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ACCESS TO INTERNATIONAL FUNDS AND THE BOOM IN MEXICO AFTER THE TEQUILA CRISIS: IS THERE ANY EVIDENCE FROM THE COMPANIES QUOTED IN THE NYSE?

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Abstract

The main goal of the present paper is to test the hypothesis that the Mexican economic boom of the second half of the 90s –which coincided with a post-Tequila credit crunch crisis– can be explained by Mexican firms with access to international financial markets financing their productive investments through international funds. Using a panel of Mexican firms quoted at the NYSE, we show that they neither significantly boosted their productive investments after the Tequila crisis nor relied on external funds.

Keywords: *Tequila Crisis, Credit Crunch, Economic Recovery in Mexico, Capital Financing.*

JEL Classification: *E51, F15, F32, F34, F36, F42, G15, G32.*

I. Introduction

Since the 1995 Tequila crisis, the economic literature has extensively documented the mechanisms whereby emerging economies experienced depression in the nineties. Roughly, the authors agree upon the twin crises hypothesis, i.e, the contention that a balance of payments crisis and a banking crisis combined to disrupt the evolution of emerging markets in the last five years of the twentieth century. The first crisis came about following the implementation of expansive policies supported by a fixed and overvalued exchange rate. The second one arose

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from the shock to the banking sector by the stiff devaluation following the balance of payments crisis, which terminated its opportunities to borrow cheap in foreign currency, made its overall debt outstanding impossible to service, and impaired its ability to recoup its loans in U.S. dollars.

In Mexico, the twin crises hypothesis[1] means that the 90's business euphoria –fueled not only by the privatization of the telecommunications and banking sector, but also by the huge capital inflows in search of higher returns out of the U.S– developed into a boom unsustainable reckoning from 1993, due to the current account deficit deepening credit policy, uncorrected because of the presidential campaign, and the political shocks in the last year of the Salinas administration. Beleaguered by mounting speculation and a reversal in capital flow, the incoming Zedillo administration had to pick up the pieces as early as in its first month, through having to devalue the peso and drop the fixed exchange rate regime in favor of a float. A major banking meltdown, fuelled by capital flight and balance sheet mismatches, ensued that resulted in a *de facto* credit crunch and the need to bail out the banking sector through a huge rescue program managed by Fobaproa[2].

From 1996 through 2000, however, Mexico grew 5% per year on average, pulled by an ex ante huge bailout package from the U.S. Treasury[3] and massive foreign investments in search of opportunities made possible by the implementation of NAFTA[4]. Many banks went through restructuring and opened up to foreign ownership to the point that Mexican banks are currently mostly foreign owned[5]. But the credit crunch bequeathed by the Tequila crisis is still impairing the Mexican economy. According to Anne Krueger and Aaron Tornell, it is doing so by financially setting apart from each other the non tradable and tradable sector. Constrained by the lack of internal funding, the former sector has been at best stagnating since 1995. On the contrary, the latter sector has succeeded in maintaining its credibility abroad, so much that foreign lenders and investors have been ready to finance its massive productive investments. Hence the strong growth in real terms, as much export as investment led, that plucked the Mexican economy from the 1995 depression and kept it buoyant until the 2001 recession[6].

Reduced to its micro foundations, this explanation of the macro-economic upsurge in Mexico from 1996 through 2000 means that: a) Mexican firms with access to international financial markets boomed after the Tequila crisis; b) Mexican firms with access to international financing relied more upon external than internal financing for their investments after the Tequila crisis.

It is the purpose of this paper to test statistically these two hypotheses using corporate data from Mexico. The rationale for the chosen panel of firms detailed below is fourfold. First, it excludes the foreign owned multinationals in Mexico due to their published financial statements being aggregated at the world level. Second, it only includes the top Mexican controlled private companies in order to analyze a significant sample of corporate Mexico. Third, by only focusing upon Mexican firms, it makes possible to study the extent to which the Mexican firms' behaviors provide micro-foundations to Mexico's macroeconomic scenarios. Last but foremost, it only considers companies quoted in the NYSE because, according

to the twin hypotheses previously laid out, the investments thereof must have been booming after the Tequila crisis, and must have been funded by external financing.

The testing exercise is made up of two steps. It identifies the financial choices of the financially globalized Mexican firms in the first part of this paper, and econometrically tests, in the second and final part, their consistency with mainstream economic theory and corporate finance.

The findings of this paper challenge the literature on the 90s economic recovery in Mexico: Mexican companies quoted in the NYSE did not necessarily fluctuate in accordance with the upsurge from 1996 through 2000; their access to international financing did not result in substituting external for internal financing; their investments were overwhelmingly bounded by internal financing like the non tradable sector's.

II. Identifying the Financial Choices

Among the multiple financial statements, the annual cash flow statement is the best one to track investment activities and the balancing entries thereof. It reports on the range of investments from which a company can choose, provides the data to distinguish between gross and net investments; and breaks down the provenance of cash into three sources: operations, investments activities and financing activities. That's why cash flow data are the bedrock of the evidence below regarding the choices made by Mexican firms from 1996 through 2000. They all come from the Provestor Plus Company Report published by the Market Guide Inc.[7] on each public company with securities traded in U.S. financial markets.

The Mexican companies to be considered amount to eighteen and belong to the service and industry sector. The former sector comprises Grupo Televisa (TV), Radio Central (RC), Telmex (TMX), Tele-Azteca (TZA) and Savia (VAI); whereas the latter includes Grupo Femsa (FMX), Desc (DES), Grupo Industrial de Durango (GID), Tubos de Acero de México (TAM), Grupo Vitro (VTO), Gruma (GMK), Grupo Simec (SIM), Industrias Bachoco (IBA), Internacional de Cerámica (ICM), Pepsi-Gemex (GEM), Grupo IMSA (IMY), and Grupo Cemex (CX). Among these companies all organizationally independent from one another, are the flagships of Mexico, worth between seven and thirty billion dollars in the NYSE, namely, Telmex, Femsa, Cemex and Televisa. Moreover, save five companies (GID, TAM, SIM, IBA, GEM), the chosen panel of companies represents mainly Monterrey and Mexico City, bearing witness to the fact that these two towns are the powerhouses of corporate Mexico.

Table 1 addresses the preliminary question as to whether the financially globalized Mexican companies massively invested in the acquisition of capital goods from 1996 through 2000. The figures it displays speak for themselves. First of all, notwithstanding the volatility across the board of the demand for capital goods in Mexico in the second half of the nineties, no company matched the course of aggregate investments[8] by displaying positive growth rates in real

investment during the whole period. Second, Telmex is the only flagship of Mexico that experienced a double digit average growth rate (16%) comparable to the one (12%) of aggregate investments at constant prices. The other flagships either did not invest on average during the whole period (Televisa) or reduced their acquisitions of capital goods (Femsa and Cemex). Third, save Savia, the super-achiever (111%), the most capital building are the relatively small companies with an average growth rate above twenty per cent: Grupo Industrial de Durango (88%), Industrias Bachoco (26%), Internacional Cerámica (23%), Pepsi-Gemex (48%), and Grupo Tele-Azteca (35%). Put in other words, the upsurge of the Mexican economy after 1995 cannot be likened to a rising tide of investments lifting all boats. On the contrary, the massive capital buildup that shows at the macroeconomic level was accompanied by many distribution effects; hence the results displayed in Table 1.

TABLE 1

REAL INVESTMENT GROWTH (%)

1997	1998	1999	2000	Companies
27.00	17.00	1.20	7.60	México
–9.23	–3.09	–37.91	7.39	Grupo Femsa
–11.13	–22.25	–51.42	86.19	Grupo Televisa
26.92	9.65	–32.67	62.49	Telmex
–100.00	NA	–100.00	NA	Desc
8.74	227.43	–89.70	206.59	Grupo Industrial de Durango
69.35	–12.05	–7.35	–5.09	Tubos de Acero de México
–16.98	35.34	–45.12	–45.18	Grupo Vitro
–57.81	41.99	45.15	–61.43	Grupo Simec
22.89	186.91	–61.07	–44.61	Industrias Bachoco
111.36	35.95	–22.79	–29.83	Internacional de Cerámica
–74.28	252.35	19.73	–2.80	Pepsi-Gemex
58.15	81.12	–42.45	–63.11	Empresas ICA
–400.32	–135.08	–50.86	–109.97	Grupo Radio-Centro
–17.61	30.91	–4.51	–33.09	Grupo Gruma
36.82	45.31	8.63	–50.73	Grupo Imsa
280.23	–71.65	–72.04	5.84	Grupo Tele-Azteca
NA	–11.79	–34.11	36.06	Cemex
NA	315	112	–94	Savia

Note: Real investment growth in period *t* is not available (NA) if real investment in period *t*–1 is null (Desc) or not available (Cemex and Savia).

Table 2 deepens the inquiry about Mexican firms' propensity to invest after the Tequila crisis. Instead of looking at gross investments at constant prices, it considers net investments at constant prices because the former indicator is at a disadvantage compared with the latter to measure a capital buildup[9], since it does not factor in depreciation. The outcome is the tabulated data displayed below.

Unlike our expectations, they bear out the opposite contention that the Mexican firms were not investment-minded in the second half of the nineties. By and large, they did not even acquire each year as many capital goods as required by the depreciation of their capital stock. The only exceptions are Grupo Femsa, Grupo Gruma and Grupo Imsa, a tiny sample, albeit comprising major firms, that can hardly support the case that investments were capacity enhancing for Mexican firms as a whole after the Tequila crisis.

TABLE 2

REAL NET INVESTMENTS
(Millions of 1993 Pesos)

1996	1997	1998	1999	2000	Companies
764.455	689.256	665.917	122.082	136.5217	Grupo Femsa
111.848	74.793	−6.7415	−172.555	9.855072	Grupo Televisa
−3624.171	−2308.264	−2207.491	−2350.473	312.4638	Telmex
418.009	−369.834	−379.400	−352.365	188.9855	Desc
−45.497	−14.462	195.505	−63.722	9.275362	Grupo Industrial de Durango
−151.184	−50.413	−49.438	−21.451	9.275362	Tubos de Acero de México
149.289	70.247	290.636	−77.602	−271.0145	Grupo Vitro
−49.763	−54.958	−43.820	−20.189	−30.14493	Grupo Simec
54.028	67.768	296.254	81.703	−13.33333	Industrias Bachoco
−45.497	−19.834	−1.498	−5.993	−12.75362	Internacional de Cerámica
19.905	−121.487	74.906	135.962	155.9420	Pepsi-Gemex
−327.014	−96.280	41.198	−60.567	−203.4783	Empresas ICA
−7.582	−25.619	−8.239	−8.201	−10.075	Grupo Radio-Centro
261.611	197.107	366.292	304.100	208.115	Grupo Gruma
93.364	197.520	392.883	464.668	82.028	Grupo Imsa
100.947	543.388	46.067	−71.924	−71.304	Grupo Tele-Azteca
NA	153.305	87.265	−250.157	74.782	Cemex
NA	124.793	1017.977	2265.930	−345.217	Savia

Table 3 carries on the inquiry about Mexican firms' propensity to invest by comparing the cash from investment activities[10] to capital expenditures, one of its balancing entries. If the resulting ratio is equal to one, it means that expenditures for capital goods are the only factor in the debit side of the ledger that accounts for the deficit in cash associated with investment activities. If it is positive but less than one, then it is indicative of the fact that the company in question has investment activities that go beyond acquiring productive investments. Instead, when the capital expenditures to cash from investing ratio is negative, it is the evidence that the company in question does generate a surplus out of its investment activities through selling more than buying fixed assets like capital goods, land, shares in other companies, shares in subsidiaries.

TABLE 3

CAPITAL EXPENDITURES TO CASH FROM INVESTING RATIO

1996	1997	1998	1999	2000	Companies
1.035	0.56	0.74	0.64	0.71	Grupo Femsa
–11.00	–0.22	– 0.14	– 0.26	1.02	Grupo Televisa
0.98	0.87	0.88	0.81	0.89	Telmex
0.77	0	0.27	0	2.42	Desc
0.12	0.23	0.96	0.60	0.83	Grupo Industrial de Durango
0.81	0.90	0.24	1	0.52	Tubos de Acero de México
0.66	2.09	1.61	1.38	0.61	Grupo Vitro
0.32	0.20	–0.72	0.71	–4.25	Grupo Simec
0.97	1.02	0.99	0.26	1.04	Industrias Bachoco
1	1	1	1	1	Internacional de Cerámica
0.66	0.40	0.90	0.96	0.49	Pepsi-Gemex
0.43	–0.07	0.23	0.60	0.28	Empresas ICA
0.01	2.38	0.15	0.06	0.76	Grupo Radio-Centro
0.72	0.76	0.64	0.63	1.05	Grupo Gruma
3.11	0.52	1.32	0.94	0.31	Grupo Imsa
0.96	1.01	0.97	0.07	0.15	Grupo Tele-Azteca
NA	0.50	0.43	0.24	0.10	Cemex
NA	–0.04	0.92	0.62	–0.37	Savia

Grupo Televisa stands out in that it financed its capital expenditures four years in a row without any need for funds coming from either its operations or financing activities. By selling fixed assets, it mainly covered from 1996 through 1999 not only its capital expenditures, but also all its remaining long term investments. Savia and Grupo Simec did the same thing in two non consecutive years, but out of selling their subsidiaries or shares in their subsidiaries.

Internacional de Cerámica is another specimen because it is the only company whose investing activity boiled down to only acquiring capital goods in the second half of the nineties. Instead, the other companies with a positive ratio in Table 3 had a diversified portfolio of investment activities. Telmex, Tubos de Acero de México and Grupo Tele-Azteca complemented their productive investments with investments in their subsidiaries and affiliated companies. Cemex, Grupo Industrial de Durango and Pepsi-Gemex, instead of boosting their productive capacities as much as possible, made the decision to acquire more companies and/or increase their shares in their affiliated companies in the last four years of the twentieth century. Grupo Femsa and Grupo Gruma had to add to their capital expenditures deferred long term charges with the consequence of inflating their needs for funds to finance their investing activities. The residual group of Mexican firms had to sell some kind of fixed assets –land, equipment, shares in affiliated companies, subsidiaries– to curtail their needs for long term funds.

In other words, judging by their investment activities from 1996 through 2000, Mexican firms, albeit surrounded by a buoyant environment, did not maximize their productive investment opportunities. Not only did they by and large fail to invest as much as they provided for depreciation, but also, save Internacional de Cerámica, Cemex, Grupo industrial de Durango and Pepsi-Gemex, they all had to sell fixed assets while acquiring capital goods, i.e, other fixed assets. As a result, it is dubious that their productive investments after the tequila crisis amounted to an increase in either production capacity or fixed assets on aggregate.

Table 4 compares the cash from investing with the two components of long term external financing, i.e, long term loans net of repayments[11] and equity issues net of repurchases[12]. Save Grupo Imsa between 1996 and 1998, no other Mexican company financed its deficit in cash from investing, i.e, the first row, with long term external financing, i.e, the sum of the next two rows.

TABLE 4

THE FINANCING OF INVESTMENT ACTIVITIES BY EXTERNAL FINANCING
(Millions of Pesos)

1996	1997	1998	1999	2000	Companies
–2685	–5111	–4171	–3519	–3725	
–294	1553	–1270	–1635	–856	Grupo Femsa
1157	0	1138	0	–232	
109	5379	7174	2270	–1199	
7829	–530	839	0	0	Grupo Televisa
0	0	0	–2943	–834	
–7190	–11832	–14058	–12258	–19708	
–4249	17795	4399	0	25876	Telmex
–14853	–18082	–11553	–8556	–23632	
–2187	–3041	–350	–1901	–780	
–1190	2264	1199	–156	527	Desc
1144	–107	–294	–112	–700	
–1412	–955	–827	–162	–393	
–123	–580	516	–1022	–732	Grupo Industrial de Durango
649	0	0	0	0	
–235	–408	–1447	–396	–776	
–975	–162	–670	–444	957	Tubos de Acero de México
0	–43	–148	–28	0	
–2918	–881	–1708	–1301	–1746	
–10851	–17158	–9418	–7171	–7230	Grupo Vitro
0	0	0	0	0	

Table 4 (Cont.)

1996	1997	1998	1999	2000	Companies
–190 63 0	–150 399 0	65 –212 0	–113 –5 0	8 –295 0	Grupo Simec
–215 –783 0	–289 –1145 432	–940 –783 0	–1639 266 –47	–250 –2090 4	Industrias Bachoco
–33 86 –131	–80 22 139	–120 33 –6	–110 –63 3	–84 –155 112	Internacional de Cerámica
–868 –822 –1	–418 14 –107	–728 153 –346	–963 –352 –10	–2005 1040 7	Pepsi-Gemex
–785 –1331 131	8092 –1264 85	–5391 –2015 209	–1416 –990 0.47	–1183 –2503 13	Empresas ICA
–576 –146 104	13 0 –67	–77 50 0	–110 –10 –51	1 272 –194	Grupo Radio-Centro
–1671 –2988 3668	–1495 1083 –72	–2591 743 –111	–2958 1293 1270	–1302 –262 –6	Grupo Gruma
–211 809 364	–1972 1311 460	–1247 1381 0	–2253 666 0	–3674 1641 0	Grupo Imsa
–362 –134 0	–1504 –2453 414	–488 354 –229	–2013 242 1225	–1190 –151 –27	Grupo Tele-Azteca
NA NA NA	–6679 –79 –1187	–7539 3117 4016	–10379 –3164 2179	–37038 7622 16466	Cemex
NA NA NA	14996 –873 0	–3589 3143 0	–13525 4312 560	1350 –9297 –181	Savia

By and large, the observations in Table 4 are the evidence that the financially globalized Mexican firms repurchased their previously issued shares more than they issued new ones. Instead of snatching the deal opportunities made possible by the booming U.S. financial markets from 1998 onwards, they either reduced their exposure to the stock market in net terms or refrained from involvement into the same in sixty three observations out of eighty eight! Therefore, one cannot contend that the purpose of being quoted in the NYSE was to circumvent the credit crunch in Mexico and raise funds in the U.S. The same conclusion is relevant to how the financially globalized Mexican firms managed their outstanding debt. Once again, the data support the view that they overwhelmingly –fifty four observations out of eighty eight– preferred to draw down their long term debts instead of boosting them.

External finance was not instrumental, therefore, in financing the deficit in cash from investing activities in the second half of the nineties. This conclusion entails that Mexican firms quoted in the NYSE preferred to resort to internal financing, the complement to external financing, notwithstanding the bullish national and U.S. environment. They were not lured by lower inflation, decreasing interest rates and booming stock markets into exposing themselves to the scrutiny of more and more shareholders and lenders from within and without. This behavior contradicts the point made by the literature that internal finance in Mexico was inherent to credit crunch ridden companies cut off from international financial markets after the Tequila crisis.

III. Testing the Financial Choices

The quantitative results laid out above need to be complemented by econometric analysis to evaluate their robustness. To this end, this second part will submit to testing the following propositions coming out of the tables above: a) the state variables of the financially globalized Mexican firms do not fit in with the macroeconomic evolution of Mexico from 1996 through 2000; b) Mexican firms quoted in the NYSE value internal more than external financing; c) the investments by the financially globalized Mexican firms are tied to internal financing.

3.1 Mexican firms' state variables and the macro picture

The macro picture in Mexico after the Tequila crisis was singled out for praise for the following achievements: decreasing inflation rates; high growth rates in real investments, GDP and exports; abundant net direct investments. How these macroeconomic indicators impacted upon the sample of Mexican firms at hand is what the developments below are to clarify.

The impact analysis is to reduce each firm to its real investments, net income and internal financing, the reason being that the first and third variables capture the capital formation and structure issues discussed in the first part, whereas the second variable synthesizes all aspects of management.

Table 5 is more pessimistic than Table 1. It finds only four companies with investments at constant prices in line with the evolution of aggregate real investments: Telmex, Tubos de Acero de México, Internacional de Cerámica and Grupo Imsa. These companies also share the property of having invested in accordance with the evolution of real exports and GDP. All the other fourteen companies failed to bet on the rising tide inflated by exports to the U.S. and massive investments at the macro level. Hence their negative correlation with each real component of the macro picture.

TABLE 5

REAL INVESTMENT CORRELATION WITH THE MACRO PICTURE

INVR	EXR	PIB	DPIB	NDINV	Companies
−0.909	−0.919	−0.919	−0.953	−0.910	Grupo Femsa
−0.763	−0.749	−0.770	−0.820	−0.717	Grupo Televisa
0.472	0.444	0.468	0.371	0.289	Telmex
−0.303	−0.085	−0.215	−0.185	−0.292	Desc
−0.140	−0.137	−0.117	−0.164	−0.424	Grupo Industrial de Durango
0.340	0.088	0.230	0.147	0.347	Tubos de Acero de México
−0.824	−0.837	−0.823	−0.825	−0.911	Grupo Vitro
−0.601	−0.474	−0.545	−0.438	−0.538	Grupo Simec
−0.127	−0.159	−0.117	−0.135	−0.378	Industrias Bachoco
0.285	0.136	0.238	0.205	0.130	Internacional de Cerámica
0.240	0.470	0.356	0.447	0.107	Pepsi-Gemex
−0.167	−0.262	−0.189	−0.204	−0.341	Empresas ICA
−0.082	0.145	0.037	0.123	−0.272	Grupo Radio-Centro
−0.516	−0.478	−0.485	−0.416	−0.600	Grupo Gruma
0.239	0.151	0.218	0.254	0.153	Grupo Imsa
−0.349	−0.566	−0.460	−0.545	−0.207	Grupo Tele-Azteca
−0.606	−0.626	−0.627	−0.727	−0.568	Cemex
−0.020	0.023	0.016	0.152	0.001	Savia

The nominal components of the macro picture impacted upon the panel of chosen companies the same way as the real ones. The aforementioned four companies lifted by the 90s rising tide acquired capital goods as prices went up and foreign capitals flowed into Mexico. On the contrary, the fourteen companies with counter-cyclical real investments cut back on investments in case of inflation and capital inflows into Mexico.

Judging by Table 6, Mexican firms' bottom line reacted more positively in the 90s to the macro picture than their real investments. Nine instead of four companies boosted their investments following the massive aggregate investments fueled by inflows of foreign capitals. Desc aside, those companies have also the property of having experienced an increase in net income in accordance with the

upsurge in exports and GDP. However, the fact that the same number of companies contradicted those properties is the evidence that Mexican firms' idiosyncrasies cannot be reduced to the macro picture of Mexico after the Tequila crisis.

TABLE 6

NET INCOME REACTION TO THE MACRO PICTURE

INVR	EXR	PIB	DPIB	NDINV	Companies
0.869	0.665	0.730	0.7290	0.993	Grupo Femsa
−0.549	−0.788	−0.729	−0.730	0.045	Grupo Televisa
0.982	0.990	0.998	0.998	0.685	Telmex
0.067	−0.256	−0.167	−0.169	0.640	Desc
0.465	0.157	0.246	0.244	0.896	Grupo Industrial de Durango
−0.999	−0.959	−0.981	−0.980	−0.785	Tubos de Acero de México
−0.011	−0.331	−0.244	−0.246	0.577	Grupo de Vitro
0.835	0.614	0.683	0.682	0.998	Grupo Simec
−0.935	−0.999	−0.992	−0.992	−0.549	Industrias Bachoco
0.990	0.894	0.931	0.930	0.882	Internacional de Cerámica
0.595	0.306	0.391	0.389	0.953	Pepsi-Gemex
0.994	0.909	0.943	0.942	0.865	Empresas Ica
−0.236	−0.535	−0.456	−0.458	0.379	Grupo Radio-Centro
−0.997	−0.924	−0.955	−0.954	−0.845	Grupo Gruma
0.702	0.437	0.517	0.515	0.986	Grupo Imsa
−0.674	−0.875	−0.828	−0.829	−0.112	Grupo Tele-Azteca
0.990	0.982	0.995	0.995	0.720	Cemex
−0.888	−0.988	−0.970	−0.971	−0.449	Savia

Table 7 reinforces the puzzle relative to the behavior of Mexican firms in the second half of the nineties. Instead of borrowing more funds and thereby taking more risk as the result of a buoyant environment, by and large they increased the internal financing of their investments as if the abundance of capital inflows were irrelevant to loosening the ex-ante credit crunch, as if the upsurge in real GDP and exports were not enough to change their pessimistic expectations.

The three correlation tables above cannot, however, establish that the macro picture insignificantly or wrongly affected Mexican firms' behavior in the 90s. To clarify this issue, each of the three variables chosen to identify Mexican corporations has to be regressed on the explanatory variables standing for the macro picture. Due to each variable having been observed only five times, the intended regression has to be a pooled panel data regression capturing as an entity all the corporations under consideration, i.e, without focusing on their heterogeneity. The intended regression must also factor in the fact that due to the aggregation resulting in the variables GDP and aggregate investments, all the explanatory variables *save net direct investments* depend directly or indirectly upon each

TABLE 7

DEFLATED INTERNAL FINANCING'S REACTION TO THE MACRO PICTURE

NDINV	INVR	EXR	PIB	DPIB	Companies
0.596	0.761	0.811	0.802	0.874	Grupo Femsa
0.992	0.914	0.836	0.862	0.870	Grupo Televisa
−0.081	0.240	0.386	0.348	0.433	Telmex
0.777	0.478	0.358	0.397	0.459	Desc
0.589	0.171	−0.009	0.042	0.021	Grupo Industrial de Durango
−0.888	−0.696	−0.562	−0.600	−0.544	Tubos de Acero de México
−0.448	−0.727	−0.818	−0.797	−0.852	Grupo Vitro
0.369	0.742	0.851	0.823	0.832	Grupo Simec
0.403	0.765	0.848	0.825	0.778	Industrias Bachoco
0.408	0.667	0.759	0.738	0.807	Internacional de Cerámica
0.401	0.544	0.608	0.595	0.696	Pepsi-Gemex
−0.092	0.339	0.502	0.458	0.492	Empresas Ica
−0.108	−0.344	−0.371	−0.360	−0.237	Grupo Radio-Centro
−0.341	0.103	0.251	0.207	0.151	Grupo Gruma
0.870	0.756	0.694	0.717	0.780	Grupo Imsa
0.017	−0.327	−0.472	−0.435	−0.510	Grupo Tele-Azteca
0.979	0.780	0.656	0.694	0.688	Cemex
0.538	0.790	0.864	0.848	0.899	Savia

endogenous variable related to Mexican corporations. In the literature on panel data econometrics[13], this matter of simultaneity comes under the heading of simultaneous equations estimation applied to a single equation, but entails a more sophisticated application of the 2SLS: it has to be performed three times instead of once. The first application of the 2SLS has to do with the single equation in question with each of its variables expressed in terms of deviation from the average of each of its individual components. The second application deals with the same single equation but with each of its variables replaced by a vector made up of the averages deducted in the previous step. The last application of the 2SLS considers a specification whose variables are linearly transformed by a linear combination of two matrices, the coefficients of which incorporate the standard deviations of the first two 2SLS regressions.

Only the first performance of the 2SLS is relevant to this paper, because every individual (corporation) in the panel under consideration has the same macro picture; as a result, the 2SLS in the second step cannot be performed, due to each vector of averages in the right hand side of the regression being constant and thereby collinear with any other explanatory variable.

From running the first step 2SLS with the trend and net directs investments as instrumental variables[14], it follows the results in the regression tables below.

TABLE 8

REAL CORPORATE INVESTMENTS' REACTION TO THE MACRO PICTURE

Deflated Capital Inflows	Real GDP	Real Aggregate Investments	Real Aggregate Exports	F-Statistic (P-value)
−0.027	−0.0074	0.0002	−0.0012	26139
(t = −43.0)	(t = −33.87)	(t = 108.28)	(t = −154.02)	≅ 0

According to the regression in Table 8, the macro picture had a statistically significant impact upon Mexican firms' real investments after the Tequila crisis. However, how it did is economically problematic. The foreign capital inflows into Mexico did not spur domestic firms into investing more but less. Nor did the tremendous growth in exports and GDP lure the Mexican micro-managers into acquiring more capital goods. Mexican firms only reacted positively to the overall upsurge in investments. But how can one make sense of this positive reaction if it does not square with the upsurge in exports and growth that lifted up the Mexican economy after the Tequila crisis?

The pooled panel data regression in Table 9 conveys a message by far less ambiguous than Table 8. According to the properties of its coefficients, neither net direct investments, real exports, nor real investments are significant determinants of corporate incomes in Mexico after the Tequila crisis. The only component of the macro picture that has a statistically significant bearing upon corporate incomes at a 5% significance level is real GDP. But, once again, the connection to GDP has the wrong sign: instead of Mexican corporations benefiting from the rising level of overall activity, their operating incomes decreased during the boom following the Tequila crisis!

TABLE 9

DEFLATED NET OPERATING INCOME'S REACTION TO THE MACRO PICTURE

Deflated Capital Inflows	Real GDP	Real Aggregate Investments	Real Aggregate Exports	F-Statistic (P-value)
−0.1107	−0.042	9.24E-06	−0.00036	13.28
(t = −1.82)	(t = −2.02)	(t = −0.03)	(t = −0.909)	≅ 0

Unlike the two previous tables, Table 9 bis evinces no ambiguity whatsoever regarding the disconnection between Mexican corporations and the macro picture. The regression it displays is statistically insignificant even at a twenty per cent significance level. Put otherwise, how internal financing at the corporate level

evolved after the Tequila crisis cannot be entirely or partially traced to the macroeconomic characteristics of the Mexican economy.

TABLE 9 bis

INTERNAL FINANCING'S REACTION TO THE MACRO PICTURE

Deflated Capital Inflows	Real GDP	Real Investments	Real Exports	F-Statistic (P-value)
−0.0005	−1.97	0.0364	−0.129	1.42
(t = −1.48)	(t = −1.45)	(t = 1.92)	(t = −1.72)	≅ .24

The econometric conclusion of the last three tables calls, however, for an economic explanation, for it leaves unanswered the following unavoidable question: how can the aggregates standing for the macro picture incorporate the state variables of the largest Mexican corporations and fail to reflect the evolution thereof? Raising this question would have dismissed the findings above as nonsensical should there have been no economic dynamism in the 90s outside the largest Mexican corporations. But, as shown in Annex II[15], with the implementation of NAFTA in 1994, *maquiladoras* or foreign controlled firms in Mexico multiplied and boomed –their value added at constant prices more than doubled from 1994 through 2000, whereas their value added at nominal prices increased almost sixfold in the same period– to enlarge exports to the US economy, through direct investments, with the result that the boom after the Tequila crisis was more outward than inward oriented, more pulled by the outside than the inside, more investment than consumption driven. In other words, the disconnection between the macro picture and Mexican corporations in the 90s was significant of the exceptional dynamism of foreign controlled corporations in Mexico.

3.2 Determinants of capital structure

Table 4 bears out a series of properties documented in the U.S. economy, namely, that internal finance is more important than external finance, that net stock issues are frequently negative, and that debt takes precedence over stock issue when private companies decide to resort to external financing[16]. Those properties, if interpreted in terms of asymmetries of information between managers and lenders, between managers and investors, square with the pecking order theory (POT henceforth) of capital structure[17]. Whether or not this claim can stand the test of the data is what the developments below are concerned about. In the first place, they will replicate the pecking order test as performed by Myers and Shyam-Sunder (1999). Next, they will test the relevance to Mexican firms of an empirical corollary of the pecking order theory, namely, the inversely proportional relation between profits and borrowings.

From step one, it follows Table 10, which, as required by the testing of the POT, represents a pooled panel data regression of Mexican firms' net borrowings on their deficits in cash flow[18]. The estimation technique –GLS– assumes heteroskedasticity, since the cross-sections –the companies of the sample at hand– have dissimilar variances in all respects, which precludes the residuals of the equation at hand from being homoscedastic. Based on the displayed results, both the estimated intercept and slope parameter have the right sign, i.e, positive, and the testing regression is statistically significant. Put in economic terms, Mexican firms' net borrowings significantly fluctuated in accordance with their deficits in cash flow. It does not follow, however, that the POT, as defined by Myers and Shyam-Sunder, fits in with the dataset of this paper, because it is even rejected at a one per cent significance level according to the test reported in the fourth column of Table 10.

The Mexican firms selected in this paper only validate a semi strong form of the POT, which is a construct by Chirinko and Singha (2000) that posits the dual condition $a = 0$ and $0 < b < 1$, due to the fact that firms also issue stocks in the real world. That condition obtained in Mexico after the Tequila crisis according to the fifth column of Table 10 if b is at most equal to 0.93 and the significance level is at least equal to 1.3%.

TABLE 10

THE TESTING OF THE PECKING ORDER THEORY

Intercept	Cash Flow Deficit	Regression F-Statistic	Ho: a = 0 and b =1 F-Statistic	Ho: a = 0 and b = .93 F-Statistic
Estimate for a = 92.04 (t = 1.82)	Estimate for b = 0.81 (t = 19.19)	413 (p-value ≅ 0)	10.14 (p-value ≅ 0)	4.541 (p-value = 0.013)

Note: Estimation by the GLS method with cross section weights.

In other words, Mexican firms as a whole did significantly issue stocks in the 90s to cover their deficits in cash flow, but in so low a proportion compared with long term debt that it begs the question of why they decided to be quoted in the NYSE.

Table 11 represents the second step of the POT testing. It tries to answer the question as to what happens to the pecking order theory when the testing regression is no longer predicated upon the idea that all the Mexican firms have the same estimated parameters. The data speak for themselves. The common parameters assumption has to be rejected because only seven out of eighteen companies meet the dual condition of the semi-strong form of the POT at a five per cent significance level! Among them, Cemex (CX) with a very low estimated slope parameter (0.37) stands out in that it relied on net equity issues by far more than its peers. At the

TABLE 11

THE CROSS SECTION SPECIFIC TESTING OF THE PECKING ORDER THEORY

Dependent Variable: NET BORROWINGS OF LONG TERM CAPITALS				
Method: Pooled Least Squares				
Sample: 1997 2000				
Total panel (balanced) observations: 72				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
FMX–Constant	−248.5485	333.0900	−0.746190	0.4604
TV–Constant	225.3251	381.9473	0.589938	0.5589
GID–Constant	0.000000	408.0274	0.000000	1.0000
VTO–Constant	1.82E–12	866.9552	2.10E–15	1.0000
IBA–Constant	−97.37447	460.5307	−0.211440	0.8337
GEM–Constant	124.7699	326.8149	0.381776	0.7049
GMK–Constant	211.8245	446.4455	0.474469	0.6380
IMY–Constant	−57.89414	796.5233	−0.072684	0.9425
TZA–Constant	−374.3377	324.1656	−1.154773	0.2558
CX–Constant	−770.3124	393.3017	−1.958579	0.0579
VAI–Constant	−116.9280	323.4472	−0.361506	0.7198
DES–Constant	379.5593	386.7202	0.981483	0.3329
ICA–Constant	−60.98921	940.6749	−0.064836	0.9487
ICM–Constant	−53.61652	331.1171	−0.161926	0.8723
RC–Constant	78.00000	321.6660	0.242488	0.8098
SIM–Constant	7.11E–15	323.4438	2.20E–17	1.0000
TAM–Constant	46.15074	328.1484	0.140640	0.8889
TMX–Constant	19827.90	403.7060	49.11471	0.0000
FMX–Deficit in Cash Flow	0.932263	0.265704	3.508657	0.0012
TV–Deficit in Cash Flow	0.170790	0.237541	0.718992	0.4768
GID–Deficit in Cash Flow	1.000000	0.552327	1.810523	0.0786
VTO–Deficit in Cash Flow	1.000000	0.078588	12.72462	0.0000
IBA–Deficit in Cash Flow	0.999852	0.392001	2.550637	0.0151
GEM–Deficit in Cash Flow	0.892031	0.579284	1.539884	0.1323
GMK–Deficit in Cash Flow	0.510336	0.314462	1.622886	0.1133
IMY–Deficit in Cash Flow	0.964635	0.451267	2.137613	0.0394
TZA–Deficit in Cash Flow	0.817039	0.257142	3.177378	0.0030
CX–Deficit in Cash Flow	0.365110	0.031248	11.68436	0.0000
VAI–Deficit in Cash Flow	0.962024	0.058044	16.57410	0.0000
DES–Deficit in Cash Flow	0.883542	0.327616	2.696878	0.0106
ICA–Deficit in Cash Flow	1.009825	0.546965	1.846232	0.0731
ICM–Deficit in Cash Flow	0.605483	3.696288	0.163808	0.8708
RC–Deficit in Cash Flow	1.448494	4.964301	0.291782	0.7721
SIM–Deficit in Cash Flow	1.000000	1.198773	0.834186	0.4097
TAM–Deficit in Cash Flow	0.936065	0.482547	1.939840	0.0603
TMX–Deficit in Cash Flow	2.271622	0.070951	32.01698	0.0000
RB2	0.983165	S.D. dependent variable		4958.205
F–statistic	119.4664	Durbin–Watson statistic		2.735398
Prob(F-statistic)	0.000000			

other extreme is the quintet with a very high dependency upon indebtedness, made up of Industrias Bachoco (IBA), Grupo Vitro (VTO), Grupo Imsa (IMY), Savia (VAI) and Grupo Femsa (FMX). In between is the company Grupo Tele-Azteca (TZA). In other words, Mexican firms do not fit any general pattern. They can be divided in three groups. For the first one, the relation between deficit in cash and net borrowing is nonexistent; the second group that comprises the flagship Telmex made financial choices contrary to the POT model; as for the third group, it amounts to a tiny minority that, albeit fitting the POT, mostly did not issue stocks in excess of their repurchases after the Tequila crisis.

The contradiction between the non cross section specific and the cross section specific regression also shows in the testing of the inversely proportional relation between profits and borrowings. In Table 12, the so-called relation is dismissed as baseless when predicated upon common parameters, since the econometric estimation reveals a statistically significant non downwards trending relation between profits and borrowings. On the contrary, in case of a cross section specific pooled regression, only Industrias Bachoco and Grupo Tele-Azteca meet the condition of a significant negative slope parameter, which is hardly an evidence of an across company robust relation.

TABLE 12

THE NON CROSS SECTION SPECIFIC TESTING OF THE COROLLARY RELATION

Dependent Variable: NET BORROWINGS OF LONG TERM CAPITALS				
Method: Pooled Least Squares				
Sample: 1996 2000				
Included observations: 5				
Number of cross-sections used: 18				
Total panel (unbalanced) observations: 88				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	–1098.383	485.9918	–2.260085	0.0263
PROFITS	0.437417	0.084242	5.192394	0.0000
R-squared	0.238675	Mean dependent var		–70.59091
Adjusted R-squared	0.229822	S.D. dependent variable		4744.4
S.E. of regression	4163.727	Sum squared residual		1.4E+09
F-statistic	26.96096	Durbin-Watson statistic		1.822725
Prob(F-statistic)	0.000001			

This baffling result if interpreted from an economic point of view means that extra profits in Mexico did not translate into fewer needs for borrowing to finance investments in the 90s. The story to reconcile that with the other results from Tables1, 2 and 4 goes like this. Mexican corporations did not invest in accordance with the push for investment at the macro level because they mainly adjusted their investments to their cash strapped status. Their cash flows could not grow so as to sustain even an accumulation of capital goods consistent with their provisions for depreciation because their leverage, documented in Annex III, resulted in a heavy debt service. From this, it followed that more often than not, as shown in Table 13, interest payments took a heavy toll on operating profits with the result that only two thirds of the firms in the selected sample remained in the black continuously during the period under consideration, and thirty eight percent from the same sample faced a negative net working capital or insufficient equity to cover their long term debt at some point between 1996 and 2000. No wonder that boosting investments through more and more borrowings was just unsustainable and thereby impracticable, which justified that some companies cut back on their investments[19] and even were compelled to sell fixed assets to remain afloat, as seen in Table 3. They could have broken this damaging circle by financing investments through huge equity issues. But they were unwilling to do so, probably because the market would have rated them badly, to the irritation of their shareholders; and the family controlled nature of most Mexican firms would have been under threat.

Telmex, Tubos de Acero de México, Industrias Bachoco, Grupo Radio Centro, Cemex and Grupo Imsa are exceptions to the previously told story in that they were not at all over-leveraged, as demonstrated by Table 13. But only Industrias Bachoco had a remarkable investment record –a 26% average growth in real gross investments– that enhanced its production capacity non stop during the last half of the nineties.

This discrepancy stems from Telmex, Cemex, Tubos de Acero de México and Grupo Imsa having diversified away from their productive plants into either acquiring new companies (Cemex) or increasing their shares in their subsidiaries and affiliates. Industrias Bachoco is also the only one in the subgroup that evinces an inversely proportional relation between profits and borrowings. In other words, whether or not they were over-leveraged in the 90s, Industrias Bachoco aside, Mexican corporations could not simultaneously enhance their production capacity, boost their profits and drive down their borrowings.

3.3 Determinants of investments

That Mexican firms did not necessarily accompany the investment boosted upsurge after the Tequila crisis proves that their investments did not fit an accelerator model à la Chenery[20]. That's why the data in Table 2 overwhelmingly flaunt negative instead of positive net investments during a period of strong growth.

Nor can the neo-classical inspired Q model[21] explain Mexican firms' investments. The reason lies in the evidence in Table 11 that, Cemex aside, the

TABLE 13

INTEREST PAYMENTS TO OPERATING PROFITS RATIO

1996	1997	1998	1999	2000	Companies
0.304697	0.277744	0.274813	0.148181	0.149050	Grupo Femsa
1.323445	0.157756	0.530907	0.448565	1.481481	Grupo Televisa
0.097555	0.141207	0.255846	0.217840	0.209840	Telmex
0.192102	0.209115	0.311470	0.261774	0.494836	Desc
0.372048	0.399377	0.873134	0.383315	0.473293	Grupo Industrial de Durango
0.000000	0.000000	0.000000	0.000000	0.000000	Tubos de Acero de México
1.161663	0.283892	0.930082	0.114707	0.440076	Grupo Vitro
0.512907	0.514502	0.709259	0.331924	1.030864	Grupo Simec
0.161043	0.057648	0.028131	0.044843	0.076261	Industrias Bachoco
0.561873	0.831633	0.824121	0.422287	0.446154	Internacional de Cerámica
0.323155	0.357905	0.522696	0.304641	0.542777	Pepsi-Gemex
0.534158	0.605494	0.746099	0.586022	0.537313	Empresas Ica
0.175257	0.027950	0.023529	0.047619	0.060606	Grupo Radio-Centro
0.290123	0.364326	0.513020	1.054794	0.757197	Grupo Gruma
0.213237	0.200625	0.297319	0.203275	0.295477	Grupo Imsa
0.330235	0.262437	0.660377	0.872824	0.530763	Grupo Tele-Azteca
NA	0.286393	0.273616	0.250382	0.241516	Cemex
NA	0.595983	1.368167	1.021586	–1.066713	Savia

stock market, i.e, the market value of newly issued securities, played an insignificant role in supplementing Mexican firms' cash flows in the nineties.

As said above so many times, Mexican firms' investments are tied to their cash flows. According to the economic literature[22], that connection is significant of a financial limitation voluntarily accepted by any firm unwilling to totally submit its finances to the harsh conditions of the imperfections ridden capital market. If this interpretation were correct, the selected Mexican firms in this paper would not have snatched the opportunity to issue American Depository Receipts. On the contrary, they would have rejected the option of financial globalization and remained confined to Mexico. As argued in the section 3.2, the relation between self-financing and investment in Mexico is due to the fact that, Cemex aside, companies either were over-leveraged and cut off from external financing, or were unwilling to tap the stock market in case of a shortage in cash flow.

The econometric test below resorts to the investment function specification inherent to the literature on financing constraints[23] and corporate investment. It is to estimate the equation as follows using a pooled panel data regression subject to heteroskedastic cross-sections and residuals:

$$(3.3.1) \qquad (I/K)_t = a + b(CF/K)_t + cQ_t + \varepsilon_t$$

The endogenous variable represents the growth rate of the capital stock.; (CF/K) is the cash flow to the capital stock ratio whereas Q stands for the Q ratio.

Contrary to Fazzari, Hubbard and Peterson (1987), this paper identifies the replacement value of the capital stock with the value of property and equipment from Mexican firms' balance sheet. CF is defined as specified in the first part above. Q is calculated as the aggregation of equity value and long term debt, divided by the replacement value of the capital stock.

TABLE 14

THE AGGREGATE INVESTMENT FUNCTION

Dependent Variable: I//K				
Method: GLS (Cross Section Weights)				
Sample: 1997 2000				
Included observations: 4				
Number of cross-sections used: 18				
Total panel (unbalanced) observations: 67				
Convergence achieved after 9 iterations				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
CONSTANT CF/K Q Weighted Statistics	0.0136 0.0825 0.0225	0.0057 0.0176 0.0041	2.360 4.671 5.430	0.213 0.000 0.000
R-squared	0.709	Mean dependent variable		0.519
Adjusted R-squared	0.699	S.D. dependent variable		0.461
S.E. of regression	0.252	Sum squared residual		4.080
F-statistic	77.986	Durbin-Watson statistic		1.606
Prob(F-statistic)	0.000000			

Table 14 takes issue with the view of a disconnection between the stock market and Mexican firms' investment behavior. According to its estimates, the variable Q did significantly impact on corporate Mexico's investment from 1996 through 2000, which means that, notwithstanding their disregard for issuing shares in the same period, Mexican firms increased capital accumulation as the result of the gap between the market and replacement value of their production processes.

The equation in Table 14, however, establishes that the Q effect was nowhere near –almost the fourth– that of the internal financing in the last five years of the 90s, confirming the emphasis on cash flow constraint made above.

One can analyze further how binding the fit in Table 14 is by distinguishing profitable and non profitable companies[24]. Suffice it to introduce a dummy variable whose value at time t is one or zero depending on whether or not its corresponding firm is in the black, multiply it with any of the three explanatory variables in Table 14 and test whether or not the resulting variable is statistically significant. The exercise as performed in Annex IV leads, however, to a mixed conclusion: profitability does not add any significant extra effect to either the constant or the Q variable in the (3.3.1) specification, but significantly halves how much investments are tied to self-financing. Put differently, the rationing of investment expenditures by internal financing in the 90s was not a uniform phenomenon within corporate Mexico: it did jeopardize more the unprofitable than the profitable companies in that, on the one hand, the latter's cash flows dwarfed the former's due to their being less leveraged; in the other hand, investments by unprofitable companies were twice as much cut as the ones by profitable companies whenever self-financing was curtailed across Mexican companies.

Financial leverage, although bearing indirectly upon cash flow and equity through its impact on profits, is ruled out by the (3.3.1) specification as an irrelevant explanatory variable but not proven so. To remedy such a shortcoming, Table 15 adds to Table 14 a leverage variable, the long term debt to equity ratio, and uses the same estimation technique.

TABLE 15

THE AUGMENTED AGGREGATE INVESTMENT FUNCTION

Dependent Variable: I/K				
Method: GLS (Cross Section Weights)				
Sample: 1997 2000				
Included observations: 4				
Number of cross-sections used: 18				
Total panel (unbalanced) observations: 67				
Convergence achieved after 13 iteration(s)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
CONSTANT CF/K Q LT DEBT/EQUITY	0.010019 0.077902 0.023178 0.003429	0.006605 0.017824 0.004195 0.004370	1.516797 4.370646 5.524497 0.784739	0.1343 0.0000 0.0000 0.4355
Weighted Statistics				
R-squared	0.709851	Mean dependent variable		0.524603
Adjusted R-squared	0.694987	S.D. dependent variable		0.462408
S.E. of regression	0.255379	Sum squared residuals		4.108746
F-statistic	51.12798	Durbin-Watson stat		1.622303
Prob(F-statistic)	0.000000			

The resulting leverage ratio's estimated coefficient not only has the wrong sign, but also is statistically insignificant even at a 10% significance level. In other words, it is the confirmation that the aggregate investment function in Table 14 has the right specification: due to an ex-ante high degree of leverage, corporate Mexico's investments in the second half of the 90s were mainly driven by self-financing. Changes in its leverage ratio were not significant so as to matter that much in the determination of its investment expenditures.

IV. Conclusion

Corporate Mexico, as represented in this paper, does not illustrate the story on the economic upsurge in Mexico after the Tequila crisis, popularized by Anne Krueger and Aaron Tornell. By and large, it is made up of companies that did not markedly boost their investments from 1996 through 2000. Its access to the NYSE did not have the purpose of circumventing the credit crunch in Mexico, since its investments were overwhelmingly financed by internal instead of external funds.

Those findings make sense once one takes into account that most Mexican companies were over-leveraged in the last decade of the twentieth century and thus could not service a heavy debt and boost their investments by resorting to external financing. This explanation also accounts for the econometric findings of this paper: corporate Mexico was poorly connected to the macroeconomic evolution of Mexico after 1995; corporate profits insignificantly impacted on corporate net borrowings; the Q effect on corporate investments was dwarfed by the cash flows.

The Krueger and Tornell's story has, consequently, to be reformulated. Instead of being based on the tradable-non tradable division, it has to be couched in terms of the distinction between Mexican and foreign controlled firms in Mexico. The former are mainly made up of inward and outward oriented firms stemmed after the Tequila crisis either by the credit crunch, as documented by Krueger and Tornell, or by ex-ante over-leverage, as documented by this paper. The latter mainly comprise U.S. firms oriented towards supplying the American economy, totally unrelated to the credit crunch in Mexico, and lured into investing more and more into Mexico by the implementation of NAFTA. In other words, the economic upsurge in the 90s has to be ascribed to foreign investments. They have been the driving force of the Mexican economy since the nineties, so much so that Mexico's macroeconomic evolution stands out in Latin America in that it has more to do with the ups and downs of the U.S. economy than with the fluctuations of the rest of emerging or non emerging market economies south of the Rio Grande.

Notes

1 As applied to Mexico in the 90s, this hypothesis –illustrated by Kaminsky and Reinhart (1999)– includes many but not all aspects of the burgeoning literature on the sudden stop hypothesis, as expounded by Guillermo Calvo *et al*. (1996 and 2004). This paper does not mention the latter, let alone elaborate upon how it differs from the former hypothesis, because, to be sure, it is not the purpose of the introduction to this paper to settle the dispute over the causes of the Mexican economic debacle in 1994-95.

2 See Krueger and Tornell (1999), and Schneider and Tornell (2000).

3 U.S. Treasury.

4 NAFTA was voted into law in 1993 by the U.S. Congress and implemented reckoning from 1994.

5 See Huerta, Eduardo (2001). "En 20 Años, de la Nacionalización de la Banca a la Venta a Extranjeros", Proceso, # 1281.

6 See Schneider and Tornell (2000).

7 See the web-site www.marketguide.com

8 In Table 1, Mexico stands for the Mexican economy as a whole. Her data represent the annual growth rate of real aggregate investments as computed in the national accounts.

9 This statement is justified by the identity: Capital Stock in t – Capital Stock in t–1 = Investments in t – Depreciation in t.

10 The negative sign is associated with any outgoing or deficit, whereas the positive sign is significant of any incoming or surplus.

11 They correspond to the data in the second row.

12 They correspond to the data in the third row.

13 See Baltagi (1995), Ch.7.

14 The trend is an instrumental variable because it is a catchall variable standing for any other upward trending instrument. As for net direct investments, they are used as an instrument because, as opposed to the other variables of the macro-picture, they are exogenous to the domestic economy.

15 The data come from the Banco de Información Económica, a databank of the Mexican statistical office, INEGI.

16 See Myers (2002).

17 See Myers, *et al*. (1999).

18 The deficit in cash flow is defined as follows: Interest Payments + Dividend payments + Change in Working Capital + Deficit in cash flow from investing – Cash Flow. Its balancing entries are net long term debt and net equity issues.

19 See Table I.

20 See Chenery and Strout (1966).

21 See Tobin (1981).

22 See Hubbard (1998).

23 See Fazzari *et al*. (1987).

24 Is called profitable (unprofitable) any company in the black (red) non stop from 1996 through 2000. The unprofitable Mexican firms are Televisa, Tubos de Acero de México, Grupo Vitro, Grupo Simec, Grupo Gruma, Grupo Tele Azteca and Savia.

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ANNEX I

EXPLANATORY VARIABLES' FIT WITH THE INSTRUMENTS
IN SECTION 3.1

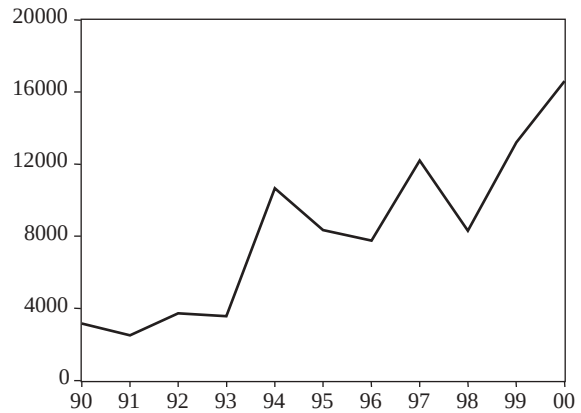
	GDP Deflator	Gross Domestic Product	Real Investments	Real Exports
Constant	1.92 (t = 86)	1324552 (t = 607)	217613 (t = 117)	350115 (t = 61)
Trend	0.32 (t = 77)	63551 (t = 156)	19073 (t = 55)	53329 (t = 50)
Net Direct Investments	0.018 (t = 7.4)	5556.96 (t = 22.37)	3698 (t = 17)	1614.07 (t = 2.49)
R2	0.99	0.99	0.98	0.98
F-statistic	6304	26951	4250	2465

Note: Each regression includes 5 observations (from 1996 to 2000) and 18 cross-sections.

ANNEX II

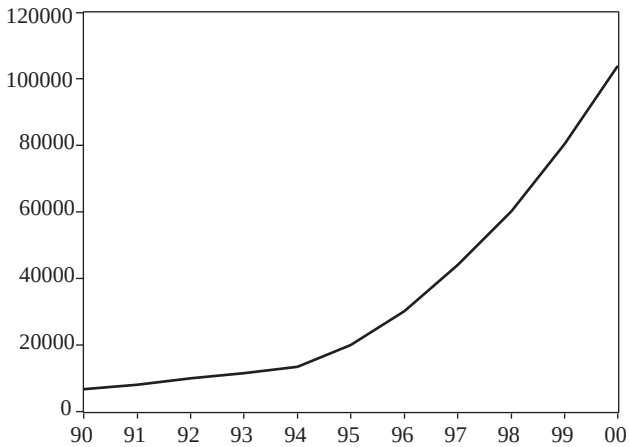
FOREIGN CONTROLLED ACTIVITIES

A) NET DIRECT INVESTMENTS
(Millions of dollars)

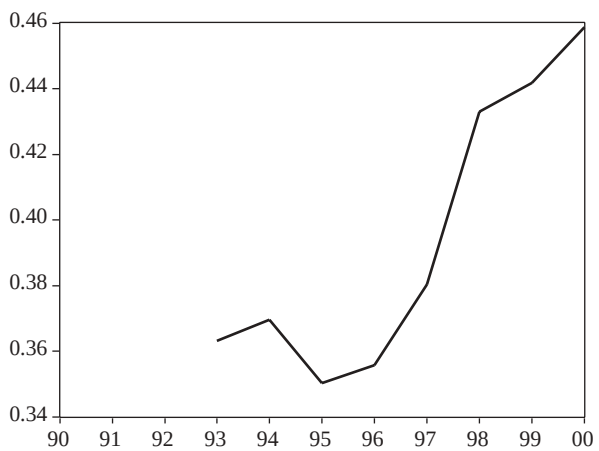


B) THE MAQUILADORA INDUSTRY'S VALUE ADDED
(Millions of 1993 pesos)

C) THE MAQUILADORA INDUSTRY'S VALUE ADDED
(Millions of pesos)



D) MAQUILADORA INDUSTRY'S SHARE IN TOTAL EXPORTS



ANNEX III

LEVERAGE INDICATORS OF MEXICAN FIRMS

A) OPERATING PROFITS NET OF INTEREST PAYMENTS
(Millions of dollars)

1996	1997	1998	1999	2000	Companies
2996	2805	2038	3908	3555	FMX
15922	17120	20072	27378	26471	TMX
3299	2911	1517	2413	620	DES
1287	954	86	1013	388	GID
562	1202	1030	813	1219	IBA
127	23	15	184	133	ICM
429	542	314	606	493	GEM
959	533	525	1498	1037	ICA
48	195	38	97	222	RC
2237	2005	1209	2433	1560	IMY
NA	7724	8148	9467	9613	CX
−821	7946	855	1159	−790	TV
−1147	2188	−783	920	813	VTO
1337	463	436	−282	232	GMK
753	1100	−42	−214	651	TZA
NA	−239	−1080	−1788	−4462	VAI
408	273	122	445	−35	SIM
1677	1403	1159	–259	381	TAM

B) LONG TERM DEBT TO EQUITY RATIO

1996	1997	1998	1999	2000	Companies
1.464645	1.602449	0.506481	0.375021	3.999200	FMX
0.109919	0.152069	0.174435	0.201443	0.612659	TMX
0.454420	0.498644	0.657235	0.565792	0.940184	DES
1.111171	0.996256	1.134199	0.996918	1.519116	GID
0.060889	0.031910	0.051154	0.152845	0.085333	IBA
2.098765	2.056000	1.920502	1.705882	1.725155	ICM
0.073106	0.384407	0.443679	0.351735	0.664284	GEM
0.726870	0.675708	0.591188	0.603633	0.417445	ICA
0.008333	0.000696	0.000000	0.000000	0.233653	RC
0.465891	0.425888	0.460501	0.499215	0.733347	IMY
NA	1.126793	0.806806	0.644616	0.515916	CX
0.664125	0.437143	0.436707	0.421279	0.618276	TV
1	1	1	1	1	VTO
0.4186708	0.4449398	0.5274381	0.5758674	0.5117502	GMK
1.8211749	1.4063365	1.6409048	1.2397476	1.4300427	TZA
NA	0.0981816	0.2559077	0.4395010	0.0272593	VAI
0	1.6030871	1.6678644	1.3833151	1.7977736	SIM
NA	0.1285575	0.0522345	0	0.1361889	TAM

C) NET WORKING CAPITAL TO CURRENT LIABILITIES RATIO

1996	1997	1998	1999	2000	Companies
−0.070451	0.102252	0.239388	0.304348	0.577616	FMX
0.597953	0.456141	0.589615	0.647371	−0.376214	TMX
0.194030	0.344442	0.197676	0.306518	0.486333	DES
0.000000	0.000000	0.000000	0.000000	0.000000	GID
0.864474	2.753205	4.862338	0.945077	3.452693	IBA
0.275362	1.087963	1.051793	1.050607	1.221557	ICM
−0.585956	0.284198	−0.129333	−0.103871	0.137931	GEM
0.348213	1.126128	0.304515	0.322334	−0.022273	ICA
1.507937	1.048276	0.352564	1.128205	0.715736	RC
0.456894	0.560432	0.783777	0.723044	0.720596	IMY
NA	0.210163	−0.086069	−0.064578	−0.488598	CX
1.390620	4.308708	5.319071	3.712612	5.089345	TV
0	0	0	0	0	VTO
1.9240506	3.1876899	1.9806763	1.6204873	0.4874398	GMK
2.8505747	3.3568281	2.4974842	1.8874207	3.2328145	TZA
NA	3.9198374	2.8596214	0.7372037	−0.2838683	VAI
−0.7252996	0.9032258	1.4	0.5629629	−0.2940639	SIM
NA	2	1	1	2	TAM

ANNEX IV

	I/K	I/K	I/K
CONSTANT	0.017 (t = 2.94)	0.015 (t = 2.59)	0.022 (t = 1.74)
CF/K	0.132 (t = 7.46)	0.075 (t = 4.64)	0.081 (t = 4.74)
Q	0.023 (t = 5.52)	0.031 (t = 4.05)	0.022 (t = 5.49)
Dummy*(CONSTANT)			–0.009 (t = –0.72)
Dummy*(Q)		–0.009 (t=–1.34)	
Dummy*(CF/K)	–0.07 (t = –4.09)		
Adjusted R squared	0.81	0.70	0.69
F Statistic	96.22	52.43	51.57
Estimation Technique	GLS	GLS	GLS
No. of Iterations	11	10	20
Sample	1997 2000	1997 2000	1997 2000
Included Observations	4	4	4
No. of Cross-Sections	18	18	18
Total Observations	67	67	67