Determinants and Consequences of Financial Constraints Facing Firms in Argentina

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Introduction[1]

In the 1990s Argentina implemented an ambitious structural reform program that brought about profound changes in the economy. The monetary and exchange rate regimes and the banking sector were no exception. In fact, during that decade the country displayed a unique combination of characteristics:

- The exchange rate/monetary regime was a currency board between 1991 and 2001.
- There were no obstacles to capital flows and tighter prudential regulations were introduced.
- Private portfolios and banks' balance sheets were highly dollarized.

The effects of the reforms on the financial side of the economy were encouraging in the first half of the 1990s. In the 1991-95 period, the economy grew quickly and there was a marked increase in the level of financial deepening. But in spite of this, the macroeconomic environment remained volatile and there were important credit-crunch episodes when the so-called Tequila effect and the Russian-Brazilian crises hit the economy in 1995 and 1998, respectively. In the second half of 1998 the economy entered a lengthy period of persistent recession, which ultimately resulted in a financial crisis at the end of 2001. In January 2002, the Currency Board was formally abandoned and the process of financial reform was greatly reversed. Capital controls were reintroduced and prudential regulations were softened.

Evidence suggests that in spite of market-friendly financial reforms and the higher level of financial development, the financial constraints facing Argentine firms remained tight throughout the 1990s and that market segmentation was important—i.e., different kinds of firms enjoyed different access to capital.

The causes and consequences of financial constraints that firms face are much better understood today than in the past (for a survey, see Hubbard, 1998, and Schiantarelli, 1996). In the case of Argentina, the few existing studies point to the relevance of financial constraints

(Fanelli and Damill, 1988; Fanelli and Keifman, 2002; Bebczuk, 2000; Schmuckler and Vesperoni, 2000). This research suggests that: (i) credit markets are markedly segmented; (ii) firms are dependent on own funds; (iii) credit Granger causes the activity level and country risk matters for real decisions; and (iv) the volatility of the environment and external shocks affect firms' capital structure. However, our knowledge of the precise way in which financial constraints affect firms' financial structure and investment decisions in Argentina is still quite limited, especially so regarding the impact of the above-mentioned features of the Argentine economy. Taking into account the well-known influence financial factors have on both business cycles and long-run growth, the little effort devoted to research in this area represents a restriction on policy design and policymaking.

The main purpose of the paper is to explore this topic in the specific case of Argentina, focusing on the years that preceded the most recent crisis. Unlike most papers in the field, which rely on listed firms, this paper will also analyze for the first time an additional set of firms comprising 500 large firms (although the number of usable observations for econometric purposes is lower than that figure). Since the number of listed firms in Argentina is very small, and this group may exhibit different behavior than other firms, studying a new set of firms is bound to shed further light on the subject for a country like Argentina. The caveat is that, as expected, the set of available variables and the time frame differ across the databases, which precludes running the same econometric exercises and strictly comparing the results from each sample. Although this imposes a cost in terms of the desirable structure of the paper, the additional insights derived from the new sample outweigh such disadvantage. Similarly, the wide range of issues covered—stylized facts, investment and capital structure decisions—attempts to fill some gaps in the empirical literature on Argentina.

Specifically, the paper focuses on micro data to:

- present the stylized facts characterizing the capital structure of Argentine firms based on the analysis of balance-sheet items;
- assess the relevance of financial constraints on investment at the firm level;
- obtain quantitative evidence of firm's financial structure and choices;
- investigate the effects of financial imperfections on different types of firms according to different sample splits;

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- evaluate the effects of macroeconomic volatility and shocks on firms' financial structure.

The paper is organized into three parts. Section One presents the stylized facts that can be identified in the balance-sheet data. In order to provide a context for the discussion, this section includes a description of the evolution of credit and other relevant monetary variables under Convertibility during the period under study. Section Two studies the investment and capital structure decisions in the Convertibility period. The third section presents conclusions and policy implications.

1. Convertibility Regime and Firms' Financial Decisions: The Stylized Facts

The Convertibility Law instituted a currency board regime in 1991. The peso was pegged to the U.S. dollar at a one-to-one parity, and it was established that the Central Bank would hold an amount of international reserves that would at least be equal to the currency in circulation. The most remarkable result of the Convertibility Regime was the reduction in the inflation rate. Under Convertibility Argentina ceased to be a high-inflation country, and the rate of inflation settled to a level below international standards. Another important fact is that in the 1990s the economy recorded a substantial average growth rate of 4.1 percent annually. However, this average growth rate is the result of two completely different periods, separated by the Tequila effect in 1995. In the first years of the reform, the increase in GDP was strong. But, after 1995, the evolution of the economy showed several disappointing features: the activity level followed a stop-and-go pattern, the average increase in GDP was low, and the unemployment rate soared. Likewise, the fiscal deficit and the stock of the external debt experienced an upward trend. In such a context, Argentina faced increasing difficulties in meeting its external obligations. Finally, at the end of 2000, the country was forced to resort to the IMF. The financial agreement (the so-called "blindaje") was reached in December 2000. But the effects have not been what was expected. The situation continued to worsen in 2001 and culminated in a financial crisis that obliged the government to abandon the Currency Board.

Convertibility, Dollarization and Country Risk Premium

High inflation, frequent maxi-devaluation and uncertainty were the rule rather than the exception during the so-called "lost decade" following the debt crisis in 1982. In such a context, the domestic demand for financial assets fell systematically in the 1980s. As a result, in 1991, the degree of financial deepening of the economy was very low, and total deposits amounted to around 5 percent of GDP. The changes induced by the Convertibility Plan in this financial scenario, a legacy of the lost decade, were as significant as those in price dynamics. The stabilization of the exchange rate and disinflation greatly favored the recovery in the demand for domestic assets. This recovery additionally benefited from the substantial improvement in the conditions of the capital markets for emerging countries in the early 1990s.

FIGURE 1
EVOLUTION OF DEPOSITS AND CREDIT
(millions of pesos)
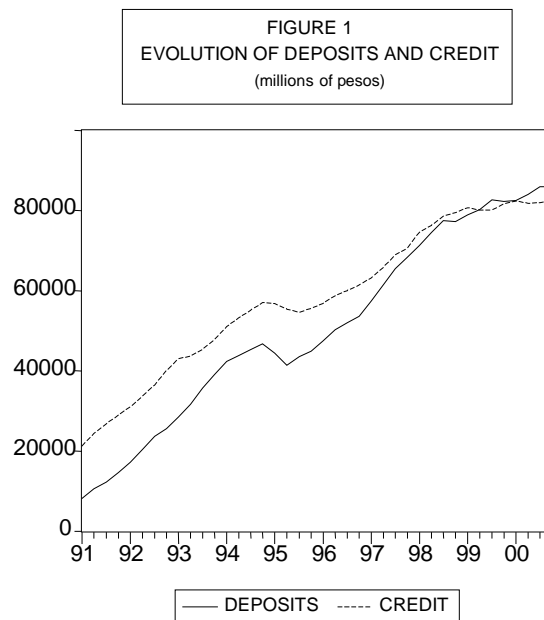
Figure 1 shows the continuous improvement in financial deepening in the 1991-94 period as measured by the increase in the demand for deposits and total credit. These developments not only loosened the tight credit rationing of the 1980s but also opened up new opportunities for firms to innovate in the form of financing capital projects.

The process of increasing financial deepening under Convertibility, however, has certain features that are very important for firms' financial decisions. In the first place, there has been an increasing dollarization of portfolios. Figure 2 shows the evolution of the stock of dollar-

denominated credit and deposits in the domestic financial system as a proportion of the total stock of credit and deposits.

FIGURE 2
DOLLARIZATION OF CREDIT AND DEPOSITS
(Proportion of dollar-denominated over total, %)
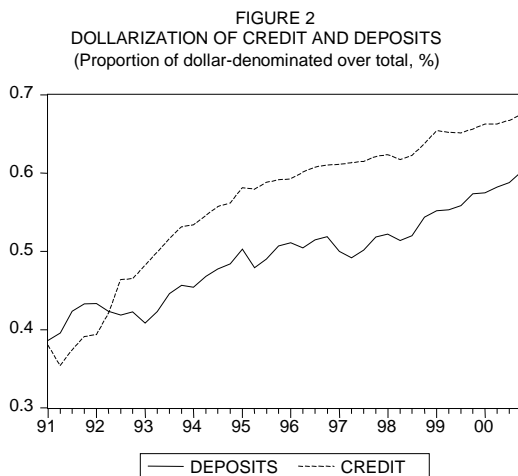
As can be seen, the proportion of dollar-denominated instruments grew continuously. At the end of 2000 more than 60 percent of credits and deposits were denominated in dollars and this tendency increased in 2001. However, the proportion of dollarized credit is greater than the proportion of deposits. This implies that, in fact, banks are hedged against a devaluation of the currency.

A second feature is that the evolution of the demand for domestic assets proved to be highly dependent on external conditions. As can be seen in Figure 1, external shocks impacted rapidly on the demand for domestic assets and the credit supply. The Mexican crisis interrupted the upward trend in deposits and credit. After the recovery in 1996-97, the Russian crisis had the same effect. Note that the speed of the recovery in deposits and credit is very different after the Tequila and the Russian shocks. While the recovery is very rapid in the former case, credits and deposits show a much more sluggish evolution in the latter. In fact, the stock of deposits began to fall in 2001.

External shocks, both positive and negative, also influenced the cost of domestic credit. In this regard, the main link between external and domestic credit markets is the country risk premium. Changes in the conditions in emerging countries' capital markets and/or in the domestic macroeconomic scenario are reflected immediately in changes in the country risk

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premium. The volatility of both domestic and external conditions echoed in the evolution of the country risk. Via its influence on the cost of credit, this volatility increased the variance of aggregate demand. Figure 3 shows the evolution of the country risk premium as measured by the EMBI spread and compares it with the economy's quarterly rate of growth. Both variables show high volatility and there is a marked and negative association between changes in the country risk premium and changes in the quarterly growth rate of GDP.

FIGURE 3
COUNTRY RISK PREMIUM AND GROWTH RATE (%)
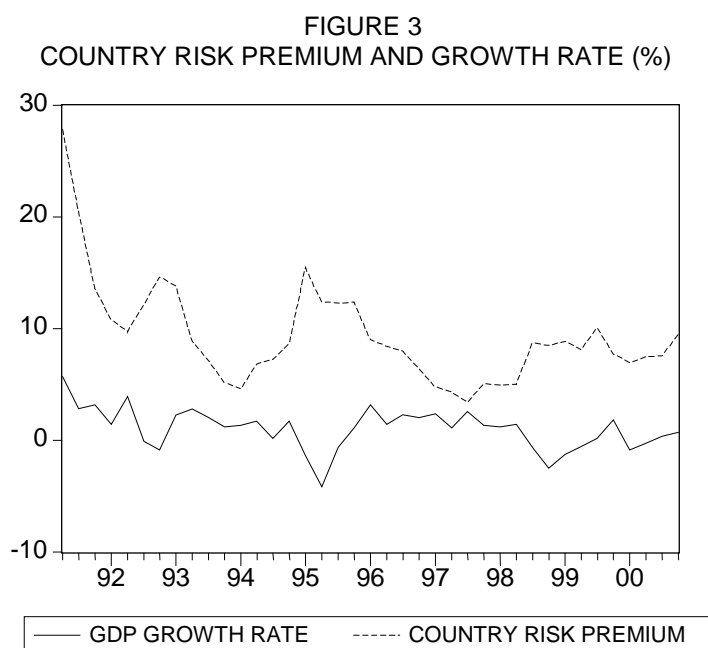
The third feature is the close association between the supply of credit and the activity level. Indeed, given that Argentina's capital markets are far from perfect, it seems plausible that changes in the availability of credit do matter to the level of activity. Using an error correction model, Fanelli and Keifman (2002) find results that are consistent with the hypotheses of a relevant positive association between credit and output in the short run and of a negative correlation between the country risk premium and the evolution of the macroeconomy.

In sum, the features analyzed suggest that, under convertibility and free capital movements, there is a close association between capital flows, the generation of credit and the activity level. This is an important potential source of macroeconomic and financial uncertainty, as international capital flows into "emerging" countries are far from stable.

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It must be taken into account, nonetheless, that the economic authorities' degrees of freedom under Convertibility are not equal to zero. In fact, it seems that the depth of the recession since 1998 has not been independent of some policy actions on the financial and fiscal sides. Notice that there has been a persistent tendency for the rate of growth of credit to lag behind the rate of growth of deposits since 1995. In fact, in 1999 the line representing deposits crosses the credit line (Figure 1). The tightening in prudential and liquidity regulations of the Central Bank in the second part of the 1990s is closely associated with this result.

In fact, however, the credit squeeze in the private sector since 1998 has been stronger than what is suggested in Figure 1. The figure clearly shows that the aggregate stock of credit as a proportion of GDP has stagnated since 1998, but the aggregate conceals the fall in the stock of private credit that was offset by an increase in the amount of public sector credit demand. The increase in the fiscal deficit from 1998 (which was associated with the political cycle) raised the public sector's borrowing needs and, as a consequence, the government crowded out the private sector. The private/public credit ratio fell from 7.7 when the Russian crisis hit the economy in 1998 to 4.4 at the end of 2000. The tightening of credit conditions for the private sector was, undoubtedly, one major factor that deepened the recession. The funds available for financing the private sector suffered, simultaneously, from the pressure exerted by the fall in capital inflows, the tightening in prudential regulations, and a mounting public demand for credit. In such a context, it is not surprising that demand plummeted for investment and consumer durables—a major factor in the stagnation of aggregate demand at the end of the 1990s.

Argentine Firms' Capital Structure: The Stylized Facts

This section explores panel data in order to identify a series of stylized facts. First, we will analyze the evolution of the main components of the firms' capital structure in the last fifteen years and, second, the changes in the gearing ratio in that period. In the third place, we will concentrate on the relationship between short- and long-term debt and the role of liquidity. Finally, we will focus on three related issues that are highly relevant under the Convertibility regime: liquidity, currency risk and short-run debt as a disciplinary device. One important feature of the panel of firms listed on the Buenos Aires Stock Exchange that we elaborated for this project is that it is quarterly and, consequently, it allows for a better understanding of the short-

run dynamics of financial decisions and their relationship with macroeconomic shocks. The analysis concentrates on the Convertibility period

Figures 4a and 4b[2] show the evolution of the capital structure of Argentine firms listed on the Stock Exchange in the pre- and post-Convertibility period. In the years preceding convertibility it is difficult to identify a definite pattern in the relationship between net worth, total assets and liabilities. In the 1990s, in contrast, there is a clear tendency for the level of leverage to increase. This tendency is very marked: In the period of 1992:I /2000:III, net worth increased by 22 percent in real terms while total debt grew by 221 percent.

FIGURE 4a
Assets, Liabilities and Net Worth

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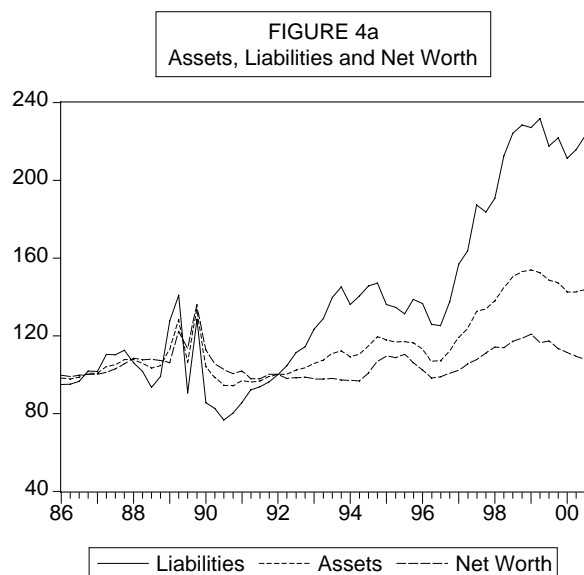
[2] The letter accompanying the number of the figure refers to the panel utilized. In order to cover as wide a time span as possible and, simultaneously, preserve the homogeneity of the panels, the number of firms in Panel "a" is lower than in Panel "b". See Appendix 1.

FIGURE 4b
Assets, Liabilities and Net Worth
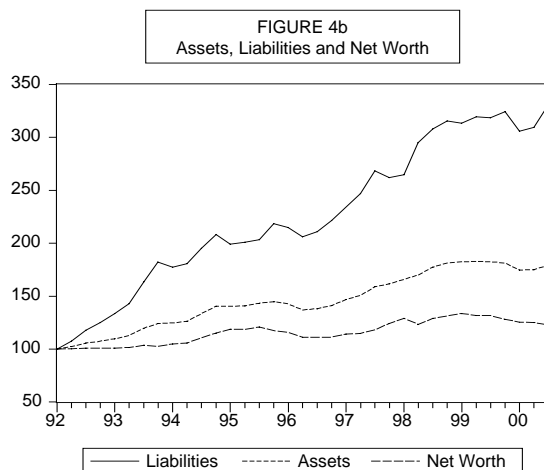
It would be very difficult to explain why there was such an important growth in indebtedness after the implementation of Convertibility without referring to macroeconomic factors. In the early 1990s, following two hyperinflationary episodes in 1989 and 1990, foreign capital markets were closed to most Argentine firms and the domestic credit/GDP ratio was extremely low. Under such circumstances, it seems logical to assume that firms were in disequilibrium and that the observed leverage ratio did not reflect long-run equilibrium values. As stability consolidated in the 1990s and capital inflows recovered, firms sought to reduce the gap between existing and preferred levels of leverage. In order to highlight the relevance of macroeconomic factors for microeconomic decisions the observed values of the leverage ratio are (debt over total assets) are drawn against the "medium-run" trend (using the H-P filter) in Figure 5.[3]

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[3] The reference to the trend is only illustrative. It follows from the arguments in the text that, after hyperinflation and stabilization, the Argentine economy is at present in a period of adjustment.

FIGURE 5
Leverage Ratio

LEVERAGE RATIO ------ HPTREND
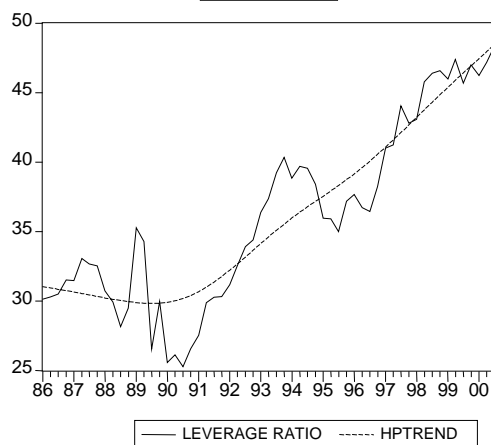
Substantial deviations from the trend are associated with major macroeconomic shocks. The two largest downward deviations coincide with the hyperinflationary period and the Tequila effect. In both cases, however, as the effects of shocks faded, the leverage ratio recovered rapidly as the effects of the shocks faded. Notice particularly the years of booming capital inflows (1992-94). These fluctuations in leverage suggest that negative shocks tend to worsen credit conditions rapidly, driving firms' leverage to sub-optimal levels. They also suggest that firms may resort to liquidating assets in order to smooth the effects of short-run credit crunches. In contrast, firms take advantage of "tranquil" periods in credit markets to correct deviations from long-run equilibrium.

FIGURE 6
SHORT- AND LONG-TERM DEBT RATIO

SHORT TERM ------ LONG TERM
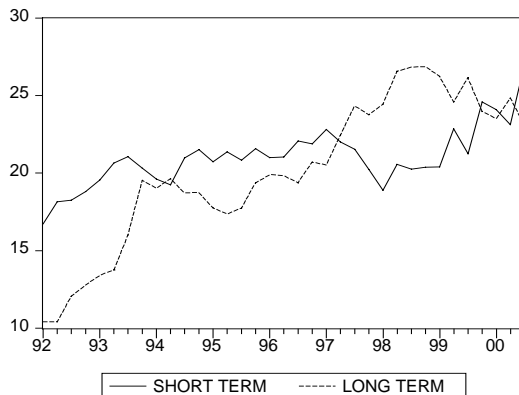
The dynamics of short and long-term debt held by firms throughout the cycle also suggest that credit conditions can quickly react to changes in investor sentiment. Figure 6 shows the evolution of long and short-term debt, and a comparison of Figures 5 and 6 shows that the behavior of the long-term liabilities/asset ratio tends to mimic the behavior of the gearing ratio. But the fluctuations of the latter ratio are smoother. This implies that agents tend to resort to short-term debt when they face either increasing costs in the markets for long-term debt or rationing.

Under Convertibility, the stock of short-term debt held by firms is higher than that of long-term debt during almost all of the sample period, and the proportion is comparable to that in other developing countries (see Booth et. al., 2000). The telling presence of instruments with short maturity implies that staged finance is a feature characterizing Argentina's debtor/creditor relationships (Stulz, 2000).

As mentioned above, the behavior of the long-term debt/total assets ratio reproduces the general shape of the leverage ratio, but it is more volatile. This higher volatility reflects the fact that the short-term debt ratio is much more stable. The coefficient of variation of the long-term ratio is more than twice that of short-term debt. Figure 8 shows the co-movement of the proportions of short- and long-term debt in total debt.

FIGURE 7
Proportion of Short- and Long-Term Debt in Total Debt

As shown in the figure, the ratio between long- and short-term liabilities tends to move pro-cyclically. Consequently, negative shocks not only reduce leverage, but also tend to shorten the duration of debt. If average maturity falls, to maintain their liquidity position (i.e., to keep the

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liquid assets/short-term debt ratio constant), firms should increase their demand for liquid assets during downturns. The available evidence, however, casts doubt on this hypothesis. It seems that in the Argentine case, firms' liquidity position tends to worsen in periods of macroeconomic instability. To illustrate this point, Figure 8 compares the evolution of liquidity (liquid assets/short-term liabilities) with the evolution of country risk, which is interpreted as a proxy for macroeconomic disequilibrium. The behavior of these two series is compatible with the conjecture that, under Convertibility, liquidity constraints move counter-cyclically.[4] In bad times, firms are forced to rely on internal sources of liquidity.

FIGURE 8
Liquidity and Country Risk
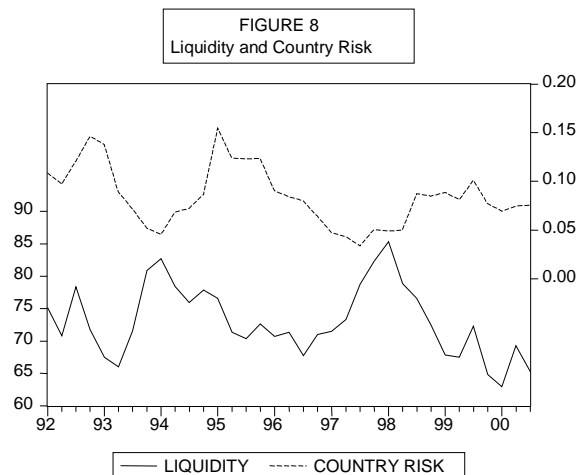
The behavior of the different debt components throughout the cycle raises interesting analytical questions. An important one is why this increase in the proportion of short-term liabilities is observed after a shock. The present hypothesis is that negative shocks reduce firms' net worth, increasing the probability of financial distress. Under such circumstances, creditors

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[4] It is interesting to note, in this regard, that liquidity conditions seem to respond very quickly to changes in foreign capital markets. In Figure 8, for example, the worsening in liquidity conditions occurs well before the Tequila effect hit the economy. In fact, there is a clear worsening in the liquidity indicator after the tightening of monetary policy in the USA in the first quarter of 1994. This suggests that the Tequila and the change of orientation in monetary policy in the USA are not independent phenomena.

react by shifting their demand toward assets with short-term maturity to better monitor the behavior of debtors, because the liquidity premium rises in uncertain environments. But if it is assumed that the duration of assets is somewhat constant throughout the cycle, when the shortening in the term to maturity of debt occurs, firms' financial position further deteriorates and default becomes more probable. This increase is perceived by creditors as an upward movement in the costs of financial distress (if these costs are calculated as the probability of default multiplied by its cost). Under these circumstances, a logical result is that creditors will try to shorten maturity to better monitor and discipline debtors. In sum, if this reasoning holds, there are endogenous factors that tend to reduce maturity and increase financial duress during recessionary periods. This hypothesis of maturity-shortening as a disciplinary device is fully consistent with the hypothesis of staged finance as an anti-moral hazard mechanism in contexts where institutional underdevelopment impedes the precise definition of property rights

The increase in the proportion of dollar-denominated liabilities under Convertibility that is observed at the aggregate level is also clear in the firm panels. The proportion of dollar-denominated debt in total debt rose from 52 percent in 1992 to 77 percent in 2000 (Figure 9). This figure suggests that the growth rate of dollar-denominated debt was even higher than the rate corresponding to total liabilities which, as mentioned above, was very high: In the 1992:I/2000:III period the total amount of dollar-denominated debt almost quadrupled.

FIGURE 9
PROPORTION OF DOLLARIZED DEBT (%)

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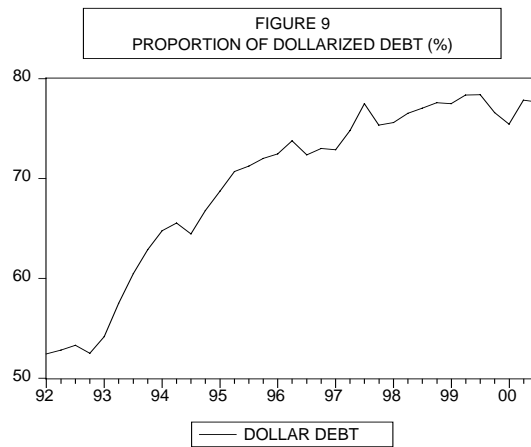
There is a close link in the evolution of dollar-denominated and long-term liabilities which suggests that for Argentine firms, domestic dollar-denominated credit and external capital markets are critical sources of long-run funds. Under the assumption that firms prefer to match the duration of their assets and liabilities, dollarization and capital inflows must have had a positive influence on capital formation. However, it is also true that as the proportion of dollar-denominated liabilities increases, so does exposure to unanticipated changes in the real exchange rate. Hence, there is a trade-off between the benefits of matching the duration of the two sides of the balance sheet and the increased currency risk taken because of higher mismatching in the currency-denomination of assets and liabilities. The existence of currency risk implies an inverse relationship between the expectations of a change in the real exchange rate and the degree of currency mismatch between assets and liabilities. If the previous argument is valid, every time the firms seek to hedge against devaluation, the participation of long-run liabilities in the firms' balance sheets will tend to fall. Figure 10 presents evidence that this conjecture merits investigating in the Argentine case. The figure plots the ratio between short and long-term debt against the ratio between dollar-denominated liabilities and assets.

FIGURE 10
SHORT-TERM AND DOLLAR-DENOMINATED DEBT

SHORT/LONG DEBT ----- EXPOSURE

The figure shows significant declines in dollar-denominated liabilities and a rise in the importance of short-term debt every time an important shock, domestic or external, hits the economy. Specifically, notice the widening in the gap between the two variables during hyperinflation (1989/90); the Tequila (1995/96) and after the Russian and Brazilian crises (1998/99). This means that when the macroeconomic setting worsens, there is a concurrent

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increase in the demand for foreign exchange and higher pressure on markets for short-term financing. It also means that economic downturns create pressures on both foreign exchange and domestic financial markets. When the exogenous macroeconomic shock is strong enough and the regulatory framework is weak, this combination of events can trigger the so-called "twin crises" that have in fact occurred in Argentina. Domestic markets for short-term credit are unable to make up for the fall in dollar-denominated and long-run loans and firms face increasing difficulties in meeting their short-run obligations.

Exogenous macroeconomic shocks play a significant role in Argentina because they are both sizable and frequent. Agents must take financing decisions in a highly uncertain environment in which substantial wealth losses can result from errors in expectations. When a fiscal or an external shock leads to an unexpected currency devaluation (and, eventually, to a change of the exchange rate regime), those agents facing severe losses typically feel as if the authorities had violated their property rights. This fear of losses and the need to "protect property rights" from moral hazard underlies the tendency to dollarize, which is observed under increasing macroeconomic instability.

2.   Capital Structure, Investment and Dollarization

The following analysis of firms' financial decisions in Argentina in the 1990s is based on the panels described in Appendix 1. The appendices also present the econometric results in detail. This section focuses on the main results and the analytical implications.

Analytical Framework, Hypotheses and Methodology

The stylized facts identified in the previous section suggest that:

1. *prima facie* financial constraints matter in Argentina;[5]
2. dollarization is a structural feature of financial intermediation;
3. macroeconomic factors have a bearing on the tightness of financial constraints;

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[5] Also see the papers cited in the Introduction.

Point (1) means that circumstances do not correspond with a Modigliani-Miller (1958) world of perfect capital markets and that it is necessary to approach the Argentine case within a theoretical framework where informational asymmetries, contract enforceability, and other frictions matter. In such a framework, lenders may be willing to provide additional financing for investment only at an increasing interest premium (Bernanke and Gertler, 1990), credit rationing may be observed (Stiglitz and Weiss, 1981) and changes in investor sentiment may trigger sudden flight-to-quality episodes (Bernanke, Gertler and Gilchrist, 1994) with significant consequences for the level of activity level and the country's macroeconomic stability. To test the plausibility of the imperfect financial market assumption in the case of Argentina, the determinants of investment and of capital structure will be investigated below.

A key characteristic of imperfect capital markets is that they are segmented. This means that different firms face financial constraints of varying intensity and, therefore, the partition of the sample of firms may uncover important differences regarding the relevance of financial constraints. The sample is split according to the likelihood that the firm will suffer from incentive and information problems. The dummy variables used to partition the sample were based on the following:

(i)   whether the firm is affiliated with a group;

(ii)   whether the firm was able to issue either Obligaciones Negociables or a Eurobond (i.e., to participate in bond markets);

(iii)   whether the firm is owned by foreigners;

(iv)   whether the firm was quoted in foreign markets (i.e., to issue an ADR);

(v)   whether the firm is a privatized enterprise.

The dollarization of financial instruments alluded to in point (2) characterizes many emerging economies. But, the literature on capital structure emphasizes the decision on the level of leverage and the proportion of long-term debt. Not much research has been done on the factors that determine the proportion of dollar-denominated debt a firm decides to hold. In this regard, much attention focused on whether financial reform affects capital structure and investment decisions. But dollarization is a structural change whose consequences can be even stronger than those induced by financial reform. Consequently, the issue will be considered of whether the

factors that the literature identifies as relevant to determining the capital structure and the mix of short and long-term debt are also relevant to the choice of the proportion of dollar-denominated liabilities in the capital structure. The issue of whether debt dollarization has a bearing on investment will also be examined.

Point (3) is clearly stated in the literature. It is very well known that the severity of financial constraints is likely to vary with overall macroeconomic conditions and the stance of economic policy because these factors influence net worth. In this way, it is stressed that monetary policy works not only through the traditional cost-of-capital channel but also through collateralizable net worth. Very little is known, however, about the way in which changes in macroeconomic conditions affect financial constraints in the context of a currency board where, by definition, there is no room for monetary policy. When expectations change, as reflected for example in a variation of the country risk premium, for example, there will be variations in the rate at which returns are discounted and more pessimistic forecasts may result.

While this is true of all economies, volatility is higher in emerging markets. As noted above, for example, shocks induce sizable changes in both the level of leverage and the composition of debt. These questions nonetheless remain under-researched in the literature because of the lack of data on emerging markets. The main purpose of this section is to present evidence of the way changes in macroeconomic conditions affect microeconomic financial decisions in an economy that adopted a currency board-like scheme and where sizable shocks are frequent. To take these effects into account, country risk, an index of financial deepening (the aggregate private banking credit/GDP ratio), and the proportion of dollar debt in total debt will be introduced as explanatory variables in the regressions.

Investment and Financial Constraints

Financial constraints are likely to influence the investment process. Hence, one way to test the hypothesis that market imperfections are relevant is to go beyond the traditional approach based on Tobin's q and to include, in addition to variables related to profit maximization, variables representing financial constraints in the investment equation, (see Fazzari, Hubbard and Petersen, 1988, Hubbard, 1998, and Schiantarelli, 1996). If markets are imperfect, not only does profitability matter, but also liquidity and the cost of external financing. Accordingly, a first step

is to estimate the following regression model, using a panel of firms that are quoted on the stock market:[6]

$$I_{i,t} = \gamma_0 + \gamma_1 q_{i,t-1} + \gamma_2 c_{i,t-1} + \gamma_3 d_{i,t-1} + \gamma_4 H_{j\,i,t} + \varepsilon_{i,t}$$

where I is investment as a ratio to the capital stock, q is Tobin's q (market value of the firm over its book value), c is the cash flow as a ratio of the capital stock and d is the debt/capital ratio (leverage).[7] The subscript i is an index for firms and t for time. In the absence of financial restrictions and agency problems, investment depends exclusively on q, provided q captures adequately fundamentals. Hence, if coefficient γ_2 and γ_3 are significant, this will indicate the existence of market imperfections. Coefficient γ_2 is assumed to reflect the influence that variations in internal funds, liquidity and net worth have on investment. Coefficient γ_3 should be significant if it is true that an increasing debt to capital ratio accentuates incentive problems because the growth rate of debt is higher than the growth in the value of collateral.

However, since cash flow may also contain information about future profitability, imperfectly represented by q, it is important to check whether there are differences in the coefficients corresponding to different sample groups and periods. It is interesting to add some macro-financial indicators to test whether they have an independent effect in addition to microeconomic channels. Therefore, H_j is introduced, which stands for the set of variables that will be used to test different splits of the sample and macroeconomic effects.

Results are presented by using two different techniques: the Fixed Effects Within estimator (FEW) and the Generalized Method of Moments estimator (GMM). In the present case, Tobin's q, cash flow and leverage are uncorrelated with present and future errors, after taking deviations from firm's mean. It should be noted that a large number of time periods (35 quarters) are available. Also presented are results based on GMM estimation of the model in differences.[8]

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[6] See Appendix 1 for a description of the panel used.

[7] We present the precise definition of these variables in terms of firms' balance sheets in Appendix 2.

[8] Following a reviewer's useful suggestions, we have specified dynamic equations with lagged dependent variables and estimated them using the program DPD OX version 3 2001. In the GMM results we present the one-step estimations and the Sargan statistic from the two-step estimations. GMM estimates are based on instrumenting the differenced equation with the lagged level-value of the endogenous and predetermined variables and with the first-differenced values of the exogenous variables. The GMM technique is not appropriate when the number of periods is large relative to the number of firms. In our Stock Exchange Panel, there are 34 quarterly observations for 45 firms. Given the significant number of instruments derived from the long time dimension, the Sargan tests do not reject the

This model is standard in the literature (see Arellano and Bond, 1991; Mairesse, Bronwyn and Mulkay, 1999; and Harris, Schiantarelli and Siregar, 1994). The equation estimated on the bases of those methods is presented. The Argentine case can thus be compared with other countries' results, and the sensitivity of these results to the estimation technique can be shown.

The estimations are summarized in Table 1a. One solid result of our research is that q's coefficient is highly significant, independently of the method used. This contrasts with the results obtained by Gallego and Loayza (2000), who found that investment does not significantly depend on the firm's q value. This suggests that the firms in the sample are less constrained in capital markets than Chilean ones. This is an interesting finding because the level of domestic financial deepening is higher in Chile than in Argentina. However, it must be taken into account that the firms in the present sample are larger than their Chilean counterparts and that they have relatively good access to international capital markets. Also, in light of the noticeable delisting process in the Argentine stock market over the 1990s, the higher sensitivity of investment to q in Argentina may reflect some selection bias, in the sense that only the larger and stronger firms in the country continued to be quoted. In any case, it would be interesting to compare Argentine and Chilean firms, controlling for size and other characteristics to isolate the effects of financial deepening.

It was also found that the coefficient of cash flow, γ_2, is highly significant when Fixed Effects are used. Using GMM, the coefficient is smaller and less significant. However, it is usually significant at the 10 percent level in Table 2. The coefficient of debt, γ_3, is not significant. It must be taken into account, nonetheless, that most of the firms in the panel are large enterprises. One can hypothesize that a firm's size is highly correlated with the fundamental factors that determine the probability of being constrained. Smaller firms are likely to suffer from idiosyncratic risk, less likely to have developed a track record, and have lower collateral. Unit bankruptcy costs are likely to decrease with size, and smaller firms face higher transaction costs in capital markets. In this regard, the result should be interpreted as a signal that financial constraints due to incentive problems have a lower impact on large firms.

In order to test for an independent influence of macroeconomic factors, we experimented with three different aggregates were: the private banking credit/GDP ratio, a dummy for crisis

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null, probably reflecting the overfitting problem. Fixed Effects Within results are preferable for the analysis.

effect and country risk. Since these variables do not change across firms they are similar to time-specific effects. We were unable to detect any significant influence of the crisis effect and private banking credit/GDP variables. Neither were they relevant on their own nor as multiplicative variables affecting the q, cash flow or leverage variables (we only report the results corresponding to the cash flow variable, see Table 1b). Note that the point estimates using the interactions with the crisis dummy suggest that the size of the coefficient of cash flow increases substantially during the crisis years compared to the non- crisis years (between 75 percent and 117 percent depending on the specification). However, as stated above, the difference is not statistically significant at conventional levels (the asymptotic t statistic on the difference equals 1.55 at best).

This result is similar to the findings of Gallego and Loayza (2000) for Chile and would indicate that macroeconomic factors work through microeconomic variables. However, we do find that the coefficient corresponding to country risk (defined as an annual simple average) is significant (Table 1a). This supports the hypothesis on the relationship between overall macroeconomic conditions, changes in the country risk premium, and the value of collateralizable net worth. The coefficient of the interactions of the country risk premium with q, cash flow and leverage is not significant (Table 1b shows the results for cash flow).

To test whether debt composition affects investment, we included the proportions of long-term and dollar-denominated in total debt on the right-hand side of the equation. The estimations are summarized in Table 2. The ratio between long-term and total debt is relevant in both Fixed Effects Within and GMM exercises. The result suggests that the availability of long-term external funds, given the desire of matching long mature assets with long mature financial obligations, is associated with an increase in investment. The ratio between dollar-denominated and total debt is not significant in any case.

All firms in the sample are compared with subgroups that are expected to have differential access to financial markets. Multiplicative dummies are used to compare the coefficients for different groups. Specifically, the sample is split according to whether the firm is affiliated with a business group; whether the firm quotes its shares in foreign markets; whether the firm was able to participate in the market for Obligaciones Negociables and Eurobonds; and, whether the firm is a privatized enterprise (privatized enterprises had contractual clauses that

obliged them to invest heavily in the years following privatization). As a general rule, the results reported in Table 3 are sensitive to the method of estimation used.

Looking at the Fixed Effects results, being a privatized firm does not alter the influence of q and cash flow on investment. Affiliation with a business group improves the positive influence of cash flow on investment. This is also true using GMM. This result is puzzling because one would expect group membership to reduce financing constraints. However, we must take two points into account. First, affiliation with a business group may be a signal that the firm is facing some kind of imperfection in financial markets. The organization of an "internal capital market" within the group will be profitable only to the extent that it reduces the cost of funding for the firms in the group. Second, the firms in our sample are large. Small firms are underrepresented. Consequently, our group variable basically reflects the difference between large firms and firms affiliated to a group. If the latter are more financially constrained than the former, it is reasonable to expect a positive sign for the coefficient of the interaction variable.

An interesting result we found is that market segmentation (reflecting the incidence of informational and incentive problems) is relevant in relation to the market/book ratio but not so regarding cash flow or leverage. Actually, those firms that do not have access to more sophisticated markets (ADR and Bonds) are less sensitive to q. This is consistent with the predictions of the approach stating that financial constraints matter.[9]

Finally, exercises were performed using the current sales/capital ratio instead of Tobin's q as a proxy for returns. In this case, the data at our disposal are richer because we can use an additional panel of firms to the one corresponding to the firms listed on the stock exchange. To distinguish between the two, we will call the stock exchange panel SE and the new one ENGE (Encuesta Nacional de Grandes Empresas).[10]

The estimations are presented in Table 4.[11] In Table 4 we also present the instrumental variable estimation of the model in differences as suggested by Anderson and Hsiao.[12] For the

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[9] In fact, this argument deserves a qualification. Like other developing countries, Argentina's stock market is considerably volatile and thin, which, in turn, poses some doubts about market efficiency. Under these circumstances, the observed q may lose informative power at the time of making investment decisions. Consequently, a low sensitivity of investment to q may reflect this problem in addition to the financial constraints approach.
[10] See Appendix 1 for a description of the two panels used.
[11] Due to the contemporaneous relationship between investment and sales, the Fixed Effects Within estimator is inconsistent. Therefore, we also present the Instrumental Variables estimator (ASIV) for the SE panel. The ENGE

SE panel, the Instrumental Variable (ASIV) estimations support the previous results on cash flow and leverage. In both GMM and ASIV results the coefficient of sales is not significant, possibly because of poor instruments. The same arguments also apply to the ENGE panel. In this panel none of the other variables seems to be relevant either[13].

Capital Structure and Dollarization

The evidence in Fanelli and Keifman (2002), Schmuckler (2000) and the stylized facts of the previous section suggest two points about the interaction between leverage, maturity, and currency denomination in Argentina. First, the variables that appear in the literature on capital structure should play a relevant role in the Argentine case. In this sense, Argentina would be consistent with the findings of Booth et al. (2000). Second, the analysis of balance sheets shows specific features that may probably be associated with the volatility of the Argentine context and the particular characteristics of the currency board regime. To study these issues, we use a regression model like the one Gallego and Loayza (2000) used in the Chilean case and Booth et al. (2000) used for a set of emerging countries. Nonetheless, an equation will be added to analyze the firm's decision regarding the proportion of dollar-denominated debt in total debt. Specifically, the equations to be estimated are:

$$Z_{i,t} = \beta_0 + \beta_1 S_{i,t} + \beta_2 K_{i,t} + \beta_3 B_{i,t} + \beta_4 D_{i,t} + \beta_5 M_{i,t} + \nu_{i,t}$$

$$L_{i,t} = \alpha_0 + \alpha_1 S_{i,t} + \alpha_2 K_{i,t} + \alpha_3 B_{i,t} + \alpha_4 D_{i,t} + \alpha_5 M_{i,t} + \mu_{i,t}$$

$$F_{i,t} = \delta_0 + \delta_1 S_{i,t} + \delta_2 K_{i,t} + \delta_3 B_{i,t} + \delta_4 D_{i,t} + \delta_5 M_{i,t} + \eta_{i,t}$$

The variable Z is the leverage ratio (defined here as debt to equity) and L and F are the proportions of long-term debt and dollar-denominated debt in total debt. S stands for the log

panel has a shorter time dimension (4 years) and includes more firms (308), so the GMM estimations are appropriate in this case. We also used the so-called GMM-System estimator for the ENGE panel. GMM-System estimates are based on instrumenting both the differenced and level equations. For the differenced equation, instruments are the lagged level-value of the endogenous and predetermined variables and the first-differenced values of the exogenous variables. For the level equation, instruments are the lagged first-differenced value of the endogenous and predetermined variables. Again, estimations of equations are one-step estimations and Sargan statistic comes from the two-step estimations. Given the shorter time dimension, Sargan tests do not exhibit an overfitting problem.

[12] Note that contemporaneous sales is included as a proxy for fundamentals here. See Hsiao (1986).

[13] WE have also estimated the investment model using current cash flow instead of lagged cash flow in the SE panel.

capital stock which proxies for size; B represents the operational profits/assets ratio which proxies for the firm's profitability. K is the ratio of fixed to total assets that measures tangibility of total assets. Variable D is introduced to distinguish firms with different degrees of market access and M to test for macroeconomic effects. The strategy for estimating these equations is similar to that followed in the case of investment, although the GMM system method is used instead of GMM, following the Gallego and Loayza (2000) suggestions. Results are presented in Tables 5 to 10.

We use the logarithm of total assets is used as a proxy for size. This variable is included in the equations because it alleviates information asymmetries. But since larger firms are likely to be more diversified, it also reduces repayment risk. It must be taken into account that diversification may have a premium in economies where markets for allocating risk are incomplete. In the Argentine case, for example, the stock exchange can only be partially used to diversify risk. Owing to the reduced number of firms listed, many sectors in the economy are not represented.

In the leverage equation the coefficient corresponding to size is not significant in either panel (see Tables 5 and 8). The results are very different regarding the other two equations. For the SE panel the coefficient is positive and significant. For the ENGE panel the results are the same when using the FEW method, but this is not the case when controlling for joint endogeneity (Tables 6 and 9). It seems that larger firms have a higher preference and/or face softer constraints in accessing markets for long-term and external markets.

A greater degree of tangibility (fixed assets over total assets) in the composition of the asset mitigates asymmetric information problems and favors the use of long-run debt owing to firms' desires to match the duration of assets and liabilities. Consequently, a positive sign is expected in the leverage and long-term debt equations. In the case of dollar-denominated debt, on the other hand, a negative sign is expected. To a foreign creditor, it is much more difficult to liquidate tangible assets to recover a non-paid dollar-denominated loan. For both foreign and domestic creditors, the existence of currency risk may imply that the liquidation value of some tangible assets is low due to irreversibility. On the demand side, if those firms holding tangible

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The results do not change significantly. See the last column of Table 1.

assets belonged to the non-tradable sector, the purpose of limiting currency risk would result in a preference for domestic currency-denominated debt.

The overall results of the role of tangibility in the leverage equation are weaker than in the case of the size variable. We were unable to get definite conclusions either about the sign of the variable or its significance since those factors change according to the estimation method and the panel used (Tables 5 and 8). These results are consistent with the evidence presented in Booth et al. (2000). They also found an unstable coefficient.

In the case of the equation explaining the behavior of debt with longer maturity, the evidence suggests that tangibility exerts a positive influence (Tables 6 and 9). This favors the matching argument. It seems that firms with more tangible assets try to lengthen the maturity of their liabilities. In the case of the dollar equation, tangibility is included to test the hypothesis that, ceteris paribus, external creditors find ex ante distress costs higher as the proportion of tangible assets in the capital structure increases. Likewise, firms holding such assets may prefer to reduce currency risk exposure. It is interesting here to recall the previous argument. Given the de facto association between dollar-debt and long-term debt, firms seeking to finance long-run assets face a troublesome trade-off between the benefits of extending the duration of liabilities and the higher currency-risk that long-term debt entails. The empirical findings, however, are mixed. In both panels, the variable is significant when the FEW method is used but it is not when the GMM system is employed.

It is difficult to tell ex ante the sign of the coefficient of the return on assets (ROA) in each of the equations. The higher the ROA, the lower the repayment risk is. However, higher profits reduce the need for the more expensive external funds and, additionally, firms with better growth prospects may want to avoid the possibility that (bank) creditors extract rents from them. In order to control for firms' growth prospects, the market to book ratio is included. As a proxy for growth, it is expected that a higher q will reduce perceived repayment risk.

The results in Tables 5 and 8 suggest that profits do not play a relevant role in explaining leverage either in the SE or in the larger ENGE panels. In the case of the market to book value, the results only refer to the SE panel because many of the firms in the ENGE panel are not listed. We were unable to detect a significant influence on leverage (Table 5) but it appears that growth prospects have a bearing on decisions regarding the proportion of long-term and dollar-

denominated debt. It is found that q has a significant and positive effect on the proportion of debt of longer maturity held by firms as a proportion of the total stock of debt (Table 6) and a negative effect on dollar debt (Table 7). This suggests that while growth prospects ease access to long-term credit markets, currency exposure makes lenders and/or borrowers reluctant to write dollar-denominated debt contracts.

Business groups may help to cope with information and contract enforcement and, in the case of financial distress, individual firms may also rely on the financial resources of the group. It is reasonable to assume that multinationals operating in Argentina can also count on internal capital markets. It is likely that both groups and multinationals have better access to foreign credit markets. On the other hand, independently of whether the firm is affiliated with a group, one can assume that firms that gained access to bond markets or placed an ADR face fewer constraints when deciding on leverage and debt composition. Several dummy variables were designed to split the sample and test these hypotheses.

Although the significance and size of the effect may vary with the method of estimation and the panel utilized, it is found that firms in different categories face financial constraints of diverse intensities. The main conclusions are the following. Affiliation with a group tends to reduce the proportion of dollar-denominated debt (Tables 7 and 10).[14] Regarding market access, we find that having access to the market for ADR and for bonds may be relevant. The results of some of the exercises (see tables) indicate that firms that participate either in the ADRs or bond markets tend to reduce leverage and increase long-term and dollar-denominated debt (Tables 5, 9, and 10). This means that less constrained firms prefer to rely on internal funds or equity to meet their financial needs and tend to use credit markets to increase the duration of their liabilities. They also have better access to international markets and can take advantage of the better conditions offered by dollar-denominated credit markets in terms of both maturity and price.

Finally tested is whether the financial structure for all types of firms were dependent on the macroeconomic situation and the evolution of financial deepening. To examine the importance of macroeconomic disequilibria the following variables are introduced: the country risk premium, the private credit/GDP ratio, and a dummy for crisis periods among the right-hand

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[14] Note that affiliation with a group is a time varying variable in the case of the ENGE panel.

variables in the three equations. Regarding financial development, the hypothesis is that increasing financial deepening and capital inflows increased credit supply in the 1990s, thus allowing firms to elevate their leverage after a long period of tight rationing. We have already indicated the higher increment in the stock of total liabilities.

As can be seen in Tables 5, 6 and 7, both the macroeconomy and financial deepening matter for debt composition (in terms of maturity and currency denomination) but not for total leverage. Specifically, the country risk coefficient is significant and negative in some of the exercises (implying a negative association between the proportion of long term debt or dollar denominated debt and country risk), while the influence of the credit/GDP ratio is significant and positive. The crisis dummy does not seem to be relevant in any case. It seems, therefore, that there is a direct link between aggregate variables and decisions at the micro level.

3. Concluding Remarks

Structural reforms and increased capital flows certainly affected the investment and financing decisions Argentine firms made in the nineties. The findings in this paper suggest that this process took place in a context of imperfect capital markets, as was demonstrated by the significant effect in the financial structure regressions, of variables that were thought to reflect information and agency problems, such as firm size, and tangibility. Cash flow is also often significant in the investment equations. However, perhaps due to the nature of the samples (basically composed of larger firms), it has not been possible to detect clear-cut variations across firms in the severity of financing constraints. Similarly, there is no evidence of a different sensitivity of investment to cash flow during distinct periods. Moreover, the macroeconomic environment, characterized by continued volatility, a fixed exchange rate and the dollarization of financial transactions, played a role in this regard. In particular, it seems that variations in the country risk premium are relevant.

In a context of financial imperfections, some firms may forego profitable opportunities because they do not have easy access to credit markets. In this way, financial market failures became a source of inefficiency and a deterrent to growth. Likewise, when financial imperfections are pervasive, macroeconomic fluctuations affect the financial position of the firms and it is very difficult for the firm to manage risk and the consequences of cyclical downturns.

The present financial crisis in Argentina shows that even bank assets of the best quality may deteriorate heavily when the economy experiences a resilient recession. This fact appears to be closely related to the kinds of financial constraints firms face and that were detected in this study.

These facts suggest that the improvement of financial policies may contribute to fostering growth in the case of Argentina. Are there economic policy lessons that can be drawn from our research? The following appear to be the most relevant.

First, in the case of Argentina, fluctuations in capital flows and in the conditions to access international capital markets are closely associated with macroeconomic fluctuations. And macroeconomic shocks affect the financial situation (liquidity, access to long-run finance) and a negative shock, in particular, can induce a rapid deterioration in net worth. Hence, the development of mechanisms to stabilize capital flows may contribute to avoiding (or at least smoothing) abrupt changes in the financial constraints faced by firms. Among the options are: contracting contingency credit lines with foreign banks and building regional funds (in the Latin American or Mercosur context) oriented to stabilizing financial conditions when a shock occurs. Nonetheless, it seems that the IMF's role will continue to be critical to Argentina, as the Tequila and the present crisis show.

Second the access of the private sector to foreign markets and to long-run finance deteriorates quickly during cyclical downturns. Policy makers must take this into account. Fiscal policy and the financing of the public sector deficit should avoid replicating the pattern of private sector finance during the cycle. Argentine authorities did not take this into account in the late 1990s; in the period following the Asian crisis the government crowded out the private sector when a significant worsening in the financial conditions of the private sector was taking place.

Third, there is no doubt that the Basle Committee guidelines provide a sound basis for designing prudential regulations. But, it is also true that the special features of the Argentine economy should be taken into account. In this regard, there are two points worth mentioning. One, given the cyclical patterns of liquidity and long-run indebtedness, prudential regulations should be carefully designed to avoid accentuating such patterns. The norms regulating capital requirements in Argentina in the 1990s required an important increase in capital when the quality of credit in the banks' balance sheets deteriorated. This can introduce a bias in favor of

government credit during cyclical downturns. Increasing the proportion of credit to the public sector in the balance sheets helps avoid having to increase capital. Two, because of their inability to meet capital requirements, many small national banks were driven out of the market in the second half of the 1990s. As a consequence, there was a deterioration in the stock of knowledge accumulated in the financial sector. This may have aggravated the financial constraints facing smaller firms, contributing to prolonging and deepening the recession that began in 1998.

Finally, the Argentine case is particularly interesting for drawing lessons on the process of structural reforms and can be useful for other developing countries. Argentina has made important efforts to reform and liberalize its financial markets. In the period that followed the implementation of Convertibility, the country eliminated almost every financial repression element, and introduced Basel regulations. Inflation, another important deterrent to financial deepening, was also radically eliminated. But, in spite of these developments, our research suggests that firms continued to face important financial constraints. The institutional environment has much to do with this result. To a great extent, some financial markets are weak and others are missing because Argentine institutions are weak. The policies that were implemented in the 1990s implicitly assumed that the abandonment of repressive policies would automatically result in financial deepening. But there are other factors that generate market failures in developing countries, such as the underdevelopment of the legal and regulatory framework, corruption, deficient skilled human resources, and experience regarding screening, monitoring and enforcement of contracts in a free-market environment. To soften financial constraints facing firms it is necessary to create those financial markets that are lacking and to improve the functioning of the existing ones and, for this, institutional strengthening is a key policy goal.

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Appendix 1. Data Sources

<u>SE Panel</u>: Balance Sheet and market value data are based on information taken from Buenos Aires Stock Exchange (Sistema de Información Bursátil and Biblioteca de la Bolsa de Buenos Aires). The Panel covers quarterly data for the period I:1992 / III:2000 for 45 listed firms. For the elaboration of Figures 4.a and 5 we used a Panel of 36 listed firms for the period I:1986 / III:2000.

<u>ENGE Panel</u>: Balance Sheet data are based on information provided by INDEC (Instituto Nacional del Estadísticas y Censos) on the basis of Encuesta Nacional de Grandes Empresas (ENGE). The Panel covers yearly data for the period 1994 / 1998 (stock variables) and 1995 / 1998 (flow variables) for 308 large firms.

Macroeconomic data on credit, GDP and country risk is taken from the Central Bank.

Appendix 2. Definition of Variables

SE and ENGE Panels

Investment: I_t / K_{t-1}
Tobin's q: $(MV_{t-1} + D_{t-1}) / K_{t-1}$
Cash Flow: CF_{t-1} / K_{t-1}
Leverage Ratio: D_{t-1} / K_{t-1}
Sales / Capital Ratio: S_t / K_{t-1}
Long-term Debt Ratio: LD_t / D_t
Dollar-denominated Debt Ratio: DD_t / D_t
Size: $Log\ K_{t-1}$
Tangibility: FA_t / TA_t
Profitability: P_t / TA_t

Where,

K_t	=	Total Assets - Short-term Assets
I_t	=	$K_t - K_{t-1} +$ Depretiation
D_t	=	Total Debt
MV_t	=	Market Value of the Firm Equity
CF_t	=	Operative Profits + Depreciation
S_t	=	Sales Revenues
LD_t	=	Long-term Debt
DD_t	=	Dollar-denominated Debt
FA_t	=	Fixed Assets
TA_t	=	Total Assets
P_t	=	Operative Profits

All variables are in real terms, deflated using WPI.
Stock-variables with index t-1 are measured at the end of period t-1 (beginning of period t).
Flow-variables with index t are measured for period t.

Macroeconomic and Financial Variables

Private Credit by Banks / GDP is the ratio between bank credit to the non-financial private sector and real GDP.

Country Risk (EMBI Spread) is the Emerging Market Bond Index Spread for Argentina.

Crisis Effect is a dummy variable with value 1 in periodos I:95 / III:95 and III:98 / III:00.

Appendix 3. Tables with Regression Results

Table 1a.
Firm Investment and Financing Constraints
Macroeconomic and Financial Effects
Stock Exchange Firms
Dependent Variable: Investment / Capital Stock
t - Statistics are presented below their corresponding coefficients

Estimation Technique	FEW	FEW	FEW	FEW	GMM	GMM	GMM	GMM	AHIV
Constant	-0.016563	-0.057012	-0.029324	0.003336	-0.000487	-0.000561	0.000026	-0.001089	-0.021928
	-1.19	-2.53	-2.94	0.23	-0.95	-0.58	0.05	-2.03	-1.10
q Tobin	0.037107	0.034177	0.032225	0.034499	0.026719	0.027654	0.027061	0.025275	0.032899
	9.78	9.60	9.34	10.13	4.87	5.01	4.93	4.66	3.99
Lagged Cash Flow / Capital Stock	0.145320	0.146500	0.146273	0.134176	0.094757	0.09753.09	0.097680	0.075336	
	3.08	3.10	3.10	2.84	1.30	1.33	1.34	1.04	
Initial Debt / Capital Stock	-0.004440	-0.006626	-0.000785	-0.011375	0.010453	0.012560	0.014603	0.009008	0.018153
	-0.33	-0.49	-0.06	-0.85	0.45	0.55	0.63	0.40	0.69
Lagged Investment / Capital Stock	0.037107	0.036989	0.037669	0.031796	-0.013983	-0.012633	-0.012976	-0.020493	0.005009
	1.49	1.48	1.51	1.28	-0.51	-0.46	-0.48	-0.76	0.17
Country Risk (Embi Spread)	-0.156007				-0.179242				
	-1.42				-1.43				
Private Credit by Banks / GDP		0.000070				0.000059			
		1.29				0.41			
Crisis Effect				-0.004303			-0.008697		
				-0.59			-0.95		
Average of past values of Country Risk (EMBISp)				-0.342719				-0.43727	-0.315867
				-3.15				-2.85	-2.03

Table 1a., continued

Current Cash Flow / Capital Stock									0.397132

									1.98
Firms	45	45	45	45	45	45	45	45	45
Observations	1530	1530	1530	1530	1440	1440	1440	1440	1530
Fixed Effects R - Squared	8.54%	8.52%	8.43%	9.02%					6.52%
GMM Specification Tests									
Sargan Test Chi - Statistics					39.81	39.91	39.76	39.81	
Degrees of Freedom					484	484	484	484	
P - Value					1.000	1.000	1.000	1.000	
Serial Correlation First Order									
z - Statistics					-26.01	-26.04	-25.99	-26.01	
P - Value					0.0000	0.0000	0.0000	0.0000	
Serial Correlation Second Order									
z - Statistics					0.4163	0.4274	0.3950	0.2500	
P - Value					0.6770	0.6690	0.6930	0.8059	

Table 1b.

Firm Investment and Financing Constraints

Macroeconomic and Financial Effects

Stock Exchange Firms

Dependent Variable: Investment / Capital Stock

t - Statistics are presented below their corresponding coefficients

Estimation Technique	FEW	AHIV	FEW	AHIV	FEW	AHIV	FEW	AHIV
Constant	-0.032031	-0.040926	-0.034836	-0.050010	-0.001142	-0.020924	-0.033464	-0.046409
	-3.29	-3.68	-3.36	-3.60	0.07	-0.82	-3.19	-3.11
q Tobin	0.032720	0.035258	0.033449	0.040320	0.034420	0.034725	0.032919	0.039458
	9.72	3.22	9.74	4.40	10.09	3.34	9.42	4.40
Lagged Cash Flow / Capital Stock	0.328371		0.104490		0.194133		0.096882	
	2.51		1.73		1.40		1.59	
Initial Debt / Capital Stock	-0.000514	0.005513	0.003016	0.009429	-0.010393	0.004787	0.005600	0.011037
	-0.04	0.24	0.22	0.35	-0.76	0.21	0.39	0.42
Lagged Investment / Capital Stock	0.035903	0.018180	0.037529	0.010857	0.031455	0.014008	0.037119	0.010590
	1.44	0.63	1.51	0.38	1.26	0.47	1.49	0.37
Average of past values of Country Risk (EMBISp) * Lagged Cash F. / Cap.Stk.	-1.876381				-0.613638			
	-1.48				-0.46			
Crisis Effect * Lagged Cash Flow / Capital Stock			0.098105				0.112960	
			1.14				1.28	
Current Cash Flow / Capital Stock		0.712828		0.200881		0.628992		0.181789
		0.81		0.82		0.68		0.73
Average of past values of Country Risk (EMBISp) * Current Cash F. / Cap.Stk.		-5.289394				-4.367133		
		-0.59				-0.45		
Crisis Effect * Current Cash Flow / Capital Stock				0.124514				0.136683
				1.46				1.55

Table 1b., continued

	FEW	AHIV	FEW	AHIV	FEW	AHIV	FEW	AHIV
Average of past values of Country Risk (EMBISp)					-0.325010	-0.230759		

	1	2	3	4	5	6	7	8
					-2.82	-0.88		
Crisis Effect							-0.006233	-0.007162
							-0.84	-0.89
Firms	45	45	45	45	45	45	45	45
Observations	1530	1530	1530	1530	1530	1530	1530	1530
Fixed Effects R - Squared	8.55%	6.53%	8.49%	7.45%	9.04%	6.89%	8.54%	7.54%

Table 2.
Firm Investment and Financing Constrains
Debt Composition
Stock Exchange Firms
Dependent Variable: Investment / Capital Stock
t - Statistics are presented below their corresponding coefficients

Estimation Technique	FEW	FEW	FEW	GMM	GMM	GMM
Constant	-0.030869	-0.043452	-0.021332	-0.000155	-0.000283	-0.000469
	-3.18	-3.83	-1.53	-0.33	-0.63	-1.07
q Tobin	0.032704	0.033070	0.032036	0.029685	0.028459	0.026158
	9.71	9.82	9.33	5.63	5.35	4.84
Lagged Cash Flow / Capital Stock	0.147843	0.138961	0.150802	0.105116	0.125899	0.105463
	3.13	2.94	3.18	1.65	1.85	1.54
Initial Debt / Capital Stock	-0.002253	-0.003113	-0.000060	0.018038	0.023615	0.013094
	-0.17	-0.24	-0.01	0.94	1.10	0.63
Lagged Investment / Capital Stock	0.038076	0.034059	0.037608	-0.016546	-0.024165	-0.021612
	1.53	1.37	1.51	-0.61	-0.90	-0.81
Initial Total Debt / Equity	0.000173			0.000633		
	0.38			1.30		
Initial Long Debt / Total Debt		0.045549			0.128322	
		2.15			3.51	
Initial Dollar Debt / Total Debt			-0.017139			-0.011157
			-0.94			-0.37

Table 2., continued

Firms	45	45	45	45	45	45

Observations	1530	1530	1530	1440	1440	1440
Fixed Effects R - Squared	8.42%	8.70%	8.47%			
GMM Specification Tests						
Sargan Test Chi - Statistics				35.92	40.91	39.22
Degrees of Freedom				605	605	605
P - Value				1.000	1.000	1.000
Serial Correlation First Order						
z - Statistics				-26.0200	-25.7300	-26.1200
P - Value				0.0000	0.0000	0.0000
Serial Correlation Second Order						
z - Statistics				0.3907	0.2621	0.3076
P - Value				0.6960	0.7930	0.7580

Table 3.
Firm Investment and Financing Constraints
Effects by Types of Firms: Privatized Firms, Economic Groups, ADR and Bonds.
Stock Exchange Firms
Dependent Variable: Investment / Capital Stock
t - Statistics are presented below their corresponding coefficients

Estimation Technique	Dummy Privatized Firms		Dummy Economic Goups		Dummy ADR		Dummy Bonds	
	FEW	GMM	FEW	GMM	FEW	GMM	FEW	GMM
Constant	-0.028546	0.000138	-0.033900	-0.000267	-0.028629	-0.000109	-0.033283	-0.000301
	-2.12	0.24	-3.45	-0.55	-2.82	-0.23	-3.09	-0.62
q Tobin	0.032583	0.026661	0.030195	0.037079	0.031045	0.028996	0.031032	0.026033
	9.65	4.66	7.16	4.70	9.03	5.08	8.94	4.43
q Tobin * Dummy	-0.014480	-0.038264	0.003835	-0.020328	0.032509	-0.030319	0.023323	0.030983
	-0.28	-0.23	0.54	-1.34	1.98	-0.83	1.65	1.09
Lagged Cash Flow / Capital Stock	0.148454	0.099202	0.092190	-0.271015	0.164230	0.108204	0.152374	0.035152
	3.14	1.36	1.81	-2.26	3.42	1.48	2.99	0.38
Lagged C.Flow / Capital Stock * Dummy	0.564472	2.423900	0.270707	0.548140	-0.259902	-0.538519	0.278523	0.268239
	0.22	0.22	2.39	3.57	-1.05	-0.61	1.21	1.57
Initial Debt / Capital Stock	-0.000780	0.015819	0.030254	0.073297	0.034366	0.016186	-0.006473	0.007020
	-0.06	0.68	1.38	2.05	0.26	0.70	-0.37	0.23
Initial Debt / Capital Stock * Dummy	-0.158306	-1.058010	-0.055546	-0.062213	-0.186742	-0.210713	-0.013872	0.022154
	-1.02	-1.02	-1.99	-1.27	-2.03	-1.07	-0.48	0.39
Lagged Investment / Capital Stock	0.037261	-0.152960	0.035270	-0.009931	0.031322	-0.010304	0.034405	-0.014426
	1.49	-0.56	1.41	-0.37	1.25	-0.38	1.38	-0.53

Table 3., continued

	Dummy Privatized Firms	Dummy Economic Groups	Dummy ADR	Dummy Bonds

Estimation Technique								
	FEW	GMM	FEW	GMM	FEW	GMM	FEW	GMM
Firms	45	45	45	45	45	45	45	45
Observations	1530	1440	1530	1440	1530	1440	1530	1440
Fixed Effects R - Squared	8.50%		9.05%		8.89%		8.75%	
GMM Specification Tests								
Sargan Test Chi - Statistics		37.94		37.71		39.47		39.57
Degrees of Freedom		481		481		481		481
P - Value		1.000		1.000		1.000		1.000
Serial Correlation First Order								
z - Statistics		-25.89		-24.94		-25.92		-25.88
P - Value		0.0000		0.0000		0.0000		0.0000
Serial Correlation Second Order								
z - Statistics		0.3814		-0.1262		0.4249		0.3774
P - Value		0.7031		0.9000		0.6710		0.7060

Table 4.
Firm Investment and Financing Constraints
Sales/Capital
Stock Exchange Firms & ENGE Firms
Dependent Variable: Investment / Capital Stock
t - Statistics are presented below their corresponding coefficients

Estimation Technique	Stock Exchange Firms			ENGE Firms	
	FEW	AHIV	GMM	GMM	GMM Syst
Constant	-0.008702	-0.022648	-0.000914	0.016029	-3710.39
	-0.90	-1.45	-1.85	1.02	-0.08
Sales / Capital Stock	0.055061	0.032790	0.003203	0.029727	-0.026723
	3.53	0.39	0.14	1.37	-0.59
Lagged Cash Flow / Capital Stock	0.198669	0.431368	0.114331	0.234703	0.130602
	3.95	2.44	1.51	1.73	1.16
Initial Debt / Capital Stock	0.024545	0.048502	0.078544	0.116407	0.093127
	1.81	1.71	3.29	1.82	0.99
Lagged Investment / Capital Stock	0.051670	0.015654	-0.007404	0.117839	0.096992
	2.02	0.52	-0.27	1.97	1.36
Firms	45	45	45	308	308
Observations	1530	1215	1440	616	924
Fixed Effects R - Squared	3.40%	2.01%			
GMM Specification Tests					
Sargan Test Chi - Statistics			43.88	8.54	13.55
Degrees of Freedom			484	8	16
P - Value			1.000	0.382	0.633
Serial Correlation First Order					
z - Statistics			-26.02	-7.16	-1.768
P - Value			0.0000	0.0000	0.0770
Serial Correlation Second Order					
z - Statistics			0.3751		
P - Value			0.7080		

Table 5.Financial Structure: Ratio of Debt to Equity, Macroeconomic and Financial Effects,
Effects by Types of Firms: Privatized Firms, Economic Groups, ADR and Bonds, Stock Exchange Firms
(Dependent Variable: Ratio of Debt to Equity; t - Statistics are presented below their corresponding coefficients)

Estimation Technique	FEW	FEW	FEW	GMM Syst	GMM Syst	GMM Syst	GMM Syst	GMM Syst
Constant	2.212353	5.095653	3.077778	-2.595810	4.009580	17.394300	-0.425791	13.060700
	0.25	0.58	0.35	-0.61	0.83	1.68	-0.10	1.30
Size ln(Capital Stock)	0.010634	-0.477916	-0.978872	0.056828	-0.029849	-0.844897	0.212060	-0.570914
	0.02	-0.92	-0.20	0.29	-0.14	-1.50	1.09	-1.07
Fixed Assets / Total Assets	-0.486420	2.132631	-0.024937	-0.151146	-1.988320	-1.469340	-2.016530	-0.927312
	-0.19	0.80	-0.01	-0.07	-1.23	-0.78	-1.28	-0.59
Profits / Total Assets	-0.577885	0.802845	0.327134	9.500530	8.245820	10.244300	8.831300	8.935910
	-0.14	0.20	0.08	1.33	1.30	1.48	1.40	1.20
q Tobin	-0.157474	-0.009352	-0.101551	-0.189372	-0.519335	-0.701646	-0.443845	-0.633295
	-0.82	-0.05	-0.52	-1.09	-1.48	-1.70	-1.37	-1.52
Country Risk (Embi Spread)	-5.943777			-1.350360				
	-0.94			-0.25				
Private Credit by Banks / GDP		0.009891		0.008867				
		2.99		1.19				
Crisis Effect			0.798516					
			0.06					
Lagged Ratio of Debt to Equity				0.022390	0.026048	0.018683	0.024955	0.021597
				0.23	0.26	0.19	0.25	0.22

Table 5., continued

Estimation Technique	FEW	FEW	FEW	GMM Syst	GMM Syst	GMM Syst	GMM Syst	GMM Syst
Privatized Firms						-0.059188		

					-0.06			
Economic Group						2.782010		
						1.72		
ADR							-1.306900	
							-2.07	
Bonds								2.219380
								1.22
Firms	45	45	45	45	45	45	45	45
Observations	1,530	1,530	1,530	1,485	1,485	1,485	1,485	1,485
Fixed Effects R - Squared	0.12%	0.66%	0.30%					
GMM Specification Tests								
Sargan Test Chi - Statistics				41.29	38.81	37.51	38.47	38.77
Degrees of Freedom				765	765	765	765	765
P - Value				1.000	1.000	1.000	1.000	1.000
Serial Correlation First Order								
z - Statistics				-1.6040	-1.5960	-1.6040	-1.5960	-1.6040
P - Value				0.1090	0.1100	0.1090	0.1100	0.1080
Serial Correlation Second Order								
z - Statistics				-0.2580	-0.2312	-0.3197	-0.2500	-0.2696
P - Value				0.7960	0.8170	0.7490	0.8030	0.7870

Table 6. Financial Structure: Ratio of Long Debt to Total Debt, Macroeconomic and Financial Effects, Effects by Types of Firms: Privatized Firms, Economic Groups, ADR and Bonds, Stock Exchange Firms

Dependent Variable: Ratio of Long Debt to Total Debt

t - Statistics are presented below their corresponding coefficients

Estimation Technique	FEW	FEW	FEW	GMM Syst	GMM Syst	GMM Syst	GMM Syst	GMM Syst
Constant	-0.673078	-0.720068	-0.862975	-0.091273	-0.048535	-0.431440	-0.327914	-0.256474
	-3.72	-3.97	-4.76	-1.46	-1.78	-3.85	-3.12	-2.56
Size ln(Capital Stock)	0.041823	0.035197	0.051543	0.006671	0.020150	0.023899	0.016826	0.012607
	4.13	3.27	5.02	1.89	2.99	3.62	2.77	2.14
Fixed Assets / Total Assets	0.372005	0.401877	0.313484	0.112365	0.116759	0.116034	0.111525	0.117764
	7.20	7.28	6.01	3.15	2.87	3.00	2.88	3.12
Profits / Total Assets	0.329224	0.362872	0.313963	0.064867	0.063163	0.037260	0.060426	0.063793
	3.90	4.25	3.67	0.78	0.75	0.46	0.70	0.73
q Tobin	0.008531	0.011711	0.006946	0.002212	0.007882	0.006930	0.006521	0.005622
	2.15	2.84	1.71	0.711	1.75	1.75	1.61	1.47
Country Risk (Embi Spread)	-0.639780			-0.294276	-0.391883			
	-4.89			-3.47	-3.28			
Private Credit by Banks / GDP		0.000241		-0.000061				
		3.51		-1.24				
Crisis Effect			-0.013485					
			-1.53					
Lagged Ratio of Long Debt to Total Debt				0.807581	0.784102	0.777166	0.789537	0.789918
				31.3	24.8	26.1	26.8	27.3
Privatized Firms					-0.048535			
					-1.78			
Economic Group						-0.046139		
						-3.24		

Table 6., continued

ADR							-0.007065	

								-0.38
Bonds								0.014974
								1.10
Firms	45	45	45	45	45	45	45	45
Observations	1530	1530	1530	1485	1485	1485	1485	1485
Fixed Effects R - Squared	9.13%	8.42%	7.80%					
GMM Specification Tests								
Sargan Test Chi - Statistics				34.94	35.38	35.98	36.76	36.05
Degrees of Freedom				765	765	765	765	765
P - Value				1.000	1.000	1.000	1.000	1.000
Serial Correlation First Order								
z - Statistics				-3.6330	-3.6870	-3.6550	-3.6770	-3.6970
P - Value				0.0000	0.0000	0.0000	0.0000	0.0000
Serial Correlation Second Order								
z - Statistics				0.3358	0.3463	0.3394	0.3374	0.3295
P - Value				0.7370	0.7290	0.7340	0.7360	0.7420

Table 7.

Financial Structure: Ratio of Dollar Debt to Total Debt

Macroeconomic and Financial Effects

Effects by Types of Firms: Privatized Firms, Economic Groups, ADR and Bonds

Stock Exchange Firms

Dependent Variable: Ratio of Dollar Debt to Total Debt

t - Statistics are presented below their corresponding coefficients

Estimation Technique	FEW	FEW	FEW	GMM Syst	GMM Syst	GMM Syst	GMM Syst	GMM Syst
Constant	-1.244826	-1.192748	-1.277908	-0.244544	-0.809955	-1.026260	-0.747306	-0.499053
	-5.78	-5.56	-5.96	-2.39	-3.71	-4.80	-4.07	-3.25
Size ln(Capital Stock)	0.107240	0.094265	0.107443	0.022160	0.055794	0.072981	0.052606	0.038533
	8.90	7.40	8.84	2.91	3.91	5.07	4.26	3.69
Fixed Assets / Total Assets	-0.190071	-0.122122	-0.195748	0.002020	-0.034342	-0.056488	-0.038932	-0.033523
	-3.09	-1.87	-3.18	0.05	-0.65	-0.95	-0.74	-0.70
Profits / Total Assets	0.060653	0.101568	0.077374	-0.084960	-0.135650	-0.234048	-0.127667	-0.137225
	0.60	1.01	0.76	-0.73	-0.90	-1.42	-0.88	-0.99
q Tobin	-0.016343	-0.012077	-0.015490	-0.009054	-0.000780	-0.002359	-0.002459	-0.006103
	-3.46	-2.48	-3.23	-2.1	-0.14	-0.44	-0.44	-1.24
Country Risk (Embi Spread)	-0.316954			-0.018131				
	-2.04			-0.16				
Private Credit by Banks / GDP		0.000293		0.000058				
		3.61		1.09				
Crisis Effect			0.014747					
			1.42					
Lagged Ratio of Dollar Debt to Total Debt				0.702655	0.665567	0.639652	0.670517	0.685329
				10.8	9.35	9.01	10.3	10
Privatized Firms					-0.138803			
					-2.68			

Table 7., continued

Economic Group						-0.127107		

	Col1	Col2	Col3	Col4	Col5	Col6	Col7	Col8
						-3.94		
ADR							-0.062895	
							-1.55	
Bonds								-0.003267
								-0.11
Firms	45	45	45	45	45	45	45	45
Observations	1530	1530	1530	1485	1485	1485	1485	1485

Fixed Effects R - Squared: 7.93% 8.48% 7.80%

GMM Specification Tests

	Col4	Col5	Col6	Col7	Col8
Sargan Test Chi - Statistics	35.31	32.31	37.41	36.41	38.55
Degrees of Freedom	765	765	765	765	765
P - Value	1.0000	1.000	1.000	1.000	1.000
Serial Correlation First Order					
z - Statistics	-2.7130	-2.7560	-2.7590	-2.4190	-2.7530
P - Value	0.0000	0.0060	0.0060	0.0160	0.0060
Serial Correlation Second Order					
z - Statistics	0.8380	0.7377	0.6769	0.8779	0.8142
P - Value	0.4020	0.4610	0.4980	0.3800	0.4160

Table 8.

Financial Structure: Ratio of Total Debt to Equity

Macroeconomic and Financial Effects

Effects by Types of Firms: Economic Groups, Access to International Capital Markets and Foreign Ownership

ENGE Firms

Dependent Variable: Ratio of Total Debt to Equity

t - Statistics are presented below their corresponding coefficients

Estimation Technique	FEW	GMM Syst	GMM Syst
Constant	-0.640412	2283580.0	2252530.0
	-0.03	1.74	1.74
Size ln(Capital Stock)	0.321177	-1.284730	-1.255680
	0.24	-1.39	-1.37
Fixed Assets / Total Assets	-10.268620	670466.0	650650.0
	-2.08	1.24	1.21
Profits / Total Assets	0.844767	-4.790850	-4.687860
	0.21	-1.25	-1.24
Lagged Ratio of Debt to Equity		0.514380	0.514071
		5.12	5.13
Country Risk (Embi Spread)		828726.0	858803.0
		0.21	0.22
Private Credit by Banks / GDP		-848902000	-922469000
		-0.15	-0.16
Economic Group	0.075052		-6607.0
	0.02		-0.06
Access to International Capital Markets	-0.340793		
	-0.11		
% of Capital Owned by Foreigners	0.016385		
	0.46		
Firms	308	308	308
Observations	1232	924	924
Fixed Effects R - Squared	0.10%		
GMM Specification Tests			
Sargan Test Chi - Statistics		18.74	18.9
Degrees of Freedom		16	16
P - Value		0.282	0.274
Serial Correlation First Order			
z - Statistics		-3.824	-3.824
P - Value		0.0000	0.0000

Table 9.
Financial Structure: Ratio of Long Debt to Total Debt
Macroeconomic and Financial Effects
Effects by Types of Firms: Economic Groups, Access to International Capital Markets and Foreign Ownership
ENGE Firms
Dependent Variable: Ratio of Long Debt to Total Debt
t - Statistics are presented below their corresponding coefficients

Estimation Technique	FEW	GMM Syst	GMM Syst
Constant	-1.585029	0.101539	0.096602
	-5.74	0.88	0.84
Size ln(Capital Stock)	0.101684	0.000000	0.000000
	6.46	0.44	0.45
Fixed Assets / Total Assets	-0.106377	0.131848	0.134983
	-1.82	2.96	3.03
Profits / Total Assets	-0.064518	0.000000	0.000000
	-1.39	0.47	0.43
Lagged Ratio of Long Debt to Total Debt		0.806792	0.805608
		23.5	23.5
Country Risk (Embi Spread)		0.432910	0.432961
		1.12	1.12
Private Credit by Banks / GDP		-1513.57	-1516.82
		-2.53	-2.54
Economic Group	0.022147		0.011930
	0.60		1.11
Access to International Capital Markets	0.166206		
	4.75		
% of Capital Owned by Foreigners	0.000656		
	1.57		
Firms	308	308	308
Observations	1232	924	924
Fixed Effects R - Squared	27.90%		
GMM Specification Tests			
Sargan Test Chi - Statistics		11.06	11.06
Degrees of Freedom		16	16
P - Value		0.806	0.806
Serial Correlation First Order			
z - Statistics		-4.593	-4.619
P - Value		0.0000	0.0000

Table 10.
Financial Structure: Ratio of Dollar Debt to Total Debt
Macroeconomic and Financial Effects
Effects by Types of Firms: Economic Groups, Access to International Capital Markets and Foreign Ownership
ENGE Firms
Dependent Variable: Ratio of Dollar Debt to Total Debt
t - Statistics are presented below their corresponding coefficients

Estimation Technique	FEW	GMM Syst	GMM Syst
Constant	-1.040294	151517000	16987800
	-3.45	1.59	1.29
Size ln(Capital Stock)	0.080088	-133.769	-133.393
	4.66	-2.09	-2.09
Fixed Assets / Total Assets	-0.234532	108706000	113454000
	-3.68	1.92	1.95
Profits / Total Assets	-0.043680	-43.197200	-54.726300
	-0.86	-0.34	-0.43
Lagged Ratio of Dollar Debt to Total Debt		1.056850	1.051870
		8.22	8.09
Country Risk (Embi Spread)		-117884000	-116999000
		-0.47	-0.46
Private Credit by Banks / GDP			
Economic Group	-0.072955		1.698780
	-1.81		1.29
Access to International Capital Markets	0.171761		
	4.49		
% of Capital Owned by Foreigners	0.000342		
	0.75		
Firms	308	308	308
Observations	1232	924	924
Fixed Effects R - Squared	14.38%		
GMM Specification Tests			
Sargan Test Chi - Statistics		13.09	12.93
Degrees of Freedom		16	16
P - Value		0.666	0.678
Serial Correlation First Order			
z - Statistics		-2.451	-2.461
P - Value		0.0140	0.0140