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# Microeconomic Adjustments in Uruguay during 1973-81: The Interplay of Real and Financial Shocks

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**Summary.** — This paper uses the financial statements of industrial firms to develop an integrated firm's eye view of the changes in the Uruguayan economy during 1973-81. In the first of three subperiods, 1973-75, real financial costs were very negative and tended to offset low returns on operating assets. During 1976-78, the dismantling of interest rate controls increased real financial costs, but other factors increased the returns on operating assets more rapidly. During 1979-81, financial costs jumped enough to more than absorb increases in gross earnings, which were probably due to Argentine demand. The rates of earning and capital formation were highest among exporters in the second subperiod, when a major export promotion program was in place. This pattern was reversed in the third subperiod, as the promotion programs were dismantled and real currency appreciation seemed to squeeze gross earnings of exportables relatively more. This unequal squeezing was probably due to redundant tariff and other protection for import-competing producers.

## 1. BACKGROUND

### (a) *Purpose of the paper*

From the mid-1950s to the early 1970s, Uruguayan authorities pursued an import-substituting development strategy with extensive government intervention. In 1973, inflation was accelerating in response to the monetization of a rising public sector deficit, and real GDP growth had averaged only 0.8% over the previous 18 years. Because of these and other problems, the military seized power in June 1973. And when a new economic team was appointed in July 1974, government policies changed across-the-board.

To deal with inflation, the new policymakers first pursued orthodox stabilization policies; they later adopted an exchange-rate-based strategy. But, from the start, they also attempted to improve resource allocation and achieve higher growth by abandoning import substitution and

deregulating the economy. To induce competition among oligopolistic firms, price controls and barriers to trade were relaxed; and to raise the profitability of exporting, taxes on traditional exports were dismantled while fiscal and financial incentives for nontraditional exports were created. Concurrent with the deregulation of product markets, capital flows and domestic interest rates were deregulated, and controls on the allocation of credit were progressively dismantled.

As these reforms were implemented, the Uruguayan economy responded almost miraculously. Output growth jumped, exports skyrocketed, the financial sector boomed, and new investment accelerated. But, for reasons not completely understood, the economy was once

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more in crisis in 1982. This paper looks at firms to see how the combination of stabilization and liberalization policies brought the economy full circle over a decade.

Our analysis uses the annual financial statements of 69 manufacturing firms to track the effects of changes in the economic environment during 1973–81.<sup>1</sup> We begin by making comprehensive adjustments that undo the biases of inflation in each firm's books. Then, in an attempt to quantify various economic shocks and their consequences for the manufacturing sector as a whole, we examine changes in the consolidated balance sheet and income statement for our sample over time. Last, we divide our sample of firms into exportable goods producers and import-competing producers to address whether incentives were consistent with the objective of efficient resource allocation. This exercise involves numerous tests on earnings stream components and financial structures in one subsample *vis-à-vis* the other.

### (b) Reforms and macroeconomic performance<sup>2</sup>

To set the stage for our analysis, we first review the reforms and the associated changes in the economic environment between 1973 and 1981.

*Reforms.* To begin, fiscal policies were changed in several respects under the new economic regime. Given that price controls had been removed, an attempt was made to bring down inflation by cutting budget deficits. And in 1974 the income tax was abolished and replaced with an 18% value-added tax. In addition, various fiscal incentives to export were also instituted during 1975–79, but, phased out later.

Quantitative restrictions on imports of capital goods were lifted early in 1975, those on other imports were lifted later, and maximum tariffs rates were reduced. Starting in December 1979, a tariff reform was to lead to a uniform rate of protection of 35% by 1985; but, by 1981, little had been accomplished toward reducing dispersion in effective rates of protection across sectors (Table 1, columns 6–8). Only toward the end of 1980 had redundant protection been eliminated (CINVE, 1983).

Major controls on the banking system and on international capital flows were also dismantled. Until 1974, credit was allocated by direct credit allocation rules. *Ex post* costs of funds were negative in real terms for those who had access to credit. Interest rate ceilings on deposits were progressively lifted and finally eliminated in 1977. Moreover *de facto* convertibility of the peso took place in 1974, when Uruguayans were free for the first time to buy and sell assets denominated in external currencies. In addition,

Table 1. *Manufacturing indicators*

	Manufacturing growth (1)	Manufacturing wholesale price (2)	Real wage (private) (3)	Hours worked (4)	Unemployment (Montevideo) (5)	Protection*†			Taxes on exports‡ (7)	Export subsidies (8)
						NRP	RP	ERP		
1973	-0.6	117.9	100.5		8.9	—	—	—	21	17
1974	2.5	86.2	100.0	100.0	8.1	—	—	—	13	18
1975	5.6	82.1	92.1	107.7	8.1	52	—	—	2	18
1976	1.9	54.6	85.2	104.4	12.9	34	—	—	1	20
1977	6.3	49.8	74.0	108.8	11.8	36	—	—		
1978	5.8	40.2	71.2	106.3	10.1	25	23	—		
1979	7.8	72.4	64.3	106.3	8.4	—	—	—		14.3†
1980	3.1	51.6	60.9	104.1	7.4	36	16	—		13.7†
1981	-4.4	28.0	65.7	93.4	9.3	38	—	75		13.6†

Sources: Unless otherwise indicated: Banco Central del Uruguay.

\*Rama (1982) for 1975–1977.

†CINVE (1983) for 1978–81.

‡Benson and Caumont (1981).

Notes: NRP = Implicit average nominal protection for domestic sales

RP = Redundant Protection

ERP = Effective Rate of Protection (domestic sales). In 1981, the average ERP for export sales was 30%.

— = Not available.



the entry of new banks was allowed in 1977 for the first time since 1965, and commercial bank reserve requirements were abolished in 1979.

Exchange rate policy changed substantially in 1979. Until the end of 1978, price stabilization was pursued through fiscal restraint, and a passive crawling peg maintained a fairly stable value of the real exchange rate. In 1979, the authorities, frustrated with the persistence of 60% annual inflation, began attempting to stabilize by slowing the rate of devaluation according to an announced schedule (the *tablita*). Argentina pursued the same type of stabilization policy until 1981, when it began a series of major devaluations, thereby ensuring rapid changes in the real exchange rate between Uruguay and its main trading partner (Table 2, column 10).

**Macro performance.** Initial conditions in 1973 were poor, as Uruguay was about to experience a large terms-of-trade loss (Table 2, column 2) resulting from the combination of increasing oil prices and declining prices for beef and wool.<sup>3</sup> After the new economic regime came to power, the economy quickly responded to reform and stabilization policies. Manufacturing growth jumped from -0.6% in 1973 to 2.5% in 1974, and in following years often exceeded 5% (Table 1, column 1). Until 1979, when trade promotion schemes were phased out, this expansion was led by exports (Table 2). Private investment as a ratio to GDP began a sustained upward trend, especially machinery and equipment, which could be freely imported (Table 2). Inflation came down from 97% in 1973 to between 40 and 70% thereafter, despite an extremely rapid expansion of credit in both pesos and dollars to the private sector (Table 2).

The decontrol of interest rates did not initially result in high real interest rates: peso borrowing rates remained negative in real terms until 1980. Dollar borrowing, which was no longer controlled by the government, became even cheaper after 1977. And the real exchange rate (measured by the purchasing power parity (PPP-ER) index in Table 1) began heading downward when the *tablita* was implemented in 1979. This fall in the real exchange rate coincides with a reduction in non-traditional export growth during this year and thereafter. However, the real exchange rate *vis-à-vis* Argentina moved upward until 1981, reflecting the fact that Argentine authorities were appreciating their currency more strongly than their Uruguayan counterparts (Table 2). But with the rapid Argentine devaluations in the Spring of that year, a reversal occurred, marking the beginning of a downward tailspin for the Uruguayan economy and the end of our sample period.

### (c) *The plan for analysis*

Little is known about how the various reforms and macro shocks influenced profitability and behavior in the manufacturing sector. Even less is known about how these changes induced changes in profitability and behavior for the various subsectors. What were the earnings rates on operating assets in different lines of production? What were the implied incentives for resource reallocation? How did these real earnings rates combine with interest rate shocks to determine patterns of net corporate income? How did the changes in the economic environment affect assets acquisitions, borrowing levels (by currency), and dividend payout rates among various groups of firms? This paper addresses all these issues and thereby provides an integrated firm level picture of Uruguay's adjustment during the liberalization and reform period.

As explained in the Introduction to Part II of this Symposium, these issues can be analyzed using variables constructed from corporate financial statements. (See equation 1 and the corresponding discussion in the Introduction to this Symposium). On the 'real' side, changing markets for labor, products, and intermediate inputs affect profitability through price-cost margins and capacity utilization, hence these influences can be picked-up using ratios like gross margins and asset turnover. On the financial side, variations in inflation, interest rates, and the availability of different types of credit affect profits through the costs of carrying assets. These influences can be picked up by studying average real financial costs, levels of indebtedness, and the currency composition of borrowing. Finally, the effect of both real and financial shocks on firms' new borrowing, dividend payments, and capital acquisitions can be studied using real debt growth rates, real dividend payments per unit equity, and real new fixed investment per unit of existing capital.

Below, we first construct these ratios from our consolidated sample of firms' financial statements for the 1973-81 period. This allows us to check the validity of our inflation adjustments by comparing the results to the national accounts, and to see what we can learn about the overall performance of the manufacturing sector beyond what is apparent from official statistics. Then we break our sample into groups that differ in their exposure to international competition, and statistically compare time paths of the same set of ratios across subgroups.

Table 2. Macro indicators

GDP growth (%)	Terms of trade	Non-traditional export growth (%)	Private investment/GDP (%)	Of which machinery & equipment	Inflation (%)	Real money supply	Average real borrowing rate	Ex-post peso-dollar spread	Competitiveness with Argentina	Real exchange rate index: (PPP-ER)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1973	0.4	186.7								
1974	3.1	100.0	21.0	2.0	97.0	127.0	-30.2	—	98.5	114.4
1975	5.9	71.0	46.5	2.4	77.2	100.0	-21.9	—	100.0	100.0
1976	4.0	68.6	11.3	3.2	81.4	94.8	-13.6	—	71.1	111.9
1977	1.2	76.2	12.2	4.0	50.6	110.7	-1.5	-3.4	99.2	118.3
1978	5.3	82.9	8.9	4.2	58.2	97.2	-8.4	11.4	83.4	114.3
1979	6.2	87.6	1.1	4.0	44.5	108.0	3.6	25.9	105.4	111.2
1980	6.0	69.5	-0.3	5.3	66.8	110.6	-21.0	15.9	128.5	88.5
1981	1.9	64.8	3.2	5.5	63.5	118.0	4.5	30.8	131.0	58.6
					34.0	100.8	13.3	17.8	99.1	60.5

Sources: Unless otherwise stated, Banco Central del Uruguay (BCU).

Cols. 2, 3: Camara Nacional de Comercio, p. 32.

Col. 5: IFS.

Col. 6: BCU end-of-year figures.

Col. 7: 1974 = 100.

Col. 8: Unpublished BCU figures. Annualized rates calculated as:  $(1 + RP)/(1 + P) - 1$ .

Col. 9: Annualized rate computed as:  $(1 + RP)/(1 + E_{t+6}) - (1 + RD)$  where  $RP$  = 1-6 months peso deposit rate;  $RD$  = 1-6 month dollar deposit rate;  $E_{t+6}$  = Devaluation rate during next six months.

Col. 10: Hanson and de Melo (1985, Table 2) computed from indices (1974 = 100) as follows:  $(CPI_t/CPI_u) ER_{t,u}$ ; where  $a$  = Argentina,  $u$  = Uruguay.

Col. 11: Nominal exchange rate index times the ratio of world inflation (from IFS) to the consumer price index.



## 2. FINDINGS

### (a) Overall manufacturing sector performance

The analysis of overall manufacturing sector performance is based on the inflation-corrected consolidated sample.<sup>4</sup> We start by looking at the relative contribution to net earnings of gross margins and overhead, both indicators of adjustment to real side shocks. We next examine the role of real financial costs and balance sheet structure, both indicators of how firms adjusted to the financial-reform-induced shocks. Finally, having shown how the reforms affected the trajectory of net earnings and having established that the trajectory generated by our inflation-adjusted data is plausible, we examine how new debt and net earnings after interest payments were divided between new asset accumulation and dividends to shareholders.

*Real-side shocks.* Gross margins and asset turnover both grow over time, reflecting rising overall earnings per unit operating asset (Table 3, columns 2 and 4). The year 1973 stands out as especially bad, as would be expected in the light of the economy when the military took power. For gross earnings, 1980 and 1981 stand out as stellar performance years, consistent with the boom associated with high Argentine demand.<sup>5</sup> That performance may also have partly reflected the declining real wage rate and a pass-through of financial costs (Cavallo, 1977), which were rising dramatically (Table 2).

The other real side determinant of earnings is overhead. Expressed as a ratio to sales revenue, this variable shows a slight rising trend despite growing sales per unit asset (Table 3, column 3). Hence such costs do not appear to have generated major fluctuation in the return on assets, at least not in the manufacturing sector as a whole. One interpretation of this ratio's stability is that managerial compensation rose slightly more than proportionately with sales as optimism grew and executives began collecting some of the fruits of the recovery.

*Financial shocks.* How did financial costs affect the earnings stream? After adjusting for the effects of inflation on firms' real net liabilities, the average financial cost per unit net liability was typically quite negative (Table 3, column 5). This was especially true during 1973–75, just as the macro series on real interest rates in Table 2 suggests. So, in the reform period, and to less extent between 1976 and 1979, borrowing generated revenues rather than costs, and must have helped offset poor operating earnings.

Average real financial costs dipped in 1979, reflecting a sudden (and probably unexpected)

jump in the inflation rate; but, thereafter they turn suddenly very positive. (Both shifts faithfully reproduce real interest rate patterns in Table 2.) This movement therefore dampened the earnings growth noted earlier, and may have been partly responsible for rising price-cost margins (as speculated above).<sup>6</sup>

How much these fluctuations in average financial costs affected net earnings rates naturally depended on gearing ratios (borrowing per unit asset). These were surprisingly stable for the consolidated sample (Table 3, column 6). But, as explained in de Melo, Pascale, and Tybout (1985, Appendix B), this is partly due to the valuation of inflation-corrected capital stocks at replacement costs, and the rise in the cost of capital relative to general prices during part of the sample period.<sup>7</sup>

Foreign borrowing was also stable as a ratio to total assets after 1976, when it represented nearly half the debt of the sample firms; but, not surprisingly, before 1976 debt was being shifted from domestic to foreign currency denomination rapidly as capital inflows were being liberalized. By mid-1981, when expectations of a major devaluation began to mount, the manufacturing sector had still not reduced this dollar exposure. This behaviour was consistent with the popular belief that by 1981 loan officers were only willing to renew loans denominated in dollars, and firms had little choice but to go along. Whatever its cause, the heavy dollar exposure of the financial sector was to become a fundamental cause of financial crises when the devaluations finally came.

*Net earnings rates.* We have shown thus far that operating earnings and financial costs moved to offset one another so that net earnings rates should be more stable than either of these components. This is indeed the case, although some net earnings fluctuation is still apparent. In 1973, despite very poor operating earnings, the net real loss on inflation-adjusted equity was only -4% because of major financial subsidies from the interest-rate regime. As these subsidies fell over 1974–78, operating earnings improved to give real returns of 9% in 1977 and 8% in 1978. During the *tablita* period (1979–81), despite the surge in gross earnings and asset turnover until the first half of 1981, the spectre of suddenly positive real financial costs was enough to drag down net income. In 1980 and 1981, the net return on equity fell to 5% and 0%, respectively. Hence, although the national accounts showed the boom in real production during these last years of the reform period, that boom did not translate into high manufacturing sector profitability.<sup>8</sup>

Table 3. Sources of fluctuations in net earnings: Consolidated sample

Real rate of return on net worth	Gross margin	Overhead	Asset turnover	Real financial costs per unit debt	Gearing	Quick ratio	Net foreign assets	Debt growth	Capital stock growth	Investment Capital	Dividends Net worth
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1973	-0.040	0.103	0.136	-0.532	0.506	0.736	-0.137	-0.203	-0.100	0.065	0.016
1974	-0.022	0.174	0.138	-0.338	0.472	0.741	-0.116	0.025	0.103	0.089	0.024
1975	0.019	0.196	0.130	-0.283	0.494	0.740	-0.169	0.107	0.042	0.067	0.022
1976	-0.013	0.206	0.150	-0.035	0.487	0.772	-0.158	-0.038	-0.013	0.088	0.036
1977	0.089	0.221	0.148	-0.140	0.512	0.760	-0.214	0.134	0.083	0.161	0.023
1978	0.077	0.223	0.149	-0.128	0.517	0.787	-0.215	0.023	0.001	0.113	0.033
1979	0.031	0.190	0.150	-0.222	0.519	0.787	-0.224	-0.150	-0.187	0.103	0.036
1980	0.045	0.243	0.153	0.038	0.518	0.734	-0.219	0.185	0.215	0.183	0.040
1981	0.007	0.301	0.157	0.160	0.509	0.808	-0.223	0.050	0.094	0.182	0.055

Definitions (variables are defined in Table 1 of the introduction for this Symposium and Equations 1 and 2).

Col. 1:  $G_0/W$

Col. 2:  $G_1/G_0$

Col. 3:  $G_2/G_1$

Col. 4:  $G_3/A_{0,p}$

Col. 5:  $d = (G_5 + G_0)/D$

Col. 6:  $D/A$

Col. 7:  $(A_1 + A_2)/(D_1 + D_2)$

Col. 8:  $(A_2 - D_2 - D_4)/A$

Col. 9:  $(D/D_{1-1}) - 1$

Col. 10:  $I/K$

Col. 11:  $P/W$



*Some sources and uses of funds.* Ultimately, manufacturing earnings after interest payments (net income) become dividends to shareholders, retired outstanding debts, or financed new asset accumulation. So the last issue we address is how these three variables performed.

Debt growth follows an uneven pattern. Quite surprisingly, in spite of the increase in real credit availability to the private sector throughout the period, cumulative manufacturing real debt growth over the period was insignificant (Table 3, column 9). The reason is that new banking sector credit was channelled to feed the livestock and construction bubbles and the consumption boom.<sup>9</sup> Because of its relatively slow growth in borrowing, manufacturing sector liquidity (measured by the quick ratio), increases slowly but steadily throughout.<sup>10</sup> Thus, even though manufacturing altered the composition of its financial structure towards dollar denominated debt, it did not partake of the rapid growth in available funds.

Official statistics show that investment grew rapidly, particularly during the construction boom in 1979–81 (Table 1). The investment figures for the consolidated sample (expressed as a proportion of average capital stock) also reflect this surge, as well as the high investment rate reported for 1977. It is clear from this series that the reform period generated a recovery in investment rates in manufacturing that was sustained even through the increase in interest rates and the rapid decline in earnings during 1980–81. The investment surge during 1980 and 1981 also confirms the conjecture that manufacturers were purchasing imported machinery and equipment in anticipation of capital gains that would occur when the peso would be devalued (Hanson and de Melo, 1985).

Dividend distributions grew steadily during the

reforms, reaching 5% of net worth by 1981. These payouts were equal to or exceeded the rate of return to net worth during the last three years of the reforms, which meant that relatively rapid debt growth was necessary (Table 3, last column). So, toward the end of the reforms, the dividends to shareholders largely represented cash generated with borrowed funds. Households presumably used this income (and funds obtained directly from banks), to finance the consumption boom that took place in anticipation of a devaluation (Hanson and de Melo 1985).

(b) *Patterns of adjustment and exposure to international competition*

The patterns of adjustment revealed by our consolidated sample provided new evidence of the interaction between real and financial shocks during the reforms. They also confirmed that our method yields results that conform to other evidence on the manufacturing sector. However, consolidated figures mask differences in patterns of adjustment by subgroups of firms. So, having shown how financial ratios can be used to infer behavior, we analyze these same ratios for several subsamples.

We classify firms by the scheme outlined in Table 4. First, we separate firms into exportable and import-competing firms, using the criterion of whether sales under 'normal' circumstances are destined for the home market or abroad.<sup>11</sup> Then, we further subdivide firms into those with high and those with low protection, reasoning that the first group must have borne a disproportionate share of the costs of adjustment to tariff reductions. They may also have been highly protected in the first place because they were out of line with the country's comparative

Table 4. *Classification of firms*

	Exportable goods producers	Import competing	Effective protection on domestic sales	
			MIN	MAX
Exporters	10			
High Protection		33	102	545
Low Protection		26	-17	82
Total	10	59		

Note. Average effective protection on domestic sales for manufacturing: 86%.



advantage, and may therefore have fared worse after the opening to foreign trade.

This classification of firms by protection is on the basis of effective protection figures that CINVE estimated at the product level for 1980.<sup>12</sup>

Once again, the ratios described in Table 3 are constructed and analyzed for each subgroup; but, now we use comparisons of mean firm-specific ratios (rather than ratios constructed from consolidated financial statements), which allow us to perform statistical tests of constancy across subgroups and time using an error components model. (See the Introduction to Part II of the Symposium for a description of the statistical model.) Among other things, we formally test: (1) whether ratios do not change and are common to all sectors; (2) whether they follow the same path in all sectors; and (3) whether there is a significant correlation between firm size and the ratio analyzed. Statistical results are reported in their entirety in Table A1 of the Appendix.

*Real side shocks.* It is generally believed that the combination of commercial policy reforms and exchange rate regimes that characterized 1973–81 had important effects on sector-specific variations in earnings rates. Special export subsidies and changes in international markets are also believed to have played significant roles. In this section, we begin by quantifying these effects with sector-specific means of gross margins and asset turnover rates.

We first consider the conjecture that an overvalued exchange rate hurt exportable goods producers more than import-competing producers during both 1972–75 and 1979–81. This is believed to have occurred because redundant protection for import-competing industries made them invulnerable to reductions in the real exchange rate (CINVE, 1983, and Table 1).

For gross margins, the relative performance of exportable goods producers is in line with expectations until at least 1980 (Figure 2.1). Their average margins were extremely poor during 1973–75 period and then jumped dramatically during 1976 and 1977, when the real exchange rate rose and several major export promotion schemes were instituted. Then, as these promotion schemes were dismantled and the exchange rate began to appreciate during 1978 and 1979, exportable margins became very low once more. In contrast, import-competing firms show much less variation, and clearly enjoy higher average margins. Not surprisingly, the difference between the paths of margins for exportable and import-competing firms is significant (Appendix Table A1).

Margins during 1980 and 1981 do not seem to

be explained by the real exchange rate, at least not that against the dollar. Despite the fact that real appreciation accelerated during these years, exportables exhibit a dramatic (albeit partial) recovery and importables register their highest margins ever. There are two plausible explanations. First, and perhaps most important, during these years the Argentine peso appreciated against the Uruguayan peso (Table 2, column 10) inducing a major shift of Argentine demand toward Uruguayan goods. (This may explain why exportables recover relatively more.) Second, during 1980 and 1981 real financial costs in Uruguay increased dramatically, and many producers may have been able to pass on at least part of these costs to consumers by increasing their output prices, or backward to laborers through reduced real wages.

For importables, there is a surprisingly strong negative association between size and margins. This was not true among exportables. Moreover, neither exportables nor importables showed any significant association between size and margins in Chile or Argentina (see Galvez and Tybout, 1985; Petrei and Tybout, 1985). One possible explanation is that larger firms compete more directly with foreign producers, an effect that might not show up in the other countries simply because Uruguayan small firms are much smaller than their Chilean or Argentine counterparts.

The importance of commercial policy reforms is best gauged by the breakdown of the import-competing sample by high and low protection. The gross margins of low-protection firms were larger than those of high-protection firms throughout the reform period, and the gap is remarkably constant at roughly 0.15 (Figure 2.2). Hence we have striking corroboration of the CINVE (1983) study. Commercial policy reforms do not seem to have squeezed high-protection firms relatively more. Or, in other words, such things as reference pricing and redundant protection seem to have offset any tendency for tariff reductions to force down the relative price of highly protected import-competing firms *vis à vis* others.<sup>13</sup> Nonetheless, barriers to foreign competition notwithstanding, these highly protected firms performed much worse in terms of margins. One can easily imagine why authorities were not eager to bring additional pressure to bear on this already weak enclave of producers.

In principle, high sales volumes can be offset by low margins, and one might expect this for labor-intensive industries. So, to compare the performances of subgroups of firms in different industries, one must examine asset turnover as well as margins. Asset turnover trajectories also

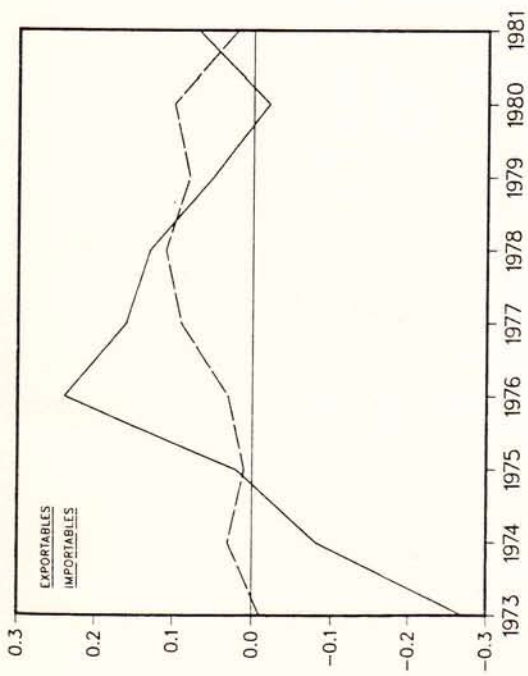


Figure 1.1. Net earnings rates: exportables vs. importables (1973 to 1981).

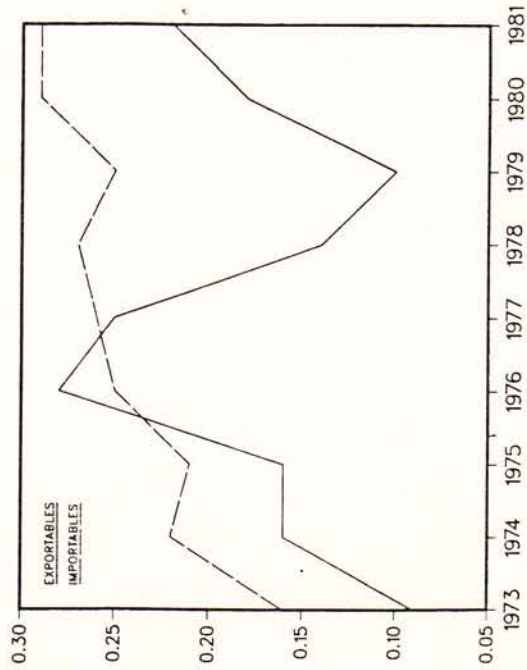


Figure 2.1. Gross margins: exportables vs. importables (1973 to 1981).

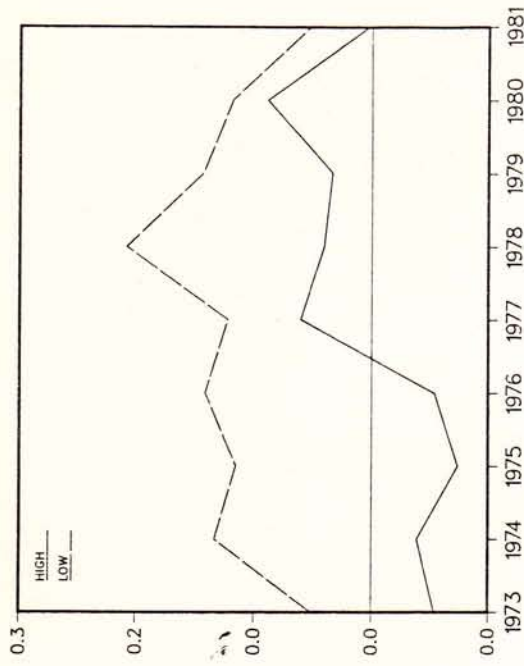


Figure 1.2. Net earnings rates: high vs. low protection (H/L) (1973 to 1981).

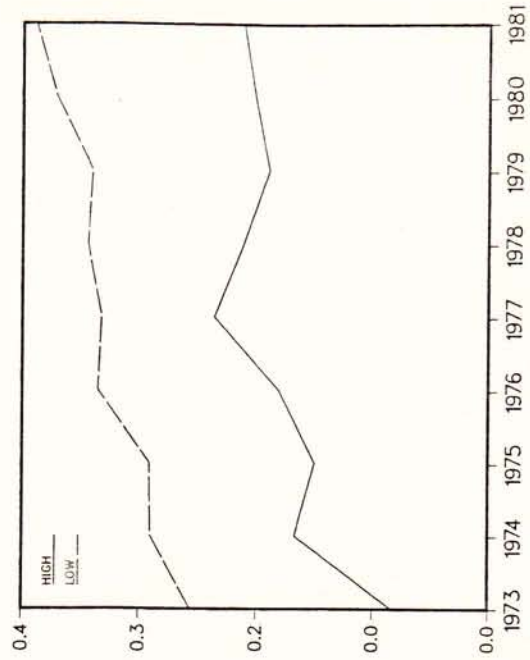


Figure 2.2. Gross margins: high vs. low protection (1973 to 1981).



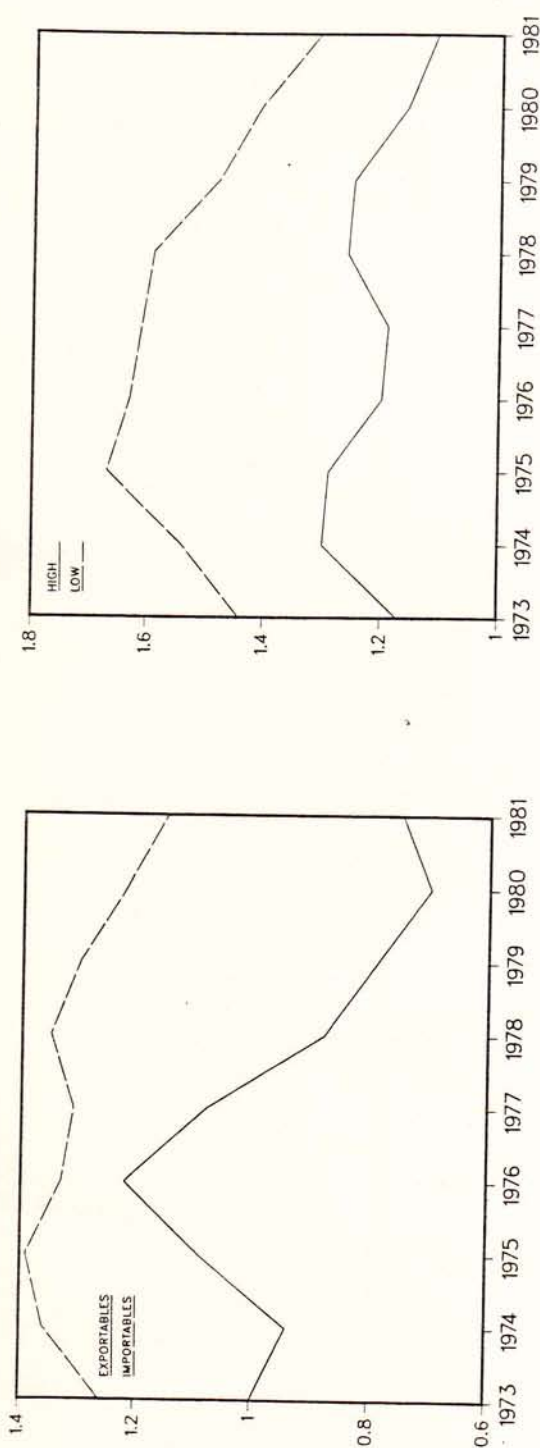


Figure 3.1. Asset turnover: exportables vs. importables (1973 to 1981).

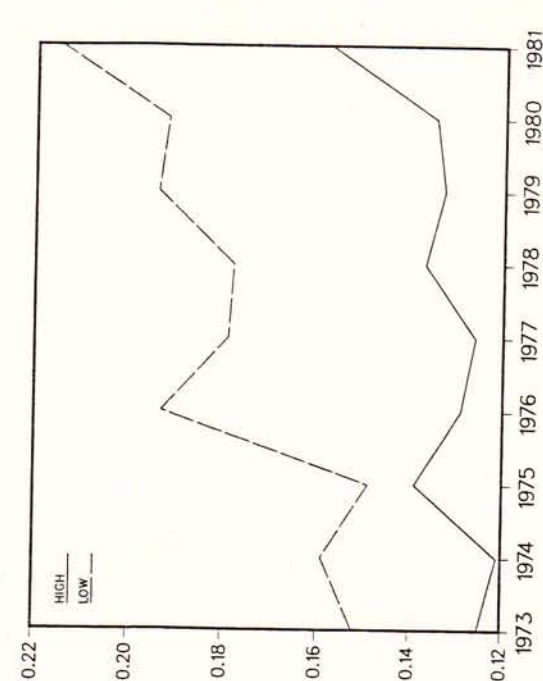


Figure 3.2. Asset turnover: high vs. low protection (1973 to 1981).

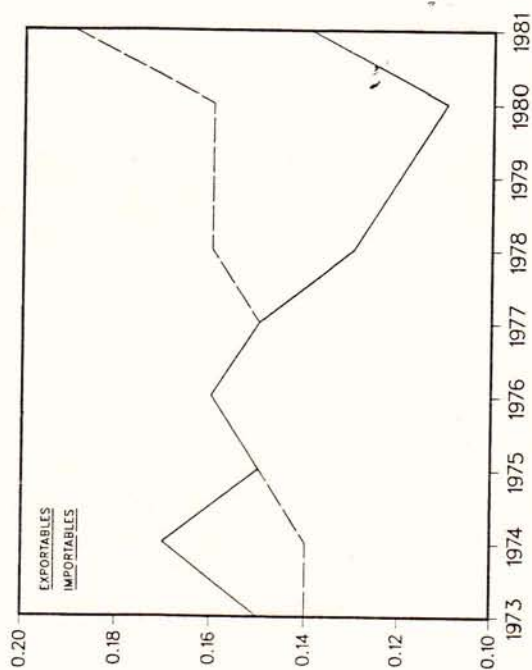


Figure 4.1. Overhead: exportables vs. importables (1973 to 1981).

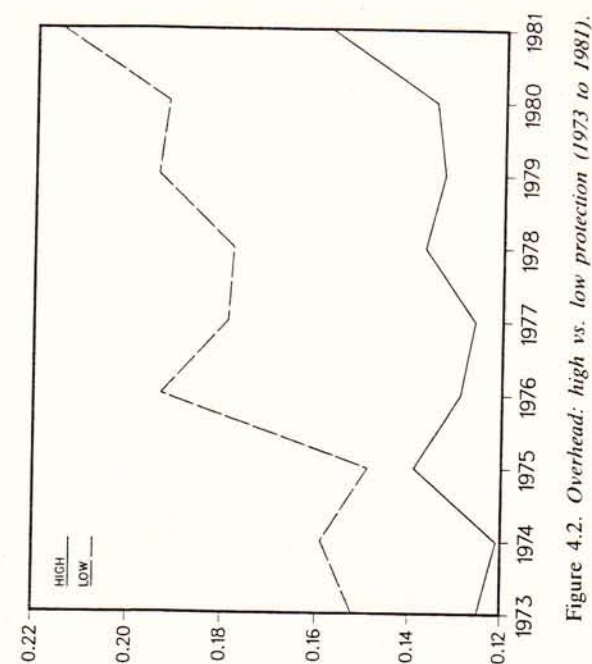


Figure 4.2. Overhead: high vs. low protection (1973 to 1981).

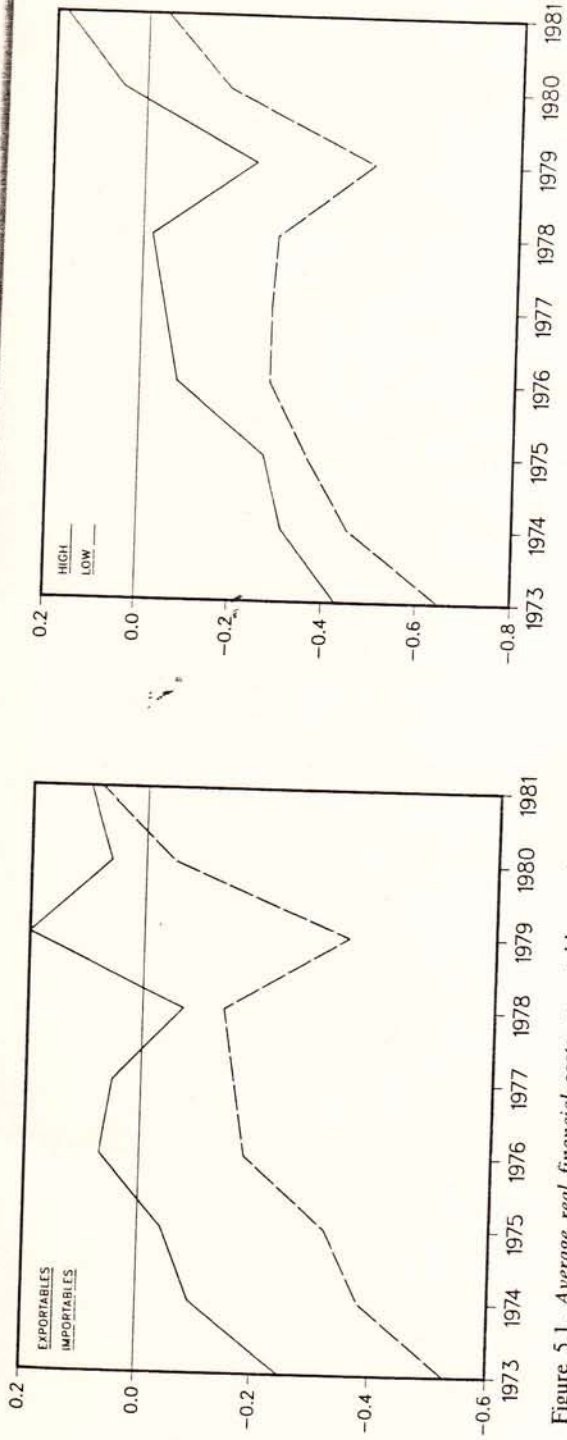


Figure 5.1. Average real financial costs: exportables vs. importables (1973 to 1981).

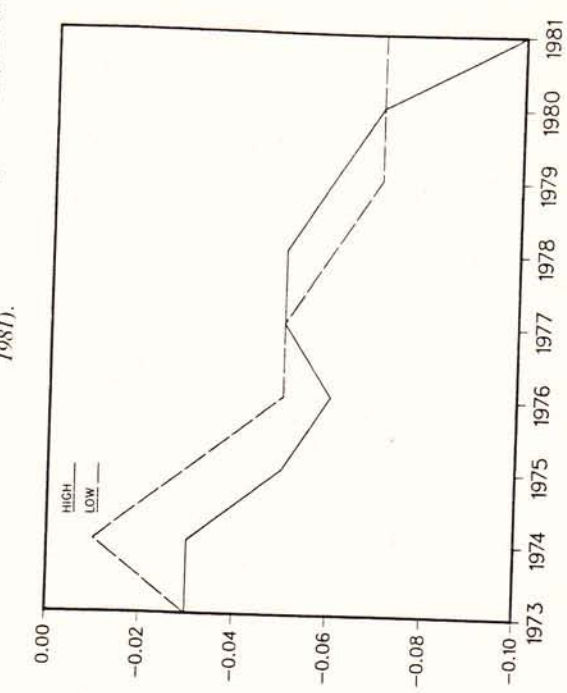


Figure 5.2. Average real financial costs: high vs. low protection (1973 to 1981).

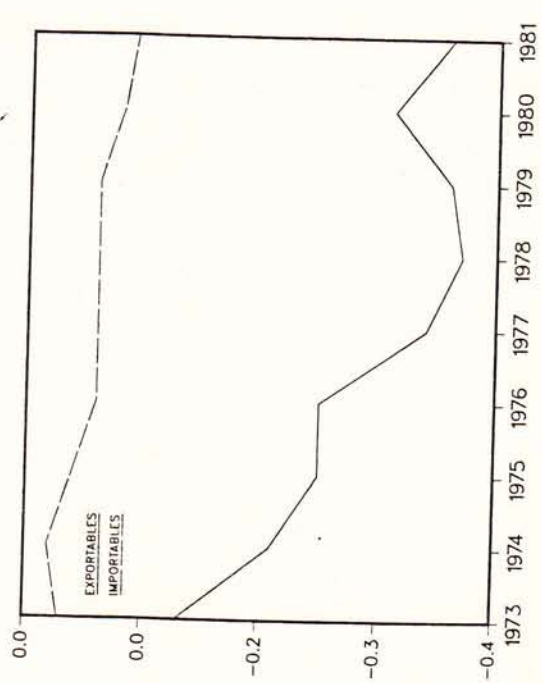


Figure 6.1. Net foreign assets per unit asset: exportables vs. importables (1973 to 1981).

Figure 6.2. Net foreign assets per unit asset: high vs. low protection (1973 to 1981).



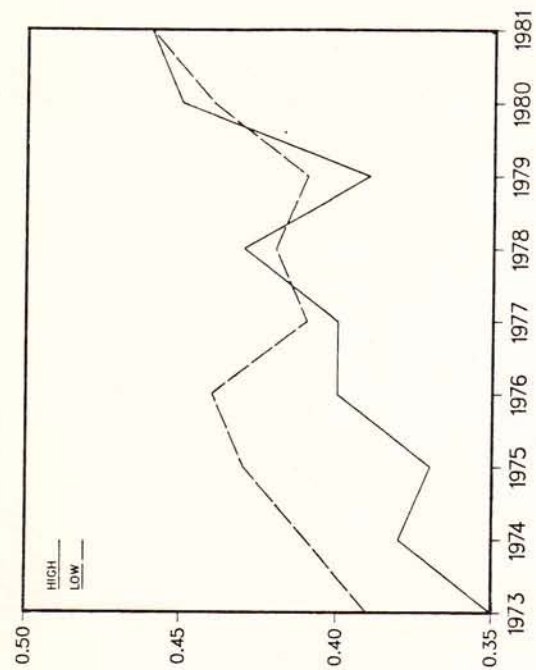


Figure 7.1. Gearing ratios: exportables vs. importables (1973 to 1981).

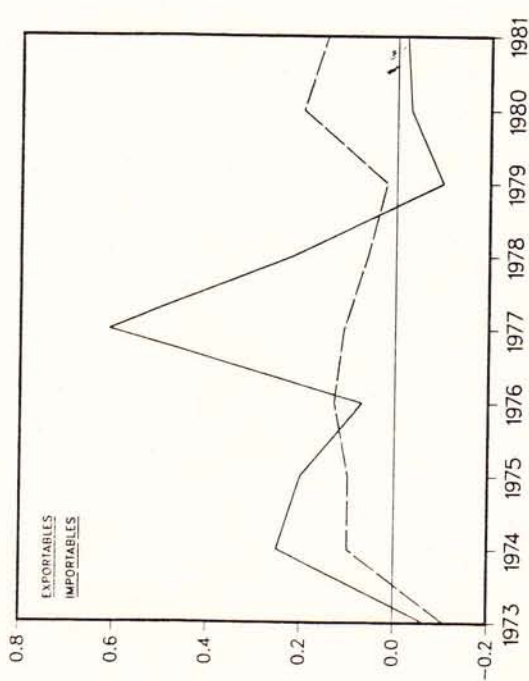


Figure 8.1. Real debt growth: exportables vs. importables (1973 to 1981).

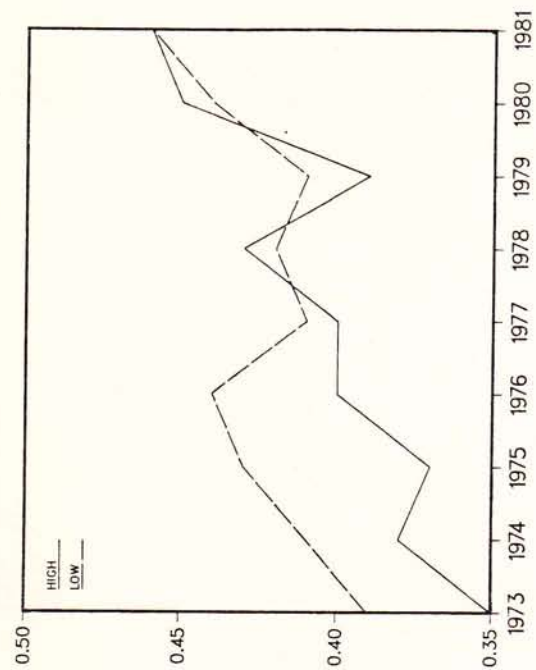


Figure 7.2. Gearing ratios: high vs. low protection (1973 to 1981).

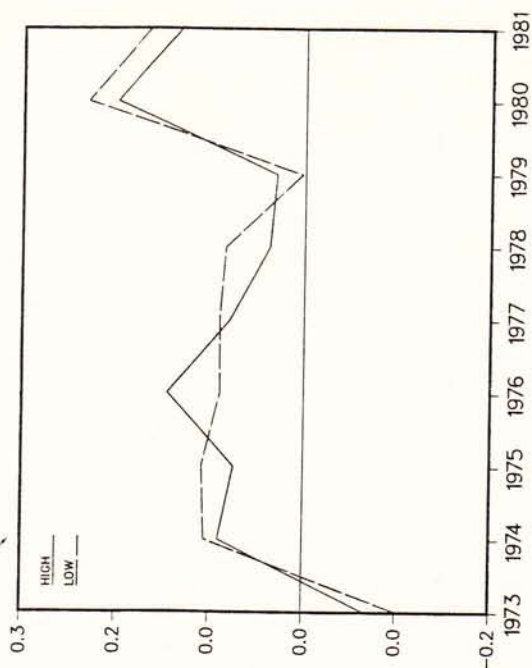


Figure 8.2. Real debt growth: high vs. low protection (1973 to 1981).

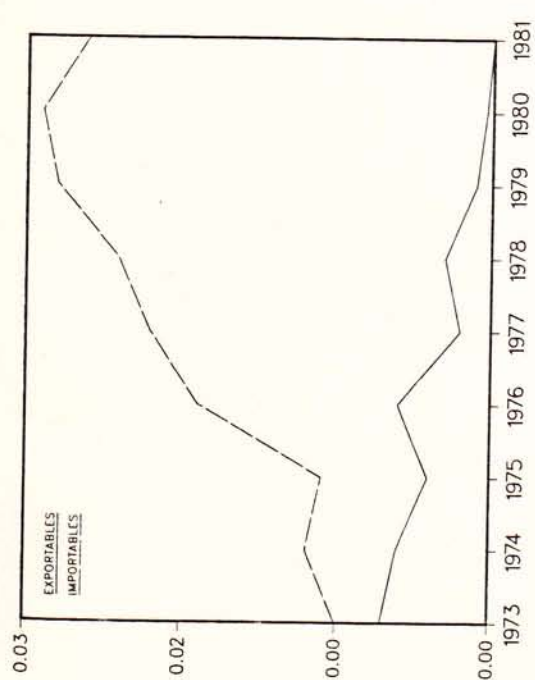


Figure 9.1. Real dividend payout rates: exportables vs. importables (1973 to 1981).

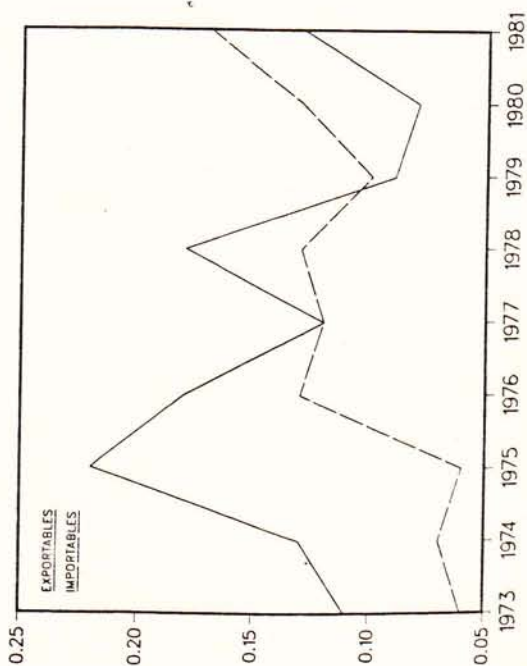


Figure 10.1. Fixed investment (gross) per unit capital: exportables vs. importables (1973 to 1981).

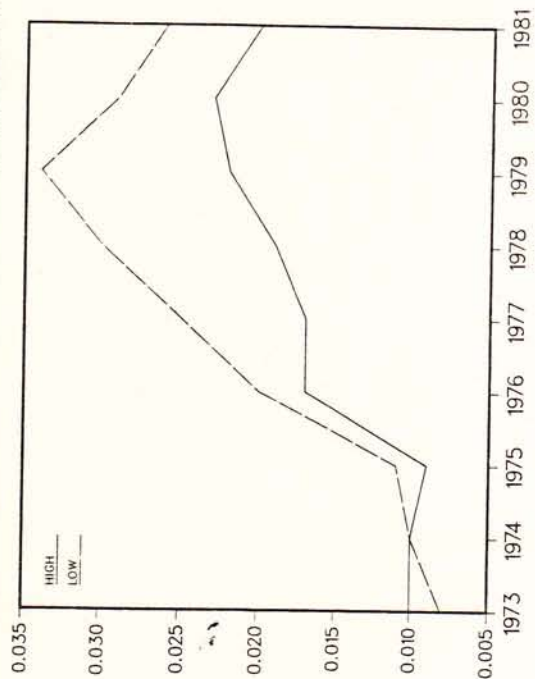


Figure 9.2. Real dividend payout rates: high vs. low protection (1973 to 1981).

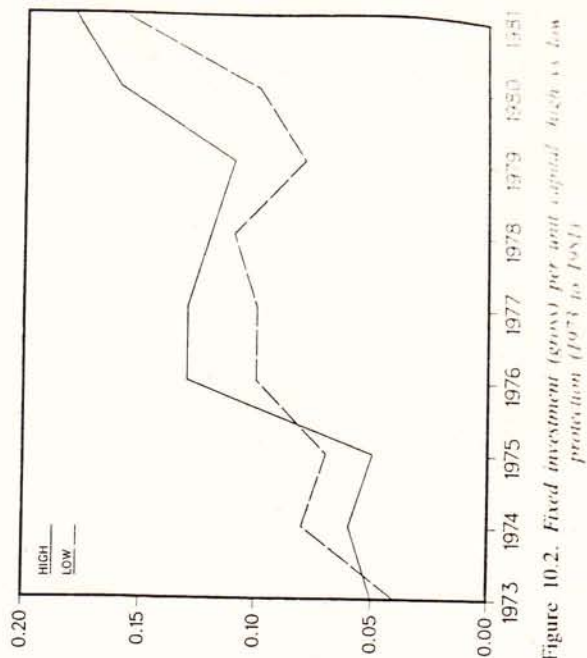


Figure 10.2. Fixed investment (gross) per unit capital: high vs. low protection (1973 to 1981).



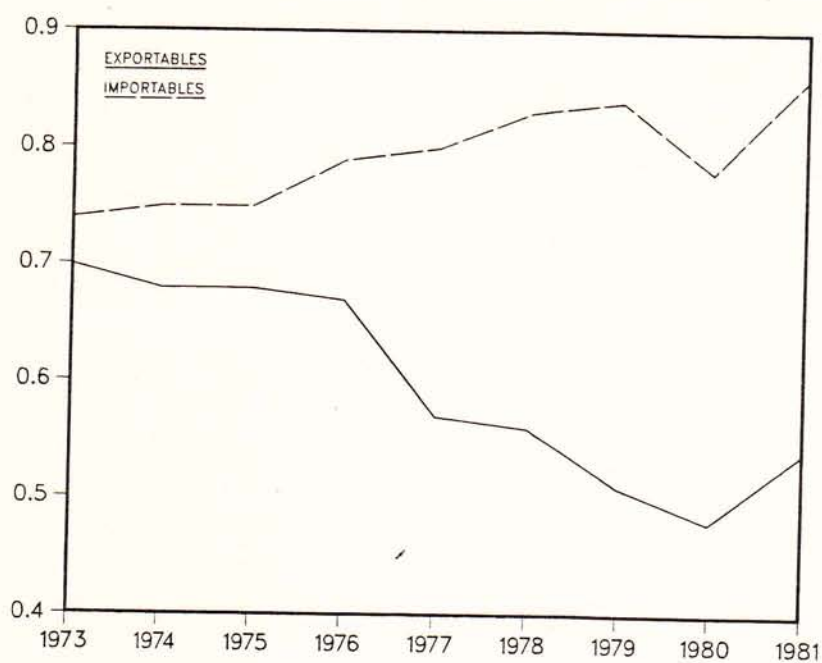


Figure 11.1. Quick ratios: exportables vs. importables (1973 to 1981).

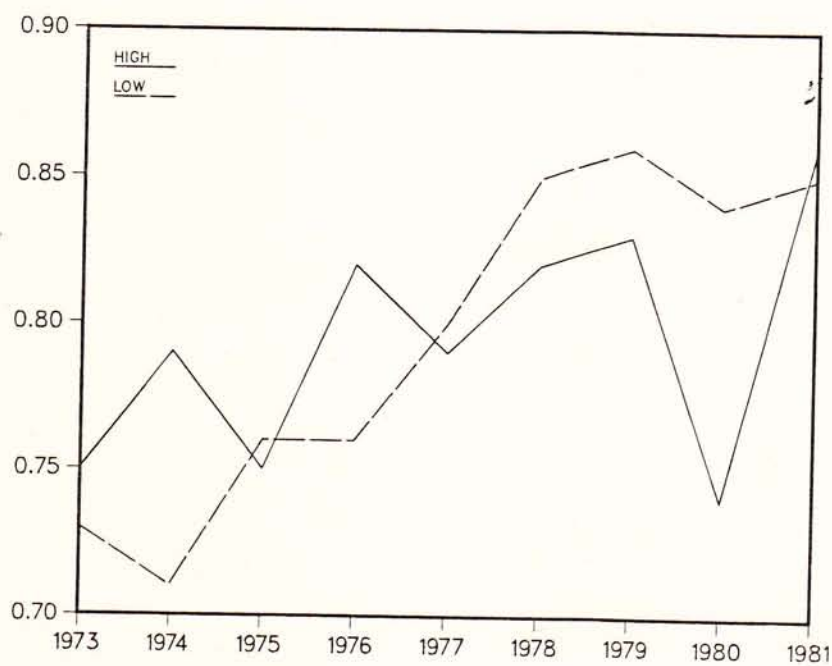


Figure 11.2. Quick ratios: high vs. low protection (1973 to 1981).

provide evidence on intertemporal fluctuations in capacity use when real product prices are stable (or their direction of change is known).

For exportable goods producers, margins were not only relatively low, but sales per unit asset were relatively small (Figure 3.1). The distinction between turnover rates in the two sectors is significant, as were the differences in margins. So low turnover rates compounded rather than offset the problems of exportable goods producers with low margins. Turnover rates for these producers rises with margins in 1977, suggesting that an increase in real output prices at least partly explains the results. But, in 1980 and 1981, exportables register very low turnover rates despite improved margins. So margins may have been improving partly because of reduced labor costs rather than improved output prices, and capacity use may also have been falling some. (Table 1 shows a slowdown in manufacturing growth, especially during 1981.)

As with exportables, the turnover rates of import-competing firms fall off toward the end of the sample period. This fall in turnover rates toward the end of the sample period is consistent with variations in the index of hours worked in Table 1 — also a rough proxy for capacity utilization. However, this result is somewhat puzzling because it did not appear in our consolidated figures (Table 3). The explanation for this may be that small firms began to experience turnover problems as early as 1978, but that the consolidated figures did not reflect this because large firms — which received heavier weights — were improving their turnover.

A comparison of importable goods producers with high and low protection confirms that here, too, relatively low turnover rates compounded rather than offset the impact of their relatively poor margins on earnings (figure 3.2). So, just as with exporters, problems of low capacity use and small price-cost differences dragged down the earnings of import-competing firms that had began the reform period from a position of high protection.

Turning to unit overhead costs, the last component of operating earnings, we find that some interesting cross-sector contrasts were disguised by our stable consolidated figures. Specifically, overhead costs among exporters start downward after 1977, while those of import-competing firms continue upward (Figure 4.1). Recalling that 1977 is the peak year for exporters' margins and turnover rates, it must be that overhead costs per unit sale are being cut in this sector despite falling sales. This must have helped cushion the effect of increasingly adverse markets on these firms, and may reflect an

increase in managerial efficiency. Among highly protected importable-goods producers, which also had margin and turnover problems, the economizing in overhead expenses is similar (Figure 4.2).

*Financial shocks.* Before presenting our findings on whether the changing financial environment affected different subsectors differently, we mention several popular beliefs. First, it is generally held that firms benefited substantially from the low real financial costs during the 1970s and suffered when these disappeared in the 1980s (Hanson and de Melo, 1985).<sup>14</sup> Second, some authors have emphasized that exportable-goods producers enjoyed particularly low costs when special financial subsidies were in place (1976–78), and likewise had the most arduous adjustment problem when the dismantling of these subsidies coincided with the rapid increase in real interest rates (Mezger, 1980). Third, it is commonly speculated that exporters relied relatively heavily on dollar credit throughout the period because their sales revenues were tied to the price of dollars. If true, this factor should have offset poor operating earnings to some extent after the *tablita* period began.

As with the consolidated figures presented earlier, the time path of real peso borrowing rates is faithfully recreated in the disaggregated figures (Figure 5.1). Firms receive large financial subsidies early in the reform period, and the negative rates give way to positive rates in the last several years. Surprisingly, however, the exportable-goods producers appear to have paid *higher* rates than the import-competing firms. During the pre-*tablita* phase (1974–76), the heavier dollar debt of exportable-goods producers might explain why exportables had higher financial costs because dollar credit was relatively expensive in those days. But, such an explanation does not account for the continuing high price that these producers paid during 1977–81. We can note only that these measures of financial cost vary considerably from firm to firm in each subsample, and hence the distribution of financial costs between exportable and import-competing producers is far from significant.

Did exportable-goods producers really rely more heavily on dollar credit? Here the answer is a resounding yes (Figure 6.1): Net dollar liabilities of these firms as a ratio to total assets reached an amazing average of 0.36 by 1981, compared with 0.12 for import-competing firms. As reported in the Appendix, the larger firms clearly were more exposed in dollars than others; and although this correlation was significant in all subsamples, it was much more pronounced for exporters. We can conclude that, although the



impact of dollar borrowing on exporters' credit costs was not clear enough to emerge from our sample, exportables were very exposed in dollars by 1981. As mentioned already, this exposure may not have been so much a choice by managers as something forced on them by banks. Whatever the cause, this dollar exposure meant that the very sector authorities had set out to promote in the mid-1970s was, by 1981, at a relative disadvantage in financial operations.

*Net earnings rates.* Despite large cross-firm variation in financial costs, net income does follow statistically distinct time paths in each sector (Figure 1.1). We can easily reject the null hypotheses that both trajectories are flat and that both sectors follow the same time path (see Appendix). Because the two sectors had statistically indistinguishable financial costs, it is unsurprising that these net earnings rates seem to correspond to changes in real side factors. Notice that the jump in gross margins and turnover rates during the export promotion period (1975-78), translated into unprecedented profit rates for exporters. Notice also that the subsequent drop in these margins and turnover rates seem to play a large role in pulling the profits of exporters back down. We conclude that the combined effect of export promotion programs and a reasonable real exchange rate helped manufacturing sector's export performance while it lasted.

The pattern for high and low protection importable-goods producer also is an apparent reflection of differences in real rather than financial factors (Figure 1.2). High protection firms had consistently worse margins and turnover rates, and this seems to translate directly to poor net earnings.

*Some sources and uses of funds.* Adjustments in borrowing rates, dividend payout rates, and investment rates are the three ways firms can adjust their cash flow to changing earnings and expectations. Once again, several beliefs are commonly held. First, it is often maintained that firms doing well were not retaining much of their income during the boom of 1979-81 (Pascale, 1982). Second, the investment that did take place was mainly by exporters during the export promotion period of 1976-78 (Hanson and de Melo, 1985). Third, the liberalizing of financial markets allowed this investment to be financed by debt; and negative real interest rates during the late 1970s led to rapid debt expansion simply as a revenue source (de Melo and Suriyasat, 1985).

On the issue of earnings retention, firms that did better in the mid-1970s (exporters) were paying virtually no dividends, while import-

competing firms paid roughly a third of their profits out (Figure 9.1). Although high-protection firms paid out a bit less than the more profitable low-protection firms, this result challenges the view that dividends were closely related to earnings (Figure 9.2). Indeed, in 1981, when high protection firms had zero real earnings and low protection firms only earned around 5%, these two sectors paid out 2% and 2.6% of their net worth, respectively.

Why didn't exporters pay out more during 1976-78? Apparently, they were rapidly accumulating assets. Perhaps inspired by the new government's resolve to promote international trade, and buoyed by high profits, they registered gross fixed investment rates considerably higher than those of the importable sector between 1975 and 1978 (Figure 10.1). Retained earnings alone were insufficient to finance growth in these and more liquid asset stocks — so, as has often been asserted, real exportable borrowing also rapidly expanded (Figures 7.1 and 8.1). Both variables show sectoral contrasts that are significant (Appendix Table A1). When the earnings rates of exporters fell in 1979 and 1980, real fixed investment and real debt growth both dropped abruptly.

Importable firms took over as the leading sector in 1979-81. Both high and low protection firms register rising fixed investment rates, despite climbing interest costs and in some cases faltering earnings. Partly because these firms continued to pay out dividends at 2 to 3% of net worth, this expansion meant that the growth of real debts had to pick up briskly. The ultimate effect on their balance sheet structure was a marked increase in gearing rates among import-competing firms (Figure 7.1).

### 3. CONCLUSIONS

The basic objective of this paper was to provide an integrated firm-level view of the changes in economic conditions that transpired during recent Uruguayan reforms. After establishing that our method yielded results that conform to what already was known, we went on to report a number of new findings. To begin, in studying the manufacturing sector as a whole, we found three clear phases in the 1973-81 reform period. During the first phase, the real earnings rate for productive assets was rather low, but because real interest rates were highly negative, manufacturers managed to survive. During the second phase, financial liberalization had notably increased financial costs, yet operating earnings had rebounded enough for net earnings rates to



improve. During the third phase, real financial costs jumped so much that high operating earnings (probably induced by Argentine demand for Uruguayan goods) were insufficient to prevent a clear drop in the return on equity.

These earnings patterns were not uniform across sectors of activity. As the economy moved into the second phase, several export promotion schemes were instituted, and these had a clear positive effect on the real operating earnings of exporters. But, during the third phase, these programs were dismantled and new anti-inflationary policies had the effect of appreciating the exchange rate. Exporters ceased to be the most profitable sector, despite increased Argentine demand, while import-competing sectors boomed.

Throughout all three phases, import-competing firms that were highly protected did much worse than other importable goods producers. This poor performance was due to low gross margins and turnover rates, which more than offset their low overhead costs. It seems likely, therefore, that protection had been largely determined by each sector's ability to compete with foreign substitutes. Interestingly, we found that the difference between high and low protection firms' margins and turnover rates was very stable, suggesting that commercial policy reforms — though highly publicized — had little effect on profits.

Gross fixed investment rates showed a clear jump between the first and second phases and were sustained through the third phase despite

falling net earnings rates. Thus, borrowing played an increasing role in investment finance late in the reform period. As with other variables, these indicators of performance exhibited some cross-sectoral contrasts. During the second phase, which was characterized by export promotion, exporters were purchasing capital goods most rapidly. Later, in the third phase, import-competing firms were the most enthusiastic about capacity expansion. So the export promotion regime, whatever its merits, had a discernable impact on long-term resource allocation in the manufacturing sector. Not surprisingly, the relatively unprofitable high-protection importable goods sector did less capacity expansion than other import-competing firms, but the distinction between these subgroups was not significant.

Finally, dividend payout rates picked up from close to zero in the first phase to around 2 or 3% of net worth during the second and third phases. In the second phase this translated into about a quarter of profits, not inordinate. But, by 1981, such payout rates must have necessitated considerable new borrowing, given that profit rates were close to zero and fixed investment rates marched on unabated. (Closer inspection of the data reveals that, regardless of the phase, only import-competing firms were paying significant dividends.) Rather imprudent dividend and investment policies combined with a long standing heavy exposure in dollar debt thus provided the ingredients for a financial crisis when major devaluations ended the reform period.

## NOTES

1. This group of firms includes the largest in Uruguay, and represents about 65% of manufacturing employment. Inflation corrections are described in the working paper version of this study, and correspond to the system of 'general purchasing power' adjustment reviewed in Tybout (1984).

2. This section draws from Hanson and de Melo (1985).

3. The size of this external shock has been estimated at 10% of average GDP over the period 1974–78 (Balassa, 1981).

4. Because the use of consolidated data in this subsection precludes statistical tests, statistical results based on mean ratio values across all sample firms are also reported in Table A2 of the Appendix for the interested reader.

5. Table 1 shows this boom ending in 1981, but because most of our sample closed its books in mid-year, the steep decline in output that came during

the second half of the year should not be expected to show up in Table 3 figures.

6. For this to have occurred, producers would have had to be able to increase their output prices *vis à vis* foreign competitors, or reduce their real payments to labor. The former would have required limited substitutability between foreign and domestic goods or redundant protection, an issue that will be taken up later.

7. We replaced our capital price inflator with the CPI in our adjustments for inflation, and found that ratios other than gearing did not change much. Sectoral results in section (b) are based on this CPI-adjusted data set so that we isolate the influence of factors other than real capital stock prices that are present in results shown in Table 3.

8. An important transfer was taking place from shareholders and workers toward depositors at financial intermediaries, who ultimately reaped the benefits of increased output through their interest earnings.



9. See Hanson and de Melo (1985). Data on manufacturing sector debt are available starting in 1979. They show that the ratio of debt to manufacturing sector value added rose by 10 percentage points to 0.62 between 1979 and 1980, but remained stable in 1981, thus confirming the trends in Table 5.
10. The fall in liquidity during 1980 reflects the rise in real debt during that year. Note that insofar as dollar exposure was increasing while the real exchange rate was appreciating and the maxi-devaluation was on the horizon, the rising quick ratio values are misleading indicators of liquidity.
11. In Uruguay, such a classification is very hazardous, especially during the period we are analyzing because the real exchange rate index with Argentina and Brazil fluctuated greatly. Indeed, when Argentina appreciated dramatically *vis-à-vis* Uruguay in 1979 and 1980, many import-competing firms were able to export temporarily to Argentina. But, it is plausible to assume that this exporting was perceived as temporary, so that one can keep this classification subject to caution in interpretation for the years when competitiveness with Argentina or Brazil fluctuated drastically.
12. Because firms produce a variety of technologically unrelated products (for instance, joint products) classification biases will result. Such occurrences are rare in Uruguay, however, and there is a clear cut in the range of effective protection estimates for each group (see Table 6) that reduces the impact of biases.
13. Such a result stands in contrast to the study of import-competing firms in Chile (Galvez and Tybout, 1985), where margins for highly protected firms fell much more dramatically than for firms with low protection as tariffs were reduced.
14. The government lent dollars to banks for them to convert to pesos and use to finance exports. The exporters who received this money paid interest amounting to 10% of the dollar loan, translated into pesos at the exchange rate prevailing upon loan maturity. But the principal was repaid at the exchange rate that prevailed when the loan was granted, making the effective real interest rate very negative.

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APPENDIX:  
STATISTICAL TESTS

In Table A1, we present the results of estimating the error components model described in the introduction to the Symposium for each financial ratio discussed in

the text. For the aggregate sample, exporters vs. importers, and high vs. low protection firms, a set of summary statistics is reported:

- $n$  = number of firms in the sample after outlier exclusion  
 $\hat{\beta}$  = correlation of dependent variable with firm size  
 $t_2$  =  $t$  ratio for the null hypothesis that  $\beta$  is zero  
 $\sigma_\epsilon^2$  = estimate of 'pure noise' error component  
 $\sigma_v^2$  = estimate of unexplained cross-firm variation  
 $F_1$  = statistic for the null hypothesis that the mean value of the dependant variable is the same in all subsamples and constant across time  
 $F_2$  = statistic for the null hypothesis that the

mean value of the dependent variable follows the same time path in all subsamples

$F_3$  = statistic for the null hypothesis that  $\beta$  is the same in all subsamples

The coefficients for time dummies are not reported for our exportable vs. importable estimates, nor for our high vs. low estimates, because they have been graphed in Figures 1 through 10 in the text. But, since only consolidated ratio values were reported for the aggregated sample in the text, the time dummy coefficients associated with this sample are presented in Table A2.

Table A1

		Aggregate				
		By sector		By protection		
			Exportables	Importables	High	Low
1. Gross margin	$n$	58	9	51	29	22
	$\hat{\beta}$	-.031	.054	-.035	-.035	-.030
	$t_2$	(-3.22)	(1.42)	(-3.24)	(-3.24)	(-1.65)
	$\sigma_\epsilon^2$	.010		.009		.008
	$\sigma_v^2$	.023		.023		.020
	$F_1$	10.71		6.65		6.10
	$F_2$			2.65		1.89
	$F_3$			5.15		0.60
2. Net earnings rates	$n$	55	6	48	28	20
	$\hat{\beta}$	.008	.086	-.01	-.017	.007
	$t_2$	(.47)	(1.24)	(-.57)	(-.92)	(.26)
	$\sigma_\epsilon^2$	.045		.038		.038
	$\sigma_v^2$	.033		.029		.028
	$F_1$	2.23		2.75		2.07
	$F_2$			2.24		1.69
	$F_3$			1.80		0.53
3. Asset turnover	$n$	53	8	46	29	18
	$\hat{\beta}$	-.35	-.19	-.37	-.39	-.35
	$t_2$	(-14.09)	(-1.96)	(-14.29)	(-14.09)	(-5.97)
	$\sigma_\epsilon^2$	.051		.052		.049
	$\sigma_v^2$	.205		.202		.205
	$F_1$	5.97		4.76		3.71
	$F_2$			2.70		1.97
	$F_3$			2.86		0.39
4. Average real financial costs	$n$	48	8	36	22	18
	$\hat{\beta}$	-.029	-.040	-.038	-.034	-.043
	$t_2$	(-1.21)	(-.45)	(-1.38)	(-1.16)	(-.86)
	$\sigma_\epsilon^2$	.068		.072		.069
	$\sigma_v^2$	.076		.080		.074
	$F_1$	21.07		9.57		9.99
	$F_2$			1.23		1.01
	$F_3$			0.001		0.02
5. Gearing	$n$	49	8	45	27	17
	$\hat{\beta}$	.044	.06	.04	.03	.07
	$t_2$	(3.59)	(1.68)	(3.12)	(1.85)	(2.98)
	$\sigma_\epsilon^2$	.009		.009		.01
	$\sigma_v^2$	.019		.021		.02
	$F_1$	3.27		3.63		2.19
	$F_2$			2.93		0.64
	$F_3$			0.31		2.22



Table A1 (continued)

			Aggregate	By sector		By protection	
				Exportables	Importables	High	Low
6. Net foreign assets	$n$		51	3	46	27	19
	$\hat{\beta}$		-.025	-.256	-.018	-.02	-.01
	$t$		(-4.06)	(-4.65)	(-3.28)	(-4.23)	(-.84)
	$\sigma^2_{\hat{\beta}}$		.004	.003			.003
	$\sigma^2_{\hat{\beta}}$		.007	.005			.003
	$F_1$		9.23	8.52			3.61
	$F_2$			7.56			0.71
	$F_3$			18.61			2.17
7. Fixed investment per unit capital	$n$		50	7	44	25	18
	$\hat{\beta}$		.008	-.032	.009	.01	.01
	$t$		(1.26)	(-1.13)	(1.21)	(1.16)	(1.39)
	$\sigma^2_{\hat{\beta}}$		.011	.011			.009
	$\sigma^2_{\hat{\beta}}$		.003	.004			.003
	$F_1$		4.85	3.30			3.67
	$F_2$			2.14			0.70
	$F_3$			1.95			0.08
8. Real debt growth	$n$		56	9	48	29	19
	$\hat{\beta}$		.0004	.034	-.002	-.01	.02
	$t$		(.038)	(.71)	(-.12)	(-.74)	(.86)
	$\sigma^2_{\hat{\beta}}$		.110	.109			.111
	$\sigma^2_{\hat{\beta}}$		.002	.003			-.001
	$F_1$		3.76	3.61			1.46
	$F_2$			3.10			0.13
	$F_3$			0.51			1.30
9. Real dividend payout rates	$n$		51	6	44	27	16
	$\hat{\beta}$		.002	.003	.002	-.00	.01
	$t$		(.87)	(.43)	(.91)	(-.05)	(2.53)
	$\sigma^2_{\hat{\beta}}$		.001	.00			.00
	$\sigma^2_{\hat{\beta}}$		.001	.001			.00
	$F_1$		3.68	2.81			2.36
	$F_2$			1.27			0.48
	$F_3$			0.05			4.92
10. Overhead	$n$		58	10	48	28	19
	$\hat{\beta}$		-.007	-.005	-.007	.001	.001
	$t$		(-1.43)	(-.30)	(-1.40)	(.16)	(.12)
	$\sigma^2_{\hat{\beta}}$		.002	.002			.002
	$\sigma^2_{\hat{\beta}}$		.007	.007			.006
	$F_1$		2.61	2.71			3.37
	$F_2$			2.73			2.11
	$F_3$			0.01			0.00
11. Quick ratio	$n$		55	9	46	26	20
	$\hat{\beta}$		-.069	-.068	-.065	-.066	-.076
	$t$		(-3.14)	(-.82)	(-2.85)	(-2.32)	(-1.63)
	$\sigma^2_{\hat{\beta}}$		.058	.057			.062
	$\sigma^2_{\hat{\beta}}$		.092	.092			.107
	$F_1$		0.68	1.36			0.85
	$F_2$			1.96			0.45
	$F_3$			0.001			0.04

Table A2. Financial performance indicators: Mean ratio estimates for the aggregate sample

	Gross margin	Financial cost	Debt growth	Investment on capital	Dividend over net worth	Overhead	Net income	Asset turnover	Gearing	Net foreign assets	Quick ratio
1973	.148	-.486	-.102	.067	.010	.144	-.052	1.220	.376	-.035	.736
1974	.212	-.329	.127	.077	.011	.148	-.007	1.304	.404	-.034	.741
1975	.203	-.269	.106	.076	.012	.149	-.017	1.343	.414	-.062	.740
1976	.253	-.135	.125	.133	.018	.159	.040	1.296	.430	-.071	.772
1977	.257	-.124	.161	.119	.019	.153	.070	1.263	.424	-.077	.760
1978	.249	-.130	.087	.137	.021	.155	.067	1.274	.430	-.082	.787
1979	.232	-.327	.006	.098	.024	.158	.041	1.226	.404	-.090	.787
1980	.278	-.034	.169	.126	.025	.156	.051	1.150	.448	-.099	.734
1981	.278	.085	.126	.159	.022	.179	-.010	1.102	.456	-.107	.808