

This PDF is a selection from an out-of-print volume from the National Bureau of Economic Research

Volume Title: Financial Policies and the World Capital Market: The Problem of Latin American Countries

Volume Author/Editor: Pedro Aspe Armella, Rudiger Dornbusch, and Maurice Obstfeld, eds.

Volume Publisher: University of Chicago Press

Volume ISBN: 0-226-02996-4

Volume URL: <http://www.nber.org/books/arme83-1>

Publication Date: 1983

Chapter Title: Financing Private Business in an Inflationary Context: The Experience of Argentina between 1967 and 1980

Chapter Author: Domingo F. Cavallo, A. Humberto Petrei

Chapter URL: <http://www.nber.org/chapters/c11191>

Chapter pages in book: (p. 153 - 186)

Financing Private Business in an Inflationary Context: The Experience of Argentina between 1967 and 1980

Domingo F. Cavallo and A. Humberto Petrei

This paper attempts to describe how inflation and different kinds of anti-inflationary policies affect the financial structure of private firms. The Argentine experience between 1967 and 1980 is examined, using information for the whole economy and a sample of individual firms. Section 7.1 relates main stabilization attempts, examines the characteristics of sources and costs of financing faced by private firms, and pays particular attention to conditions created by the last stabilization plan. Section 7.2, using information from a sample of individual firms for the 1976–1980 period, analyzes the changes in the structure of assets and liabilities and the composition of costs and profitability of firms brought about by changes in general financial and economic conditions.

7.1 Stabilization Policies and Their Impact on Private Sector Financing

Section 7.1.1 outlines major aspects of the inflationary process of the 1967–1980 period and describes key anti-inflationary measures pursued in each of the five subperiods identified for analytical purposes. Section 7.1.2 shows the development of different sources of finances for private business over the last fifteen years, relating them to changes in financing costs in various markets. Section 7.1.3 concentrates on the last stabilization plan, comparing it with the 1967–1969 program, with which it shares several features.

Domingo F. Cavallo and A. Humberto Petrei are respectively Director and Director of Research of the Instituto de Estudios Económicos Sobre la Realidad Argentina y Latinoamericana (IEERAL), Fundación Mediterránea, Córdoba, Argentina.

Table 7.1 Selected Indicators of Economic Policy and Performance of the Argentine Economy, 1967–1980

Year	Rate of Growth: GDP ^a	Rate of Growth: Real Wages ^{a,b}	Government Deficit as Percentage of GDP ^c	Rate of Growth: Domestic Credit ^d	Rate of Growth: Money Supply ^d
1967	2.6	5.2	1.7	16	26
1968	4.3	0.4	0.9	30	30
1969	8.5	2.3	1.1	23	18
1970	5.4	4.1	1.0	20	22
1971	3.6	3.2	3.6	61	49
1972	1.6	-9.0	4.3	51	53
1973	3.4	12.3	6.4	82	92
1974	6.5	18.0	6.7	60	56
1975	-0.9	-4.3	14.4	148	125
1976	-0.2	-36.7	9.4	356	366
1977	6.0	6.2	3.1	195	227
1978	-3.9	1.4	3.6	184	183
1979	7.0	6.2	3.9	190	192
1980	0.0	—	4.0	129	73

^aSource: Banco Central de la República Argentina. 1975. *Sistema de cuentas del producto e ingreso de la Argentina*, vol. 2, and quarterly updating reports.

^bInstituto Nacional de Estadísticas y Censos. *Boletín Trimestral*, several issues.

^cSecretaría de Hacienda. Unpublished manuscripts.

7.1.1 Inflation and Stabilization Attempts during 1967–1980

The 1967–1980 period was characterized by high and variable rates of inflation, ranging from 4 to 386 percent per year as measured by the wholesale price index. Five different subperiods may be identified by their various anti-inflationary policies. The main characteristics of the economic policies and the performance of the economy in these subperiods, using key economic indicators, are given in table 7.1. Cost of financing faced by private business is a central variable in the discussion that follows. Table 7.2 lists the various rates in each of the relevant markets.

1967–1969: The Krieger-Vasena Plan

While combating inflation was the central objective of the Krieger-Vasena plan, emphasis was also given to stimulating the growth of the economy. The plan consisted of an initial 40 percent devaluation of the peso (partially compensated by the introduction of taxes on traditional exports and a reduction of tariffs on imports), the adoption of a fixed

Rate of Inflation ^b		Rate of Devaluation ^d		Balance of Payments Current Account Deficit ^{d,e}	Accumulation of Foreign Reserves ^{d,e}	Excess Black Market Dollar Price over Official Price ^f
Wholesale	Cost of Living	Commercial	Financial			
21	27		40	13	35	—
4	10		0	-1	4	—
7	7		0	-13	-33	—
27	22		14	-8	10	—
48	39	37	106	-20	-20	13
76	64	57	19	-10	8	16
31	44	9	0	24	19	13
36	40	-2	0	3	-1	63
348	335	432	471	-34	-21	95
386	348	407	377	16	31	31
147	160		115	18	42	—
142	170		70	32	36	—
130	140		62	6	55	—
58	88		24	-35	-20	—

^aBanco Central de la República Argentina. *Boletín Estadístico Mensual* and *Memorias Anual*, several issues.

^bAs percentage of exports, plus imports, divided by 2.

^cOrganización TechInt. 1979. *Boletín Informativo*, no. 214.

exchange rate, the relaxation of constraints on trade and capital movements, and a system of voluntary price agreements and wage controls. In addition, steps were taken to make fiscal and monetary policies compatible with inflation targets. The government deficit was drastically reduced and kept around 1 percent of GDP, while the rate of growth of domestic credit roughly averaged the sum of the rate of growth of real income plus the planned rate of inflation. Inflation went down to 7 percent per year from 21 percent and 27 percent as measured by the wholesale and cost of living indices, respectively. The annual rate of growth of GDP went up from 2.6 to 8.5, and real wages increased by an average of 2.5 percent per year. The plan's major constraint was the balance of payments, where a crisis developed as a result of a reduction in beef production and exports caused by the relatively low beef prices of previous years.

The central bank directly controlled interest rates in domestic financial markets without, however, reaching negative rates in real terms (see table 7.2). Except for 1967, the devaluation year, the cost of credit was higher in the domestic market than in the foreign markets. The cost of foreign resources during 1968 and 1969 was higher if the borrower pur-

Table 7.2 Cost of Financing in Different Markets, Argentina 1967-1980 (Effective Interest Rates in Annual Percentages)

Year	Nominal Rates ^a						Real Rates ^b					
	Domestic			Foreign			Domestic			Foreign		
	Controlled Interest Rate	Free Interest Rate	Exchange Insurance	No Exchange Insurance	Controlled Interest Rate	Free Interest Rate	Exchange Insurance	No Exchange Insurance	Controlled Interest Rate	Free Interest Rate	Exchange Insurance	No Exchange Insurance
1967	14.9	—	37.4	51.5	-3.8	—	15.1	26.9	—	—	15.1	26.9
1968	14.9	—	13.6	9.2	9.4	—	8.2	4.0	—	—	8.2	4.0
1969	15.0	—	15.1	12.8	7.4	—	7.4	5.3	—	—	7.4	5.3
1970	14.4	26.7	22.7	27.1	-9.7	0.0	-3.2	0.3	—	—	-3.2	0.3
1971	14.0	28.1	20.3	129.7	-22.7	-13.1	-18.4	55.8	—	—	-18.4	55.8
1972	15.6	34.5	29.8	28.8	-34.4	-23.7	-26.3	-26.9	—	—	-26.3	-26.9
1973	21.5	33.7	24.7	12.3	-7.3	2.0	-4.9	-14.3	—	—	-4.9	-14.3
1974	20.9	30.0	24.5	14.2	-11.2	-4.5	-8.5	-16.1	—	—	-8.5	-16.1
1975	21.0	49.2	124.0	791.6	-73.0	-66.7	-50.0	99.2	—	—	-50.0	99.2
1976	48.0	124.6	117.7	262.8	-69.6	-53.8	-55.2	-25.4	—	—	-55.2	-25.4
1977	152.7	196.6	52.3	133.9	2.3	20.0	-38.4	-5.3	—	—	-38.4	-5.3
1978	—	195.4	—	89.9	—	21.4	—	-22.0	—	—	—	-22.0
1979	—	144.8	—	86.8	—	6.9	—	-18.4	—	—	—	-18.4
1980	—	104.9	—	42.8	—	29.9	—	-9.5	—	—	—	-9.5

^aSources: Banco Central de la República Argentina. *Boletín Estadístico Mensual*, several issues. Unpublished information from the databank. Fundación Mediterránea. *Novedades Económicas*, several issues.

^bObtained, $[(1+i)/(1+\pi)] - 1$, where i is the nominal rate and π is the rate of inflation during the year as measured by the Wholesale Price Index.

chased exchange insurance. The large difference between these two costs in 1968–69 reflects devaluation expectations, which in turn explain the reduction of foreign reserves by more than the current account deficit, even though without exchange insurance foreign financing was still cheaper than domestic borrowing.

1970–1972: Anti-inflationary Targets Abandoned

This period was dominated by the objective of solving the balance of payments problem. Anti-inflationary targets were abandoned as the government, involved in a political plan to transfer power to politicians, put emphasis on avoiding recession. The year 1970 was transitional. A 14 percent devaluation of the peso occurred but the fiscal and monetary discipline still existed that characterized the previous period. During 1971 and 1972 that discipline was relaxed; a dual exchange rate system was put into effect with a big initial devaluation of the peso for financial transactions while the exchange rate for real transactions was being devalued more gradually. The balance of payments problem was being solved gradually, helped by very favorable terms of trade existing at the end of the period. Real growth slowed down, though a deep recession was avoided and, on average, real wages remained unchanged over the period. Since nominal interest rates in the domestic markets were still controlled by the central bank, real rates became increasingly negative as inflation accelerated throughout the period. With the exception of the cost of credit from foreign markets in the big devaluation year (1971), real interest rates were negative in all the markets, including the incipient “bill bank acceptances” market with free interest rates.

1973–1974: The Gelbard Plan

The main objective of the Gelbard plan, under the Peronist government, was to increase real wages and achieve high levels of economic activity. Very strict price controls and the establishment of a fixed exchange rate were the main instruments used to fight inflation. The government deficit rose to almost 7 percent of GDP, and credit expanded at a rate of 82 in 1973 and 60 in 1974. The natural result of these policies was the development of increasingly important black markets for almost every good. At the beginning of the period, very favorable export prices helped to maintain the exchange rate as previously fixed, but soon strict exchange controls and import restrictions were necessary to keep it. In 1974 the price differential between the dollar in the black market and the official rate averaged 63 percent and was rising. Inflation was kept between 30 percent and 40 percent per year, according to the different indicators, but it was an evident situation of repressed inflation. Real wages increased over the period by 30 percent and real output by 10 percent. As in the previous period, interest rates, controlled by the

government, were predominantly negative, and by the end of the period credit rationing became more and more important.

1975–1976: Inflationary Explosion

As a natural consequence of repressed inflationary conditions and a climate of political crisis caused by internal disputes in the Peronist party and by the intensification of terrorism, a dramatic increase in the rate of inflation took place in 1975. The rate of devaluation of the peso was around 450 percent, and still the price of the dollar in the black market almost doubled the official price. The government deficit more than doubled, and controls of credit expansion and money supply were lost. In 1975 the annual inflation rate rose to around 350 percent, and by the first quarter of 1976 it reached a figure of 900 percent. Real output declined for the first time since 1963, and real wages began to deteriorate.

In April 1976 a new military government put an emergency plan into operation which included a big devaluation, the imposition of nominal wage ceilings, the lifting of existing controls on commodity prices, and several measures to reduce the government deficit. The expansion of credit was still out of the central bank's control as the government faced huge losses because of the subsidized sales of dollars in the futures market that had been committed during the last part of the previous government period to induce an inflow of foreign capital necessary to cope with the balance of payments crisis. In 1976 the rate of inflation was similar to that of the previous year, real output declined again, and real wages were reduced by almost 37 percent. By the second part of 1976 the rate of inflation had been more than halved. The balance of payments crisis had been overcome by an increase in export earnings due to a strong supply response to the price incentives given to exporters by the devaluation of the peso and the elimination of export taxes. During this period, domestic borrowing and foreign borrowing with exchange insurance received subsidies at an annual rate of around 60 percent. However, the real cost of foreign credit without exchange insurance was almost 100 percent in 1975.

1977–1980: The Martínez de Hoz Plan

During this period fighting inflation again became an explicit aim of economic policy. Together with this objective, economic policy addressed the reestablishment of the conditions of a free market economy opened to the rest of the world. After a temporary period of price control on leading firms, anti-inflationary policy between mid-1977 and the end of 1978, was based on the control of money supply, and after 1978 was based on an announced declining rate of devaluation. Neither of these two different anti-inflationary strategies were clean examples of what is taught in conventional macroeconomic theory. On the one hand, the

attempt to control money supply was not accompanied by a floating exchange rate. The government reacted to the inflow of foreign capital, resulting from the contraction of domestic credit, by imposing controls on international capital movements. During 1978 a zero interest rate deposit in domestic currency, equivalent to 20 percent of the amount of the loan, was imposed on borrowers in foreign markets. On the other hand, during 1979 and 1980 the announcement of a devaluation rate was made in such a way that did not create enough certainty in the market. The relatively short periods for which the announcements were valid and the announcements' lack of clarity, together with the reluctance of the minister to make firmer commitments to his program (as that would have meant the intervention of the central bank in the futures market for the exchange rate), caused a high degree of uncertainty regarding the exchange rate policy. This uncertainty was greater during 1980 as the deficit in the current account of the balance of payments widened. In addition to the imperfect design of these monetary policies, the government deficit, although significantly smaller than in previous years, still amounted to 3–4 percent of GDP. This made the attempts to control credit expansion very costly in terms of high real interest rates and the control of the nominal exchange rate very costly in terms of real exchange rate deterioration and accumulation of a current account deficit.

Between September 1977 and March 1978 the annual interest rate in real terms was around 100 percent as a consequence of the attempt to reduce, in the second half of 1977, the rate of growth of the money supply from 10 percent a month to 4 percent. The price of traded goods relative to nontraded goods declined by more than 30 percent during 1979 and 1980, as reflected by the difference between changes in wholesale and cost of living indices, which can be taken as proxies for traded good and nontraded good prices. Inflation remained almost constant for three years at 150 percent per year, a figure which was reached in the second part of 1976. It was only during the last quarter of 1979 that the inflation rate began to decline significantly.

Real output grew during the second part of 1976 and most of 1977, but declined sharply during 1978 as a result of a substantial increase in real interest rates that took place in the last quarter of 1977 and the first part of 1978. Real output recovered again during 1979 as real interest rates were declining, thanks to a relatively high level of confidence in the government and to a declining rate of devaluation that provided an inflow of foreign capital and kept down domestic interest rates. During 1980 real output was stagnant as real interest rates increased again because of increasing uncertainty regarding the exchange policy and because of the deterioration of the real exchange rate which affected incentives in the production of traded goods. During the whole period, real wages tended to recover from the deep fall of 1976, but they did not reach the pre-

Peronist levels. Since 1977 the cost of credit in real terms was very high in the domestic financial market while borrowing in foreign markets had negative costs, ranging from -22 percent to -5.3 percent per year.

7.1.2 Sources and Costs of Finance

Table 7.3 shows sources of investment funds for private firms in real terms for each of the policy periods described in section 7.1.1. Table 7.4 presents the same information as percent of gross investment.

Sources of finances are classified as external and internal to the firms. The external sources contain debt financing from different domestic stock markets and from direct foreign investment. The internal sources in turn are classified as net results from operating in each of the financial markets and as depreciation allowances and profits. The former was estimated from information on the real financial cost in each market as reported in table 7.2, and the latter was obtained as the difference between gross private investment and all the other sources of financing.

The first observation emerging from tables 7.3 and 7.4 is that significant amounts are listed under debt financing and internal sources of financing. Sources of external equity capital financing were generally unimportant, except for direct foreign investment during the Krieger-Vasena period. The stock market has been negligible as a source of finances, and it has remained so irrespective of different stabilization plans. Debt financing became important during the stabilization programs of Krieger-Vasena (1967–1969) and Martínez de Hoz (1977–1980). When anti-inflationary policies were abandoned or when repressed inflation exploded, as in the 1970–1972 and 1975–1976 periods, internal sources of finances became dominant.

Depreciation allowances and operating results are the most important and stable components of internal sources. A clear correlation exists between the proportion they represent and the rate of growth of real output. The proportion of finance gained from operating in financial markets varied substantially between the periods in a way which is negatively correlated with the share of debt financing.

Debt financing and net results from operating in financial markets are consolidated in tables 7.5 and 7.6. A relatively stable pattern prevails over the last fifteen years, indicating that the contribution of domestic and foreign financial markets to the financing of private business is independent of the composition of that contribution. When inflation is being fought, as in the Krieger-Vasena and Martínez de Hoz programs, firms rely strongly on additional debt. When inflation accelerates and real interest becomes negative, as in 1970–1972 and 1975–1976, firms collect important subsidies in financial markets which add up to profits.

With respect to the relative importance of different financial markets, tables 7.5 and 7.6 show clearly the declining role of the domestic market.

Table 7.3 Sources of Finances for Private Business in Argentina, 1967-1980
(Annual Averages in Millions of Pesos at Constant Prices of 1970)

Period	External Sources									
	Debt Financing (increments in debt at constant prices)					Equity Capital Financing				
	Debt with Domestic Market		Debt with Foreign Markets			Stock Market	Direct Foreign Investment		Total	Total
	Controlled Interest Rate	Free Interest Rate	Exchange Insurance	No Exchange Insurance	Total		Investment	Investment		
1967-1969	2,324.9	—	111.6	373.8	2,810.3	66.7	534.5	534.5	3,411.5	
1970-1972	-1,270.9	619.4	446.7	986.8	782.0	106.0	395.1	395.1	1,283.1	
1973-1974	2,667.9	519.8	-636.9	-691.5	1,859.3	53.3	116.8	116.8	2,029.4	
1975-1976	-6,720.0	1,149.0	433.2	-4.6	-5,142.4	32.8	92.1	92.1	-5,017.5	
1977-1980	-854.1	5,623.6	-334.7	751.5	5,186.3	75.9	268.5	268.5	5,530.7	

Period	Internal Sources									
	Net Results from Operating in Financial Markets					Depreciation Allowances and Gross Private Investment				
	Domestic Market		Foreign Markets			Total	Operating Results	Gross Private Investment	Total	Total
	Controlled Interest Rate	Free Interest Rate	Exchange Insurance	No Exchange Insurance	Total					
1967-1969	-480.3	—	-11.3	-408.5	-900.1	7,639.1	10,150.5	10,150.5	10,150.5	
1970-1972	3,138.6	108.0	231.6	-357.9	3,120.3	8,652.6	13,056.0	13,056.0	13,056.0	
1973-1974	1,276.6	40.2	90.2	1,015.5	2,422.5	8,749.1	13,201.0	13,201.0	13,201.0	
1975-1976	8,484.1	1,339.5	1,381.7	-1,341.9	9,863.4	6,040.4	10,886.3	10,886.3	10,886.3	
1977-1980	-19.4	-1,626.0	128.4	1,037.5	-479.5	7,579.6	12,630.8	12,630.8	12,630.8	

Sources: See Appendix A.

Table 7.4
Structure of the Sources of Finances for Private Business in Argentina, 1967-1980
(Percentages That Each Source Represents of Gross Private Investment)

Period	External Sources									
	Debt Financing (increments in debt at constant prices)					Equity Capital Financing				
	Debt with Domestic Market		Debt with Foreign Markets			Stock Market	Direct Foreign Investment	Total	Total	Total
	Controlled Interest Rate	Free Interest Rate	Exchange Insurance	No Exchange Insurance	Total					
1967-1969	22.9	—	1.1	3.7	27.7	0.7	5.3	33.7		
1970-1972	-9.7	4.7	3.4	7.6	6.0	0.8	3.0	9.8		
1973-1974	20.2	3.9	-4.8	-5.2	14.1	0.4	0.9	15.4		
1975-1976	-61.8	10.6	4.0	0.0	-47.2	0.3	0.8	-46.1		
1977-1980	-6.8	44.5	-2.6	6.0	41.1	0.6	2.1	43.8		

Period	Internal Sources									
	Net Results from Operating in Financial Markets					Depreciation Allowances and Gross Private Investment				
	Domestic Market		Foreign Markets			Total	Operating Results	Gross Private Investment	Total	Total
	Controlled Interest Rate	Free Interest Rate	Exchange Insurance	No Exchange Insurance	Total					
1967-1969	-4.7	—	-0.1	-4.0	-8.8	75.1	100.0	100.0		
1970-1972	24.0	0.8	1.8	-2.7	23.9	66.3	100.0	100.0		
1973-1974	9.7	0.3	0.7	7.7	18.4	66.2	100.0	100.0		
1975-1976	77.9	12.3	12.7	-12.3	90.6	55.5	100.0	100.0		
1977-1980	-0.2	-12.8	1.0	8.2	-3.8	60.0	100.0	100.0		

Sources: See Appendix A.

Table 7.5 Net Amount of Financial Resources Obtained by Private Business via New Debt and Results from Operating in Financial Markets, Argentina, 1967–1980 (Yearly Averages in Millions of Pesos at Constant Prices of 1970)

Period	Domestic Market		Foreign Markets		Total
	Controlled Interest Rate	Free Interest Rate	Exchange Insurance	No Exchange Insurance	
1967–1969	1,844.7	—	100.3	–34.7	1,910.3
1970–1972	1,870.5	727.4	678.4	628.9	3,905.2
1973–1974	3,944.3	560.1	–546.7	324.0	4,281.7
1975–1976	1,764.7	2,488.5	1,814.6	–1,346.5	4,721.3
1977–1980	–873.5	3,997.7	–206.3	1,788.0	4,705.9

Sources: See Appendix A.

The higher the inflation rate, the less the controlled markets are chosen by investors, and the more difficult it is for the government to exercise effective controls. Because of this problem, the Martínez de Hoz anti-inflationary plan was aimed at freeing interest rates.

The role of foreign financial markets does not show a clear trend or a neat association with the degree of control exercised over inflation by government. While the role of foreign financing was almost negligible during the years of the Krieger-Vasena plan, it played an important role during the Martínez de Hoz years. Its role was also important during the 1970–1972 period of neglected anti-inflationary targets as a result of the restrictions imposed by the government on foreign-owned firms which wanted to get financing in the domestic market and as a result of the widespread use of exchange insurance to make foreign financing attractive to private firms. The net resources provided by foreign financial markets during the 1975–1976 inflationary explosion were very small and

Table 7.6 Structure of Net Amount of Financial Resources Obtained by Private Business from Operating in Financial Markets, Argentina, 1967–1980 (Percentages That Each Source Represents of Gross Private Investment)

Period	Domestic Market		Foreign Markets		Total
	Controlled Interest Rate	Free Interest Rate	Exchange Insurance	No Exchange Insurance	
1967–1969	18.2	—	1.0	–0.3	18.9
1970–1972	14.3	5.6	5.2	4.8	29.9
1973–1974	29.9	4.2	–4.1	2.5	32.5
1975–1976	16.2	22.9	16.7	–12.4	43.4
1977–1980	–6.9	31.7	–1.6	14.2	37.4

Sources: See Appendix A.

would have been still smaller had the government not resorted to a subsidized exchange insurance and other strong incentives to keep firms borrowing from abroad. The different role that foreign financial markets played in the Krieger-Vasena plan compared with the Martínez de Hoz program is discussed in section 7.1.3.

The preceding discussion has concentrated on comparing the anti-inflationary policy years, on the one hand, and the uncontrolled inflation years, on the other, but specific comments have not been made on the Gelbard years (1973–1974). The Gelbard plan, although attempting to control inflation, included a set of internally inconsistent policies, such as strict price controls, a fixed exchange rate, large government deficits, and an expansionary monetary policy, which made a very poor anti-inflationary plan. Economic conditions in which different sources of finances played their roles during 1973 and 1974 were in part similar to the anti-inflationary policy years and in part to the periods of uncontrolled inflation.

7.1.3 A Closer Look at the Krieger-Vasena and Martínez de Hoz Periods

Let us now concentrate on the differences in the structure of the sources of finances between the Krieger-Vasena and the Martínez de Hoz plans.

Depreciation allowances and operating results played a more important role during the first period. They represented 75 percent of overall private investment as compared to 60 percent in the second period, suggesting that private business was more profitable during the Krieger-Vasena years. This is not surprising because the voluntary wage and price controls that were included in that plan aimed precisely at making the fight against inflation consistent with the expansion of economic activity. In the case of the Martínez de Hoz plan, more emphasis was placed on introducing structural changes, like the opening up of the economy; these turned out to be costly in terms of the level of economic activity in the short run, since recession has a negative effect on profitability.

While the bulk of foreign resources came as direct foreign investment during the Krieger-Vasena period, during the Martínez de Hoz period the most important part of foreign sources was debt financing. This difference is, in part, the result of the same policies that led to the different levels of profitability of private business between the two periods. The expanding economy of the Krieger-Vasena years offered better opportunities for profitable, direct foreign investment than the structurally changing economy of the Martínez de Hoz period. The significant role of foreign debt financing during the latter period was related to the magnitude of the interest rate differential between domestic and foreign markets that was created by attempts to control domestic credit expansion in an economy with a significant government deficit.

Private business had to pay a positive real cost for debt financing during both periods, but in the Krieger-Vasena case those real costs did not differ much whether domestic or foreign funds were used. That was not the case during the Martínez de Hoz period, because firms paid higher costs when borrowing in domestic markets and collected an important subsidy when borrowing in foreign markets. Part of this difference could have been eliminated if the uncertainties about the ability of the government to keep the devaluation within the announced schedules had been removed, but an important proportion of these differences is related to attempts to reduce domestic credit expansion when the government deficit was not reduced simultaneously.

7.2 Changes of Firms' Balance Sheets, 1976–1980

In order to analyze the behavior of different sources of finances as well as changes in the structure of assets, data were gathered for a sample of seventy-eight private corporations for the period 1976–1978. The data were gathered from firms whose shares are traded in the Buenos Aires Stock Exchange, using quarterly balance reports. The aggregation was made from balance sheets whose dates were close to mid-year. Results for the whole sample are analyzed first, then two divisions are made between small and large firms and between firms producing traded goods and nontraded goods.

7.2.1 Results for the Whole Sample

Table 7.7 reports in proportional terms the main results for the sample as a whole. In addition, several key balance sheet ratios, which are shown in table 7.8, were computed to illustrate the analysis.

The assets side of the balance sheet shows no major changes between the proportion of total assets held as physical or financial capital. A significant decline in the relative importance of inventories since 1977 is perceived, which is an expected result from policy changes regarding interest rates during the period.

The liabilities side shows important changes. There is an increase in long-term debt financing and a consequent decline in the proportion of net worth. This change is the consequence of the drastic reduction of profitability, as may be seen in the profit and loss statements.

The shortening of the terms of deposits and loans as a consequence of inflation and the variability of interest rates is a well-known phenomenon not only in Argentina. As a result of institutional arrangements, this shortening of terms was accentuated in the Argentine domestic market at the initial stage of the financial reform, that is, immediately after June 1977. The main factor working in that direction was a system of compensation for interest paid by banks on that part of time deposits that could not be lent due to the high proportion of reserve requirements

Table 7.7 **Argentina 1976–1980. Balance Sheets, Profit and Loss Statements for a Sample of Seventy-Eight Private Corporations**

	1976	1977	1978	1979	1980
Balance Sheets					
Assets	100.0	100.0	100.0	100.0	100.0
Cash	1.9	2.9	1.9	1.5	1.8
Short-term investments	2.5	2.6	1.8	2.4	3.3
Credit	14.2	17.8	16.5	15.3	14.5
Inventories	21.8	20.4	16.7	16.3	16.4
Long-term assets	59.6	56.4	63.1	64.5	64.0
Short-term debt	30.2	36.5	31.7	31.1	31.7
Commercial	14.1	12.0	9.6	8.8	8.4
Foreign	8.3	6.1	7.7	6.5	8.3
Banks	3.4	13.5	10.2	11.8	10.6
Others	6.0	4.9	4.2	4.0	4.4
Long-term debt	10.2	9.5	18.2	20.1	19.8
Foreign	6.7	5.6	8.3	9.0	8.8
Banks	0.0	0.0	6.4	7.7	7.8
Others	3.5	3.9	3.5	3.4	3.2
Net worth	59.6	54.0	50.1	48.8	48.5
Profit and Loss Statements					
Sales	100.0	100.0	100.0	100.0	100.0
Cost of sales	68.6	72.9	71.4	73.8	78.8
Gross margin	31.4	27.1	28.6	26.2	21.2
Financial costs	9.3	10.4	13.0	9.8	8.5
Other costs (marketing, administrative, etc.)	18.0	15.1	18.6	17.3	18.0
Net profits	4.1	1.6	-3.0	-0.9	-5.3

Sources: See Appendix B.

imposed by the central bank. The required compensation changed every month and was known only for the current month. Therefore, banks, when lending long, not only faced the risk of changing interest rates but also the risk of changes in the proportion of nonlent time deposit costs that the central bank decided to compensate (see Arnaudo, Cavallo, and Dadone 1978). How did this increase in long-term liabilities of firms come about? Part of it came through foreign financial markets, that is, foreign financing was chosen by firms not only because it was cheaper but also because it provided terms appropriate to the role those resources were called to play: to substitute for the deterioration of the internal sources of financing. The other part of the increase in long-term financing came from the domestic financial system as special financing for long-term investment by the state-owned banks; some of this was the result of debt refinancing by firms that faced financial problems. As can be seen in table 7.7, this long-term debt shows up immediately after the period when

Table 7.8 Argentina 1976-1980. Balance Sheet Ratios for a Sample of Seventy-Eight Private Corporations

Ratios	1976	1977	1978	1979	1980
Immobilization (1): $\frac{\text{long-term assets}}{\text{net worth}}$	99.3	103.1	125.1	130.1	129.3
Immobilization (2): $\frac{\text{long-term assets}}{\text{net worth} + \text{long-term debt}}$	84.8	87.7	91.8	92.2	91.8
Liquidity: $\frac{\text{cash} + \text{investments(s-t)} + \text{credits}}{\text{short-term debt}}$	61.8	64.5	63.7	61.7	61.8
Leverage (total): $\frac{\text{total debt}}{\text{net worth}}$	67.9	85.2	99.6	104.9	106.2
Leverage (short-term): $\frac{\text{short-term debt}}{\text{net worth}}$	53.4	67.6	63.3	63.7	65.4
Leverage (long-term): $\frac{\text{long-term debt}}{\text{net worth}}$	17.1	17.6	36.3	41.2	40.8
Leverage (in foreign currencies): $\frac{\text{debt in foreign currencies}}{\text{net worth}}$	25.2	21.7	31.9	31.8	35.3
Net financial position in domestic currency	-7.2	-9.0	-5.6	-5.5	-3.8
Net financial position in foreign currencies	-12.7	-9.8	-14.2	-15.4	-17.1

Sources: See Appendix B.

interest rates went up to almost 100 percent per year in real terms, provoking economic losses and financial crises in many firms. This re-financing was mainly undertaken by the state-owned banks. However, in early 1980 the central bank allowed the banks to use an index based on the deposit rate to facilitate the granting of long-term indexed loans, even though the banks were still receiving only short-term deposits (see Cavallo and Dadone 1979). This institutional arrangement, together with the new spurt of financial crises that showed up in 1980, accelerated the transformation of short-term liabilities into long-term ones.

The composition of short-term liabilities shows an important decline in commercial credit compensated by an increase in bank credit. This change is a natural outcome of the growth of financial intermediation brought about by the liberalization of interest rates.

The profit and loss statements reveal important facts that seem to be related to the changing nature of the stabilization plan within the Martínez de Hoz period. The drastic decline of profitability experienced in 1978 was basically the result of a significant increase in financial costs, while a similar decline in profitability registered in 1980 is explained by a big reduction of gross margin. In other words, by the end of 1977 and the beginning of 1978, the stabilization plan, based on the control of the money supply, was pressing inflation down by an important increase in the real rate of interest. By the end of 1979 and the beginning of 1980, the inflation was being pressed down by foreign competition and the control of the exchange rate. By the middle of 1981, balance sheets will surely register a still more drastic decline in profitability which will be the effect of both the control of the nominal exchange rate and an important increase in real rates originating in the increasing uncertainty about the future exchange rate policy, unless the Martínez de Hoz stabilization plan collapses as current political events seem to suggest as this paper is being written (January 1981).

The ratios reported in table 7.8 summarize the main changes in the financial structure of firms during the period. The deterioration of net worth produced an increase in the first immobilization index from 100 to almost 130, but firms managed to keep more or less constant the relationship of long-term assets and net worth plus long-term liabilities, as it is registered by the second immobilization index. In spite of the deterioration of profitability and the associated difficulties, firms seem to have been cautious in keeping liquidity within the usual rates. Overall leverage increased dramatically from 67.9 to 106.2, with the bulk of the increase registered in long-term leverage. Firms tried, on average, to collect the subsidy associated with operations in the foreign financial markets and to avoid the high real rates of the domestic markets. That is registered by the leverage in foreign currencies index and by the opposite

movement of the net financial position in both domestic and foreign currencies.

7.2.2 Differences between Small and Large Firms

Tables 7.9 and 7.10 report for small firms the same type of information given in tables 7.7 and 7.8, and tables 7.11 and 7.12 do the same for large firms.

The structure of large firms is almost identical to that of the aggregate of firms. Therefore, differences in behavior will be observed mainly in table 7.9. What emerges from it is the observation that smaller firms had a smaller increase in leverage and a reduced access to long-term credit and foreign financing. The smaller reliance on debt financing should have helped the firms get higher profits, but this effect was largely outweighed

Table 7.9 Argentina 1976–1980. Balance Sheets, Profit and Loss Statements for a Sample of Small Private Corporations

	1976	1977	1978	1979	1980
Balance Sheets					
Assets	100.0	100.0	100.0	100.0	100.0
Cash	2.7	2.5	2.9	2.6	3.0
Short-term investments	2.4	1.3	3.1	2.0	4.2
Credits	24.1	23.7	21.5	20.6	17.4
Inventories	15.5	17.9	17.6	18.1	18.7
Long-term assets	55.3	54.6	54.9	58.7	56.7
Short-term debt	34.0	35.9	38.8	42.8	39.6
Commercial	14.1	12.8	14.0	13.9	13.3
Foreign	2.1	1.9	2.1	2.1	4.5
Banks	5.5	13.3	13.7	15.1	10.8
Others	12.3	7.9	9.0	11.7	11.0
Long-term debt	4.6	7.2	8.6	5.3	6.4
Foreign	1.4	0.6	0.6	0.9	1.7
Banks	0.0	0.2	3.0	1.4	1.3
Others	3.2	6.4	5.0	3.0	3.4
Net worth	61.4	56.9	52.6	51.9	54.0
Profit and Loss Statements					
Sales	100.0	100.0	100.0	100.0	100.0
Cost of sales	63.0	59.7	56.3	60.7	62.5
Gross margin	37.0	40.3	43.7	39.3	37.5
Financial costs	6.0	17.6	27.8	29.7	17.2
Other costs (marketing, administrative, etc.)	19.7	22.0	24.3	25.5	28.1
Net profits	11.3	0.7	-8.4	-15.9	-7.8

Sources: See Appendix B.

Table 7.10 Argentina 1976-1980. Balance Sheet Ratios for a Sample of Small Private Corporations

Ratios	1976	1977	1978	1979	1980	
Immobilization (1):	$\frac{\text{long-term assets}}{\text{net worth}}$	90.1	88.2	90.5	102.3	83.1
Immobilization (2):	$\frac{\text{long-term assets}}{\text{net worth} + \text{long-term debt}}$	83.8	78.3	77.9	92.8	74.3
Liquidity:	$\frac{\text{cash} + \text{investments(s-t)} + \text{credits}}{\text{short-term debt}}$	85.9	75.8	70.9	58.9	62.1
Leverage (total):	$\frac{\text{total debt}}{\text{net worth}}$	62.9	75.7	90.1	92.7	85.2
Leverage (short-term):	$\frac{\text{short-term debt}}{\text{net worth}}$	55.4	63.1	73.8	82.5	73.3
Leverage (long-term):	$\frac{\text{long-term debt}}{\text{net worth}}$	7.5	12.7	16.3	10.2	11.9
Leverage (in foreign currencies):	$\frac{\text{debt in foreign currencies}}{\text{net worth}}$	5.7	4.4	5.1	5.8	11.5
Net financial position in domestic currency		-4.9	-8.2	-10.9	-15.5	-10.5
Net financial position in foreign currencies		-1.3	-0.8	-1.0	-3.0	-6.2

Sources: See Appendix B.

Table 7.11 Argentina 1976–1980. Balance Sheets, Profit and Loss Statements for a Sample of Large Private Corporations

	1976	1977	1978	1979	1980
Balance Sheets					
Assets	100.0	100.0	100.0	100.0	100.0
Cash	1.8	3.0	1.8	1.5	1.5
Short-term investments	2.5	2.7	1.8	2.4	3.1
Credits	13.7	17.4	16.3	15.0	15.9
Inventories	22.2	20.5	16.6	16.2	17.0
Long-term assets	59.8	56.4	63.5	64.9	62.5
Short-term debt	29.7	36.6	31.4	30.7	31.8
Commercial	12.8	12.0	9.4	8.6	8.5
Foreign	8.3	6.2	8.1	6.7	7.5
Banks	3.0	13.7	10.0	11.6	11.6
Others	5.6	4.7	3.9	3.8	4.2
Long-term debt	10.6	9.4	18.5	20.5	19.9
Foreign	7.4	6.0	8.6	9.3	7.3
Banks	0.0	0.0	6.6	8.0	7.8
Others	3.2	3.4	3.3	3.2	4.8
Net worth	59.7	54.0	50.1	48.8	48.3
Profit and Loss Statements					
Sales	100.0	100.0	100.0	100.0	100.0
Cost of sales	68.9	73.6	72.1	74.3	79.5
Gross margin	31.1	26.4	27.9	25.7	20.5
Financial costs	9.5	10.1	12.3	9.0	8.1
Other costs (marketing, administrative, etc.)	18.0	14.7	18.3	17.0	17.6
Net profits	3.6	1.6	-2.7	-0.3	-5.2

Sources: See Appendix B.

by the negative effect on profits caused by the inability of small firms to collect the subsidy associated with foreign financing. This is clearly reflected by the behavior of the net financial position on domestic and foreign currencies, and it is the source of the huge losses shown in the 1978 and 1980 statements. Financial costs for small firms were almost three times those of large firms.

7.2.3 Differences between Producers of Traded and Nontraded Goods

Tables 7.13 and 7.14 report balance sheet structures and ratios for corporations producing nontraded goods, and tables 7.15 and 7.16 do the same for corporations producing traded goods.

While profitability did not vary much through the period for the producers of nontraded goods, it did vary greatly for the producers of traded goods. This difference is related to the behavior of the real

Table 7.12 Argentina 1976-1980. Balance Sheet Ratios for a Sample of Large Private Corporations

Ratios	1976	1977	1978	1979	1980	
Immobilization (1):	$\frac{\text{long-term assets}}{\text{net worth}}$	100.1	104.4	126.7	133.0	129.4
Immobilization (2):	$\frac{\text{long-term assets}}{\text{net worth} + \text{long-term debt}}$	71.1	88.9	92.6	93.6	91.6
Liquidity:	$\frac{\text{cash} + \text{investments(s-t)} + \text{credits}}{\text{short-term debt}}$	60.6	63.1	63.6	61.6	64.5
Leverage (total):	$\frac{\text{total debt}}{\text{net worth}}$	67.5	85.2	99.6	104.9	107.0
Leverage (short-term):	$\frac{\text{short-term debt}}{\text{net worth}}$	49.7	67.7	62.6	62.9	65.8
Leverage (long-term):	$\frac{\text{long-term debt}}{\text{net worth}}$	17.7	17.4	36.9	42.0	41.2
Leverage (in foreign currencies):	$\frac{\text{debt in foreign currencies}}{\text{net worth}}$	26.3	22.6	33.3	32.8	30.6
Net financial position in domestic currency		-3.4	-7.3	-3.4	-5.1	-3.8
Net financial position in foreign currencies		-13.4	-10.3	-14.9	-15.8	-14.8

Sources: See Appendix B.

Table 7.13 Argentina 1976-1980. Balance Sheets, Profit and Loss Statements for a Sample of Private Corporations That Sell Nontraded Goods

	1976	1977	1978	1979	1980
Balance Sheets					
Assets	100.0	100.0	100.0	100.0	100.0
Cash	1.5	2.3	1.2	1.0	1.9
Short-term investments	2.9	3.1	1.6	3.3	5.5
Credits	15.6	21.6	18.3	16.1	15.6
Inventories	29.1	23.0	17.7	18.4	18.0
Long-term assets	50.9	50.0	61.2	61.2	59.0
Short-term debt	32.7	37.2	26.3	28.7	28.4
Commercial	14.2	14.9	9.8	10.4	10.2
Foreign	8.4	5.0	4.9	6.3	6.7
Banks	4.4	11.3	7.4	7.7	6.7
Others	5.7	6.0	4.2	4.3	4.8
Long-term debt	11.6	10.1	27.4	26.5	22.5
Foreign	10.3	6.2	16.6	11.8	10.6
Banks	0.0	1.4	8.6	10.8	9.4
Others	1.3	2.5	2.2	3.9	2.5
Net worth	55.7	52.7	46.3	44.8	49.1
Profit and Loss Statements					
Sales	100.0	100.0	100.0	100.0	100.0
Cost of sales	72.8	72.7	70.4	75.1	80.0
Gross margin	27.2	27.3	29.6	24.9	20.0
Financial costs	9.9	9.9	10.7	7.6	5.6
Other costs (marketing, administrative, etc.)	16.3	14.2	20.0	15.8	15.6
Net profits	1.0	3.2	-1.1	1.5	-1.2

Sources: See Appendix B.

exchange rate during the period as a consequence of the balance of payments crisis at the beginning and the reliance on controlling the money supply and the nominal exchange rate in the following years. In addition, structural adjustments made as a result of the opening of the economy obviously affected the producers of traded goods more. Access to foreign credit, as to other long-term loans, seems to have been easier for producers of nontraded goods, although producers of traded goods should have demanded a higher proportion of credit in foreign currencies because of the link between their sale prices and the exchange rate. Difficulties created for the finances of private business by the stabilization policy were much more important for producers of traded goods than for producers of nontraded goods.

Foreign financing was channeled mainly into the domestic economy by the local branches of foreign banks. These banks applied evaluation rules that were more easily fulfilled by large firms and producers of nontraded

Table 7.14 Argentina 1976-1980. Balance Sheet Ratios for a Sample of Private Corporations That Sell Nontraded Goods

Ratios	1976	1977	1978	1979	1980
Immobilization (1): $\frac{\text{long-term assets}}{\text{net worth}}$	91.4	94.9	132.2	136.6	120.2
Immobilization (2): $\frac{\text{long-term assets}}{\text{net worth} + \text{long-term debt}}$	75.6	79.6	83.0	85.8	82.4
Liquidity: $\frac{\text{cash} + \text{investments}(s-t) + \text{credits}}{\text{short-term debt}}$	61.2	72.6	80.2	71.1	81.0
Leverage (total): $\frac{\text{total debt}}{\text{net worth}}$	79.5	89.8	116.0	123.2	103.7
Leverage (short-term): $\frac{\text{short-term debt}}{\text{net worth}}$	58.7	70.6	56.8	64.1	57.8
Leverage (long-term): $\frac{\text{long-term debt}}{\text{net worth}}$	20.8	19.2	59.2	59.2	45.8
Leverage (in foreign currencies): $\frac{\text{debt in foreign currencies}}{\text{net worth}}$	33.6	21.3	46.4	40.4	35.2
Net financial position in domestic currency	-8.6	-5.2	-0.3	-2.0	1.3
Net financial position in foreign currencies	-14.4	-7.6	-19.7	-18.0	-7.2

Sources: See Appendix B.

Table 7.15 Argentina 1976–1980. Balance Sheets, Profit and Loss Statements for a Sample of Private Firms That Sell Traded Goods

	1976	1977	1978	1979	1980
Balance Sheets					
Assets	100.0	100.0	100.0	100.0	100.0
Cash	2.1	3.3	2.2	1.8	1.7
Short-term investments	2.2	2.3	1.9	1.8	1.8
Credits	13.2	15.7	15.5	14.7	13.8
Inventories	17.1	18.9	16.1	15.0	15.2
Long-term assets	65.4	59.8	64.3	66.7	67.5
Short-term debt	27.8	36.1	34.9	32.6	34.0
Commercial	11.4	10.4	9.7	7.8	7.1
Foreign	7.9	8.1	6.5	6.7	9.5
Banks	2.2	13.4	14.6	14.4	13.4
Others	6.3	4.2	4.1	3.7	4.0
Long-term debt	9.8	8.8	12.5	15.6	17.5
Foreign	4.7	3.8	6.4	7.2	7.5
Banks	0.5	0.8	2.4	6.1	6.6
Others	4.6	4.2	3.7	2.3	3.4
Net worth	62.4	55.1	52.6	51.8	48.5
Profit and Loss Statements					
Sales	100.0	100.0	100.0	100.0	100.0
Cost of sales	65.6	73.1	71.9	72.9	78.0
Gross margin	34.4	26.9	28.1	27.1	22.0
Financial costs	8.9	10.7	14.3	11.3	10.5
Other costs (marketing, administrative, etc.)	19.3	15.5	17.8	18.3	19.8
Net profits	6.2	0.7	-4.0	-2.5	-8.3

Sources: See Appendix B.

goods. Smaller firms and the producers of riskier, traded goods had to get their financing from institutions which operated almost exclusively with domestic funds.

7.3 Conclusions

The experience of Argentina between 1970 and 1976 shows that relaxation of anti-inflationary targets, uncontrolled inflation, and negative real interest rates provide an automatic solution to the financing of private business. The most important aspects of private business financing in such a context are to sort out the limitations imposed by the credit rationing criteria and to be able to collect the highest possible amount of subsidies in the financial markets. In this context, foreign financing is avoided unless it can be contracted with exchange insurance.

Table 7.16 Argentina 1976-1980. Balance Sheet Ratios for a Sample of Private Corporations That Sell Traded Goods

Ratios	1976	1977	1978	1979	1980	
Immobilization (1):	$\frac{\text{long-term assets}}{\text{net worth}}$	104.8	108.5	122.2	128.8	139.2
Immobilization (2):	$\frac{\text{long-term assets}}{\text{net worth} + \text{long-term debt}}$	90.6	93.6	98.8	99.0	102.3
Liquidity:	$\frac{\text{cash} + \text{investments}(s-t) + \text{credits}}{\text{short-term debt}}$	62.9	59.0	56.2	56.1	50.9
Leverage (total):	$\frac{\text{total debt}}{\text{net worth}}$	60.3	81.5	90.1	93.1	106.2
Leverage (short-term):	$\frac{\text{short-term debt}}{\text{net worth}}$	44.6	65.5	66.3	62.9	70.1
Leverage (long-term):	$\frac{\text{long-term debt}}{\text{net worth}}$	15.7	16.0	23.8	30.1	36.1
Leverage (in foreign currencies):	$\frac{\text{debt in foreign currencies}}{\text{net worth}}$	20.2	21.6	24.5	26.8	35.1
Net financial position in domestic currency		-2.4	-6.7	-8.8	-7.6	-7.2
Net financial position in foreign currencies		-11.6	-11.0	-11.1	-13.7	-17.0

Sources: See Appendix B.

When stabilization plans are applied, financial management again becomes relevant for private business because internal sources of financing are insufficient, and the real cost of debt financing becomes positive and relevant in most of the financial markets. This is shown by the analysis of the Krieger-Vasena and Martínez de Hoz plans. The comparison of these two experiences shows that the financial problems of private business can significantly increase by special features of the stabilization plans, like large credit requirements by the public sector originating in big government deficits and the imposition on firms of costly structural adjustments caused by long-term policies (e.g., the opening of the economy). The simultaneity of these two sources of complications can be damaging to the success of the stabilization plan, because large government deficits are the source of large interest rate differentials between domestic and foreign markets and the overvaluation of the domestic currency when domestic credit creation is controlled. Under these conditions an uneven distribution of the stabilization burden is likely to result as small firms and producers of traded goods face difficulties in obtaining financing in foreign markets and are compelled to pay the high real costs of domestic credit. These differences are clearly shown by the balance sheet structures and ratios for a sample of corporations during the period 1976–1980.

Balance sheet figures show that after 1976 there was a significant reduction of inventories on the assets side, and on the liabilities side, short-term bank debt replaced, in part, short-term commercial debt. These are expected results of the higher real interest rates and the increase in short-term financial intermediation resulting from the liberalization of interest rates.

More surprising is the increase in leverage, especially in the form of long-term debt. Although domestic banking regulations did not favor the development of the long-term debt market, the increase in long-term debt relative to net worth took place mainly as a result of an increase in financing from abroad, special investment financing provided by state banks, and refinancing of debts for firms facing financial problems. Net worth was negatively affected by the drastic reduction of profitability that is observed especially in 1978 and 1980.

The central analytical question that emerges from the observation of the Argentine experience during the Martínez de Hoz period is: Why do firms rely more and more on debt financing even though it is very costly in real terms? When entrepreneurs are faced with this question, the usual answer is that losses have to be financed and debt financing is the only available alternative. But why not a more drastic reduction of fixed investments accompanying the observed reduction of inventories? There are several institutional reasons that can explain why there is no big reduction of fixed investments: the existence of long-term and relatively

cheaper credit from the state-owned banks which is earmarked for new investments; the existence of fiscal incentives, like reduced tariffs on capital good imports and tax credits. The recent Argentine experience suggests that still another explanation of more general interest exists. Doubts about the soundness of the government's commitment to maintain its anti-inflationary strategy create uncertainties that keep alive the expectation that the high real cost of credit is a transitory phenomenon. Previous experience suggests that every anti-inflationary plan is followed by a period of accelerating inflation that reverses the sign of financial costs. Of course, there are instrumental aspects of anti-inflationary policies which can create unnecessary uncertainties, like the simultaneous announcement of contradictory targets and the reluctance of the government to adopt a firm commitment to its policies, the success of which depends crucially on people's confidence that those policies will be maintained for a long period of time.

Appendix A *Sources and Methodology for Table 7.3*

Debt financing was computed as the difference between the amount of debts at the end and the beginning of the periods, deflated by the Wholesale Price Index of December of the respective year. The sources and coverage of the different components are the following:

Debt with Domestic Markets. Banco Central de la República Argentina. *Boletín Estadístico Mensual*, several issues. These figures were obtained by subtracting from M_3 (financial assets held by the nonfinancial private sector) the debt of the public sector net of deposits with the financial system and net foreign assets of the financial system. The disaggregation between free and controlled interest rate markets was done by allocating to the free interest rate market the amount of the "bill bank acceptances" from 1970 to 1975, and the "bill bank acceptances" plus the amount of time deposits in 1976. From 1977 the whole debt is with the free interest rate market.

Debt with Foreign Markets. A. Arnaudo and R. Bartolomei. 1967–1971. *Mercado cambiario e inflación, Argentina*. México: CEMLA; and Banco Central de la República Argentina. *Memorias Anual*, several issues. The disaggregation into debt with and without exchange insurance was done by allocating to the first one the net sales of foreign exchange in the futures market by the central bank at the end of each year, as reported by the Banco Central de la República Argentina. *Boletín Estadístico Mensual*, several issues.

Equity capital financing was computed from annual flow figures, deflated by the annual average of the Wholesale Price Index. The sources of the two components were:

Stock Market. Banco Central de la República Argentina. *Memorias Anual*, several issues.

Direct Foreign Investment. Ministerio de Economía. 1967–1976. Unpublished manuscript; and Banco Central de la República Argentina. 1977–1980. *Memorias Anual*, several issues.

Net results from operating in financial markets were obtained using the information on debt financing and table 7.2 as follows: the profit (+) or loss (–) in each market is obtained for each year by multiplying the initial debt at constant price times the real interest rate.

Depreciation allowances and operating results were calculated as the difference between gross private investment and all other sources.

Gross private investment was calculated as the difference between overall gross investment and gross public investment. The former was taken from Banco Central de la República Argentina. 1975. *Sistema de cuentas del producto e ingreso de la República Argentina*, vol. 2, and quarterly updating reports; and Banco Central de la República Argentina. 1980. *Gerencia de investigación estadísticas Económicas*. Gross public investment was estimated from the information reported in Ministerio de Economía. 1980. *Evolución económica de la Argentina*.

Appendix B *Sampling Criteria*

A list of all corporations whose shares are traded in the Buenos Aires Stock Exchange was prepared, recording their names, main industrial groups, and amounts of sales from their last balance sheet reports. A sample comprised of approximately 25 percent of the firms was taken.

Corporations were classified by industrial group and by three size categories. Size was determined on the basis of sales. Limits for size stratification were determined in order to have an equal number of firms in each stratum. Therefore, a two-entry table (one by size and the other by industrial group) was constructed.

Firms were selected from the first-size stratum (big firms) and the third-size stratum (small firms) only. The criterion was to select a sample of 20 percent of all the firms from each cell (similar size and same industrial group) with a minimum of three. In the case of incomplete or missing information, firms were replaced by others within the same cell when possible.

The classification of firms in the traded goods and nontraded goods categories was made on the basis of a correlation between changes in

wholesale prices of the group of products corresponding to the industrial groups used in the study and changes in the price of the dollar. Those groups that showed a simple correlation coefficient of greater than 60 were classified as traded good producers, and those with a lower correlation coefficient as nontrade good producers.

References

- Arnaudo, Aldo A., Domingo F. Cavallo, and Aldo A. Dadone. 1978. Evaluación de la eficiencia del actual régimen financiero Argentino. *Estudios* 2:50–58.
- Cavallo, Domingo F., and Aldo A. Dadone. 1979. Índice implícito en la tasa testigo. *Estudios* 12:169–176.

Comment Charles E. McLure, Jr.

Inflation-induced shifts in financial policy, such as those described by Cavallo and Petrei, would be expected by most economists. But they often can be captured only through the most imaginative and sophisticated use of advanced econometric techniques. A country such as Argentina, in which large shifts have occurred in macroeconomic policy, the rate of inflation, and real interest rates, provides the economist with virtually a laboratory experiment in which responses to changes in economic incentives can be observed much more easily. Even so, I am rather amazed at the degree to which Cavallo and Petrei have been able to discern clear patterns of response to changes in financial incentives created by changes in inflation and anti-inflation policies. Most of these responses are quite in line with what one would expect. There are some apparent anomalies, but the authors are able to provide reasonably convincing explanations, even in those cases.

Unanticipated inflation reduces real interest rates. This may, of course, affect saving and the availability of foreign capital. More to the point, if inflationary expectations are not symmetric, so that business firms expect a higher level of inflation than do lenders, and therefore a lower real rate of interest, there should be a decisive shift toward the use of debt financing by business.

Much of what appears to have occurred in Argentina confirms economic intuition. When inflation produced low real interest rates, firms

* Charles E. McLure, Jr., is a senior fellow at the Hoover Institution, Stanford University, and a research associate of the National Bureau of Economic Research. At the time these comments were prepared, he was vice-president of NBER. The views expressed here are his own and not those of either the Hoover Institution or NBER.

attempted to capitalize on the situation through debt financing. But when interest rates were controlled at nominal levels that produced negative real rates, domestic funds dried up. Firms also seem to have responded in the way expected when restricted credit creation produced differentials in domestic and foreign interest rates or when subsidized insurance against exchange rate risk reduced the cost of borrowing abroad.

The one really anomalous result is the apparent lengthening of debt that occurred when inflation accelerated. I would have welcomed more evidence for the proposition that this lengthening can be traced to financing of long-term investment by state-owned banks. This might have been provided by a more detailed classification of sources of finance, if such is available. It would probably be difficult to document the assertion that refinancing of debts by firms in financial trouble was a further contributor to the increase in long-term financing.

My next comments reflect my background as a tax economist. We all know that inflation and the various policies governments adopt to fight it should have important influences on the way private businesses choose to operate and finance themselves. In the United States we think especially of effects working through the taxation of business income. If tax depreciation is based on the historical cost of assets, there will be a tendency for costs of goods sold to be understated and for profits subject to tax to be overstated. Similar effects can occur with inventories. If firms use first-in, first-out (FIFO) methods for valuing inventories, whether because they are required to do so by fiscal authorities or because they simply prefer to do so, perhaps in order to show larger book profits, taxable income will tend to be greater than economic income. Both these effects will tend to discourage investment in physical assets, and patterns of finance may adjust. Offsetting these tendencies is the allowance of deductions to firms for nominal interest payments. In many instances this more than offsets the first two tendencies to overstate profits. The incentive for firms to employ debt financing resulting from the interaction of inflation and the deductibility of nominal interest costs is accentuated if businessmen expect greater inflation than is reflected in the cost of funds in financial markets.

Not until the very end of their paper do Cavallo and Petrei mention the fiscal system of Argentina. But one can hardly help wondering the extent to which fiscal influences, including those mentioned earlier, were active in Argentina during the period of variable inflation under examination. In particular, I am not sufficiently familiar with the Argentine tax system to know whether depreciation allowances are based on historical cost depreciation or if replacement cost depreciation or indexing is allowed. Similarly, is FIFO required, or is LIFO (last-in, first-out) an acceptable method of inventory evaluation? Finally, is there any indexing of the value of debt that would eliminate the advantage of debt financing in an

inflationary period? Perhaps even more important, there is no indication of whether the tax system has been stable over the period covered by the paper. Without attempting a very long shopping list, I might note that one wonders whether the treatment of depreciation or inventories might have changed in any important way during the period, whether provisions relating to the taxation of the return to lenders might have been altered, and whether the deductibility of interest (and nondeductibility of dividends, for that matter) changed during the period. Beyond that, one needs to know whether there are explicit subsidies to credit of one kind or another that might have been changed during the period.

The division of internal sources of finance into "net results from operating in financial markets" and "depreciation allowances and operating results" is, I believe, quite useful. Particularly noteworthy is that when the first of these is added to external debt financing this combined source of investment funds is a relatively stable contributor to the total. Calculating "depreciation allowances and operating results" as a residual has the virtue that one need not worry that they are calculated directly from financial statements, without adequate allowance for the effects of inflation. The same cannot, of course, be said for the information contained in tables 7.7-7.16. One does not know the extent to which inventories and long-term assets have been revalued to reflect inflation. Nor can one determine this from the data in the paper, since only ratios are provided. Do the commonly accepted financial standards in Argentina allow (or require) the revaluation of assets? This question has its counterpart in the profit and loss statements. Do the depreciation allowances and deductions for inventories used in the figures for cost of sales reflect inflation? Are the relatively modest rates of profits real, or do they contain fictitious profits resulting from inflation? Without satisfactory answers to these questions, I am a bit uneasy about attributing changes in financial patterns to intertemporal differences in profitability of firms.

I believe that this study could be usefully extended in several directions. First, I would expect producers of traded goods to be relatively large, and small firms to be especially heavily involved with the production of nontraded goods. Given that patterns of effects of inflation on financial practices are quite different for small firms and producers of traded goods, on the one hand, and for large firms and producers of nontraded goods, on the other hand, it may be that results from either two-way classification (traded vs. nontraded; large vs. small) really understate significant differences that would be revealed from a four-way (two-by-two) classification. That is, one might expect large producers of nontraded goods to be affected quite differently from small producers of traded goods, with the remaining two categories falling somewhere in between. It would be useful to have such a cross-classification, if the data would allow it.

A further exercise that would be useful, if data are available, would be to attempt to gain information on Argentine subsidiaries of foreign firms similar to that used for firms traded on the Buenos Aires Stock Exchange. While it is important to know how firms with primarily domestic ownership respond to inflation and anti-inflationary policies, it would be equally interesting to know how foreign-owned firms have responded to the same economic stimuli.

Comment Andrew Abel

Domingo Cavallo and Humberto Petrei address the issue of financing private business in Argentina in the presence of high and variable rates of inflation. Their paper is an interesting blend of three sections: a brief review of Argentine macroeconomic performance from 1967 to 1980; an analysis of the sources of finance for investment based on aggregate data over this entire fourteen-year period; and an analysis of a sample of individual firm balance sheets during the Martínez de Hoz period (1977–1980).

The review of the Argentine economy provides an excellent introduction to readers not completely familiar with the Argentine experience. Cavallo and Petrei divide the fourteen-year period into five subperiods according to the extent to which government policies were directed against inflation. Because the paper focuses on the financing of private business, the macroeconomic summary properly devotes much attention to the behavior of interest rates—both nominal and real. However, the real interest rates tabulated by Cavallo and Petrei are apparently *ex post pretax* real interest rates. The interest rate relevant for decision making by firms is the *ex ante after-tax* real interest rate. The difference between *ex ante* and *ex post* real interest rates is equal to the forecast error of the rate of inflation. Although it may be reasonable to suppose that the forecast error has a mean of zero so that the *ex post* real rate is an unbiased measure of the *ex ante* real rate, the variance of this forecast error was probably quite large in Argentina. Since the reported *ex post* real interest rate is the sum of the *ex ante* real interest rate and the forecast error of inflation, the variance of the reported *ex post* real interest rate may greatly exceed the variance of the relevant *ex ante* real interest rate.

The distinction between pretax and after-tax real interest rates depends on the tax treatment of interest payments. It is well known that if nominal interest payments are tax deductible, then the after-tax real

Andrew Abel is an assistant professor in the Department of Economics, Harvard University, and a faculty research fellow of the National Bureau of Economic Research.

interest rate can be negative even though the pretax real interest rate is positive. Furthermore, the observation that the pretax real interest rate was higher in 1967–1969 than in 1970–1972 does not imply that the after-tax real interest rate was higher in 1967–1969 than in 1970–1972, even if the tax rate was the same in both periods. Of course, these comments apply to a situation in which nominal interest payments are tax deductible. It would be useful if the authors could briefly describe the tax treatment of interest payments in Argentina.

Perhaps the most interesting result of the analysis of the aggregate sources of finance is the finding that firms use external debt financing when inflation is being successfully fought, but they use internal financing when inflation is not being fought successfully. The most volatile component of internal financing is net results from operating in financial markets. Cavallo and Petrei point out that the sum of external debt financing and internal financing is much more stable than either of the two separate components. To interpret this finding, we observe that

$$(1) \quad b = \frac{vB}{P},$$

where b is the real value of bonds outstanding, B is the number of bonds outstanding, v is the nominal value of a bond, and P is the price level. Differentiating (1) with respect to time and then subtracting rb from both sides of the equation, we obtain

$$(2) \quad \dot{b} + \left(\pi - r - \frac{\dot{v}}{v} \right) b = \left(\frac{\dot{v}}{v} \right) \dot{B} - rb,$$

where r is the nominal interest rate, and $\pi = \dot{P}/P$ is the rate of inflation.

The first term on the left-hand side of (2) is the change in the real value of outstanding bonds and corresponds to the Cavallo-Petrei measure of external debt financing.

The second term on the left-hand side of (2) represents net results from operating in financial markets and is equal to the decrease in the real value of existing bonds $[\pi - (\dot{v}/v)]b$ minus the real value of nominal interest payments rb . Observe that the real value of existing bonds decreases both because of general price inflation (π) and because of any decrease in v , perhaps as a result of an increase in interest rates. Cavallo and Petrei measure the net results from operating in financial markets as $(\pi - r)b$, thereby ignoring capital gains or losses arising from the changing nominal valuation of existing bonds resulting from changing interest rates or interest rate expectations. Recognizing that $r = \rho^e + \pi^e$ is an identity (ignoring any taxation of interest) in which ρ^e is the ex ante real rate of interest and π^e is the expected rate of inflation, the Cavallo-Petrei measure of net results from operating in financial markets is $[(\pi - \pi^e) - \rho^e]b$. One interpretation of their finding that net results from

operating in financial markets is high when inflation is not fought successfully, and low when inflation is successfully combated, is that the ex ante real interest rate, ρ^e , is fairly stable over time and that variations in $[(\pi - \pi^e) - \rho^e]b$ are mostly the result of variations in forecast errors about inflation. When inflation is lower than expected, the net operating results in financial markets are low; when inflation is higher than expected, net operating results in financial markets are high.

The Cavallo-Petrei result that the sum of external debt financing and net operating results in financial markets is more stable than its two components is equivalent to noting that the right-hand side of (2) is more stable than each of the two terms on the left-hand side of (2). The right-hand side of (2) is the excess of the real value of newly issued debt over the real value of interest payments on existing debt. This remains fairly stable in the presence of large swings in unanticipated inflation which cause large but opposite swings in the two terms on the left-hand side of (2). The swings in observed external debt financing and in observed net operating results are not the outcome of explicit action on the part of firms. Rather, much of the variation in the observed measures of these two sources of financing is due to variations in unanticipated inflation.

From the analysis of the sample of individual firm balance sheets in the period 1976–1980, it was found that a major source of profitability differences between large firms and small firms and between producers of nontraded goods and producers of traded goods is access to foreign credit. The real cost of credit was substantially lower in foreign markets than in domestic markets. Small firms and producers of traded goods tended to use foreign credit less than large firms and producers of nontraded goods, and their profitability suffered. The observation that small firms were generally confined to the domestic credit market with a higher interest rate than in the foreign market leads to an anomaly in the data on inventories. Cavallo and Petrei point out in table 7.7 a decline in the relative importance of inventories since 1977 and link this to policy changes regarding interest rates. However, table 7.9 reveals that for small firms, which as a group faced higher interest rates than the aggregate, the share of inventories in total assets actually rose over the period 1976–1980.

Cavallo and Petrei have skillfully combined data from different sources to provide some insights into the financing of private business in the presence of inflation. As they point out in their conclusion, further research is required to understand the behavior of investment during the Argentine experience with inflation.

