governor in the Cabinet Committee on Economic Affairs, chaired by the Minister of Finance.

Yet the influence of the central bank also undoubtedly depends on the Governor's stance in public opinion, which happened to be low in 1984/85, owing particularly to the so-called bank shares crisis of late 1983, which shattered the image of the country's financial leadership. It was the subject of a public investigation by a special committee of enquiry appointed by the President of the High Court of Justice and chaired by a member of the court. 2/ This delicate personal situation on the one hand, and the personal involvement of the new Prime Minister in the preparations for the program on the other, kept the Bank virtually "off limits" through almost the final days of preparation. The responsibility for shaping the program was given to a team of officials from the Treasury and the Prime Minister's office and of outside advisors chosen by him. When the Bank of Israel was officially advised about the program, its basic contours, including its monetary dimension (particularly the inclusion of an intermediate nominal credit target) were already set.

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1/ In contrast to Brazil and Argentina, the program did not attempt to prescribe rules for the de-indexing of contracts between private parties. But the repeal of the right to open new PATAM current accounts was a move that pushed the system into a pattern of de-indexation, as, and if, credibility of the policy was sustained.

2/ This committee published its report in April 1986. One of its main recommendations called for the resignation of the Governor of the Bank of Israel and the Chairmen of the Boards of Directors of the three major commercial banks. Public uproar forced the implementation of this recommendation in the summer of 1986.

In response to the suggestion of the Bank's Monetary Department, the Bank was allowed some flexibility in its handling of the volume of credit by the addition of a nominal interest rate provision. The Bank was instructed to stick to the highly restrictive intermediate bank credit target but it was allowed to "intervene ... from the second month (after implementation) onward if nominal interest rates rise above 25 percent per month." 1/

The mission of the Bank was thus spelled out in terms of two operational variables subject to its day-to-day management: to maintain the exchange rate evenly against the dollar (after the devaluation of about 25 percent), and to support it--and the price target of the program--with highly restrictive monetary control managed through a credit instrument. Though the Bank was not involved in the planning, the separation of powers and Israeli coalition politics endowed it with substantial freedom to wield the monetary weapons at its disposal as long as it maintained the exchange rate at its preordained peg. The latter, specified as the cardinal instrument of stabilization, was undoubtedly the control figure closely watched by the Prime Minister, the Minister of Finance and the planning team. 2/

b. Structural features

Monetary policy is obviously circumscribed by the environment in which it is to operate, both on a regular basis and even more so in a crisis situation such as an attempt to cope with runaway inflation. The comparative size of foreign trade, the flow of funds, and domestic public debt, the significant segmentation of the credit market, and the oligopolistic features of the banking system were in Israel the most relevant factors to be considered.

(1) The foreign sector

The openness of the Israeli economy imposes constraints on monetary policy, as it does in small open economies everywhere. This applies, in particular, in crisis situations when steps affecting the official exchange rate are expected. Some insight into the potential monetary effects of this factor is gained by reference to the comparative size of the foreign trade sector. With civilian imports and exports of goods and services at about 58 percent of GDP, the size of a

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1/ See "A Comprehensive Economic Stabilization Program," Section 3-f. This "flexibility" provision evidently qualified the credit target spelled out before it.

2/ The outsider status of the central bank in the planning stage of the program was public knowledge. In a newspaper interview two years later (September 1987), the Economic Adviser to the Prime Minister in 1985, himself a member of the planning and implementation team, confirmed this fact in clearcut terms. See S. Plozker, "How Was the Program Saved," Al-Hamishmar, September 1987.

one-month lead and a one-month lag of the purchase and transfer of foreign exchange by importers and exporters, respectively, before and after a devaluation would mean a reflow of close to 5 percent of GDP across the exchanges. Thus, even if the central bank did not partly sterilize the outflow before a devaluation, the reflow would involve not only a return to the previous level but also an increase proportional to the rate of devaluation. With a 25 percent devaluation implemented on July 1, the one-month lead and lag assumed above would involve an increase in the (base) money supply of about 1.5 percent of GDP within a one-month interval after devaluation. Even a low money multiplier, of, say, 1.3, would mean that the reflow would raise the money supply by close to 2 percent of GDP over and above its immediate predevaluation level. <sup>1/</sup> With the M3 ratio for the middle of 1985 at 23 percent, the size of the reflow effect on the supply of money came close to 10 percent of the (relevant) money supply within one month after the launching of the program.

This rough, though quite indicative, estimate of the monetary implications of a devaluation does not refer to the possible effects of lags caused by predevaluation delays in private transfers and donations nor to the quite feasible lags in medium- and long-term capital inflows. It also assumes that the outflow of funds before devaluation was not even partially sterilized by the central bank to prevent a domestic credit crunch and corresponding effects on short-run interest rates. If the bank had sterilized partially the impact of the outflow, the corresponding effect of the reflow on the monetary base and the supply of money would have been even greater.

This rough estimate of the size of feasible leads and lags is supported by the information that, within five weeks after the launching of the plan, a (net) inflow of \$1 billion was recorded. This amounts to a lead and lag on the civilian goods and services account (net of capi-

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<sup>1/</sup> The reference to the money multiplier is to the coefficient of Friedman's model of money supply. Accordingly,  $M_1 = m( ) H$ , the supply of money is the product of base money (H) which represents liabilities of the central bank and the money multiplier  $m$ . The latter is a (rising) function of interest rates, of (uncertain) expectations about the future trend of interest rates and prices, and of variables under the direct control of the central bank--liquidity ratios and its own discount rate.

In what follows, sometimes the argument will be pegged to the formulation according to which the supply of money is a sum of base money (H) and outstanding (commercial) bank credit.

tal services) of about three weeks. 1/ These considerations suggest that monetary policy had to plan to cope with an inflow to the foreign account--i.e., an increase in foreign reserves--of an amount that could easily have increased the liquidity of the system by more than 10 percent in terms of M3 within the first month or so after the launching of the program. The expected inflow could have been even more substantial if long-established controls on capital flows had not been in place.

(2) The domestic public debt

But the expected increase in foreign reserves, undoubtedly an immediate policy target, was not the only liquidity overhang that monetary policy was expected to cope with in the immediate aftermath of the plan's launching. The deposits directly linked to foreign exchange were an immediate source of inflating liquidity. They stood at about 16 percent of GDP in June 1985 (equivalent to 13.9 percent of domestic uses, Table II-1), and the 25 percent devaluation involved an immediate increase of 4 percent of GDP in M3 money. A conversion of a fraction (or the total) of that increase into nonlinked deposits would, owing to the lower reserve ratios for nonlinked sheqel deposits, involve an even higher expansion of M2 and, correspondingly, of M3. In any case, if the move into nonlinked deposits were delayed, a devaluation would immediately boost M3 money supply by 17-18 percent.

The nominal value of price-linked assets would also be boosted. The immediate monetary impact would be limited to issues with close redemption dates. But, in an economy with a domestic public debt to GDP ratio of over 100 percent, the flow of redemptions must be significant in the first place. 2/ Both the devaluation and the corresponding price shock, which were the first steps in the program, generate corresponding increases in financial wealth. Though not necessarily immediately expressed in terms of rising consumption expenditure and effective demand, the flow of redemptions, by continuously providing immediate liquidity, made the cashing-in costs of financial assets to finance purchases in real markets close to zero. To prevent an onslaught on real markets and to induce owners of redeemed assets to reinvest in financial assets, monetary policy had to offer attractive financial alternatives.

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1/ This figure was reported in a privately circulated memo.

Expectation-induced outflows and inflows of funds of a similar size were again recently recorded. In anticipation of a devaluation, Israel's reserves registered a loss of about \$2 billion in the last two months of 1988. In response to a devaluation of about 14 percent in the last week of the year, these funds were regained within about two months. See Bank of Israel, Recent Economic Developments, No. 46, Table A, p. 10.

2/ The ratio of domestic public debt to GDP averaged about 120 percent of GDP in the 80s. See Bank of Israel, Annual Report, 1988, Table 5-1, p. 110 (English).

Monetary policy was, therefore expected to counteract the momentum of the automatic monetary accommodation, that feature built into the system for more than a decade in the shape of an ever-increasing ratio of national debt to relevant aggregates. In view of the rate of devaluation and the substantial boost in the price of "essentials," the monetary onslaught when the plan was first implemented should have been extremely strong. This force reinforced the innate inertial factors (price expectations) that had been driving the system, and the strength of the countervailing force had to be adapted to the momentum unleashed by the policy. Yet monetary policy, which had to face this expansionary impact, was impeded by two features: segmentation of the credit market and the monopolistic features of banking.

### (3) Credit market segmentation

The segmentation of the credit market, imposed long ago by government fiat, was designed to offer privileged access to bank credit to specific groups of customers. The quantitative significance of this feature, typical of economies subject to lengthy and substantial inflation, is presented in Table II-2, which shows total bank credit by major categories. "Free" credit was subject to the volition of banks in terms of choice of customer, volume, and specific charges and rates. "Directed" credit involved credit lines over which banks have no control either in terms of volume or of price. Credit volume was determined by the export performance of firms, and interest rates were set by the relevant interdepartmental committees in "consultation" with the central bank. Similarly, the value of fuel imports prescribed the size of the credit lines to the three fuel corporations operating in the country, and the interest rate on these credits was similarly set by the Government. Until the middle of 1985 these arrangements involved implicit interest rate subsidies, whose level was determined by the category into which a customer was classified.

The quantitative constraint that this segmentation imposed on monetary policy as the stabilization program progressed is underlined for 1984, when directed credit made up 55 percent of total bank credit. The situation was undoubtedly much the same on July 1, 1985. Thus, though the stabilization program prescribed the use of total bank credit as the operating instrument and specified a highly restrictive target in terms of that total (see also Section III, 3-(b)), the directed credit component was explicitly excluded from any quantitative restrictions. This, of course, implied that the monetary target was to be implemented by operating on the 45 percent "free" component of total outstanding credit. This segmentation and the credit target prescribed accordingly implied a squeeze of the free segment of the market that was about twice as strong as that designed for total credit. Since the free segment included also a linked component--commercial credits for one year or more were usually linked to prices or to the exchange rate--the brunt of the policy was to be borne by the even smaller nonlinked segment that accounted for about 19 percent of the credit market.

Table II-2. Composition of Commercial Bank Credit, 1984-88 1/  
(Percent)

	1984	1985	1986	1987	1988
1. Free	44.6	54.5	71.0	80.4	85.8
a. Linked	25.2	22.1	23.3	27.3	30.1
b. Non-linked	19.4	32.3	47.7	53.2	55.7
2. Directed	55.4	45.6	29.0	19.6	14.2
a. Exports	37.8	34.9	25.1	16.2	12.2
b. Fuel	17.6	10.7	3.9	3.4	2.0
3. Total	100.0	100.1	100.0	100.0	100.0

Sources: Bank of Israel, Annual Report, 1988, Table 8A-2, p. 252 (English); and similar tables in Annual Report, 1985-87.

1/ End-of-year balances.

(4) The oligopolistic structure of banking

With close to 90 percent of Israel's banking business handled by the three major banking groups, the oligopolistic structure of Israel's banking industry has obvious effects on efficiency and on income distribution. <sup>1/</sup> What counts in this context are the monetary implications of this setup for the stabilization policy. The significance of this feature is demonstrated by a rough, and maximal, estimate of the financial margins--the difference between lending and deposit rates--as presented in Table II-3. Nominal financial margins of 6.7 percent as in the second quarter of 1985 are high by any standard and underline the noncompetitive feature of the industry, in particular on the credit side. Competition for deposits, which have to be pulled in from a great number of depositors, is significantly stronger.

The extra burden that this structure imposed on monetary policy was due to the fact that monetary management at this juncture was expected to restrain business activity and particularly investment in inventories and fixed capital equipment. At the same time, it was to attempt to restrain households from using their highly liquid positions to plunge into real markets when only lower demand could prevent another spurt in the price spiral. This was to be accomplished in the wake of a major price shock, which could only strengthen inflationary expectations. To do this, households had to be bribed to stick at least to the financial assets at their disposal. Similarly, business real investment was to be discouraged--in particular, firms were to be induced to reduce the level of inventories.

The only way to succeed in this task, in view of several past stabilization policy failures, was to boost rates of return on financial assets that offered high real returns to households and other holders of liquid funds. This implied even higher lending rates. Thus, the requirement of significantly higher interest rates than previously (particularly high credit rates) inevitably meant correspondingly much higher lending rates owing to the wide spread between the rates imposed by the oligopolistic structure of banking. If the level of lending rates were to call the tune, this would have implied significantly lower deposit rates, and corresponding effects on household choice between real goods and financial assets.

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<sup>1/</sup> This is the share of these three banking groups in terms of balance sheet totals. See Bank of Israel, Supervisor of Banking, Annual Report 1985, Table A-1, p.2, and Table A-3, p. 18. Their share in terms of credit balances and deposits might be somewhat lower.

Table II-3. Selected Commercial Bank Interest Rates and Financial Margins, 1985-88  
(Average monthly rates—percent)

	1985				1986				1987				1988			
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
1. Average rate on total bank credit	12.7	14.4	12.5	3.3	2.6	2.2	2.2	2.6	4.0	2.6	2.4	2.1	2.6	2.5	...	...
2. Rates of overdraft facilities																
a. Effective 1/	16.1	19.1	17.4	9.0	4.9	3.5	3.6	3.8	4.4	4.3	3.8	3.7	3.6	3.4	2.9	3.3
b. Marginal	18.8	2.3	20.4	10.5	5.7	4.0	4.0	4.4	5.0	5.0	4.5	4.4	4.4	4.0	...	...
3. CD rates	10.1	12.4	8.2	3.0	1.7	1.1	1.2	1.3	1.8	1.5	1.0	1.1	1.0	0.8	0.8	1.0
4. Financial margin 2/	6.0	6.7	9.2	6.0	3.2	2.4	2.4	2.5	2.6	2.8	2.8	2.6	2.6	2.6	2.1	2.3

Source: Bank of Israel, Recent Economic Developments, No. 43, March 1988, and No. 44, September 1988 Table 21.

1/ Weighted mean of interest on overdraft facilities and a penalty rate for exceeding the approved credit line.  
2/ Line 2a minus line 3. Since corresponding average interest rates on total bank credit were significantly lower than overdraft rates, the financial margins calculated here exaggerate banks' profit margins.

### III. The Monetary Dimension at Implementation

#### 1. Target and instruments

The intermediate monetary target set in the outline of the Sheqel Plan was spelled out in terms of the level of nominal bank credit. Since it was quantitatively specified in terms of the expected rate of inflation during the first month of implementation, it put monetary management into a quandary. The inflationary environment and the expected added momentum to prices as a result of the price shock to be administered at implementation meant a leap in the inflation rate. However, officials, through the first two weeks of July, 1985 before the publication of the June price index, could hardly make a reasonable guess of the expected value of the variable that was to specify the credit target. 1/

Information on the rate of net inflow of foreign funds and the flow of conversions from the PATAM (foreign-exchange-linked) deposits into sheqel deposits provided (almost) real time data on the potency of the flow that affected the liquidity of the system directly and particularly the second component of money--the monetary base. The expected substantial reflow of foreign funds that was realized was obviously a major potential source of expansion for the monetary base. 2/ At the same time, the countervailing planned improvement in the cash flow of the Treasury could not yet have surfaced. The expansionary influence of these three factors is underlined by the extraordinary rate of increase of the monetary base in July--163 percent (Table III-1).

The Bank of Israel responded to this expected avalanche by applying two classical central bank instruments. Since it chose not to apply a ceiling on domestic credit by fiat, it attempted to reduce the "effectivity" of bank reserves as a source of money, and at the same time

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1/ Monthly CPI figures are published only on the fifteenth day of the succeeding month. The June figure of 14.9 percent (up from the 6.8 percent of May) was thus only available on July 15.

2/ The sheqel value of the inflow of about \$1 billion within the first six weeks after implementation was one and a half times the size of the monetary base at the end of June 1985.

Table III-1. Rates of Change of Selected Monetary Aggregates <sup>1/</sup>

	H	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>3</sub> <sup>a</sup>	Tc	Fc	CPI
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(Annual rates--percent)								
1984	454	354	421	485	486	487	494	445
1985	667	257	470	163	159	172	184	185
1986	34	121	75	21	23	46	68	19.6
1987	44	51	48	25	28	60	78	16.1
1988	-24	11	-1	14	15	42	48	16.4
(Monthly rates--percent)								
1985 I	11.9	15.0	18.6	12.4	12.8	10.6	10.7	10.3
II	8.7	6.6	10.6	12.7	12.1	13.9	14.1	13.7
July	163.3	18.4	57.5	16.0	14.2	17.5	14.0	27.5
III	49.5	16.9	25.9	6.7	6.3	8.9	10.0	3.4 <sup>2/</sup>
IV	8.3	6.7	8.2	2.1	2.1	1.7	2.0	2.1
1986 I	3.1	15.7	6.1	1.9	2.2	3.4	5.3	0.6
II	-2.5	0.9	-0.4	-0.2	-0.8	2.4	4.1	2.2
III	8.2	7.0	7.6	2.6	3.2	3.6	4.4	1.0
IV	1.2	4.2	6.0	2.0	2.4	3.3	3.8	2.2
1987 I	7.2	2.4	4.5	3.3	3.1	4.6	4.9	1.5

Memorandum item:

(CPI percent)

1985	April	May	June	July	August	September	October	November	December
	19.4	6.8	14.9	27.5	3.9	3.0	4.7	0.5	1.3

Sources: Column (1) Bank of Israel, Annual Report, 1985, Table H-6a, p. 306; and the same tables for 1986-88, in corresponding Annual Report; Columns (2)-(5), Bank of Israel, Annual Report, 1985, Tables H-5a, p. 306, and Table H-7a, p. 308, the same tables from Annual Report, 1986-88, pp. 262 and 264 and Recent Economic Developments, No. 44, September 38, Table 19; Columns (6)-(7), Annual Report, 1987 Table 20; Column (8), Annual Report, 1987, Table B, p. 10 and Recent Economic Developments No. 41, Table B. Entries for 1988, according to Bank of Israel, Annual Report, 1988, Table H-10, p. 281.

<sup>1/</sup> H, "Wide monetary base," is slightly different from the so-called narrow base. See definition and data in Bank of Israel, Annual Report, 1985, Table H-6a, p. 307, and similar tables in succeeding Annual Reports. The definitions of M<sub>1</sub> and M<sub>2</sub> are the conventional definitions. M<sub>3</sub> is the sum of M<sub>2</sub> and PATAM (foreign-exchange-linked) deposits. M<sub>3</sub><sup>a</sup> is M<sub>2</sub> plus total PATAM deposits exclusive of a distinct component of the total--deposits originating from "restitution payments." Tc is total bank credit. Fc is the "free" credit component. See Table II-2 and Section II-3--Credit market segmentation. The rates of change were derived from end-of-period data.

<sup>2/</sup> Average of August and September 1985 only.

restrict their expansion. 1/ The attempt to reduce "reserve effectivity" was implemented by raising required liquidity ratios three times in July as indicated in Table III-2. A final upward adjustment was made on August 1 and maintained through March 1986. The third rise, on July 25, was undoubtedly affected by the data then available to the authorities about the June price jump, which suggested an even higher leap for July. The rapid expansion of the monetary base, which toward the end of the month was almost a fait accompli, inspired both the third and the fourth increase, raising these ratios fourfold for CDs, and almost fivefold for time deposits within one month--to 43 percent for CDs and 50 percent for current accounts. 2/

At the same time, the Bank attempted to restrain somewhat the rate of increase of bank reserves by raising the interest rate on the "monetary loan" to what was then, an all-time high nominal rate of more than 19 percent. This was a small rise from the June level of 18 percent. It was probably more an expression of the prevalent expectations on the July price index than of the natural reluctance of monetary authorities to rock the boat.

The interest rate on the monetary loan--the source for supplementing reserve shortages--is the Israeli equivalent of the discount rate in major money centers. Yet the latter is effective in pushing the structure of rates upward only if the banking system, short of reserves, is forced to use the central bank's credit window. Open market sales are thus an inevitable device for making the discount rates effective. But in a stable exchange rate regime, the attempt to push domestic rates higher is hardly feasible in a small open economy. The relevance of the domestic equivalent to the discount rate given a free flow of short-term

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1/ The temptation to apply administratively imposed credit ceilings in this kind of situation is obvious. It is fully in line with the "controls" approach--an inherent feature of heterodoxy. It was seemingly appropriate, particularly in view of the specification of an overall credit target. It was thus favored by some of those involved in the handling and implementation of the program, although the segmentation of the credit market underlined by the data of Table II-2 prevented its application across the board.

An application of an overall quota technique required the adoption of a rule on "interbank" allocation of the total credit quota. This sooner, rather than later, leads to interbank "quota" trading. Bank customers would accordingly pay more for their credit balances, even if the structure of the banking industry were relatively competitive. In a monopolistic environment such as that of Israel's banking system, this would raise credit costs even more (see Section II-3-b above).

2/ Note that a 50 percent liquidity ratio means that to make profit, banks are to charge more than twice the cost of acquiring these marginal deposits. This induces the growth of grey-money markets which reduces the effectiveness of monetary controls and increases risks in financial markets.

Table III-2. Some Indicators of Bank of Israel Monetary Controls

	1985					1986			1987									
	Jan.	July		Aug.	Mar.	May	Feb.	Apr.										
		4	11	25	1	13	15	12	9									
A. Required Liquidity Ratios on: (Percent)																		
1. Current Accounts	35	35	35	45	50	45	38	30	34									
2. Time Deposits <u>1/</u>	8	12	23	33	38	25 <u>2/</u>	20	20	20									
3. Certificates of Deposit	9	13	28	38	43	43	38	30	34									
B. Interest Rates on: (Monthly rates—percent)																		
	1985					1986					1987							
	1	6	7	8	9	10	11	12	1	2	3	4	11	2	3	5	8	
1. Monetary Loan: <u>3/</u>	16.0	18.1	19.3	16.1	11.8	9.5	7.7	5.0	4.3	3.7	2.4	2.0 <u>5/</u>	2.3	2.8	3.2	2.3	2.0	
2. Reserves <u>4/</u>	10.0	12.1	13.3	10.3	6.8	4.6	3.4	3.0	2.6	2.3	1.4	1.2 <u>5/</u>	1.6	2.1	2.5	1.7	1.2	
Memorandum item:																		
CPI	5.3	14.9	27.5	3.9	3.0	4.7	0.5	1.3	-1.3	1.6	1.5	3.3	2.9	1.0	1.3	0.6	1.2	

Sources: Liquidity ratios are from Bank of Israel Annual Report, 1985, Table I-2, and the same table from succeeding Annual Reports.

Data on interest rates on monetary loan and reserves are from Recent Economic Developments, No. 44, Table 21.

1/ Liquidity ratio on time deposits for one month.

2/ Reduction effective January 16, 1986.

3/ Marginal rate.

4/ Interest rates paid by the bank on highest reserve bracket. The first bracket of required reserves does not carry any interest.

5/ This rate was maintained for the coming six months through September 1986.

foreign funds is of minor significance. Any attempt to push interest rates above world market rates (plus some premium for exchange rate risk) would be thwarted by an immediate inflow of funds. The good credit standing of Israel, which improved in the immediate aftermath of implementation, allowed Israeli banks to borrow abroad and use the borrowed funds to supplement their reserves.

Thus, though a rapid reversal of the falling trend of international reserves was undoubtedly one of the immediate targets of the program, monetary considerations required the tightening of existing controls on short-term capital flows. Among other devices, this was put into effect by a 15 percent reduction of the ceiling imposed by central bank fiat on the volume of "free" foreign-currency-linked commercial bank credits. Customers that hitherto had been accommodated by this kind of credit were thus pushed into the sheqel credit market, generating a corresponding increase in the derived demand for bank reserves. The substantial rise to 45-50 percent in reserve requirements and the relevant LIBOR dollar rates (at that time about 10 percent for dollar credits) made the cost of using foreign funds to supplement bank reserves less attractive though still lower than the cost of borrowed sheqel reserves, at the extraordinary rates of the first restabilization quarter (Table III-2, and Chart III-1). Yet supported by some controls on the flow of the short-term funds, the Bank of Israel could thus make use of the interest rate instrument.

The reflow of funds and induced conversions of dollar-linked deposits into sheqel deposits made the banks highly liquid. <sup>1/</sup> Thus, in the first week of July the banking system did not need any accommodation from the Bank of Israel. But as liquidity ratios were rapidly tightened and open market sales of treasury bills by the Bank were expanded substantially by offering higher real rates of return (Table III-3, column 5), the Bank managed, toward the end of July, to strengthen its

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<sup>1/</sup> PATAM (foreign-currency-linked) deposits were subject to a 100 percent liquidity ratio. A move from these deposits into sheqel deposits for which lower liquidity ratios were required thus gave the banks leeway for the expansion of sheqel credits. This move into sheqel funds induced by the plan's imposed repeal of interest payments on current PATAM accounts, and the lead and lag induced reflow of foreign funds, improved the liquidity position of the banking system.

This improvement is indicated also by the reduction in the net outflow of funds from the banking system abroad from the second to the third quarter of 1985 (see Table III-5). As expected, the nonfinancial sector changed its position immediately and, in the first post-stabilization quarter, generated an inflow of funds much larger than the outflow of bank funds. The total of these flows accordingly involved an inflow of about \$140 million. The net reflow of foreign funds and the movement into sheqel funds encouraged by high deposit rates generated the extraordinary increase in the monetary base showing up in Table III-2.

Table III-3. Estimates of Ex Post Real Interest Rates, 1985 I-87 I

	Monthly Rates 1/						Annualized Rates				
	Overdraft	Total	CDs	Treasury	Time	Overdraft	Total	CDs	Treasury		
	Facilities	Credit		Bills	Deposits 2/	Facilities	Credit		Bills		
	Effective	Marginal	Average			Effective	Average				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
A: (Monthly rates—percent)											
1985											
January	10.3	12.8	6.2	3.9	3.9	4.0	222.7	105.2	58.1	58.1	
February	2.3	4.6	-1.9	-3.2	-3.3	-3.2	31.2	-20.9	-32.1	-32.8	
March	3.6	6.1	2.7	-1.0	-0.7	-1.2	52.3	37.3	-11.2	-8.2	
April	-0.8	2.6	-4.3	-6.6	-6.9	-7.0	-9.6	-40.8	-56.0	-57.4	
May	10.9	14.1	5.1	4.4	5.8	4.2	244.6	80.7	67.7	96.8	
June	4.8	8.5	1.5	-0.6	0.7	-0.4	75.3	19.3	-7.1	8.7	
July	-5.1	-2.2	0.8	-12.3	-11.7	-12.8	-46.6	9.8	-79.3	-77.5	
August	12.7	15.9	0.5	3.8	4.2	2.7	320.0	5.9	56.6	64.5	
September	10.8	12.9	1.6	2.0	4.8	1.8	241.5	20.3	27.4	74.3	
October	6.1	8.2	-1.3	-0.5	0.2	-0.8	103.8	-14.9	-5.6	2.3	
November	8.3	9.7	2.8	2.0	2.9	2.3	159.2	39.1	26.7	40.7	
December	5.8	6.8	2.1	1.0	1.6	1.0	97.3	27.9	12.5	20.7	
1986											
January	7.3	8.2	4.4	3.4	3.3	3.4	132.8	66.8	50.1	48.4	
February	3.2	4.1	0.7	0.3	0.3	0.2	46.8	8.6	3.6	3.6	
March	2.5	3.1	0.9	-0.4	0.0	-0.5	33.9	11.2	-4.6	0.0	
April	0.3	0.7	-1.4	-2.1	-1.9	-2.1	3.5	-15.1	-22.8	20.9	
May	1.8	2.3	0.4	0.5	-0.3	-0.5	23.5	4.8	5.7	-3.5	
June	2.0	2.5	1.2	-0.5	-0.2	-0.4	26.4	15.1	-5.7	-2.3	
July	3.7	4.1	2.3	1.2	1.4	1.3	54.6	31.4	15.4	18.2	
August	2.6	3.0	1.0	0.2	0.3	0.3	35.6	12.5	2.4	3.6	
September	1.6	2.0	0.2	-0.6	-0.6	-0.5	20.6	2.4	-6.8	-6.8	
October	1.3	1.7	0.0	-1.2	-0.9	-0.9	16.3	0.0	-13.2	-10.1	
November	0.9	1.4	-0.1	-1.6	-1.3	-1.3	11.0	-1.2	-17.1	-14.2	
December	2.5	3.2	1.0	-0.2	0.1	0.1	33.9	12.5	-2.3	1.2	
1987											
January	2.0	2.5	3.0	-0.7	-0.5	-0.5	26.2	43.2	-7.9	-5.7	
February	3.2	3.8	2.7	1.0	1.1	1.3	45.4	37.2	12.6	13.9	
March	3.6	4.1	1.7	0.7	0.9	1.1	52.1	22.1	8.6	11.2	
B:											
1985	I 3/	3.0	5.4	0.4	-2.1	-2.0	-2.1	43.2	4.9	-22.7	-21.1
	II	4.8	8.3	0.7	-1.0	-0.3	-1.2	76.1	8.5	-11.8	-3.1
		-5.1	-2.2	0.8	-12.3	-11.7	-12.8	-46.6	9.8	-79.3	-77.5
	III 4/	11.7	14.4	1.0	2.9	4.5	2.3	278.7	12.9	40.8	69.5
	IV	6.7	8.2	1.2	0.8	1.5	0.8	118.4	14.8	10.4	20.2
1986	I	4.3	5.15/	2.0	1.1	1.2	1.0	66.0	26.3	14.1	15.4
	II	1.3	1.8	0.1	-1.0	-0.8	-1.0	17.3	0.8	-11.8	-9.3
	III	2.6	3.0	1.2	0.3	0.4	0.4	36.2	14.8	3.3	4.5
	IV	1.5	2.1	0.3	-1.0	-0.7	-0.7	20.0	3.6	-11.1	-7.9
1987	I	2.9	3.5	2.5	0.3	0.5	0.6	40.8	33.9	4.0	6.1

Source: Bank of Israel, Recent Economic Developments, No. 44, September 1988, Table 21.

1/ Estimated on the basis of nominal rates and CPI.

2/ Rate for two-week time deposits.

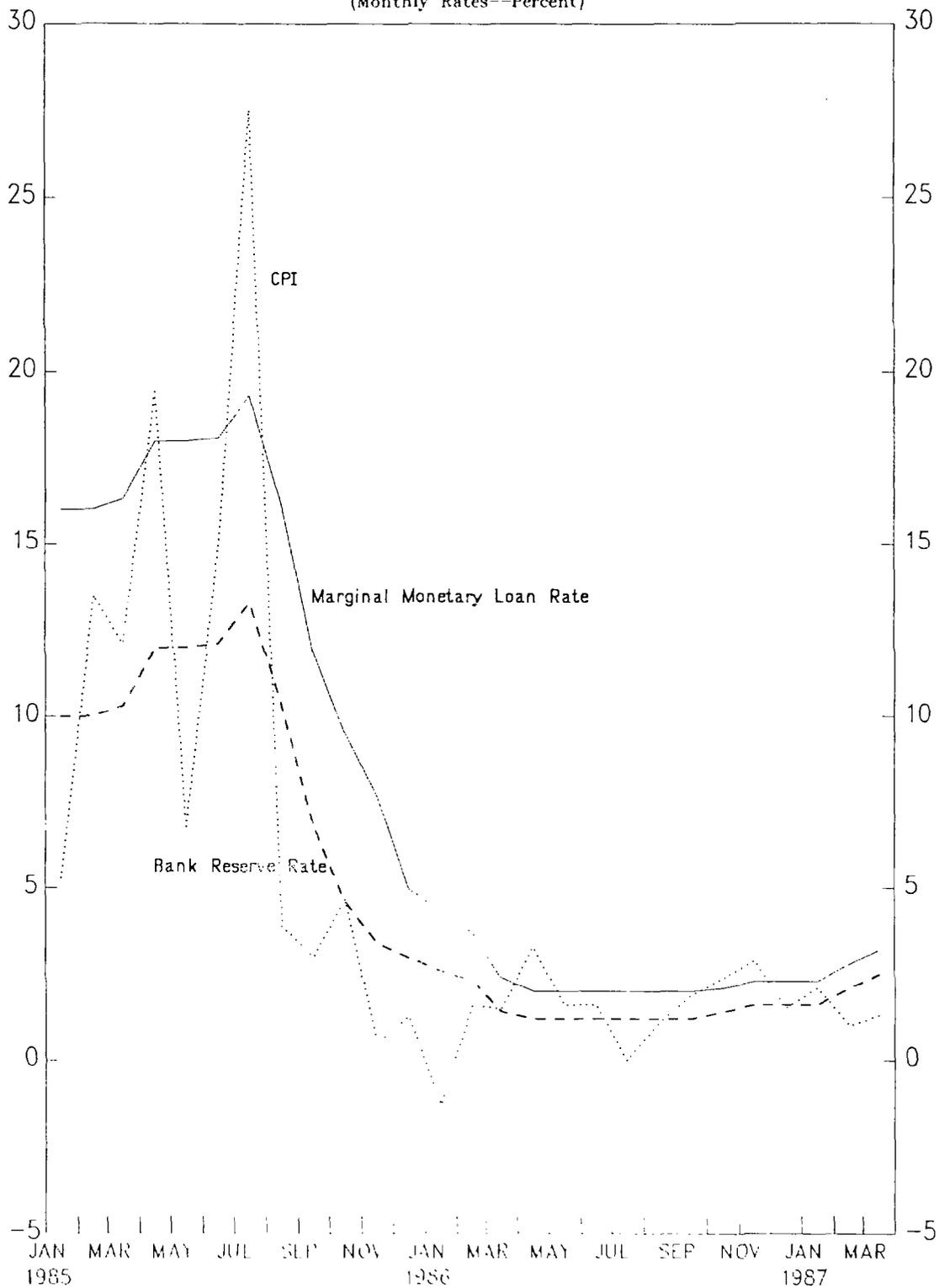
3/ Average of February and March rates only.

4/ Average of August and September rates only.

5/ New method of estimation from 1986 on.

Chart III-1

ISRAEL  
Bank of Israel Marginal Interest Rates, 1985-87 I  
(Monthly Rates--Percent)



Source: Table III-1.



grip on the market. The July 27.5 percent price shock, which induced a corresponding jump in the demand for nominal credit, and the dwindling effect of PATAM conversions supported by expanded open market sales forced the banking system to rely more and more on accommodation through the central bank. 1/ This accommodation, both in absolute and in relative terms--as a ratio of the resources of the banking system--grew substantially toward the end of the third quarter of 1986. 2/ The size of the monetary loan and the rate of interest charged on it thus became a major instrument of monetary control during the crucial first three-four quarters of the stabilization effort. 3/

This situation is prima facie inconsistent with the realities of the marketplace--if the market is to be cleared. The Bank could either set a quantity--the size of the loan--and sell it at the highest price consistent with that quantity, or set a price and supply the quantity of required "borrowed reserves" at this price. It could not set both simultaneously and have the market cleared unless the dual criteria were superfluous. However, a quantity and a price setting could be simultaneously applied if the supply of funds was to be controlled by means of several "credit windows," representing a step function, infinitely elastic at each step. At each of these preset quantities, accommodation was offered at this step's specific interest rate. The highest step was not constrained, however, in terms of quantity; the quantity borrowed at this rate was determined by the demand of the banking system. Therefore only the interest rate at the highest step on this supply curve of reserves set the marginal cost to banks of central bank accommodation. Also, by varying the quantities offered at the cheaper credit windows to

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1/ Net sales of treasury bills in July were higher than the net redemptions during the whole of the first semester of 1985. They were three times as high in the first post-implementation quarter as the redemptions in the first semester. Bank of Israel, Annual Report, 1985, Table I-3, p. 341.

2/ See Supervisor of Banking, Israel's Banking System, 1985, pp. 26-29 and diagram B-1, p. 28 in particular. See also Israel's Banking System, 1986, pp. 48-51, and Diagram B-1, p. 49.

3/ The average balance of the monetary loan (i.e., of "borrowed reserves") through this time interval was 15-20 percent of total reserves. See Israel's Banking System, 1985, p. 29 and the same report for 1986, p. 48.

which banks would first turn, the Bank of Israel could directly affect the total quantity of borrowed reserves, their marginal and also their average costs. 1/

The rationale of this technique was to keep tight control on the quantity of reserves, and thus on the volume of nominal bank credit. Also, it allowed the central bank to have some direct influence on the size of financial margins. 2/ Though this had income distribution implications too, the major purpose of this back-door control was monetary. In view of the monopolistic structure of Israeli banking, the central bank used this control technique to try to make sure that

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1/ The accommodation of any bank at intramarginal interest rates was constrained by the relative level of its deposits. This arrangement did give some opening to interbank "trade" of reserves acquired at intramarginal rates.

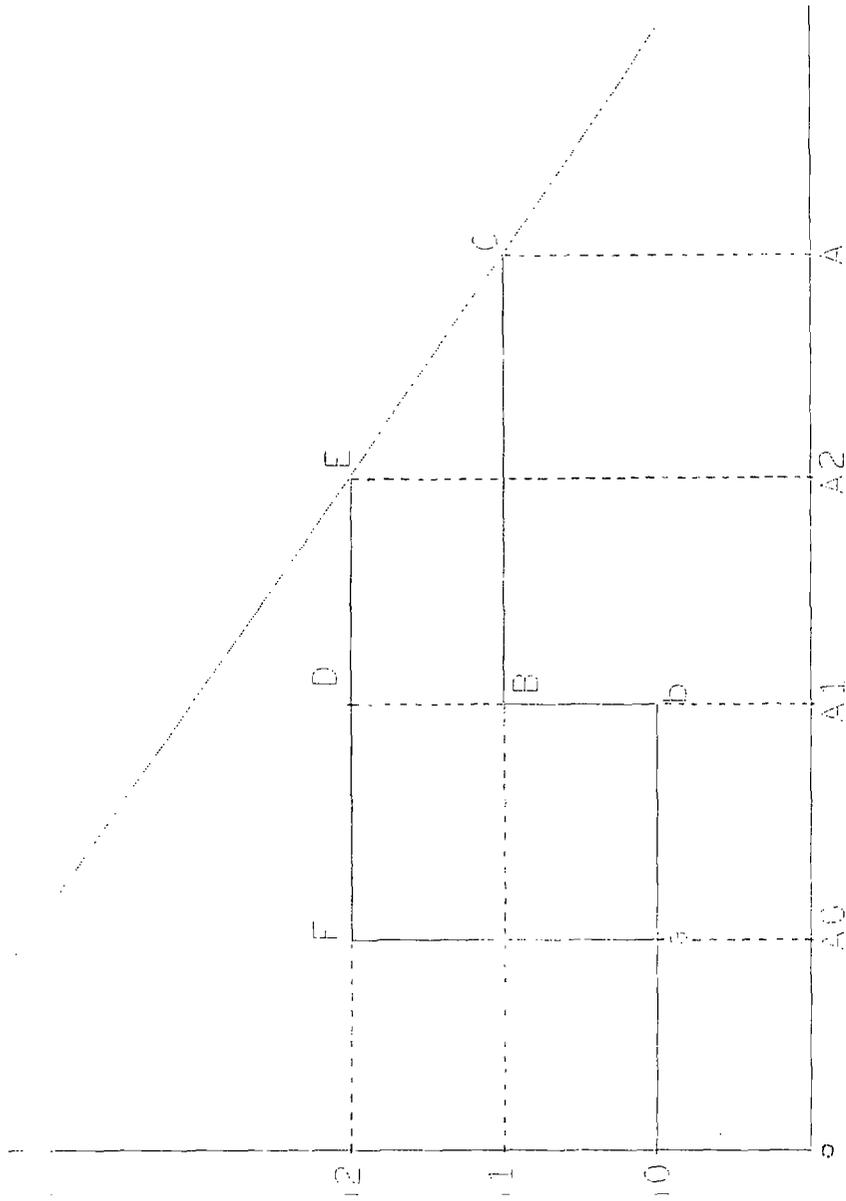
A schematic outline of the stepwise technique of accommodation by means of the "monetary loan" is shown in Figure 1-N. Initially, the central bank offers the total quantity OA, the sum of OA<sub>1</sub> offered at the lower rate of interest of i<sub>0</sub>, and a supplementary, "unlimited" quantity, along the line BC at a higher rate i<sub>1</sub>. The total demand curve of the banking system intersects the BC infinitely elastic section of the supply curve at C, which sets the total volume of borrowed reserves--the monetary loan at OA.

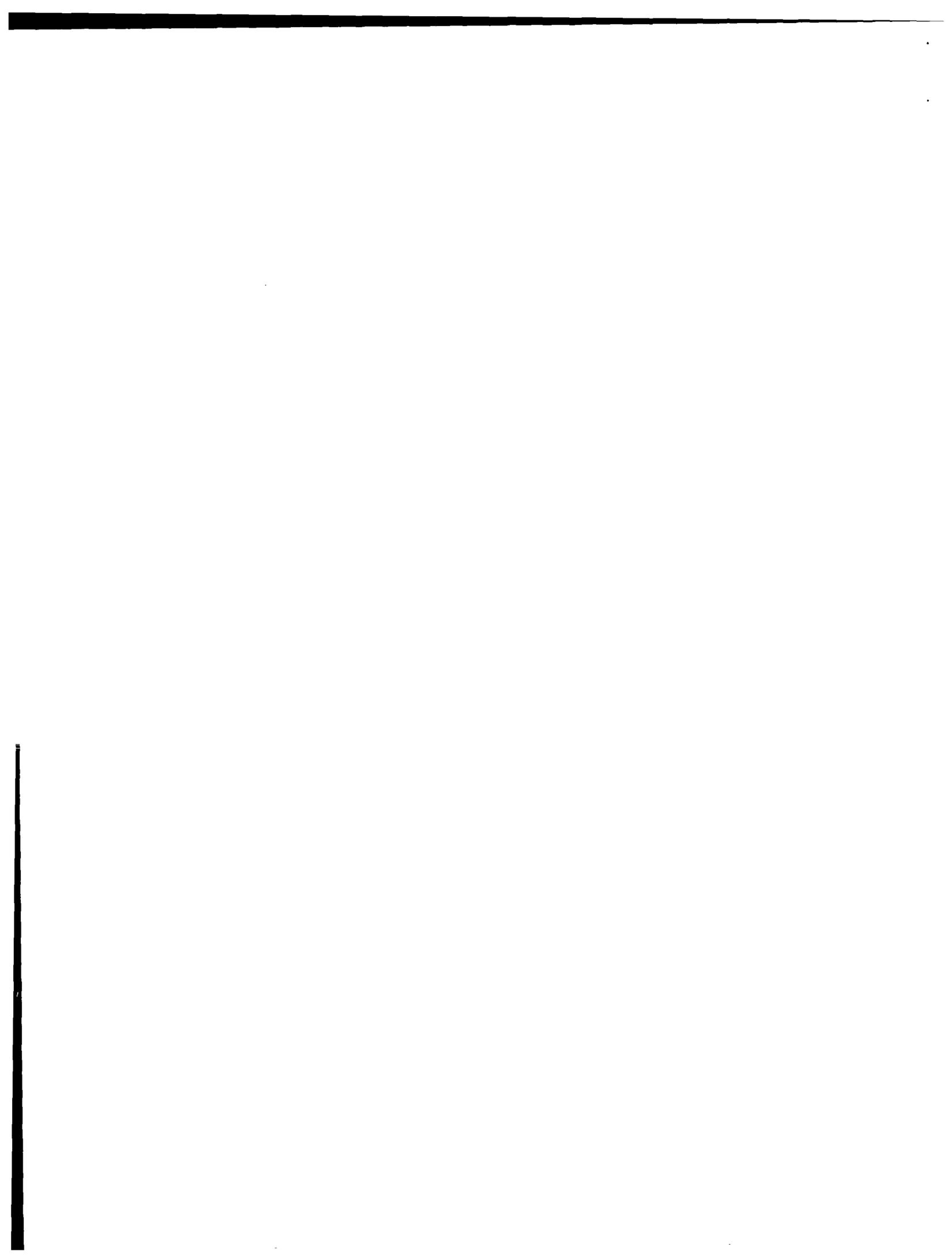
Suppose now that the central bank decides to set a higher rate, say, i<sub>2</sub> for borrowed reserves. To establish that rate it can proceed along two alternative, clear-cut, routes. One of these is simply to move the upper step of the supply curve, the BC line, upward to DE. This would involve an equilibrium quantity OA<sub>2</sub> at E, say, at the bank's presently set marginal cost of funds--the purpose of the exercise. Simultaneously, it would determine the average cost of accommodation. An alternative technique by which the same marginal cost of funds i<sub>2</sub> is set involves the reduction of the quantity offered at the lower rate i<sub>0</sub>, from OA<sub>1</sub> to, say, OA<sub>0</sub>. The "new" supply curve would accordingly be i<sub>0</sub>aFE, instead of i<sub>0</sub>bDE. The marginal cost of funds would be the same, yet the average cost of accommodation to banks would be higher.

Any number of variations of these two extreme cases is also possible. What counts, however, is that by operating in this way the bank could tighten (or loosen) the money market without affecting the marginal rate, if it prefers to do so.

2/ From November 1984 through July 1985, and again from November 1985 through the end of 1986, banks could benefit from the monetary loan accommodation only if they agreed to offer a minimum rate on short-term time deposits and to charge a maximum prime rate on overdraft facilities (see Table III-3, columns (1) and (6)). The nominal rates--not the implied real rates presented in the table--were the subject of the Bank of Israel's attempt to influence directly interest rates in the money market.

Figure 1-N





changes in interest rates affect business and households--debtors and creditors--similarly and simultaneously as much as feasible in this setup.

Data on expected prices were thus used as a gauge for setting the marginal (and other) rates on the weekly "sales" of the "monetary loan," while end-of-week data on the actual reserve position of the banks was used to set the corresponding quantities on the step function. These were set so as to force the banks to borrow a substantial fraction of their required reserves at the marginal interest rate. This set of instruments--liquidity ratios, open market sales, the setting of the marginal rate on the "monetary loan" supported by capital account controls--were used to try to reach the prescribed monetary target.

An evaluation of the performance at the outset of implementation of the sheqel program offers seemingly confused readings. Interest rate data for July 1985 hardly suggest monetary tightening. An inspection of the relevant real interest rates in July shows highly negative rates for the series presented in Table III-3. This feature and particularly the Bank's use of its monetary loan instrument is highlighted by a comparison of the CPI and the marginal monetary loan rate in Chart III-I. The former, representing a 27.5 percent price rise in July, towers above the corresponding marginal loan rate curve that peaks at about 19 percent.

At the same time, however, the Bank apparently performed much better than expected in terms of the credit target. With a 27.5 percent rate of inflation--not yet known to the authorities in July--the "90 percent of the price rise" rule as the nominal credit target meant that a rise of about 25 percent in nominal outstanding credit balances would be in line with the defined nominal target. The actual increase in total credit for July 1985 of 17.5 percent (Table III-2) indicates a better performance than that prescribed by the monetary rule set out in the program. This applies even more so to the alternative free credit (FC) figure, which is a closer approximation to the "actual" credit target used by the Bank of Israel. <sup>1/</sup> An inspection of the July entries for the money aggregates, particularly the 163 percent increase in the monetary base, however, casts doubt on the significance of rating performance in terms of only the volume of credit.

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<sup>1/</sup> The so-called target credit volume was the total bank credit (mentioned in the document presented to the Government) net of credit for energy (fuel) imports, diamond industry finance, and credit lines to aviation and shipping. The FC credit series presented in Table III-2 offers a good approximation of this concept of credit, while the TC credit series does not exclude the credit balances of the above-mentioned industries. Whether the Bank's adopted series is operationally more meaningful than the TC series is open to debate. The FC series is, in any case, a good approximation of it.

These apparently confusing signals suggest that an analysis of the workings of the financial and monetary sectors in the unsettled economic environment of an attempted stabilization and the evaluation of the policies pursued requires a more detailed discussion of the expected and actual pattern of prices and their impact on the corresponding ex-post--the proxy for the ex-ante--real rates of interest.

## 2. Real interest rates and price patterns

### a. Real interest rates and price forecasting errors

The impression of a rather loose monetary policy suggested by the July base money and interest rate data disappears once the relevant measures are considered in the context of a longer time period. Note, in particular, that the overshooting (Chart III-1) of the price index (CPI) curve in July is followed by a continuous pattern in which the monetary loan rate curve follows the downward direction of the rapidly declining price curve, yet with a substantial time lag. Similarly, the estimated series of monetary aggregates in real terms in Table III-4 shows a substantial decline in M3 and the corresponding credit series in the third quarter of 1985.

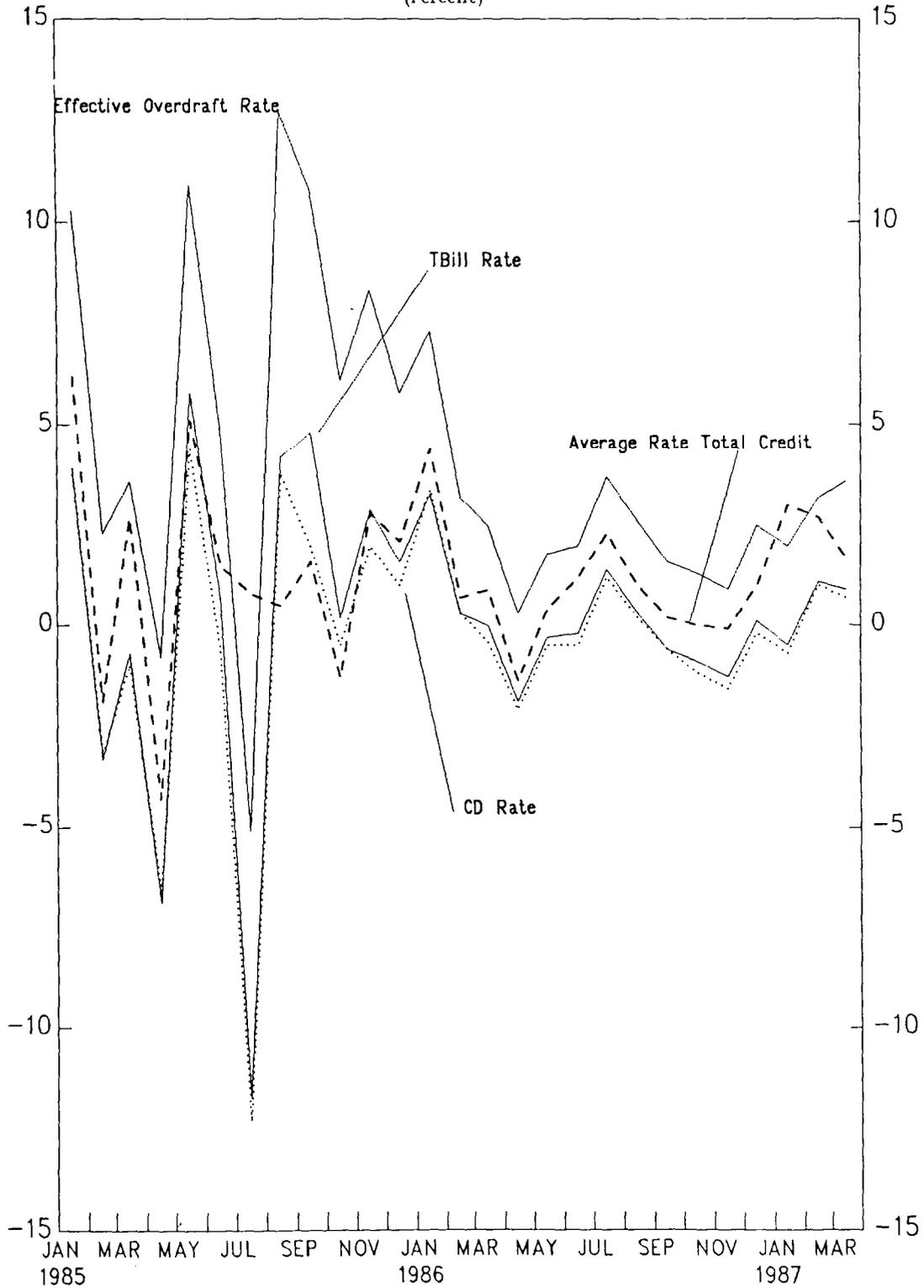
Finally, the August and September real interest rate figures in Table III-3 and Chart III-2 offer an altogether different perspective on the nature of monetary policy in the immediate aftermath of the plan's launching. An average monthly (ex post) real interest rate of 11.7 percent during these two months, for the "effective" overdraft facilities, suggests a highly restrictive monetary policy through this quarter. It required about one month to take effect. Moreover, real annualized interest rates of about 279 percent for the "effective" overdraft facility, and even the 13 percent figure for the average rate on total credit--not to mention the annualized 41 percent rate on CDs and a 70 percent real rate of return on treasury bills--underscore the highly restrictive features of monetary policy.

An inspection of Chart III-1 shows the cyclical pattern of the CPI both when it was high before stabilization and when it was low afterward, which is evidently the major factor generating the frequent and substantial fluctuations in ex-post real interest rates (Chart III-2). This erratic behavior of prices in terms of momentum rather than in terms of direction offers an insight into one of the major uncertainties facing those in charge of monetary policy in a highly inflationary environment. These uncertainties are probably at their peak in the early stages of an attempt to reduce inflation. The unpredictability of the price momentum over the short term goes a long way toward explaining the apparent "looseness" of monetary policy in the first month of the plan's implementation.

The July feature of negative real interest rates across the board undoubtedly reflects a forecasting error (Table III-3-A). Note that the monetary loan rate curve peaked at a nominal rate of 19.3 percent

Chart III-2

ISRAEL  
Real Monthly Interest Rates, 1985-87 I  
(Percent)



Source: Table III-3



Table III-4. Real Monetary Aggregates, 1985-87 1/  
(June 1985 = 100)

	<u>"Money"</u>				<u>Credit</u>		<u>Inflation</u>
	$\frac{M_1}{P}$	$\frac{M_2}{P}$	$\frac{M_3}{P}$	$\frac{M_3^a}{P}$	$\frac{Tc}{P}$	$\frac{Fc}{P}$	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1984							
December	107	87	97	97	98	97	51
1985							
March	121	108	102	104	99	99	68
June	100	100	100	100	100	100	100
September	117	146	89	88	95	97	136
December	133	174	89	88	93	97	145
1986							
March	203	204	92	92	101	111	148
June	196	189	86	85	102	118	158
September	232	228	90	90	110	130	163
December	246	255	90	91	114	136	174
1987							
March	253	278	95	95	125	151	182

Sources: As in Table III-2.

1/ End-of-period balances deflated by the CPI.

(Chart III-1), a value similar to that of April 1985, the previous all-time high inflation rate. Thus, with the May inflation rate at 6.8 percent--much below the April rate of 19.4 percent--the hiking up of the rate on the monetary loan from a nominal rate of 18 percent in May to more than 19 percent was presumably expected at least to prevent a negative real cost of funds to the banking system, which suggests that the monetary authorities had been expecting the planned price shock of July to push prices upward at a rate of, say, 20 percent at most.

Chart III-3, which shows the most important lending rates, supports this interpretation of a price forecasting error. Note that during the first semester of 1985 banks had been maintaining their lending rates above the rate of change of prices except for April, when the unusually high (local) peak of the price curve intersected the rate for that month. The effective overdraft rate had been adjusted upward from that of March, yet still yielded a negative real rate of 1 percent (Table III-3, Column (1)). This took place even though since late 1983 and throughout 1984 banks had been maintaining nominal rates on overdraft facilities that yielded (ex post) high real rates of interest. 1/ This suggests, therefore, that by raising their nominal rate for July to an all-time high of 21 percent, banks were assuming that real interest rates would at least not turn negative. 2/

This was, however, not the only price forecasting error. An inspection of Table III-1 and Chart III-1 shows that as forecast by the planning team, the rate of change of prices falls abruptly. Yet it failed to reach the 1-2 percent range until November 1985 and required four months to bring the monthly rate down toward the hoped for 2 percent. Moreover, a low inflation pattern finally emerged only about six

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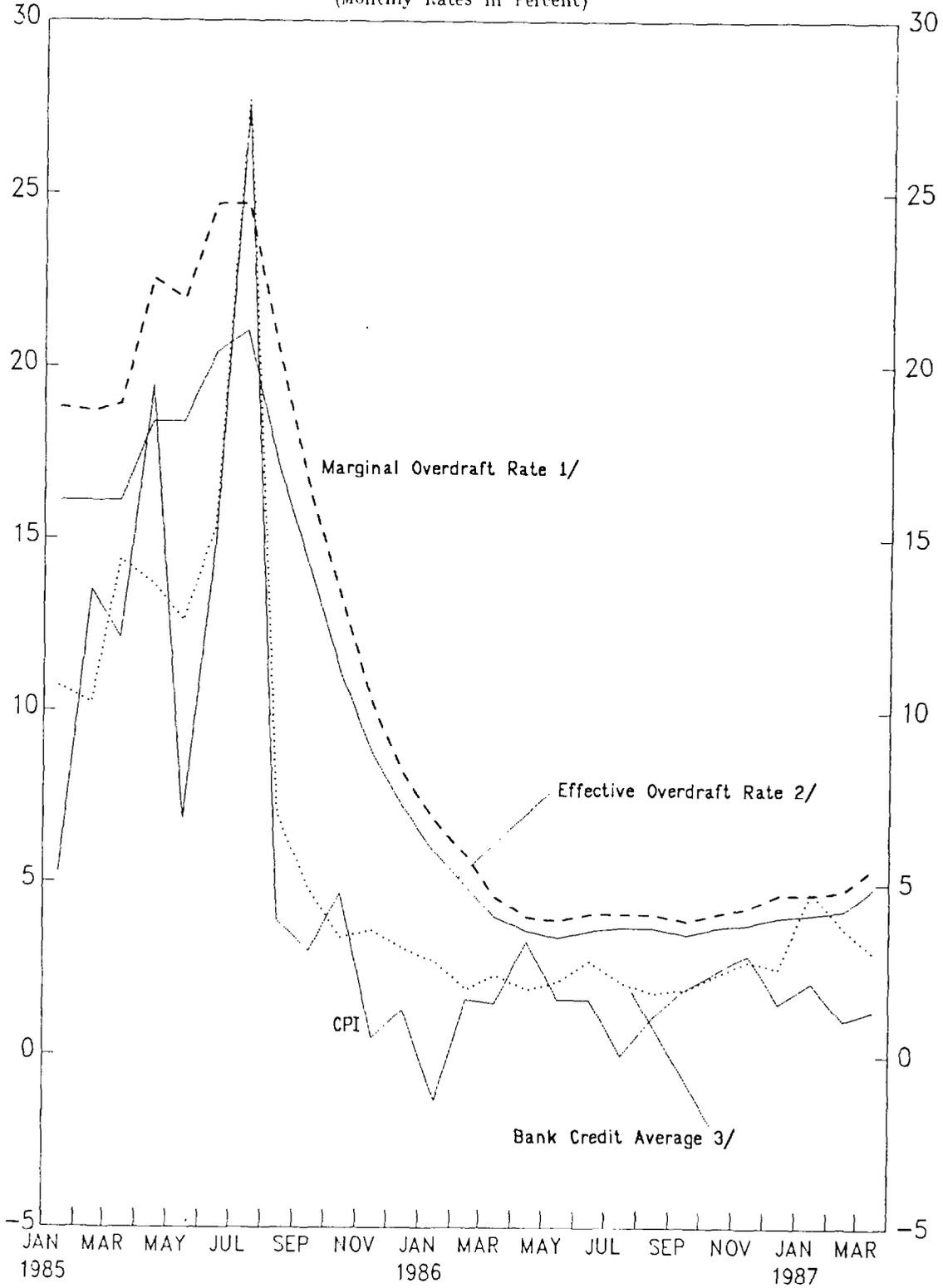
1/ The average real rate for 1984 was 4 percent per month--an annualized rate of 60 percent. Overdraft facilities in 1984 were, however, less than 10 percent of total outstanding credit. Bank of Israel, Recent Economic Developments, No. 44, (September 1988), Table 21.

2/ Yariv's ingenious attempt to trace price expectations in the bond market supports this interpretation of commercial banks' behavior, and seemingly also that of the monetary authorities, suggesting an optimistic forecasting error of the expected July price index.

Yariv uses stock exchange price quotations of price-linked government bonds due for redemption at the end of the current month, predating the publication of the CPI figure for the previous month, which finally settles their redemption value. His estimate on the expected July 1985 price change as indicated by these bond prices is 21.5 percent. The market's price expectations were also more optimistic for the succeeding three months in which, according to Yariv's estimate, they were putting the expected monthly price changes within the 2-3 percent range. See D. Yariv, Publication of the CPI and a Test of the Efficiency of Israel's Stock Market, Bank of Israel, Research Department. Discussion Paper 88.04, Jerusalem, June, 1988 (Hebrew), Table 1.

Chart III-3

ISRAEL  
Selected Lending Rates, 1985-87 I  
(Monthly Rates in Percent)



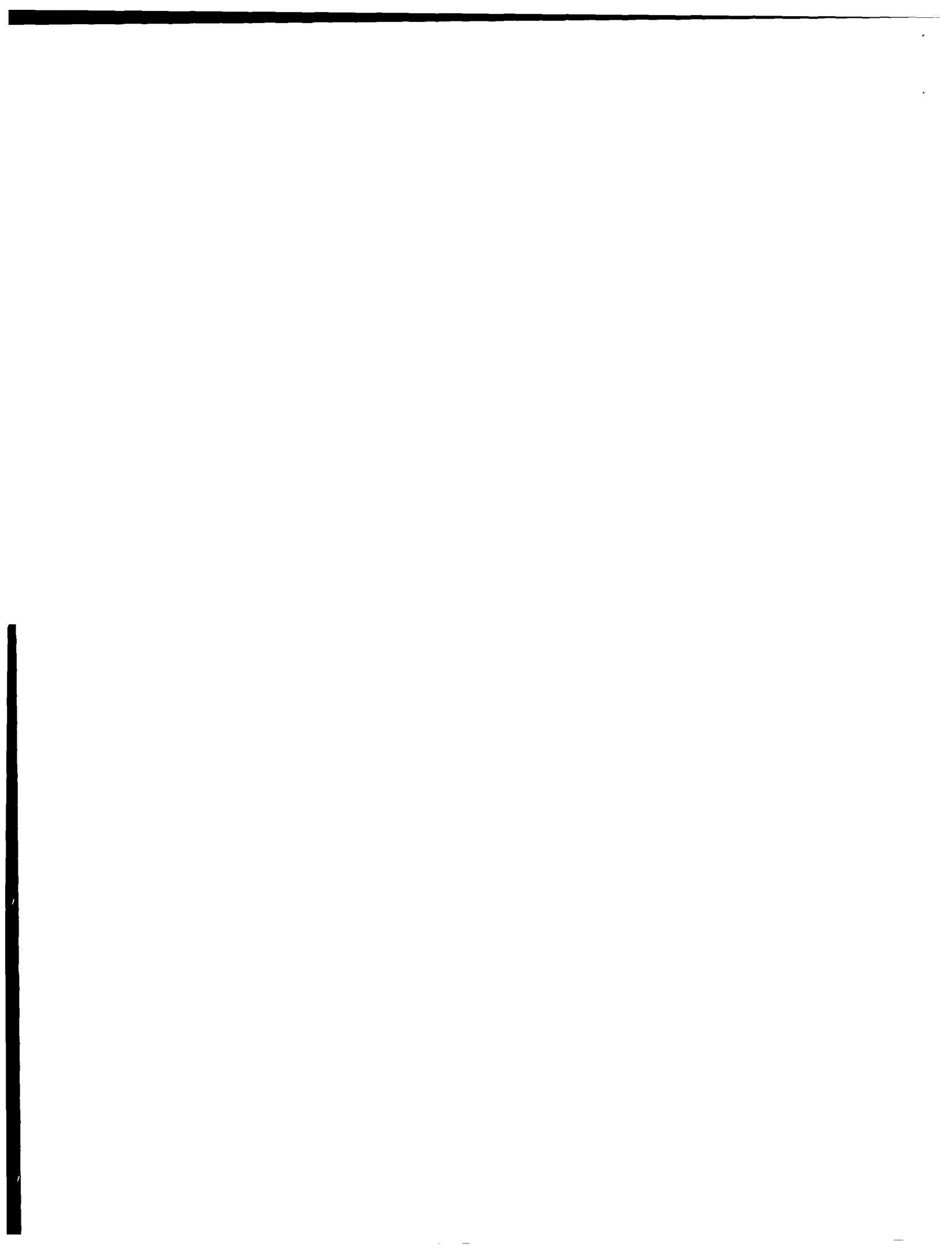
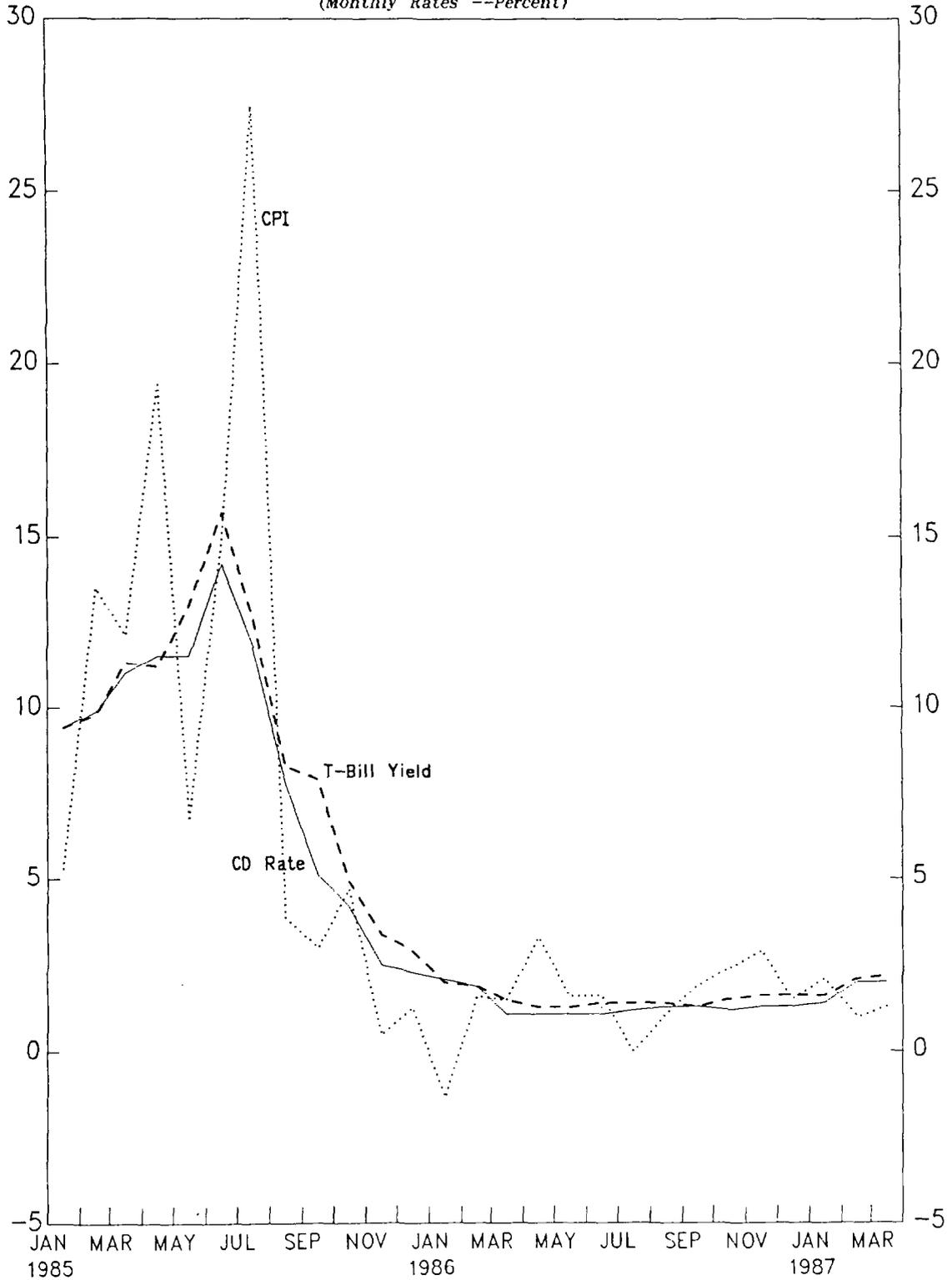


Chart III-4

ISRAEL  
Selected Deposit Rates, 1985-87 I

(Monthly Rates --Percent)





months after the launching of the policy when the low November CPI figure was published on December 15, and was followed a month later by another low-inflation reading.

b. Price resistance

This "price resistance" in the system, reflected in the length of time before the price pattern adjusted down to the predicted range, indicates that the disinflationary process in Israel was carried into effect mainly by market forces. A price freeze was imposed at the outset of the program but, except for attempts to involve "public opinion," no enforcement mechanism was put in place. <sup>1/</sup> Shortages--the inevitable counterpart of controlled prices when the latter are widely off the mark--did not surface. Goods and services were available at the prices set during the second semester of 1985 before the repeal process was set in motion. <sup>2/</sup>

Consider now the modus operandi of the system that effectively relied on market forces to bring down the rate of inflation. During the first month or two after implementation, the forces unleashed by the expectations of a stabilization program and the price shock induced a deceleration of the rising price pattern. "Essentials"--which were about 20 percent of the CPI basket--were freely available at much higher but stable prices. The supplies of other goods inclusive of inputs (raw materials) were much more subject to the whims of the marketplace and thus, in the short run, to the size of relevant business inventories and the pricing policies adopted for business purposes. Given the pre- and post-stabilization availability of foreign exchange--as in Israel--it was the momentum of the inflationary process itself that provided for

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<sup>1/</sup> Eighty-nine percent of goods and services on the basis of CPI weights were subjected to price control at the onset of the program. This percentage was maintained through the first two post-stabilization quarters. Similar quantitative information on the scope of controls on commodities, particularly inputs, not included in the consumer price index is not available. Yet both the coverage and particularly the timing of the repeal of controls was similar for all types of commodities and inputs.

Information on coverage and timing of the repeal of controls is from a private communication of the Ministry of Trade and Industry, February 1989.

<sup>2/</sup> Rent controls were included in the controls package. Since Israel features an "owner-occupied" housing market, the rental market is only a small portion. Controls, which were soon repealed, thus did not give rise to shortages in this sensitive market.

Brazil in particular, but also Argentina, brought price inflation down more rapidly than did Israel. The initial rapid decline of their indices suggests that administratively imposed rapid disinflation, as measured in terms of CPI, hardly reflected the realities in Brazilian markets. See Chart I-1, and the corresponding price data in Table I-1.

ample inventories on the one hand and on the other created a cushion of wide price margins. This same process, which generated the high inventory ratios and assured ample price margins to start with, created a lull in demand immediately after the launching of the program.

Consider first the practice acquired over time by business and later by households of maintaining high inventory/sales and inventory/consumption ratios in a system subject to high and continuous inflation. Anticipation of a stabilization attempt--which is known to always involve an upward adjustment of prices and the exchange rate--induces economic agents to raise their inventory ratios over and above the high ratios typical for systems subject to long spells of inflation. The immediate expressions of such behavior are the well-known runs on the stores.

This wave of anticipatory purchases had been a well-known occurrence in Israel. The run on the stores in May and June was, as usual, highly publicized in the media. The obvious response of business to brisk demand and the expected unveiling of a stabilization program is twofold: to increase orders, particularly for goods with a high import content, and to adjust prices more rapidly upward. In this way, current profits are not only increased but the base at which prices will be "frozen" is also raised if the program is launched.

This inventory policy has a macroeconomic expression in terms of anticipatory purchases of foreign exchange, implemented by a movement from foreign-currency-linked bank and trade credits to domestic currency credit accommodation. <sup>1/</sup> In view of the expected "new economic policy," usually involving a price freeze, substantial anticipatory price increases that, when implemented, involve some "overshooting" are obviously rational business behavior. The timing of such a move in advance of the policy change, with brisk demand and "soft" price resistance by consumers, is also optimal. The 15 percent price hike of June 1985--one of the highest monthly price leaps in Israel during the 15 years of high inflation--accordingly involved an anticipatory component. Some of this price hike undoubtedly spilled over into the administered price shock of July "warranted" formally in terms of the price control rules, though not necessarily economically by the rise in the cost of both foreign and domestic inputs.

The momentum of these price adjustments decelerated, of course, after of July. But the natural lag involved in finding an "appropriate" price in the new situation, compounded by administrative delays in approving cost-warranted price adjustments, led to a spillover into

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<sup>1/</sup> The well-known leads and lags in pre-devaluation and post-devaluation flows of funds across the exchanges are the obverse of the change in the currency used to finance trade credits.

August and September. <sup>1/</sup> The noncontrolled sector (mainly fresh farm produce), which could adjust its prices to market circumstances, worked in the same way. Although the rates of price change of 3.9 percent, 3.0 percent, and 4.7 percent for August, September, and October 1985 were higher than the sheqel program's targeted price pattern, since they reflected the realities in the markets not subject to shortages, they were quite reasonable. Nonetheless, although beyond the desired range, they were a breakthrough on the inflation front and offered the breathing space required to increase the credibility of the program.

As long as post-stabilization prices are not just decreed--i.e., that these are prices at which merchandise is sold--price deceleration from high two-digit monthly rates simply requires time. Though it is impossible to set a rule on the length of time necessary, the four months required for Israeli inflation to decelerate from two-digit monthly rates to a 1-2 percent range with no shortages seems quite reasonable. However, the public's awareness that the target had been reached inevitably lagged by two more months. The behavioral and political implications of an interval of about six months before the policy could finally be considered a success are obvious, suggesting similar implications for the management of monetary policy during these crucial six months.

### 3. The contours of monetary policy

#### a. The objective

Though not spelled out, the objective of monetary policy during the first and crucial stage of the stabilization effort was to support the effort to lower price inflation and to improve the balance of payments. At the next stage, beginning with the repeal of controls, it was to maintain a restrictive stance of aggregate demand to prevent a

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<sup>1/</sup> "In cases in which the decreed price freeze created an unreasonable cost price relationship, permission to adjust prices was granted. This prevented the surfacing of shortages." See Bank of Israel, Annual Report, 1985, p. 67.

This is a reference to a so-called price committee made up of officials of the Economic Ministries that could grant permits for price adjustments. Note that prices of "essentials" involving 20 percent of the value of the CPI basket, the "prices subject to public control", rose over the first quarter at a monthly rate of more than 12 percent. This rise, reflecting the major reduction of subsidies, was imposed at once. The rate of price increase of the commodities "not subjected to public controls of prices" rose by a monthly rate of only 6.5 percent over the same interval. In view of their nature and particularly their scope--this group comprised 80 percent of the value of the CPI basket--the process of upward adjustment was naturally slower. It spread over a longer period, spilling over into the succeeding month. It thus contributed to the phenomenon labeled in the text "price resistance."

reacceleration of inflation in the wake of the inevitable adjustment of some relative prices to market realities. The onset of the second stage obviously depended on success in the first--timing could hardly be predicted. The differences in monetary policy during these two stages, (the transition between them is not clearcut) are a matter of quantity rather than of quality, but both require a restrictive stance. The real issues are therefore the tightness of this stance and the choice of quantitative proxies to evaluate the impact of the policy.

b. Indicators and measures

As already noted, in line with the "nominal anchor" strategy of the stabilization program, the intermediate target of monetary policy was specified in terms of a quantity--the level of nominal commercial bank credit. In the final version of the plan, however, this was subjected to a price constraint--the credit target was to be adhered to as long as a leading nominal lending rate did not move above a certain level.

The planned cut of 10 percent in the volume of real bank credit, which was to be maintained for three months (four according to an alternative interpretation of the relevant text), was never implemented, as shown by both real credit series in Table III-4. This point can also be made in terms of the nominal credit series of Table III-2. The July figures were indeed within target, but rather reflected the high liquidity created by the tremendous reflow of funds from abroad, financing a corresponding increase in the monetary base. However, by the end of September, credit balances already overshot the target by a wide margin. Note further that the evolution of  $M_1$  and  $M_2$ --with monthly growth rates of about 17 and 26 percent, respectively, through the first post-stabilization quarter--suggests that an expansionary rather than a restrictive policy was in place. Yet neither of these quantity indicators really signifies a nonrestrictive policy stance. Rather, the real interest rate figures for both the credit and the debit side of the market underline the highly restrictive monetary policy operated by the Bank of Israel through the first two post-stabilization quarters (Table III-3). The interest rate data shows that this stance was on the whole maintained through the next two quarters, though at a significantly reduced strength.

The failure of the nominal quantity measures to gauge properly the monetary situation and the main thrust of the policy in this specific environment is not a coincidence. It is due to an implicit assumption that the use of quantity targets and measures entail and that does not hold at all in an economic environment in which an attempt to reduce runaway inflation is undertaken. Quantity targets (and inevitably their corresponding measures) refer to the quantity axis of the market only, and exclude the highly relevant price variable. Their use as a measure of the kind of policies run by the authorities makes sense only if demand for money, or for any other monetary variable, is stable, or a

stable function of a major economic aggregate. <sup>1/</sup> Note further that a nominal credit target is hardly an efficient instrument in highly segmented credit markets, owing to the inevitable restriction on the range of credits to which the policy is applicable.

A stable demand for money is evidently neither expected nor a target of a stabilization policy designed to reduce inflation. The purpose of this policy is to change the attitude of economic agents to (nonlinked) money, i.e., to lead to a substantial increase in the demand for the various nominal monetary aggregates. Rapidly rising quantity figures are therefore not proper indicators either of the force or even of the direction of policy pursued by the monetary authorities. If the rate of increase of demand exceeds that of supply, monetary policy could be highly restrictive though the quantity measures would indicate high rates of increase of monetary aggregates.

In such circumstances the proper measures for the policy stance within a given time are the relevant prices that, in this case, are the medley of real interest rates supplemented by data on the direction and volume of the flows of short-term funds across the exchanges which are strongly linked to the pattern of these rates (Table III-5). The latter were available with short lags on a more or less continuous basis. Real interest rates are available for a retrospective analysis, but were evidently not available to the authorities for the day-to-day handling of policy. The unpredictability of the fluctuations in the rate of change of prices (underlined by the CPI graph in Chart III-1) made monetary management in Israel a difficult proposition in the highly volatile second semester of 1985--a factor which may well apply to every attempt to reduce runaway inflation.

c. Real interest rates and inventories

Having settled on ex post interest rates, supplemented by data on capital flows in terms of a real quantity (foreign exchange flows), as the proper gauge for evaluation, the impact of policy on the monetary dimension of the economy is clearly visible from the series in Table III-3, the corresponding Chart III-2 and the flow of funds series in Table III-5.

The highly negative rates for July, attributable mainly to the error in predicting the size of the price shock at the launching, soon changed. By August, the marginal lending rate and its more representative counterpart--the "effective" rate on overdraft facilities--were sky-high. Also, an annualized real rate of 56 percent for CDs, admittedly ex post, suggests that deposit rates were also high, even if

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<sup>1/</sup> This is Friedman's explicit assumption underlying his well-known proposal for the adoption of a long-run monetary rule. The rationale of his argument is based explicitly on the short-run instability of the demand function for money.

Table III-5. Short-Term Capital Flows, 1985I-87I <sup>1/</sup>

		Nonfinancial Sector (1)	Commercial Banking Sector (2)	Total (3)	Real Exchange Rate Change <sup>2/</sup> (4)
		(In millions of U.S. dollars)			(Percent)
1985	I	-88	-98	-186	0.0
	II	177	278	455	1.6
	July	...	...	...	-2.4
	III	-277	139	-138	1.4
	IV	-43	-323	-366	2.2
1986	I	-247	-39	-286	0.6
	II	-45	-73	-118	1.9
	III	-152	200	48	1.2
	IV	-337	-107	-454	2.2
1987	January	...	...	...	-3.5
	I	-96	251	155	-1.3

Source: Bank of Israel, Recent Economic Developments, No. 44, September 1988, Tables 7 and 21.

<sup>1/</sup> Negative sign indicates inflow of funds, positive sign indicates outflow.

<sup>2/</sup> Quarterly mean of monthly rate of change of real exchange rate; depreciation (-). Nominal exchange rate against the U.S. dollar deflated by the CPI. Deflation by a labor cost deflator would show a more substantial devaluation of the sheqel initially, and a slower rise of the real exchange rate later. The depreciation of the U.S. dollar against other major currencies, which began in 1985III and accelerated through 1986, meant that the sheqel's real revaluation vis-à-vis the dollar, from 1985III through 1986IV, involved a continuous real devaluation vis-à-vis European currencies and the yen.

depositors' price expectations at that time had been significantly less optimistic than the price pattern in reality. The same statement on the policy stance holds for the two closing months of the first post-stabilization quarter. The "effective" real rates on overdraft facilities, though lower in September than in August, were still three-digit annualized rates, and the real CD rates were still above 20 percent, which is high by any standard. <sup>1/</sup> The tightening in the credit markets is clearly suggested by the abrupt change in direction of the flow of funds across the exchanges. A total outflow of funds of close to half a billion dollars in the last quarter before the launching of the program is reversed in the first post-implementation quarter, yielding a \$140 million inflow (Table III-5, Column 3).

The much lower average real rate for total credit underlines the segmentation of the credit market described above (Section II-3(b)). This means that interest rates on some types of credit were significantly lower than the rates on overdraft facilities. The rise in the average rate in September to an annualized real rate of about 20 percent--when the rates on the overdraft credit lines were already dropping--suggests a further tightening of credit markets. This tightening, induced by the central bank, was effected by shifting credit lines from low-interest to high-interest brackets. An inspection of the corresponding series in Table III-3 suggests that this technique of tightening the credit market was maintained in the second post-stabilization quarter and also the first quarter of 1986.

These latter two quarters, during which the restrictive policy was not weakened for overall credit (though there was some easing at the margin), were undoubtedly the two most crucial for the success of the program. But the threshold toward success was presumably crossed in November. After an unexpected and frustrating jerk of price inflation to 4.7 percent in October, the monthly CPI figure finally dipped below 1 percent for the first time in more than a decade. It was during this short time interval that monetary policy might have been crucial.

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<sup>1/</sup> Table III-3 entries referred to are ex-post figures. But in view of the abrupt decline of the CPI figure from 27.5 percent in July to 3.9 percent in August, which became public knowledge in the middle of September, price expectations might have been adapting to the new price environment, so that the ex post figures are not significantly out of line with the real situation toward, say, the last weeks of September. This is supported by Yariv's estimates on price expectations referred to in footnote 1 page 38.

The real rates on the "effective" and marginal overdraft facilities were indeed cut by half between August and December 1985. Yet, at annualized real rates of 99 percent and more than 120 percent for these two types of credit lines, respectively, in December, monetary policy in the second post-stabilization quarter can hardly be described as expansionary.

The highly restrictive policy undoubtedly had a demonstration effect from the very beginning. Since its implications were directly and continuously felt by households and businesses, its strength and persistence--underlined by media criticism and attention--served as an expression of the will of the Government to see the policies through. But it was not implemented by the Government which (as is usual in other countries also) sometimes even attempted to distance itself from its immediate consequences. 1/ Beyond these public relations effects, however, it had a direct immediate impact on households and businesses, on the trade sector in particular, and thus on the macroeconomics of the system.

As noted already, after the pre-stabilization run on the stores, consumers started off with high (i.e., higher than average) inventory-to-income ratios. This anticipatory buying spree, the much higher relative prices (relative to wages/incomes in particular), and the growing uncertainty about employment and income prevailing in the immediate aftermath of implementation kept consumers out of the stores for some time. Yet the high liquidity of households in the first place (the obverse of the high domestic public debt noted above), which was increased in the wake of, and owing to, the technical effects of the devaluation, offered households the option of plunging again into real markets--after all, the run on stores of May-June 1985 was already the second in less than a year. 2/ Even a return to the normal flow of purchases would have made things easier for the trading interests.

The latter, similarly relying on their experience, maintained high inventory-to-sales ratios, and, in view of the anticipated (July 1) devaluation, had their pipelines of supplies full. By raising lending rates to an all-time high and simultaneously offering positive real annualized rates above 30 percent on deposits--in stark contrast to the negative real rates prevalent for many years even for CDs--households (and middlemen) were offered a tempting alternative to real goods. The effect of this temptation is underlined by retail sales data that show a decline of 3.7 percent for the aggregate and a major decline of 8.2 percent for durables in the third quarter of 1985. 3/

This decline in the normal flow of sales that can be partially attributed to the high deposit rates implied, however, a rise in trade

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1/ Bank of Israel, Annual Report, 1985 refers to the fact that, excluding the credit target spelled out above, the Government did not take any decision or specify any details about the day-to-day management of monetary policy (p. 61).

2/ The expected redemption of \$700 million of the so-called bank shares--in practice, government bonds--in October 1985 had an obvious impact on liquidity even before it occurred.

3/ Data for retail sales are from CBS "Indices of Organized Retail Trade" for 1981 through 1985. Bank of Israel, Research Department, Main Economic Data.

inventories. But with real rates on overdraft facilities at 279 percent (Table III-3 B), this technique of wholesale and retail trade finance proved to be expensive. The accepted rule (which had proved consistently right over the 15 years of inflation) that inventories are the safest investment, proved to be wrong as long as such high interest rates persisted. 1/ By September, trade interests were at the forefront of the movement against the "atrocious" rates of interest "imposed" by the Bank of Israel. 2/

Though somewhat lower than in the third quarter of 1985, annualized real rates of almost 120 percent on overdraft facilities and 15 percent on total credit were maintained through the fourth quarter of 1985. CDs and other deposits still offered a 10 percent annual rate of return (Table III-3). The persistence of these high rates finally pushed merchandise trade over the brink. For the first time for many years, merchants made a major effort to reduce inventories by means of the classical device of lower prices, which came through finally in the November and December price figures. However, the price reductions had a much earlier effect on credibility and on the behavior of economic agents. The media promotion of the sales efforts pulled at least some of the sting of inertial inflation, leading to a substantial slowdown of price increases, including even a negative monthly rate of change in January 1986. 3/ Lower prices had already appeared late in September with small reductions in electricity and fuel prices made possible by the collapse of OPEC's control of world oil prices, but the actual fall in prices reflected first and foremost inventory liquidation induced by a highly restrictive monetary policy.

Ex post data presented in Table III-3 on real interest rates presumably overstate ex ante real rates, which are the ones that affect decisions on inventory accumulation and liquidation. 4/ An inspection

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1/ Inventory investment leapt upward in the second quarter of 1985 and kept growing at a lower rate through the third quarter of 1985. Bank of Israel, Annual Report, 1985, Table B-A-3, p. 46.

2/ In a special interview with the press, the President of the Israeli Chamber of Commerce described these rates as "Mafia" interest rates.

3/ The "sales" effort shows up in the inventory data. Inventories were rapidly run down during the fourth quarter of 1985--75 percent of inventory accumulation during the previous three quarters was run down in this single quarter. (See source in footnote 24 above). The obverse of this process is the increase in retail sales of durables in particular, clearly indicated by the retail sales data referred to in footnote 23 above. See also the reference in Bank of Israel, Annual Report, 1985 to these "sales" and their downward effect on prices, p. 270.

4/ This follows, of course, the Hawtrey proposition on the inventory cycle. For obvious reasons, he presented his argument in terms of nominal interest rates.

of Chart III-1, which underlines the substantial lag in adjusting the Bank of Israel's monetary loan rate after prices started slowing, offers some insight into the possible lag in adjusting the public's inflationary expectations. It obviously takes some time and convincing before economic agents recognize that monthly price increases in the 5-10 percent range--a prevalent feature in Israel for several years--are a thing of the past. Yet, after two successive readings of inflation rates in the 3-4 percent range for August and September, and the realization that monetary policy was not being relaxed in spite of strong public criticism, particularly by the business community, it finally became obvious to the trading sector--though probably not the industrial sector--that inventories were an embarrassment rather than the goldmine they had been until then for a long time. Consequently, the push for lower inventories, promoted by price slashing, was inevitable.

This development, coming as it did toward the end of the second post-stabilization quarter, was presumably the crucial breakthrough on expectations. The Yariv estimates on price expectations mentioned above offer a similar impression. Significant supporting monetary evidence is offered by velocity data presented in Table III-6, which show an abrupt decline in the velocity of circulation of demand deposits in the fourth quarter of 1985, to a level 15-20 percent below that in the two previous quarters. <sup>1/</sup> The opposite of this decline in velocity is a leap in demand for (nonlinked) sheqel assets, which can be taken as evidence of growing confidence in the value of the currency and the credibility of the program.

d. Tight money and repeal of price controls

The positive price signals of the end of 1985, which were already public knowledge by mid-January 1986, suggested that some relaxation of monetary stringency was feasible. The authorities followed these signals but were reluctant to go as far as suggested by public opinion and political resonance--a fact clearly indicated by the relevant data.

Real interest rates for the first two quarters of 1986 were significantly lower than the corresponding rates in the previous quarter. The CD and the treasury bill rates even turned slightly negative in the second quarter of 1986, thereby reducing the incentive to hold nominal sheqel balances. Yet even the lower marginal lending rates were still high by any standard, since a monthly average rate of 1.4 percent for the effective overdraft rate in the second quarter is equivalent to an annualized rate of 18 percent. Although such rates, which mainly affected the activities of firms producing for the domestic market, were by this time already imposing a growing strain on industry, the monetary

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<sup>1/</sup> Velocity of circulation of demand deposits which, in contrast to income velocity figures are independent of GNP data, and are available on a monthly basis, are evidently the best real time indicator on the pattern of demand for money.

Table III-6. Velocity of Circulation of Demand Deposits, 1971-89

	1971	1980	1984	1985	1986	1987	1988	1989
January	22	75	284	412	433	267	195	200
February	22	82	307	386	369	294	175	164
March	23	88	270	342	341	256	164	164
April	24	91	224	420	270	258	154	149
May	23	99	299	390	285	269	181	...
June	22	99	336	567	310	220	166	...
July	22	113	387	520	268	220	154	...
August	23	115	354	455	231	250	159	...
September	24	120	458	476	235	250	151	...
October	24	122	489	382	233	183	151	...
November	22	132	428	385	221	167	153	...
December	24	158	443	407	277	195	196	...
Quarterly average								
I	22	88	287	380	380	273	178	176
II	23	99	319	459	288	249	166	...
III	23	120	400	483	245	240	156	...
IV	23	116	447	390	244	182	166	...

Sources: Bank of Israel, Supervisor of Banks, Current Banking Statistics, 1985, 1986, 1987, 1988, and 1989, Table, XII-2.

authorities refused to go further in easing monetary policy. The rationale for this position, and the corresponding extension of the restrictive policy stance for another semester, can be imputed to the advent of the second stage of the program--the repeal of price controls. The relaxation of the price freeze would inevitably involve some adjustment of relative prices, and thus some upward price push. The high sensitivity of economic agents to prices and price data was a major consideration when inflationary expectations were hardly dormant. Relatively tight money accordingly reduced the danger of rekindling inflation, at a cost, of course, to the real economy.

The repeal of price controls stretched over a period of about 18 months and was carried out successfully in terms of the inflation target. Initiated in January 1986, after two successive months of low price readings, the major steps were over by July of that year. <sup>1/</sup> An inspection of Chart III-1 shows a bulge of the CPI curve through the first semester of 1986 as relative prices adjusted after decontrol, though seasonal factors inflate the relative size of this bulge. The countervailing restrictive force of high real interest rates, which were by that time creating some slack in the economy, undoubtedly contributed to keeping the price adjustments smaller and allowed the economy finally to settle on a low pattern of inflation--lower than a 20 percent annual rate.

The maintenance of this stance of monetary policy had an obvious cost in terms of unemployment, which rose during these two quarters (Table I-1 and Chart I-4). The policies would have been more efficient in terms of both inflation and employment if real deposit rates had been kept positive throughout and if marginal lending rates had been somewhat lower. A major breach of credit market segmentation and the reduction of the monopolistic power of the banking industry could have helped on this score. It was, however, beyond the powers of the central bank to make a major dent in these two structural features that, in any case, were matters of long-term reform.

#### 4. Some issues of monetary policy tactics

The highly restrictive monetary strategy did not represent the judgment and discretion of monetary authorities alone. They followed completely the line prescribed by the informal planning and implementation team working under the authority of the Prime Minister and the Secretary of the Treasury. The data and the argument spelled out in the previous section clearly indicate that if the central bank had strictly adhered to the letter of the plan, the stringency in financial markets through the first four post-stabilization months would have been even greater. The deviation from this target was accordingly a matter of tactics rather than of strategy.

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<sup>1/</sup> The CPI basket data quoted above (footnote 15) suggest that about 60 percent of the process of decontrol was completed by that time.

Why a nominal credit target would have been an inefficient criterion in the specific context of the stabilization policy has already been noted. The reluctance to push up real interest rates even further led to the abandonment of this target as a guide to policy. However, reference to the relevant real interest rates (Table III-3) may raise some questions on the potency of the monetary measures. The specific high rates on overdraft facilities that for the six months ended in January 1986 were never less than about 100 percent at annualized rates are an obvious case in point. These rates became the battle cry of the business and political community, and their pressure inevitably spilled over to government officials.

A proper evaluation of the degree of stringency in financial markets has to consider the multidimensional issue facing the day-to-day running of monetary policy. This holds in particular in crisis situations when the short-run stability of factors that can usually be taken for granted does not exist. The demand for monetary assets, the timing, and the strength of the induced (and hoped-for) rise in demand for nonlinked sheqel assets is an obvious example in the Israeli case.

a. The supply dimension

Some of the imponderables directly affecting liquidity on the supply side should be considered. It would have been impossible to run a highly restrictive monetary policy if the government budget had not moved from a deficit of 9 percent and 4 percent of GNP, respectively, in the first two quarters of 1985 to a deficit equivalent to 1/2 of 1 percent of GNP in the next quarter and a surplus equivalent to 1/2 of 1 percent of GNP in the last quarter of 1985. This applies similarly to 1986, when the Government ran a surplus equivalent to 1.3 percent of GNP.

The overall liquidity of the system was inevitably affected also by government operations in the capital market. Thus, in its attempt to manipulate financial markets, the central bank had to take care of a major redemption of government debt that had been set long before October 1985. A refunding operation was designed and implemented but its immediate effect on liquidity depended on the reaction of the holders of that debt and could hardly be estimated when it counted most. 1/ In such

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1/ This was the redemption of the first block of "bank shares" for which the Government had accepted liability (at a certain minimum dollar price) in 1983. Owing to the specific assets (bank shares which were highly liquid before 1983), the size of the operation (\$700 million), and the stabilization plan environment, it was not clear how much of this comparatively large sum could be refinanced in the short interval of a month or two. Thus, though the budget in the fourth quarter was run at a 1/2 of 1 percent of GNP surplus, the Government's impact on base money due to its net operations in the capital market was about 5 percent of GNP, a significant volume on all counts.

For figures of the government deficit, its net sales (redemptions) in the capital market, and net infusion (absorption) of liquidity, see Bank of Israel, Recent Economic Developments, No. 44, (September 1988), Table 17.

circumstances, the natural and deeply ingrained instinct of the monetary authorities--not fully shared usually by Treasury officials in Israel or elsewhere--is to assume the worst and operate accordingly.

One possible error that could have led the monetary authorities to adopt a more restrictive stance in the markets than necessary was undoubtedly the difficulty of estimating the net absorption of government and the price pattern. With a lag of at least one month for information on the net liquidity position of the government and on prices, and in view of the special circumstances in the capital market, it was almost inevitable that the central bank would opt for caution in its attempt to guide market rates. The tight posture, shown clearly in Chart III-1 in the lagged response of the interest rate on the monetary loan to the lower rate of price increase--thus opening up a wide gap between these two rates in the first two post-stabilization quarters--presumably also reflected the difficulties in estimating the rate of price change. Given the inevitable lag of price information, the monetary loan rates of August and even of September 1985 (about 16 and 12 percent a month in nominal terms, respectively), which turned out to be high ex post real rates, are explicable. The demonstration effect of a highly restrictive posture required at the first stage of program implementation was presumably a consideration that justified such high nominal rates, though they were at that time undoubtedly expecting monthly inflation rates to dip to single-digit rates. Although much lower, the nominal rates on the monetary loan--9.5 percent, 7.7 percent, and 5.0 percent, respectively, for October, November, and December--suggest that the Bank of Israel had, at that time, not yet fully adapted its policy to the "new 3 percent inflation pattern" and inevitably to the even lower one that surfaced from November onward.

In retrospect, this criticism--voiced several months after the event by the Director General of the Treasury--sounds convincing. <sup>1/</sup> Yet in the circumstances in which decisions on these matters were being made, the perspective was altogether different. The first "package deal" at the turn of 1985 succeeded also in maintaining much lower price

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<sup>1/</sup> Commenting in March 1986, when the real marginal rate on overdraft facilities was already down to an annual rate of 44 percent in real terms, with a corresponding average rate on total outstanding credit of 11 percent and a negative real rate on CDs of 5 percent, the Director General of the Treasury is reported to have said: "... the Central Bank's steered interest rates to exaggerated heights ... there had been a need for a high interest rate during the first stage of the plan, but soon after that the rates should have been cut abruptly ...", Jerusalem Post, March 4, 1987. The passage is from a write-up of an interview with the Director General of the Treasury by A. Temkin and S. Maoz. The date of the report suggests that price figures for February, which show an upturn of the inflation rate from a negative rate of 1.3 percent to a monthly rate of 1.6 percent, were not yet at the disposal of the Director General as he made these comments.

readings than those of preceding months for two successive months. Based on this experience, it was hardly possible to peg policy at once to a "new lower pattern" of inflation. Two price readings hardly warranted such a far-reaching premise. The fluctuations in prices in the second post-stabilization quarter made life particularly difficult. In October 1985 the rate of change of the price index increased abruptly (Chart III-1), cutting real rates of interest on overdrafts by half and pushing the average interest rate on total credit into the negative range (Table III-3). This holds also for the highly sensitive CD (and other deposit) rates just when the expected steep increase in the liquidity of households and firms may have led them to rush into the commodity markets. Though the Bank cautiously lowered the nominal rate on the monetary loan further, the unexpected very low price index for the succeeding month sent real interest rates sky-high. The same happened again in January 1986.

This was undoubtedly not the intention of the monetary authorities but simply reflected an error of price prediction. The highly unsettled workings of markets in the environment of a stabilization policy made price movements, particularly their rate of change, highly volatile. If monetary policy should create an image of persistent positive real interest rates across the whole range of rates, it is not only natural but warranted that monetary authorities lean toward caution. Since errors are inevitable, it is safer to err on the high rather than on the low side when a stabilization policy is attempted.

An inspection of the data for longer time intervals, say the first three post-stabilization quarters in Table III-3, shows a consistently declining trend of real interest rates across the board. These quarterly averages reflect errors in price predictions which, during the fourth quarter of 1985 and the first quarter of 1986, pushed them higher than intended. These averages for the longer intervals, showing a continuously declining pattern of real rates, reveal the policy pursued by the authorities better than the monthly data.

b. The unpredictability of demand for money

The issue is whether the rate of decline of interest rates should have been more rapid than it was in practice. The above argument, with its focus on the supply of money (liquidity) and hence on the controls at the disposal of monetary authorities, did not consider a highly relevant factor: the demand for liquidity. Changes in demand, more specifically a rise in demand for nominal money, would affect the structure of interest rates. Although the return to the sheqel was an intermediate target of the whole exercise, its timing, and particularly the dimension of the rise in demand for sheqel over a given time interval was hard to predict. The sooner a stabilization program gains credibility, the more it takes hold among economic agents, the stronger the impact on the demand for liquidity and thus on interest rates. Stated differently, and from the point of view of the monetary authorities, the greater the expected demand for sheqel credits, i.e., in effect, the

demand for nonlinked money, the greater the expansion of credit which they could have allowed if an increase in interest rates was to be prevented. Although the relevant gauge of this gain in credibility are monetary indicators, such as the velocity of circulation and real interest rates, this information is available only with a time lag. Indeed, factoring in the demand for liquidity dimension into the considerations that are to guide monetary policy is probably the most challenging problem facing the authorities in the framework of a stabilization program.

Some insight into this matter can be gained from the Israeli data. An inspection of Chart III-5, in which indices of real monetary aggregates are presented, suggests highly diverse changes in the demand for various monetary aggregates. The immediate decline of  $M_3$  after the launching of the sheqel program, in contrast to the rapidly increasing values of  $M_2$  and  $M_1$ , underlines the "upheaval" in demand for money. Note, however, that initially it is  $M_2$  with its interest-bearing component (CDs and time deposits) that rose at a much higher rate than  $M_1$ , the noninterest-bearing component of the more comprehensive aggregate. Yet by the end of the second post-stabilization quarter, the  $M_1$  graph indicates an acceleration in the growth of  $M_1$ , which suggests that the final breakthrough in the program's credibility may have been reached, reducing the real cost of holding (noninterest-bearing) money.

The data on the velocity of circulation of demand deposits presented in Table III-6 also support the interpretation that a credibility breakthrough occurred toward the end of the second post-stabilization quarter. This velocity concept, which is based on bank deposits, the dominant component of  $M_1$ , is a better indicator of the demand for money than the value of monetary aggregates of Chart III-5 (and Table III-4), since it is less affected by price volatility. It is also less affected by "supply factors" than quantity measures. The quarterly data indicate a substantial downturn of velocity in the fourth quarter of 1985 and another even stronger downturn of 25 percent in the second quarter of 1986, the fourth post-stabilization quarter. The obverse of this decline is evidently an abrupt change in the demand for (nonlinked noninterest-bearing) money. 1/

An abrupt rise in the demand for money has a corresponding effect on prices and interest rates unless the supply of money is adapted *pari passu*. The abruptness of these changes during this period is evidently

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1/ The monthly data in the upper part of Table III-6 support the identification of the timing of the abrupt change in velocity to the fourth quarter of 1985. Observations for other periods underline the quality of this variable as a measure of the onslaught of inflation and of its level. For example, the significance of the all-time high value of velocity in June 1985 speaks for itself. Also, a comparison of the 1989 entries with those of 1980 and of 1971 is highly illuminating, though we cannot enter here into this matter.

due to the specific economic context of the stabilization effort. Although relevant data are available with an average lag of one month, an inspection of the pattern of monthly changes in the upper section of Table III-6 and of the real interest rates in Table III-3 suggests that it would have been quite reasonable not to rely on information for one month only, but to wait for at least one other reading before a definite pattern was identified. This, of course, means a lag of a couple of months before monetary management can be adapted to the changing pattern of demand. It was presumably this difficulty in predicting changes in the demand for money that led to the revealed preference of the monetary authorities for a slow relaxation of the stringency of controls toward the end of 1985, which constrained the level of real credit balances throughout this period to about 6 percent below their level in June 1985 (Table III-4), and correspondingly generated quite high interest rates across the board. <sup>1/</sup>

c. Segmentation and oligopolistic constraints

The persistence of a restrictive monetary policy through the second quarter of 1986--though less stringent than initially--was not due only to reasonable errors in predicting prices or interpreting the credibility-induced abrupt changes in the demand for money. The reluctance of the authorities--even after five successive readings of monthly inflation rates well within the 1-2 percent range--to relax monetary policy further in the fourth post-stabilization quarter was undoubtedly related to the segmentation feature discussed in Section II-3 above. The rise in the average real interest rate on total credit during the second and third post-stabilization quarters (Table III-3) while at the same time the effective overdraft rate was declining indicates that some of the "privileged" types of credit were, after many years, moved into higher-cost categories. Substantial differences in interest rates between types of credit, nevertheless, remained. Leaders of the business community, supported by statements from government officials, were critical of the cost of overdraft facilities that were at about an annual real rate of 30 percent in 1986. At the same time, the monetary authorities were justifiably worried by the fact that, although about 15 percent of credit balances carried this high cost, the average real annual interest cost of total credit in 1986 was only about 11 percent, implying that a substantial portion of credits were again subject to real rates close to zero or even negative. The upward adjustment of interest rates that the

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<sup>1/</sup> A highly optimistic prediction on improving credibility and of the corresponding rise in demand for nominal money can perhaps explain the highly expansionary stance of monetary policy in Argentina in its fourth post-stabilization quarter, and the consequent demise of the Austral Plan. See the comments of Rodriguez in Bruno, cited in footnote 3 of Section I, p. 202.

central bank succeeded in implementing in the first quarter of 1987 (to an average real annual cost of 34 percent for total credit) was undoubtedly partly due to this consideration.

This situation suggests that the image of a highly restrictive policy conveyed by the rates charged to "nonpreferential credits" is, to a great extent, a reflection of the only limited success in substantially reducing credit market segmentation. It also explains why the very high marginal rates did not result in widespread insolvencies. Firms with a credit portfolio similar in composition to the average faced only for one quarter (the first quarter of 1986) an average interest cost close to 30 percent in real terms. The average real cost of credit was only about 14-15 percent in the first two post-stabilization quarters. Firms with a low ratio of privileged credit balances were less fortunate. The fall out from this financial squeeze, which affected some major business firms, came into the open in 1987, but it was hardly due only to the high interest rates.

The other and related consideration for the authorities, which induced them to resist calls for further relaxation, was the level of deposit rates. The oligopoly-generated sizable gap between lending and deposit rates discussed above (Section II-3) meant that the 17 percent real annual rate on overdraft facilities in the second quarter of 1986 involved negative real CD rates (Table III-3-B). The obvious danger that this situation would reduce the attractiveness of holding sheqel balances and induce a move into the goods markets suggested care in further easing monetary policy. The break in the  $M_1$  and  $M_2$  curves in Chart III-5 at that time and the rapid rise in private consumption expenditures suggest that the reluctance to go for further monetary ease was quite warranted. The high lending rates accordingly reflect also the failure at that stage to overcome the monopolistic influence of the banking industry.

##### 5. A note on the 1986-88 monetary stance

Price data indicate that, judged by one of its ultimate targets (lowering inflation), the Sheqel Plan was in good shape by the spring of 1986, the end of the third quarter after its launching. By then, monetary policy was less restrictive than in the previous year; liquidity ratios were reduced in March and May and the rate on the monetary loan, cut in monthly steps, had settled onto a lower plateau in April 1986 (Chart III-1).

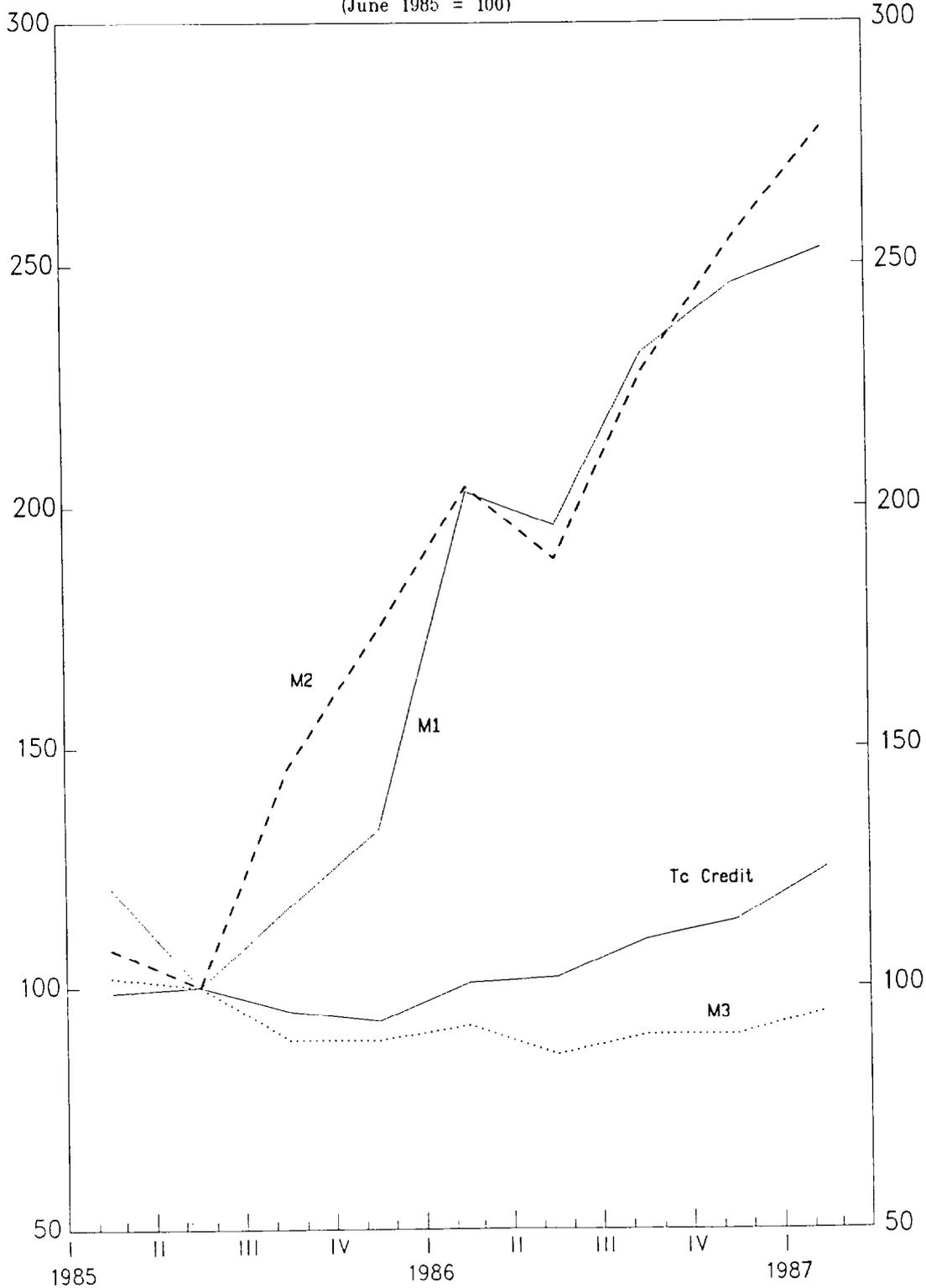
However, the monetary stance was kept tight by conventional standards through the second semester of 1986, and through the two succeeding years. With price inflation in terms of CPI hovering closer to the lower limit of the 1-2 percent a month range for these three successive years, "effective" overdraft rates were moving within a nominal 3-4.5 percent range, and the average nominal rate on total credit above 2 percent, this implied annual real interest rates on overdrafts of 30-40 percent and of 10-20 percent for average outstanding credit

Chart III-5

ISRAEL

### Real Monetary Aggregates, 1985-87 I

(June 1985 = 100)



Source: Table III-4



(Table II-3). These rates and the continuously growing share of non-privileged lines of credit in the total do not suggest monetary ease. 1/

This relative monetary stringency was maintained in the face of public opinion and the critical attitude in government and parliamentary circles as illustrated by the Director General's comments quoted above. Furthermore, the data clearly indicate that the central bank pursued more or less the same policy in spite of a change of leadership in 1986. Indeed, an inspection of the data on real interest rates for that year do not reveal a change in either direction or emphasis. The same is apparent from an inspection of the instruments subject to direct control of the central bank: neither the flat monetary loan rate curve through most of 1986 (Chart III-1) nor the stable liquidity ratios from May 1986 through February 1987 (Table III-1) enable identification of the identify the timing of the change of leadership. Indeed, the relevant data--interest rates and real  $M_3$  figures (Table III-4)--suggest some tightening of policy toward the end of 1986.

This evidence and the monetary policy that the data represent are a clear reflection of the nature of the role assigned to monetary policy through these three years. With the support of a tight fiscal policy in 1986 and 1987 in particular, this role was to keep the economy on hold with respect to inflation. This hold position was imposed by the failure, after the success with inflation, to achieve a substantial improvement in the fundamentals, in particular as regards the wage productivity nexus, reflected in the size of the import surplus, and as regards the (absolute) size of government. This failure to make some progress in restructuring the fundamentals required the maintenance of a tight policy to support the pegged exchange rate at its level of July 1, 1985. The maintenance of its role of nominal anchor as the visible signal of (price) stability--despite the cumulative (still significant) rise of prices, and the corresponding overvaluation of the currency forced the hand of the authorities. 2/ The change of leadership would not make any difference on this score.

It has been suggested that a significant factor contributing to the price developments during this period was the rapid dollar devaluation vis-à-vis the European currencies. In view of the dollar peg, this meant a welcome (from the point of view of the balance of payments) sheqel devaluation vis-à-vis these currencies, with a minimal impact on expectations, but nevertheless had an unwelcome cost effect on prices. However, with the oil price collapse and lower commodity prices, Israel's terms of trade improved during this period, so that foreign-induced cost-push effects were of minor significance in 1985-86.

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1/ Average quarterly interest rates through 1988 are presented in Table II-3.

2/ The CPI, reflecting also the initial price shock, increased by 48 percent between July 1985 and July 1986, eroding the cushion provided by the 25 percent devaluation at the plan's launching.

A cost effect was nevertheless at work. This pervasive effect, which drove prices during the second year of the Plan's implementation, was a major reversal of the trend of real wages. The agreement with the unions (Histadrut), made at the launching of the sheqel program and a most important component of it, stipulated a substantial but temporary cut in real wages. At their trough toward the end of 1985, real wages in the business sector were lower by 14 percent and in the public sector, by almost 25 percent. By July 1986, however, wages in the business sector, though not yet in the public sector, were already back to the level of the previous June. <sup>1/</sup> Labor productivity, which did not warrant the real wage rate of June 1985 in the first place, had not, of course, improved sufficiently during this short interval to overcome the real wage-productivity gap (of, say, 10 percent or more) of mid-1985. It was soon obvious that this pattern of wages, which kept rising rapidly through 1986 and 1987, would force sooner rather than later a realignment of the exchange rate.

Monetary policy toward the end of the last quarter of 1986, with a tightening clearly apparent in the data and the supporting charts, was thus assigned its traditional role of defending the exchange rate before the 10 percent devaluation in January 1987, and of clamping down on demand afterward so as to prevent the reacceleration of prices in the wake of cost effects. The price data for 1986 through 1988 (Tables III-2 and I-1) indicate that on the whole the line was indeed held in 1987 and 1988, with a broad repetition in the second half of 1988 of developments in the same period of 1986. For better or worse, the unwarrantedly prolonged role imposed on monetary policy to hold the fort against inflation was performed. The improvement in the fundamentals that was not forthcoming--and made the restrictive stance of monetary policy necessary--was evidently beyond the scope of monetary policy and the responsibility of the monetary authorities, though they could still continue to serve in the role of the whipping boy.

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<sup>1/</sup> Real wage data is from the Treasury Memo, September 9, 1987. The error in predicting the force of the July price shock and the exact timing of the downward trend of prices eroded real wages more than expected during the first phase--the first two quarters--of stabilization.

#### IV. Some Lessons from the Sheqel Plan Experiment

##### 1. The focus--inflation

Four years after its launching, with annual inflation in the 16-20 percent range for more than three years, the Sheqel Plan can be rated a definite success in terms of its main target--to contain inflation. However, the economy has not yet succeeded in moving on from the stabilization stage to the next at which inflation was to be pushed down further--across the single-digit threshold--and growth resumed. Nor has it succeeded in reducing the import surplus, although "a significant improvement in the balance of payments" was one of the two targets explicitly spelled out in the program. This failure to wind down inflation and improve the trade account reflects a failure to tackle the fundamentals: the real wage-productivity nexus, the size of government and the corresponding onerous taxation levels, some inbred monopolistic features, and protection of some industries that should long ago not have been ranked "infant industries."

This is not to suggest that all these problems should have been tackled at the stabilization stage. In practice, avoiding tackling the fundamentals, at that stage of the game, offered a major benefit. It made it easier to focus on the most urgent business--the attempt to contain inflation, because it is obviously much easier to deal with the fundamentals in a low inflation price environment. One of the lessons of the Sheqel Plan is therefore that the focus on a single target--inflation--is advisable.

In open economies, the balance of payments has to be taken care of at the launching stage, particularly if the current account is in trouble, as is usual. This applies similarly to the government deficit. The Israeli experiment shows that the latter can be tackled initially from the revenue and not necessarily from the expenditure side. It is the latter of course that is the more relevant dimension for a reform of the fundamentals. But as an instrument whose main purpose in the initial phase is to make a restrictive monetary policy feasible, the reduction of the deficit by increasing net taxes, and thus net government absorption, is as effective as cutting government expenditure on goods and services. The implementation of the program demonstrated similarly that if the foreign reserve position can be handled by (temporary) foreign aid--in this case, supported by improving terms of trade--the productivity conundrum can be temporarily shelved. Therefore, at the initial stage of implementation, fiscal and balance of payments measures should be considered only as supporting measures.

In the following, I thus propose to focus on the lessons of the Sheqel Plan--conceived as essentially an attempt to reduce rapidly the three-digit annual levels of inflation to the lower rate of 1-2 percent a month.

## 2. Monetary policy and market forces

A price freeze and a pegged nominal exchange rate have been two of the elements of Israel's stabilization program. Yet the price freeze was definitely conceived as a temporary measure to be subjected to a process of repeal, and the maintenance of the peg of the nominal exchange rate was subject to holding nominal wages to their planned (and agreed) time pattern. This forced the planning team and the authorities to rely mainly on market discipline--i.e., on restraining real aggregate demand and reducing the influence of inertial forces--to put the rate of price changes on a rapidly declining route. The inertial forces were tackled by attempting to influence price expectations immediately. The pegging of the (higher) exchange rate offering a stable nominal (sustainable) signal was undoubtedly the main instrument for this purpose. A very significant rise in net absorption, thereby cutting substantially but temporarily disposable income, served as the fiscal peg in cutting aggregate demand. Yet the role of monetary policy in generating market forces that clamped down on prices at the crucial time two to three quarters after launching is presumably one of the more important messages of the Sheqel Plan. The highly restrictive and drawn out monetary stance generating high interest rates made financial assets comparatively attractive and, after some inevitable delay, forced a well-timed unloading of inventories on "hesitant" markets. The price-depressant features of keeping highly liquid households away from markets and of pushing commodities onto the shelves are obvious.

Reliance on market forces evidently offered better information on the "viability" of the relative prices established in the immediate aftermath of implementation and allowed prompt adjustment of substantial distortions. The main benefit of this technique, however, surfaced later, at the repeal stage. Since it was market forces that were initially the factor preventing price hikes, the process of repealing the freeze at the second stage did not make a major difference. The Israeli data show clearly that although repeal was followed by some upward price adjustments, tight monetary and fiscal policies at this time meant that these were only minor.

It was obvious that the exchange rate peg, highly significant as a signal of stability, might create problems on the trade account. Yet the lead- and lag-induced inflow of funds supported by special foreign aid and the foreign credit accommodation attracted by the high interest rates meant that the reserve position was initially strong. The devaluation also improved the trade account at the first stage of implementation. The problems of the export industries surfaced much later as, by previous standards, the very slow, yet persistent rise in prices eroded the initial improvement in the real exchange rate. But this began to be relevant only when the stabilization phase was close to its end.

But reliance on market forces to contain aggregate demand and, correspondingly, reduce the momentum of price inflation had to overcome "price resistance." Inflation did not decline immediately to the low

rate conceived at the planning stage and at least latently promised to economic agents. This could have undermined the credibility of the plan in the perception of the public at perhaps the most sensitive time--the immediate aftermath of implementation when credibility was at a premium.

Price resistance also had, of course, some real effects. Higher than expected rates of price change affected ex post real wages and the real rate of interest in particular, although the latter was more significantly affected by price volatility. This would also undoubtedly have occurred if tight administrative controls had been used to keep prices in line. Reliance on market forces, however, brought these effects into the open immediately.

### 3. On overshooting and perseverance

Monetary authorities in Israel have been severely criticized for "overshooting" in their attempt at monetary restraint. Annualized real effective interest rates on overdraft facilities of 320 and 242 percent in August and September 1985, respectively, and a 133 percent rate in January 1986 are the obvious evidence for the prosecution. Note, however, that the August and September rates came after a highly negative effective rate of minus 47 percent for July, and that the unexpected very high January 1986 rate was followed by a sharply lower real effective rate of 3.5 percent in April. Furthermore, at this still positive real rate of interest for overdrafts, the average rate of interest on total outstanding credit was already negative (minus 15 percent), and the corresponding rate on CDs was even lower at minus 23 percent!

The overshooting phenomenon that clearly occurred over specific, shorter time intervals--both ways--is due to two different factors. First, the volatility of prices that generated a corresponding volatility of real interest rates, if their nominal counterparts were justifiably, and for obvious reasons, adjusted downward on a stable pattern. Second, reflecting structural phenomena--the segmentation of the credit market and the wide (monopoly-generated) margin between debit and credit rates. The extent of overshooting could have been reduced if the monetary authorities had more freedom to simultaneously affect the whole range of lending and deposit rates. The message is quite clear: to reduce the extent of overshooting, if politically feasible, credit market segmentation and the banking system's monopoly power are to be addressed more forcefully than they were in Israel.

Even if the segmentation-monopoly issue could have been eliminated, the unpredictable price volatility would have required some overshooting if monetary policy was to prevent any straying of deposit rates into negative values. To ensure that deposit rates offer an economically reasonable alternative to real goods through the entire stabilization period in which inflationary expectations are still strong, the authorities should aim for real annual rates on deposits of, say, 8-10 percent. With mean monthly inflation rates within the range of 1-2 percent, price volatility would imply that a proximate mean monthly real

deposit rate of close to 1 percent could easily move between, say, 0-2 percent. However, a floor at this level for the deposit rate might involve mean annual real lending rates of 15-20 percent, moving--in response to the unpredictable fluctuations in rates of price change--within, say, an annual 10-25 percent range.

This undoubtedly implies some overshooting, but for the initial phase of a stabilization program during the first three to six or even nine months of implementation it is acceptable. It is one unfortunate yet necessary cost of disinflation borne by the business sector. The suggestion, implied by a device used by the authorities implementing the Cruzado and Austral Plans, that it is possible to "fine tune" nominal interest rates with the fluctuations in price changes during the first stabilization phase is obviously a dream. The only warranted error during the first stage of implementation when so much is at stake is therefore on the upside rather than on the downside of the interest rate spectrum.

Thus the lesson from the Israeli experiment is that during the first stage of stabilization overshooting is inevitable. The policy pursued by the authorities of reducing systematically, yet at a rate slower than that of the mean rate of price decline, the nominal rate of the "monetary loan" was bound to result in overshooting, which was in fact beneficial. Further, it was perseverance through the first semester of 1986 and beyond which made the difference, and that undoubtedly helped to hold the line on inflation.

The Israeli experiment also offers another message. While, say, 6 or even 12 months of high interest rates are unfortunately warranted if the target--to reduce runaway inflation to more bearable low rates--is to be achieved, the extension of a comparatively restrictive policy for another two to three years generates major and perhaps unbearable costs for the real economy. It not only nips in the bud growth-inducing investment but the resulting prolonged financial strain could become unbearable for even viable firms and could push weaker firms to the brink.

#### 4. On orthodoxy and heterodoxy

If a heterodox stabilization program is defined as a program involving an incomes policy, the Israeli program indeed belongs in this category. This formulation covers the feature that identifies heterodoxy to most people--a price freeze enforced by controls. Both the freeze and the controls were items in the formal policy outline, but it was the image of the controls rather than their implementation that counted. If the price freeze could be maintained only by controls, and thus involve rationing, its function of demonstrating stability day in, day out, would have been an exercise in futility.

This applies even more so to the most prominent of all so-called nominal anchors--the pegged exchange rate. If the rate were to be

maintained by controls involving foreign currency quotas, its assigned role as the dominant signal of stability would have been useless. However, the peg was supported by market forces: the inflow of funds attracted by high interest rates that were induced by restrictive monetary policy, and the confidence stimulated by the announcement of special U.S. aid and by an improvement in the trade account. Rising reserves and the collapse of the black market dollar premium were the market signals indicating that the exchange rate peg was there to stay.

However, if market forces mainly enforced the price discipline, what was the purpose of the freeze and controls? The answer has more to do with politics and social psychology than economics. The launching of the Sheqel Plan undoubtedly depended on an incomes policy, not in an abstract sense (the Cruzado Plan in Brazil was also based on an incomes policy), but one with a specific content. It was based on a very substantial, albeit temporary (for 6-12 months) cut in real wages, which required the agreement of labor and the support of public opinion. The unions (Histadrut) consented to the lowering of real wages subject to several conditions: the relevant condition in this context was a universal price freeze and, inevitably, price controls. Thus, whether the freeze is an effective instrument for neutralizing the inertial driving force of inflation or not, any stabilization policy that must involve a significant cut in real wages could hardly take off without a price freeze and controls as an integral item of the formal plan.

In view of the welfare goal of minimizing the cost of a stabilization program in terms of forgone output and employment, the addition of one more instrument to the traditional set of fiscal and monetary tools was warranted also by theoretical considerations. If the level of activity cannot be taken as residual, even in the short run, the inclusion of an incomes policy that could help reduce pressures on economic activity by a preordained price adjustment makes economic sense.

One could hardly imagine a situation in which an incomes policy involving a cut in real wage rates would not be absolutely necessary for the success of a stabilization policy. Nor would it be feasible to reduce real wages and incomes by a cut in nominal rates. Instead, the mechanism would usually involve cost-push pressures generated by devaluation and taxation not (fully) compensated by an adjustment of nominal wages. In these circumstances, a price freeze and controls are not only a claim made by representatives of labor, they seem fair to public opinion. If the plan involves measures applied to control aggregate demand--a proper fiscal policy and, initially, a highly restrictive monetary stance--the control element might do little harm, and the freeze component might contribute to weakening inertial forces.

However, the inclusion of a control element also has a cost. This cost is a reflection of the fact that a stabilization policy is first and foremost a political act and is thus directly dependent on the attitude, mood, and decisions of the political community and, no less important, on public opinion as reflected in and influenced by the

media. The credence placed now on legislation and public control means that the program's price freeze-controls may not be considered only a technical device on equal footing, say, with the fiscal and monetary instruments. To many in the political arena, it is an expression of a philosophy that on more than one occasion has led governments to opt for the apparently easy line--doomed to failure--of attempting to stop inflation by administrative fiat.

The sophisticated argument in favor of controls considers them indeed a temporary device--helping to reset relative prices, weakening the impact of inflationary price expectations, and reducing the real cost of the policy for some segments of the population. Yet the short-term orientation of the political arena and the emphasis on the control element of a stabilization program--underlined by the recent creation of a specific term: heterodoxy--could easily clog the wheels of a stabilization policy. The latest suggestion that a heterodox program is altogether different and dispenses with the requirement to impose tight fiscal and monetary discipline is usually welcome in the political arena. The freeze and controls are thus soon visualized as a target rather than an instrument, with the revealed preference to keep them in place.

The Israeli experiment suggests that this preference for controls emerges at the very stage when controls should be on their way out. In practice, the repeal of controls was hampered by the political process, as the political players preferred the status quo to a possible immediate and politically unwelcome rise in prices. Furthermore, the loss of power, which was the inevitable result of the abolition of controls, has proved to be highly resented by leading politicians. This reluctance to abolish controls, or at least some of them, has the obvious long-run consequences.

The message conveyed by the comparative performance of the three programs--the Austral, Cruzado, and Sheqel programs--on this matter is, however, quite clear. Freezes, pegs, and controls alone cannot do the job. Persistent restrictive monetary and fiscal policies, supported by a stable exchange rate as a highly visible nominal anchor and a substantial, though temporary, erosion of real wages had succeeded in containing runaway inflation.