

**Understanding Economic Growth in Venezuela: 1970-2005 -
The Financial Sector**

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1. Introduction

The literature relating to the links between a country's degree of financial development and its per capita income level and rate of growth is large and long dating (Bagehot (1873), Hicks (1969), Schumpeter (1912), Robinson (1952), Lucas (1988)). The existence of a correlation was long ago documented (Cameron et. al. (1967), Goldsmith (1969), and McKinnon (1973)), however correlation does not imply causality. Most recently King and Levine (1993) showed that financial development and growth are not just contemporaneously correlated, but the first anticipates the second in a cross-section of countries. The size of the effect was shown to be large: a one standard deviation higher level of financial development –as proxy primarily by measures related to the size of the banking sector and the stock market relative to the economy- implies around one percentage point higher growth rates over long periods of time. Advances have been made in addressing the potential endogeneity of the size of the financial system to future growth prospects (Levine and Zervos (1998), and Beck, Levine and Loayza (2000)). The use of legal origins and financier's rights as instruments has been critical. The latest research has focused on identifying more direct channels or mechanisms through which finance affects growth. This has been pursued in the cross-country growth regressions setting (Beck et al. (2000)), using micro data (Rajan and Zingales (1998), Wurgler (2000), and Love (2001)), and through the natural-experiment approach (Jayaratne and Strahan (1996)).

Most of the literature on the real effects of financial development to date rests heavily on the comparison across countries. This, despite the fact that around one half of the variation of the traditional indicators of financial development comes from the time series within countries (Braun and Raddatz (2005)). Detailed country studies are needed to check that the main results on the literature are present in the time series, and to learn more about the

specific mechanisms at work. Venezuela, in this sense, represents a great opportunity for –as we will see- it has seen quite marked changes on its degree of financial development in the last four decades.

The paper begins showing that, no matter how you measure it, Venezuela’s degree of financial development today is extremely low. In the next section we date and quantify the collapse, and provide a brief description of the succession of events surrounding it. In the main section we explore the real consequences of the collapse.

2. Venezuela’s Financial System Today

When the size of its economy is taken into account Venezuela’s financial system is today one of the smallest and least developed in the world. Bank credit to the private sector amounts to just around 9% of GDP, ranking the country in position 132 out of the 157 countries where the figure is available for the 2000s¹. The ratio is the lowest among the Latin American countries, and even lower than the median in Sub-Saharan Africa. This is not just due to the fact that Venezuela’s economy is relatively large, a figure of \$400 for per capita private credit still leaves the country well below the other mayor Latin American economies, and at 1/7th the value for Chile. The total stock of around \$10 billion is 15% lower than Peru’s (whose economy is half the size), and 60% lower than Colombia’s.

These very low indicators are not easily explained with the importance of the oil sector in the economy. Even if we assume that the oil sector does not demand any domestic financial services -either directly or indirectly through the income generated,- and consider only the non-oil GDP (3/4 of the total), the stock of Venezuela’s bank credit is still much

¹ The cross-country data for the size and efficiency of financial systems come from Beck et al (2006). The data for GDP and other economic country variables come from World Development Indicators.

lower than other countries'. Moreover, Venezuela still ranks in the lowest decile of private credit to GDP among the 30 economies that are more dependent on oil.

Is it the low level of per capita GDP, then? Figure 1 depicts the well know fact that the ratio of private credit to GDP increases with (the log of) per capita GDP. Indeed, per capita GDP alone explains around half the cross-country variation in private credit. According to this relation, Venezuela's banking sector should be 5.6 times larger than it actually is². In percentage terms there is no other country with a more underdeveloped system relative to what is expected.

This degree of underdevelopment is not peculiar to the banking system, either. Out of the 54 countries that are reckoned to have equity markets, Venezuela's market capitalization to GDP of 5% surpasses only that of Bangladesh. With 5 dozen listed firms -that are worth on average around \$100 million,- the market is only larger than that of Ecuador, Jamaica, and Trinidad&Tobago in Latin America. The relation between per capita GDP and stock market capitalization is again very significant (see Figure 2), implying that Venezuela's market should be 5.4 times larger than it actually is³. The number of listed firms per capita was expected to be 7.5 times larger based solely on per capita GDP.

Overall, the composition of the financial system is not particularly different in Venezuela when compared to other countries. Both the banking sector and the stock market appear to be similarly underdeveloped (see Figure 3).

The size of the private bond market in Venezuela is not even recorded by the Bank of International Settlements, and the total life and non-life insurance premiums are both negligible. Table 1 presents basic statistics about Venezuela's bond markets based on issuance data recorded in the SDC Platinum dataset. Total issuance is extremely small even

² This difference is statistically significant at p-values below 0.1%.

³ This difference is statistically significant at p-values below 0.1%.

by Latin American standards. Moreover, only around 40% of the capital raised via bonds is raised in the local market, where the average principal (\$17 million) and maturity (1.9 years) are very small.

Venezuela's financial underdevelopment is not only related to the size of its financial system but is also reflected in its efficiency. Even after controlling for its small size, both banks' net interest margins and overhead costs are much larger than expected (see Figures 4 and 5)⁴. At 16.5% net interest margins are about two times too high, and at 9.5% overhead costs are 1/3 higher than predicted. The stock market turnover although extremely low, is not lower than what the size of the market implies (Figure 6).

The literature has identified a series of factors that explain the cross-country differences in financial development. These can be grouped in two: those related to the laws protecting the financiers and their enforcement, and those related to the availability and of the information of the borrowers. The level of Venezuela's financial development is more or less consistent with how it ranks on these measures (see Figures 7 and 8). While the degree of protection granted to both creditors and minority shareholders, and the quality of information available to shareholders are quite low, there seems to be reasonably good information about borrowers.

Although these factors can form the basis for future reform, they come short in explaining Venezuela's low level of financial development for the country did not have a massively underdeveloped system before. Neither bank credit to the private sector nor stock market capitalization were significantly different than what was expected from its level of income per capita in the 1970s and 1980s. This is far from the usual picture since the level of financial development is quite persistent in time (see Figures 7 and 8). Indeed, the ranking of private credit to GDP across countries in the 1970s explains around 45% of the figure 30

⁴ The former is statistically significant at 1%, the later only marginally so (p-value 10.4%).

years later, and the ranking of stock market capitalization in the early 1980s explains 65% of the figure today. This persistence and the initial values for Venezuela imply that the banking system and stock market should now be 4.5 and 5 times larger, respectively.

3. Venezuela's Financial System Collapse

Dating and Quantifying

When compared to other countries', Venezuela's financial system looks extraordinarily small and inefficient. What is more striking is that it also looks out of line with what one would predict based on the country's income per capita and past performance, even when taking into account the importance of the oil sector and the fact that it is located in Latin America.

Figure 9 looks at the evolution of private credit and stock market capitalization to GDP in the time series. It is apparent that following a golden era since the mid-1970s, private credit falls abruptly in the late 1980s and again in the mid-1990s. Since then, the index has stabilized at a level of 8-9%, which is around half the 1960-1974 level. The stock market index follows a similar pattern, standing today at significantly lower levels than in the 1980s. This is partly due to the fall in prices and the fall in the number of listed firms. The post-stabilization booms of the early 1990s proved short-lived.

The collapse of the banking system indicator is almost entirely explained by the evolution of private credit itself rather than by what happened to the denominator (Figure 10). While total GDP and non-oil GDP grew by 23% and 15% in the 1988-1998 period, real bank credit to the private sector collapsed by 54%. Prior to 1988 real private credit shows a

stable relationship with non-oil GDP, with a highly significant estimated elasticity of 1.1⁵. This elasticity is very similar to that of the average country in since 1960 (1.07)⁶. For the 1989-2004 period, however, the elasticity is cut in half (0.53) and is no longer significant. Figure 11 shows this break. Although it may seem as if the change could have started around 1978 and then only accelerated in 1989, the statistical tests performed are unambiguous: there is a significant break in 1989⁷ and no break in 1978. The situation has not gotten back to normal since; the period 1997-2004 does not look statistically different from 1989-1996 in terms of the non-oil GDP elasticity of real private credit.

Interestingly, the elasticity of private credit with oil GDP is just 0.2 and not statistically significant. The oil-related growth does not seem particularly useful for the development of the domestic financial system.

The causes of the collapse, then, appear to reside on the banking sector and not on what happens to the economy (at least when measured with the evolution of GDP). It can still be the case that what happened to Venezuela's banking system can be explained with its dependency to oil or to its Latin American location. After all real oil prices fell by 22% in the 1988-1998 decade and the period includes the Argentine and Mexican collapses.

Figure 13 shows the evolution of private credit to GDP averaged over the Latin American and the group of oil dependent countries. The evolution of private credit in Venezuela is very consistent with what was happening in these two groups prior to 1989. Starting in 1989 Venezuela's banking sector parts away with that of the comparable groups. Both series did grow slower in the early 1990s when compared to the 1960s and 1970s; however by 2000 they have both easily surpassed their previous record levels. For Latin America, the 1988-1998 decade was in fact the best ever in term of banking system

⁵ This computation is done in logs and allows for a time trend.

⁶ This is based on within variation in a yearly sample of 135 countries between 1960 and 2004.

⁷ p-value lower than 0.1%

deepening. The link to oil does not seem particularly relevant either: although real oil prices fell, this decrease was much smaller than that of 1980-1988 (60%) when real credit remained stable. Also, oil income actually increased by 26% during the period fueled by the surge in production.

How deep was the collapse? In Figure 13 I construct three benchmarks: the first one based solely on the pre-1989 relation between private credit and GDP in Venezuela (in logs, and allowing for a time trend and 2 lags for GDP), the second one based on the pre-1989 relation between Venezuela's private credit series with those of the average Latin American and oil-dependent country (in logs and allowing for a time trend), and the third one based on both relations. These benchmarks imply, respectively that by the mid 2000s Venezuela's stock of private credit should have been 4.4, 10.6, and 2.9 times larger than it actually was. The average of these values (5.9) is not very far from the magnitudes we obtained based on cross-country comparisons and the persistence of the indicators (4.5 and 5.6, respectively).

Using the third benchmark, Figure 14 asks how much of the misalignment is due to each of the mayor crises that form the collapse: the 1989 stabilization and the 1994-95 banking crisis. It turns out that each of the crises explains around half the deviation from the expected that we see today.

Anatomy

In order to explore what happened to Venezuela's banking system around the collapse we take a look at quarterly data for a number of indicators⁸. Figure 15 takes a look at real credit to the private sector and real assets, Figure 16 at the sources of financing used by banks, Figure 17 at reserves, and Figure 18 at interest rates.

⁸ These data come from International Financial Statistics.

Real deposits start falling sharply in mid 1987 when monetary policy turns very contractive in the face of increasing inflation. Initially the collapse in real deposits did not translate into a collapse in bank's assets. Up until December 1988 the fall in deposits was financed with foreign borrowing and capitalization (see Figure 18). Starting in 1989 foreign financing dries, bank losses start showing up as reduced capital, so that the continuing fall in deposits finally traduces into a collapse in credit to the private sector.

Is then the collapse in private credit simply the reflection of the inability of banks to extend credit? Not really. The fall in credit went much further than what can be explained simply with the behavior of deposits, foreign financing, and capital. Even after 1991, when both real deposits and assets bounced strongly and all but returned to their levels in the first half of the 1980s, private credit was still around 60% lower. The ratio of private credit to bank assets that had been very stable since the 1960s at 75% fell to around 55% in 1989 and remained there for the following three years (Figure 17). The banks' change in composition of assets towards Reserves and Central Bank paper -attracted by very high positive real rates- fully explains the drop in the ratio of private credit to assets (Figure 19). Indeed, as the post-devaluation inflation receded, nominal rates remained quite high, and real rates turned positive through the 1991-93 period for the first time in more than 10 years.

By mid 1993 inflation starts getting out of control again and by mid 1994 real rates had gone back to the negative side. A huge increase in Central Bank credit to the banks - neutralizing their capital losses - and the following recapitalization compensated the fall in deposits that at that point was pretty modest. Nonetheless, private credit collapsed once again as banks shifted towards holding Central Bank paper and reserves (total reserves). During 1996 real deposits catch up and start falling sharply. By mid 1996, when the crisis reaches its trough, banks were holding as much reserves as private credit. Since the recovery total reserves have remained between 20% and 40% of assets, and the behavior of real private

credit has more or less mirrored that of real deposits as was the case before the late 1980s. The ratio of private credit to assets recovered its pre-1994/95 crisis level but never again reached the level it reached in the 1960s, 1970s and most of 1980s. The ratio has been relatively constant at around 50% in the past 10 years.

The fact that real interest rates went from being typically negative before the collapse and turned strongly positive afterwards (Figure 20) suggests that the business of lending to the private sector changed significantly. Under the new circumstances, it became much more important to determine the quality and monitoring the projects since a zero real return on the assets would no longer suffice to pay the interests owed. Banks, it seems, were not up to the challenge and despite being sufficiently capitalized (Figure 18), opted for funding the government.

4. The Real Effects of Venezuela's Financial System Collapse

Venezuela's financial system was not always as underdeveloped as it is today. A couple of big crises starting in the late 1980s took the system from a level consistent with the country's economic development to what it is now. This, the main section of the paper, tries to determine whether the credit crunch had significant real effects on the economy. We exploit a number of different datasets to take a look at the issue from a number of different angles: cross-sectional manager's perceptions and expectations, times series economy aggregates, industry panel, and listed-firms panel.

Perceptions –Survey Evidence

The World Bank's Doing Business Survey is conducted in a large number of countries with the goal of determining the main conditions that either enable or constrain business. In each country it asks the views of managers of around 100 firms. In addition to recording the views on the mayor constraints faced in doing business, the dataset includes a number of characteristics of the firms and, importantly, the expectations about future investment and growth. One of the main subjects of the survey is financing. In this section we ask whether managers' perceptions about the importance of lack of financing are consistent with what the macro data show, and explore whether it matters for their future plans/expectations.

Table 3 shows that, when compared to other problems, overall managers do not perceive lack of financing as a mayor obstacle to doing business in Venezuela. Political instability, inflation, and crime seem to them much more important. Relative to other countries, both poor and rich, the position of financing in the rank is quite low. This does not mean that financing is unimportant in Venezuela; it just means that there are other mayor constraints. In fact, 31.3% of the managers surveyed responded that financing was a mayor constraint, a much larger figure than in the OECD (Table 4). Still, when compared to the average country, countries in Latin America and to countries of similar degree of development, Venezuelan managers do not feel particularly constrained by lack of financing.

The picture that emerges from Table 5, which shows the sources of financing used by the firms, is somewhat different. More consistent with the low ratio of private credit to GDP, bank financing accounts for a mere 15.5% of the total in Venezuela. This figure is 15 percentage points lower than what would be expected given the country's income level and its geographical region⁹. On the other side of the coin internal financing, which includes

⁹ p-value lower than 0.1%.

retained earnings and family financing, accounts for 60% of the total, 22.3 points larger than expected and also very significant in statistical terms.

At least in terms of the way they actually finance their operations, managers in Venezuela behave as if they were financially constrained. Perhaps they just do not express it directly because lack of financing is overshadowed by other important factors such as political instability and inflation uncertainty. These can certainly have an effect on growth opportunities and therefore on the demand for external funds. However, the mix between the internal and external financing of the investment that is actually done is more consistent with a supply story, namely with the banking system not being able to provide the funds -or at least not at conditions that managers are willing to accept. It is likely that (past and actual) instability increases perceived credit risk and ends up in high interest rates. In fact, when asked about the specific issues that limit their access to external finance managers name high interest rates on top of everything else.

But, does it matter for investment and (ultimately) for growth? In the end internal and external funds, although not always perfect ones, are in essence substitutes. Also, after almost two decades of working with almost no financial system on which to rely, managers might have come up with other –perhaps informal- mechanisms to finance investment. Table 6 shows that, within Venezuelan managers, expected future investment growth is very significantly correlated with the views of managers about what will happen to the firm's debt. This is true even after controlling for investment opportunities (proxied with the expected rate of growth for sales), and the perception of other factors limiting the ability to do business (proxied with the average importance of non-financial constraints). Expected external financing is also highly correlated with the expected growth in employment and exports.

All this suggests that external financing is perceived to be an important part of the future growth picture. However, correlation does not establish causality. An important part of

the story is probably investment causing increased demand for all kinds of funds, including debt. This problem is, of course, not new in the real-effects-of-finance literature. One way in which it has been dealt with is by looking at whether the financing or investment behavior differs across firms. Fazzari, Hubbard, and Petersen (1988) in particular propose looking at the sensitivity of investment to the availability of internal funds. In a world with no financial frictions -where internal and external funds are perfect substitutes- investment should not depend at all on the availability of internal funds, but only on the existence of growth opportunities. A large literature has established that these sensitivities are significantly positive and particularly so for firms more likely to be *a-priori* financially constrained (small, opaque, R&D intensive, etc.).

Table 7 looks at this in the context of the managers' survey in Venezuela. We explore the extent to which future investment can be explained with growth opportunities vis-à-vis internal cash. We measure growth opportunities with the manager's expectation of future sales growth, and the availability of internal funds with past sales growth. These measures are not perfect: expectations of future sales growth are endogenous to investment, and past sales growth -although a measure of past success- might be only weakly correlated with the stock of cash. On the other hand, the approach is quite robust to the main criticism to the related literature: growth opportunities are measured with significant error that is likely to be correlated with cash or cash flows. Here we have a much more direct measure for growth opportunities (the opinion of the manager), and the cash flow proxy is much more likely to be exogenous. Also, we are not particularly interested on the absolute magnitude of the coefficient of each variable but rather on how they compare to each other across samples of firms more/less likely to be financially constrained. We look at age, size, and foreign ownership. Small firms will find it harder to access external finance given the importance of fixed costs in monitoring and screening. Young firms will typically be more opaque simply

because they lack a track record. These two measures have been extensively used before as proxies for the likelihood that a firm is financially constrained. To these we add foreign ownership on the assumption that the overseas owner has access to more developed financial systems. Considering the position of Venezuela in the financial development ranking this is quite likely the case even if the owner were not from a rich country.

Overall, the results show that while investment opportunities typically enter in a positive and significant way, the availability of internal funds is less robustly correlated with expected investment growth. The related literature typically finds a strong positive coefficient for cash flow but fail to find significance for growth opportunities. This difference is natural and goes in the same direction as the relative improvement we make in the measurement of the two variables. The importance of non-financial constraints is generally negative but insignificant. More to the point, when comparing the regression coefficients across the groups it is clear that relative to the availability of internal funds investment opportunities are much important in the relatively financially-unconstrained groups. In all cases, the coefficient for growth opportunities is larger and more significant in the unconstrained group, while exactly the opposite is found for the coefficient for internal funds. The last row of the table shows that while we cannot reject that both coefficients are equal in any of the constrained groups, we are able to reject the hypothesis in each of the unconstrained ones.

We interpret the set of results in this section as suggesting that investment in Venezuela is today importantly determined by the availability of external funds. The limited amount of external funds available implies that small, young, and local firms cannot invest fully into their opportunities and grow as fast as they could.

Time-Series Aggregate Evidence

As Figure 10 shows the period of strong non-oil growth in the 1960s and 1970s is also a period of important financial deepening. Similarly, the collapse of private credit is accompanied with a deceleration of growth. Interestingly, the oil sector does not seem to be particularly related to the evolution of the financial sector. In Table 8 we conduct formal Granger-causality tests for a number of yearly real activity aggregates in the last 40 years. These tests do not establish causality in the economic sense but do help at least in determining which sectors might respond more to the fluctuations of banks' private credit and what is the sequence of events. The tests consist on checking whether past values of private credit have significant explanatory power for activity over and above what is explained by the dynamics of activity itself. Our particular specification uses real growth rates and includes two lags. We also tested with the variables in logs plus a trend obtaining very similar results.

For the entire 1963-2003 period one cannot reject that total GDP growth does not cause real private credit growth nor that private credit does not cause GDP (see the first row of Table 8). While the former is true also for each sub period (before and after the collapse), we do find some evidence that the financial deepening of the 1960s and 70s did contribute to (more precisely anticipate) the rapid growth during those years. The second row shows that this is particularly the case for non-oil GDP for which we cannot rule out Granger-causality for that (and also the entire) period. There appears to be significant feedback into the growth of the banking system for we can also reject the hypothesis of no causality going from non-oil GDP to private credit.

In the next two columns we split non-oil GDP into the tradable and the non-tradable components. We define agriculture, mining, and manufacturing as tradable and let the rest of

the non-oil economy be the non-tradable part. The ability of both components in explaining future private credit is quite strong both before and after the collapse. The high degree of financial development before the collapse seems to have benefited the non-tradable sector much more clearly than the tradable one. In fact, while we easily establish causality from growth to private credit in both periods, it doesn't work the other way around. This is not surprising for most tradable firms (importers and exporters, in particular) are much more likely to have access to both supplier and bank credit from overseas. Traded goods can be used as collateral because they can be consumed by the foreign lender and their value does not correlate as strongly with the business cycle as that of non-tradable ones.

In the next two rows we split value added in the manufacturing sector into two components based on the natural demand for external financing of different industries. In order to do so we use split all the non-oil related industries according to the median of Rajan and Zingales (1998)'s measure of external finance dependence. The measure corresponds to the share of capital expenditure that is not financed with internal funds computed for U.S. listed firms through the 1980s, and aggregated into ISIC-3 industries. The actual use of external finance is associated with the desired amount in view that these large firms listed in (by most measures) the most developed financial market are not very likely to be particularly constrained. If this demand is a relatively stable technological or industry characteristic, we can use this measure not only for the U.S. but for other countries as well as an exogenous measure of the demand for external funds. Data on the growth of the different industries is obtained from UNIDO's Indstat dataset. We have excluded the oil-related industries (Petroleum Refineries and Miscellaneous Petroleum and Coal products) to make the conclusions robust to the evolution of the influential sector. Table 9 presents the measure for the different industries. Interestingly during the financial crisis period, private credit appears

to Granger-cause growth in the highly external finance dependence sectors, something that is not found for the less dependent industries. Before the collapse the opposite seems to be true.

Industry-level Evidence

There is, then, some evidence on the evolution of private credit Granger-causing growth especially in the non-tradable sector, and in the high external finance dependence tradable one. In this section we take a closer look at the manufacturing industry data that consist on yearly observations for 26 manufacturing industries for the 1963-1998 period. Looking at a panel of industries has two important advantages over just considering aggregates. The first one is that one is better able to control for omitted variable bias by focusing on how industries differ in a particular moment in time and not just on how each particular one evolves. Time-varying factors common to all industries can be controlled for. The second big advantage is that the endogeneity concerns are eased significantly. Although it is quite likely that the entire non-oil tradable sector affects in some way the evolution of private credit through a demand channel, it is not very likely that what happens in one particular sector that represents at most around 1% of GDP affects the entire banking system. These kind of data also allows to be more specific about the specific mechanism through which the availability of finance matters for growth.

There is by now a large literature using this methodology and similar data. The goal has been establishing that finance does matter for real outcomes and the likely mechanisms at work. Rajan and Zingales (1998) showed that, relative to less dependent ones, industries that are highly dependent on external financing grow slower in countries with poor financial development (measured as private credit to GDP). Braun and Larrain (2005) similarly provided evidence for the financial channel of the business cycle by showing that more

dependent industries fare much worse relative to others during recessions in countries with less developed financial systems. Finally, Kroszner et al (2002) showed that the growth of these same industries is the most affected during financial crises.

We start with this last piece of evidence and ask whether this was indeed the case during Venezuela's 1989-1996 financial collapse. The answer we get in Table 10 is yes. The first column shows that the 1989-96 period is associated with an average decrease in manufacturing real value added growth of 5.4% per year or 36% in total (beyond what is predicted by mean reversion alone). The drop was not homogeneous across industries, however. Column 2 shows that the fall was increasing with the degree of external finance dependence, and very significantly so (see the coefficient for the interaction between the credit collapse period and the industry external finance dependence). The typical highly dependent industry saw its growth rate fall 4 percentage points faster a year than the typical less dependent one (-6.8% vs. -3.3%). In fact, for those industries with lower than median dependence, the credit crunch was not even associated with statistically lower growth rates. Assuming that less dependent industries are simply unaffected by credit crunches, and given that these industries represented about 60% of non-oil manufacturing, these results suggest that the fall in manufacturing growth could have been cut in more than half had the collapse in credit been avoided.

Notice that here we are explicitly controlling for systematic differences in the growth rate across sectors in the Venezuelan data with the inclusion of the industry's external finance dependence figure. Columns two through four check that the result is not driven by the omission of either industry characteristics or what was happening each particular year by adding to the specification industry fixed effects, year fixed effects, and then both at the same time. In all cases the financial dependence collapse interaction enters negatively and in a statistically significant way, while the coefficient is remarkably similar.

It could still be other omitted industry characteristics correlated with external finance dependence and that happen to be affected differently by crises that are driving the results. To check this, we added three industry characteristics that might matter in explaining growth in times of economic distress: the degree of tradability of the good, and whether it is durable or an investment good¹⁰. The interaction for the degree of tradability enters significantly positive. This is consistent with the fact that, despite the falling trend, the 1989-96 period was one of high real exchange rate by historical standards implying higher relative prices for tradable producers (more precisely, for those that are *more* tradable since all industries belong to the manufacturing sector which is quite tradable as a whole). Whether an industry produced either a durable or investment good seemed not to matter much during the collapse in credit.

The credit collapse indeed affected more strongly those industries that are supposed to be more reliant on bank credit for financing investment. This -together with the fact that credit appears to Granger-cause the growth of the highly dependent aggregate during this period- hints at a supply-side explanation, a real effect of the intermediation crunch. It also suggests that misallocation of resources across sectors is a critical piece of the mechanism through which finance affects growth. Wurgler (2000) provides some evidence on the issue by showing that in less developed settings investment is less responsive to changes in growth opportunities. He measures this by computing a value-added growth elasticity of investment growth using pooled industry data for a decade in each of a large number of countries. Less financially developed countries exhibit lower elasticities, meaning that they do not rapidly cut investment in declining sectors and increase it in booming ones. This is taken as evidence of the important allocation role of capital markets.

¹⁰ All these variables are computed using U.S. data. Details on the exact definitions can be found on Braun and Larrain (2005).

In what follows we check whether the quality of allocation of resources declined following the credit crunch relative to its level when credit was plentiful, as Wurgler's cross-country analysis would imply. We consider the value-added elasticities of investment growth (Table 11) and employment growth (Table 12). The first column in each table shows that investment and employment growth are both significantly sensitive to growth opportunities when measured with real value-added growth. They also show that the sensitivity declined after the credit collapse, especially in the case of employment growth (not significantly so for investment).

The third columns add the interaction with the degree of external finance dependence, showing that it is for the set of highly dependent ones that the quality of allocation drops the most. These regressions rely on the pooled data. In the next three columns we explore whether the misallocation comes primarily from not directing the resources towards the right industries in a given moment of time, or from not directing the resources to a particular industry in the precise moment, or from both. To do this we add, in turn, industry and country fixed effects. By comparing the coefficients across these columns we obtain that in the case of investment, most of the effect comes from cross-industry misallocation, while for employment the problem resides in not hiring when it seems appropriate.

Listed-Firms Evidence

This section makes use of Worldscope data on a large number of listed firms around the world from the early 1980s through 2003. We are interested in determining whether large, listed firms were also affected by the credit collapse or whether given their size and preferred access to external funds they managed to escape from it. We focus on manufacturing for

which data is more comparable across firms and aggregate the firm-level data into ISIC-3 categories to avoid having the results depending too much on one particular firm.

The first column in Table 13 contains the implementation of Fazzari et al (1988)'s specification for the 52 countries in our sample. Consistent with their results, while Tobin's Q (the ratio of market to book value of firms) is not particularly useful in explaining investment, the availability of internal funds (net income over assets) is strongly positively correlated with it. The second column shows that the importance of growth opportunities increases strongly across countries with financial development, with the level of private credit over GDP in particular. The role of internal funds declines with financial development, although not significantly so.

These results would lead us to expect that given the extremely low level of Venezuela's financial development, investment there would be much more conditioned by the availability of internal funds than in other countries. As the third column shows, this is indeed the case. The coefficient of the interaction between internal funds available and the Venezuela dummy is not only highly significant but also extremely large, suggesting that firms there are about 5 times more dependent on internal funds when investing than in the average country. This goes far beyond what one would expect given the relation in the previous column. This would be consistent with the fact that, as we saw in the first part, the financial system in Venezuela is not only small but also not particularly efficient given its small size. The interaction with Tobin's Q is positive but not significant.

Is this higher dependence of investment on the availability of internal funds related to the 1989-1996 credit collapse? The next three columns of the table ask precisely this by focusing on the time series variation of the data within Venezuela. We add to the basic specification the interaction with a time dummy that takes a value of 1 if the data correspond to the years between 1989 and 1996, and zero otherwise. Since the data for Venezuela spans

1988 through 2001, we are basically asking whether the dependence was higher during the credit collapse when compared to the post-collapse recovery period. That was indeed the case: the dependence on internal funds almost doubled during the collapse period, while the effect of growth opportunities went from positive to essentially zero. This dependence on internal cash has continued to be quite large reflecting the fact that although private credit recovered somewhat in the late 1990s and early 2000s, it never got back to the pre-collapse levels nor achieved levels more consistent with the size of the economy.

By adding industry and year fixed effects we can assess whether this effect is explained with the inability to invest unless one has internal funds at the right time or in the right sector. The results suggest that it is a combination of both. If anything, however, it appears that the collapse impacted relatively more strongly the cross-industry allocation of funds (column 5) than the intertemporal one (column 6).

The results for listed firms are very consistent with those found for the entire economy in the previous sections. This suggests that the strong, negative effects of the credit crunch were not limited to small firms and perhaps relatively less productive, younger, and more fragile firms, but extended through the economy and eventually reached even the largest and strongest ones. Moreover, while things got eventually better in the late 1990s, the investment of listed firms in Venezuela remains much more dependent on the availability of internal funds and less dependent on future growth opportunities than in other countries.

5. Conclusions

A number of important facts are clearly present in all the different datasets we used to assess both Venezuela's actual level of financial development and its evolution through time. Venezuela's financial sector is massively underdeveloped. This is the case when compared to any benchmark: it is very small relative to the economy in terms of both banking, and equity and bond markets -even after considering its oil-dependency and being part of Latin America-. Not only that, but is also less efficient than one would expect given its size. Things were not the same always, however. Venezuela had a financial market that was consistent with its economic size until the late 1980s. A series of crunches configured a collapse between 1989 and 1996 from which bank credit to the private sector never really recovered. As of the mid 2000s, the size of the financial sector in Venezuela is between 4 and 6 times smaller than one would expect. An important part of the story is the large fall in the ratio of bank credit to the private sector to bank assets. If this ratio would just go back to its pre-collapse level (or were more similar to other countries') private credit would almost double.

A collapse of this magnitude was bound to have an important effect on the real economy. Survey evidence indicates that, although managers do not perceive lack of financing as the most important constraint to doing business, they behave in a way quite consistent with the issue being a mayor problem. Not only they rely much more on internal and family funds for financing, but they are not particularly able to exploit their growth opportunities. Access to (the limited) bank debt appears to be as important as the existence of growth opportunities when investing, hiring, and exporting, even after controlling for other perceived constraints to doing business. Small, local, and young firms appear to be the most affected.

These perceptions are confirmed in the aggregate data for the economy. The evolution of private credit -its collapse in particular- helps predict that of the tradable sector that is most dependent on external funds and the one of the non-tradable sector, which is typically less able to obtain financing overseas. Our panel of manufacturing industries indicates that credit collapse indeed affected more strongly those industries that are supposed to be more reliant on bank credit for financing investment. The quality of allocation of both employment and investment decreased significantly for these same sectors following the financial crunch. Finally, not even the largest firms in the country (the listed ones) could escape the effects of the collapse: these saw their dependence on the availability of internal funds for investing increase significantly. The cross-sectional allocation of resources in the economy appears to be in all cases the most affected. Not only it appears that the financial system ceased channeling capital to the private sector, but also that the little amount they provided directed to the right borrowers.

The paper has documented a number of real effects of the financial collapse using quite diverse datasets. This is useful for two reasons. First, they provide a robustness to the analysis since the results do not seem to depend too much on the particular specification chosen nor on the data used. Second, the results turned out to be quite consistent and the effects of the collapse to affect pretty much everyone in the economy.

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FIGURE 1

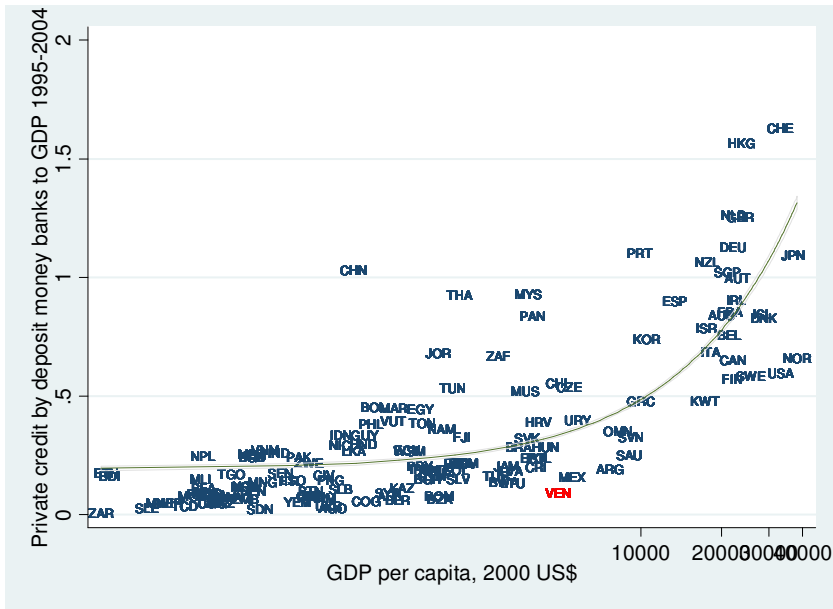


FIGURE 2

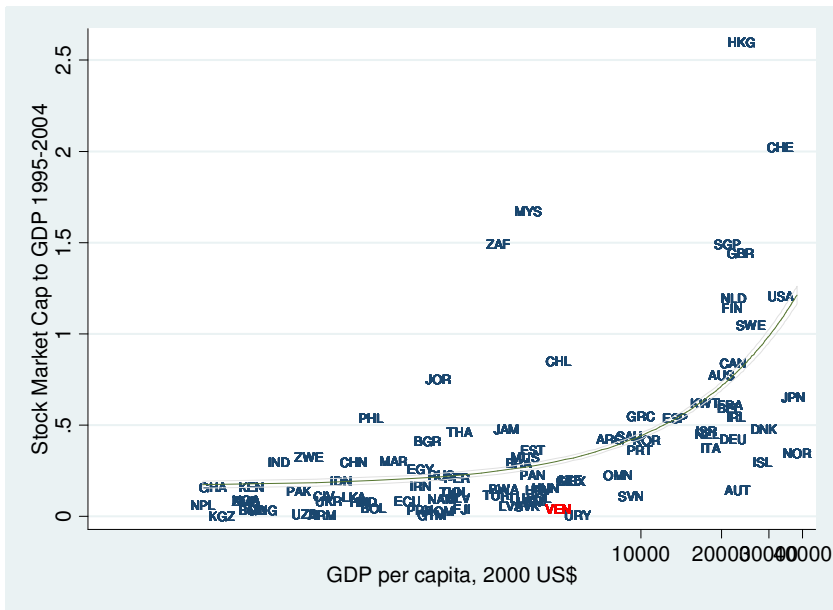


FIGURE 3

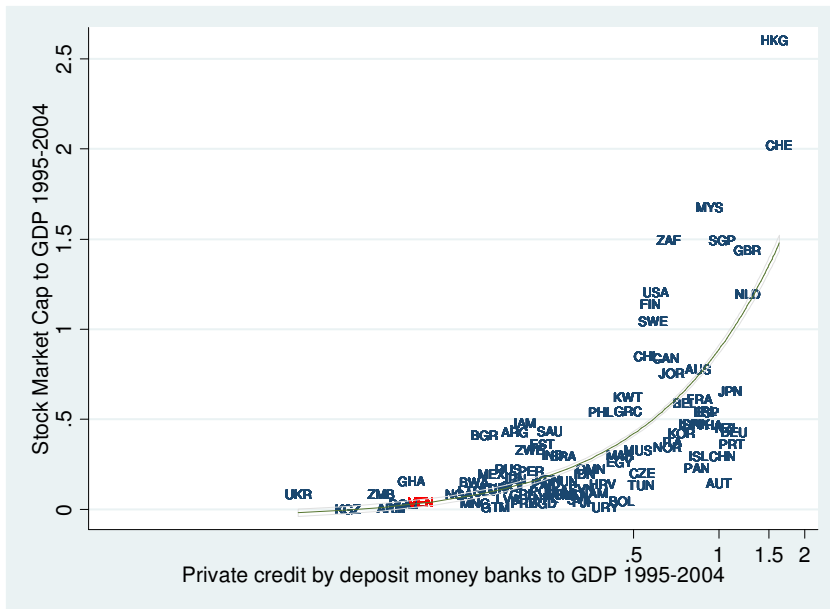


FIGURE 4

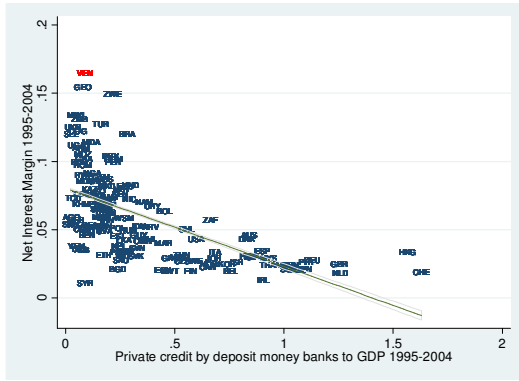


FIGURE 5

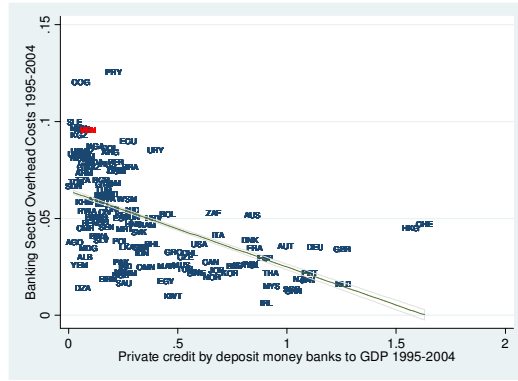


FIGURE 6

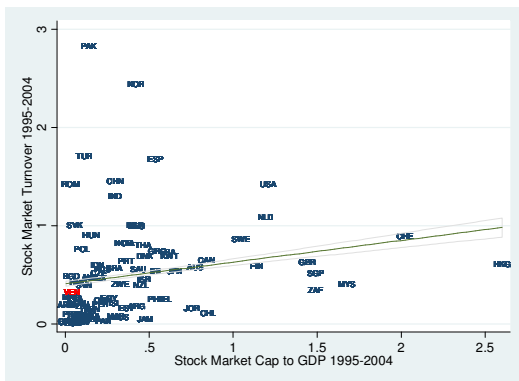


FIGURE 7a

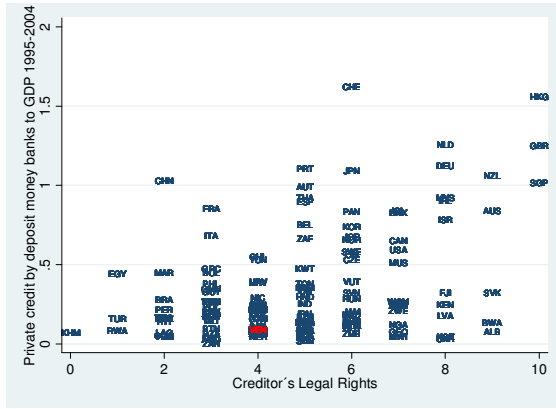


FIGURE 7b

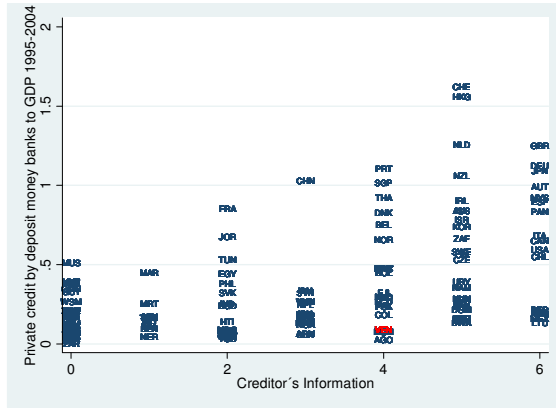


FIGURE 8a

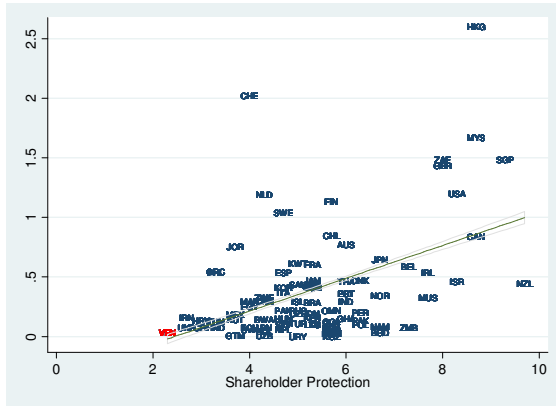


FIGURE 8b

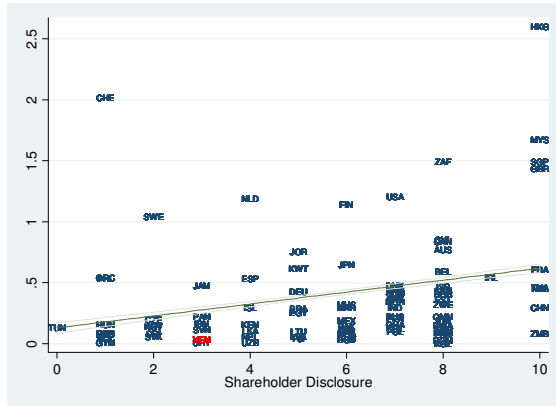


FIGURE 9

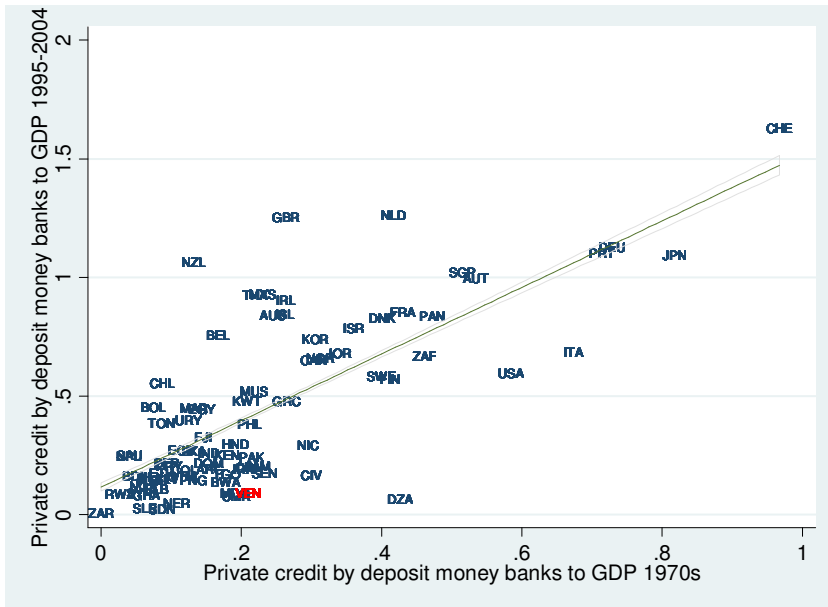


FIGURE 10

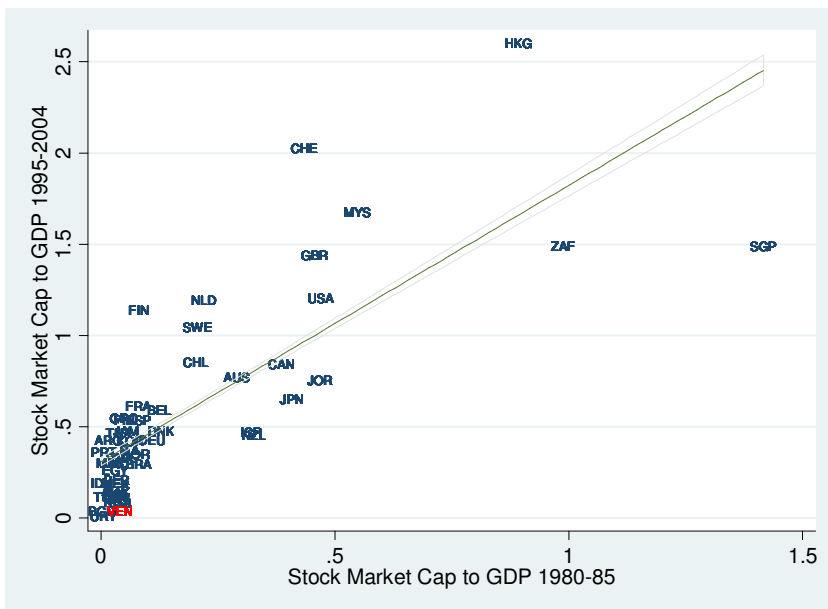


FIGURE 11



FIGURE 12

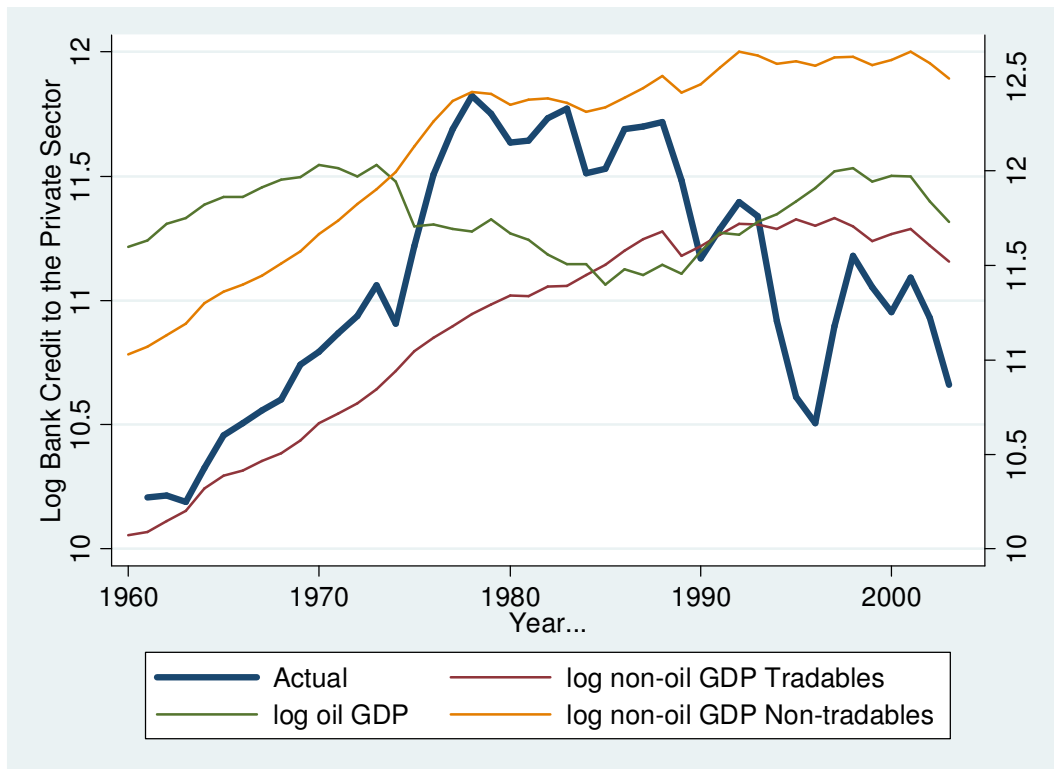


FIGURE 13

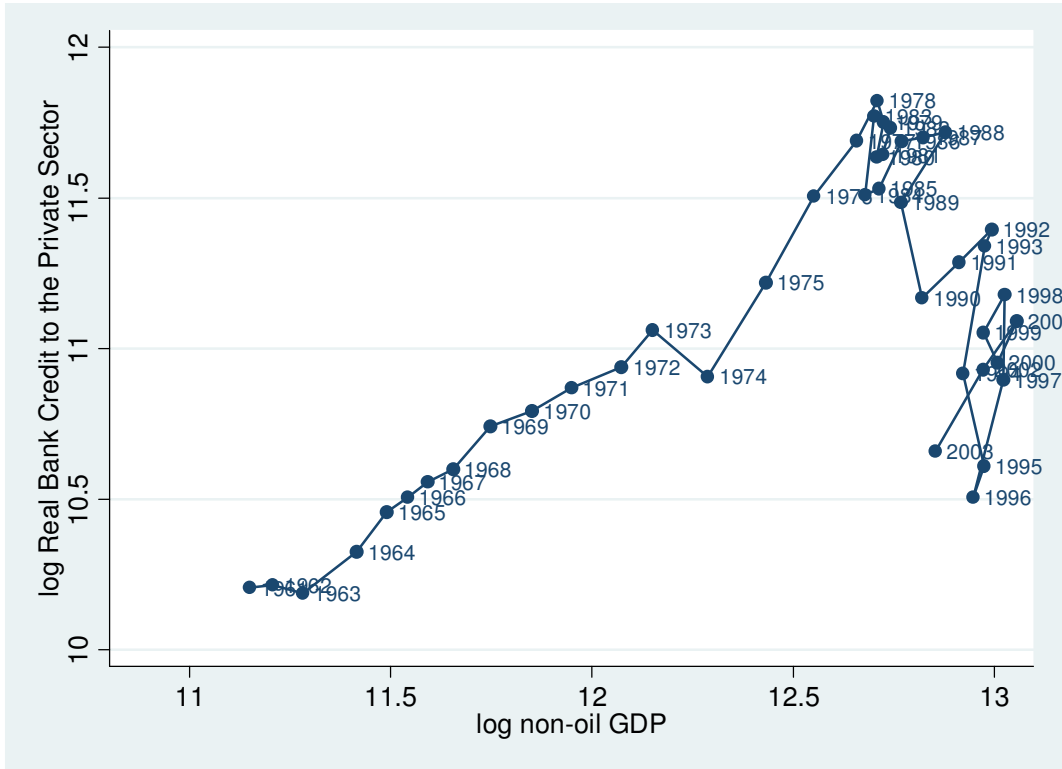


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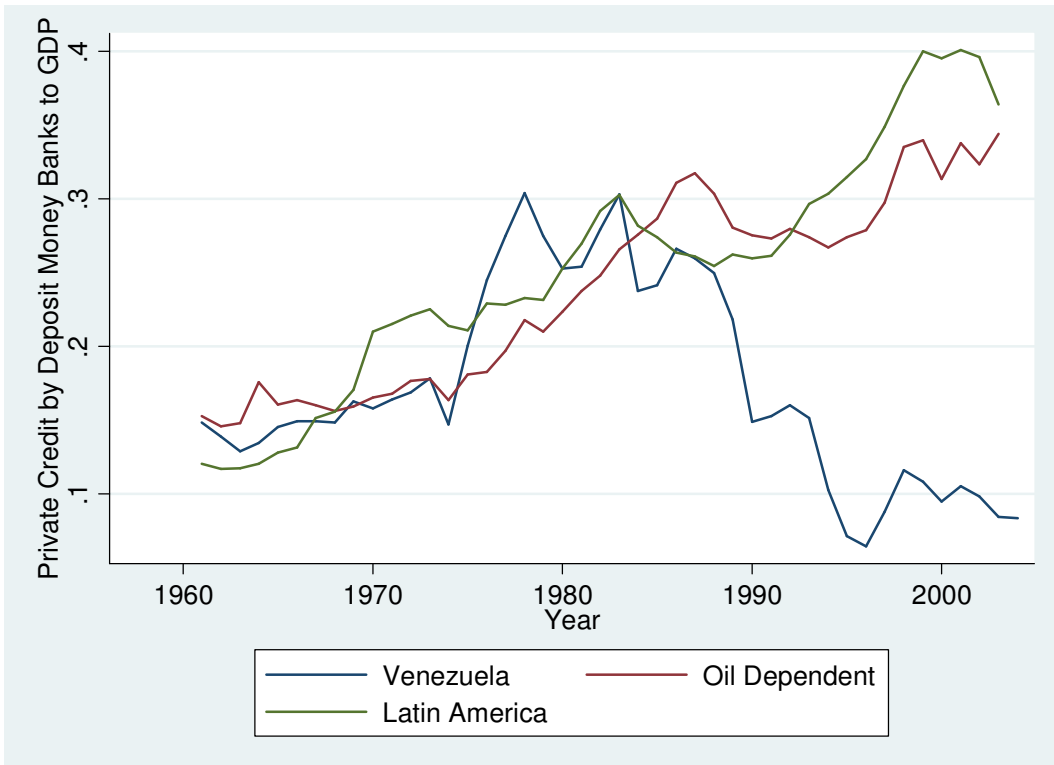


FIGURE 15

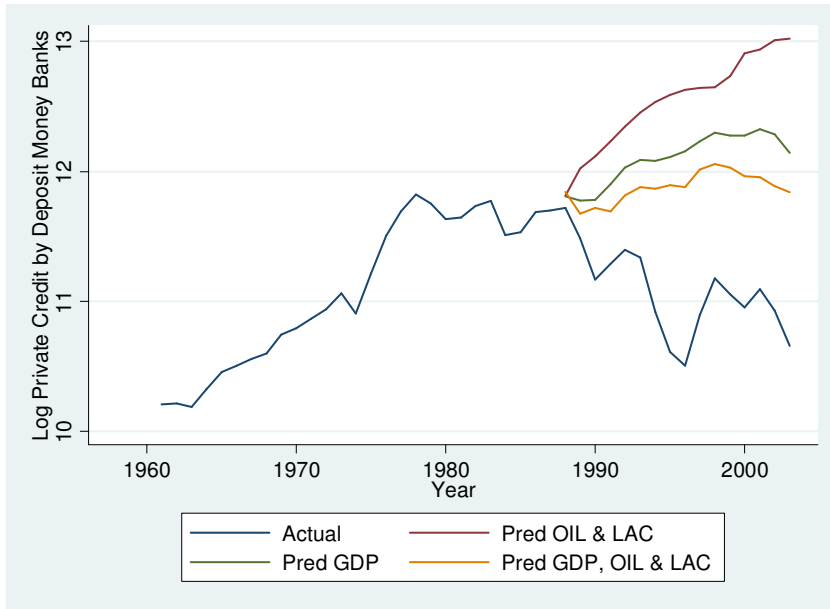


FIGURE 16

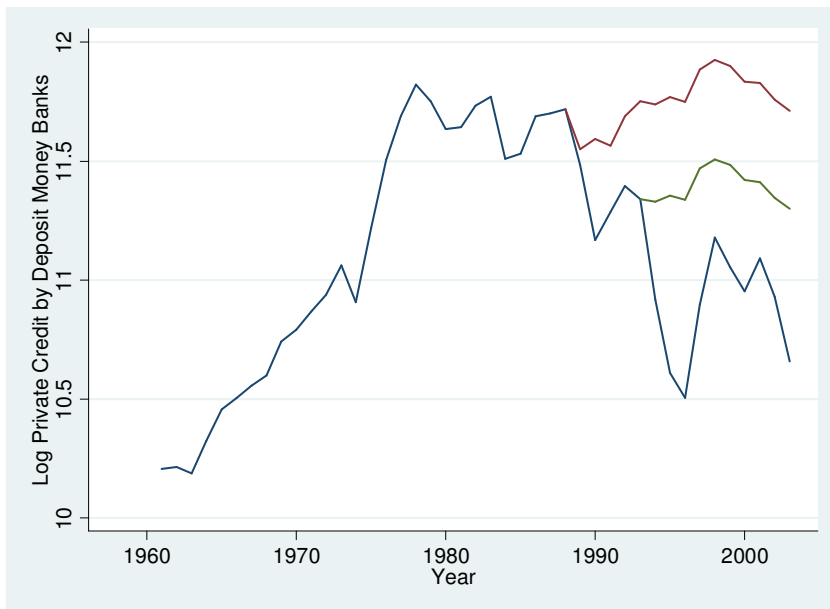


FIGURE 17

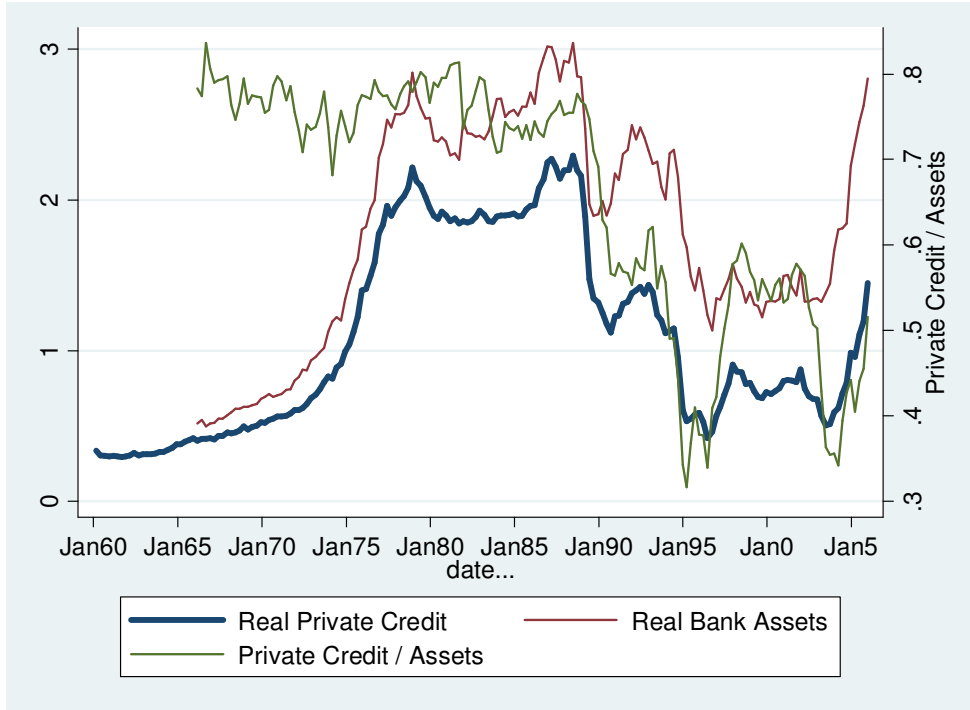


FIGURE 18

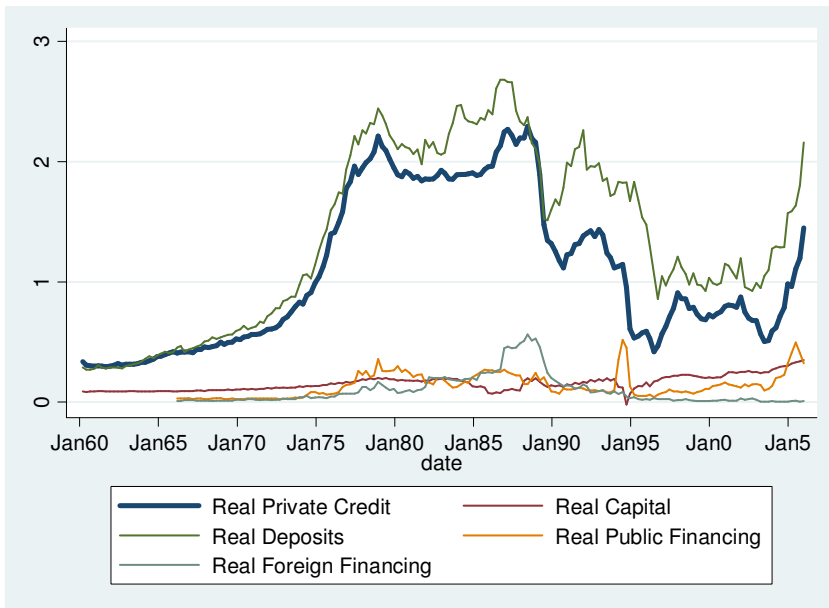


FIGURE 19

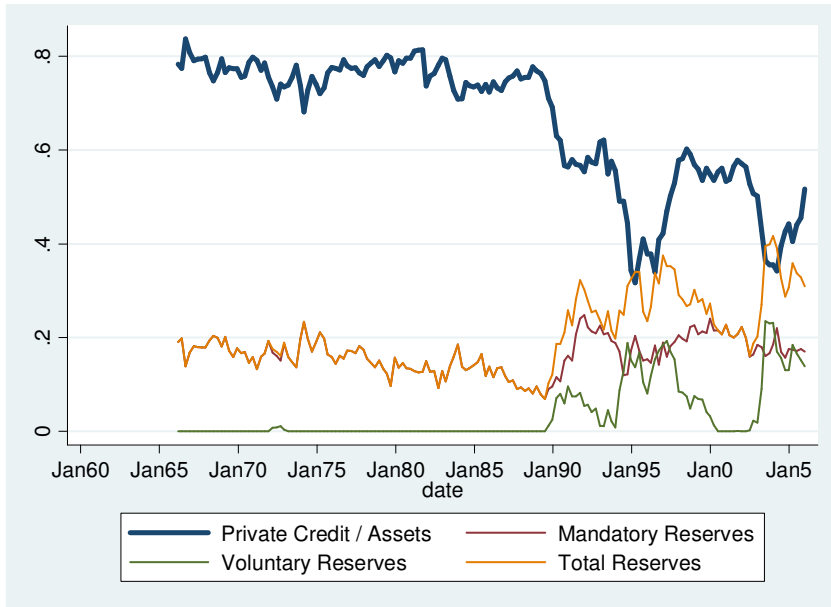


FIGURE 20

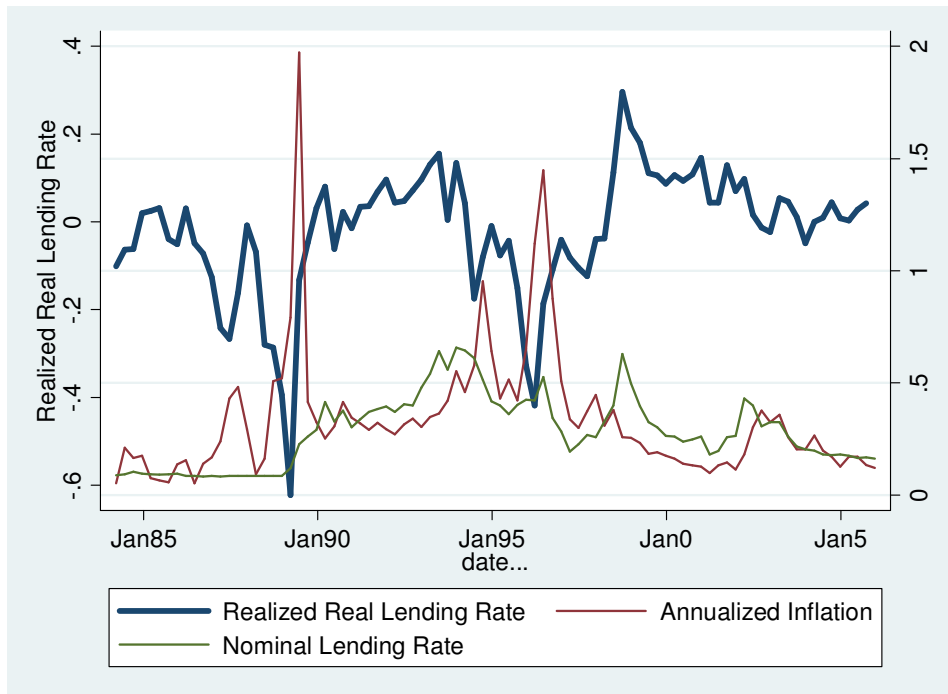


TABLE 1

Private Bond Issuance 1995-2004

Issuer's Country	All Markets		Local Market						
	Total Amount (million US\$)	# of Issues	Total Amount (million US\$)	Share of # Total	of # Issues	of Share of Total	of Principal	Mean Maturity	Share Maturity >5 years
Venezuela	2,830	74	1,111	39.3%	65	87.8%	17	1.9	1.5%
Bolivia	1,249	135	1,249	100.0%	135	100.0%	9	7.7	43.0%
Peru	4,954	397	4,754	96.0%	395	99.5%	12	4.8	22.0%
Whole Sample (45)	15,834,106	101,136	13,278,972	61.2%	88,301	71.6%	112	6.0	35.1%
Industrial (20)	15,302,326	92,659	12,998,860	67.6%	81,711	68.7%	198	7.3	46.3%
Developing (25)	471,654	7,536	245,671	56.2%	5,840	73.7%	45	5.0	26.7%
Latin America & Caribbean (14)	211,453	3,671	123,951	71.5%	3,086	91.3%	27	5.2	28.2%
Eastern Europe (3)	8,382	42	238	4.1%	6	16.9%	46	3.3	0.0%
East Asia & Pacific ex. Japan & Aus	267,914	3,978	124,076	44.4%	2,800	62.1%	69	5.2	27.4%

*Source SDC Platinum

TABLE 2

Banking Sector Indicators around the crises

	Real Assets		Real Private Credit		Real Deposits		Private Credit / Assets
Pre-1974	0.67		0.51		0.58		0.77
1977-1987	2.58		1.97		2.29		0.76
1989	Pre (1988)		2.21		2.24		0.76
	Trough (Sep-90)	-32%	1.12	-49%	1.12	-50%	0.57
	Post (1992)	-17%	1.41	-36%	1.96	-12%	0.59
1994/95	Pre (1993/94)		1.15		1.78		0.53
	Trough (Jun-96)	-43%	0.42	-63%	0.42	-76%	0.34
	Post (1997)	-34%	0.76	-34%	1.08	-39%	0.52
1998-2004	1.46		0.73		1.08		0.51
Dec-2005	2.81		1.45		2.16		0.52

*Source: Author's calculations based on International Financial Statistics.

TABLE 3

Ranking of Mayor Constraints for Doing Business according to Managers

	Venezuela	All Countries	Low- Middle Income	Latin America	OECD	
Financing	8	8	3	4	5	2
Infrastructure	9	9	9	9	9	7
Political Instability	1	1	4	3	1	3
Inflation	2	2	2	2	4	4
Exchange Rate	4	4	5	5	6	5
Street Crime	3	3	7	6	3	6
Organized Crime	7	7	8	8	8	9
Taxes and Regulations	5	5	1	1	2	1
Corruption	6	6	6	7	7	8

*Source: World Business Survey 2005.

TABLE 4

% of Managers that respond Financing is a Mayor Constraint to Doing Business

	Venezuela	All Countries	Low- Middle Income	Latin America	OECD
Financing	31.3%	36.0%	40.0%	38.8%	15.4%

*Source: World Business Survey 2005.

TABLE 5

Financing Sources according to Managers (% of total)

	Venezuela	All Countries	Low- Middle Income	Latin America	OECD	
Internal/Family	60.1%	60.1%	55.7%	64.1%	47.5%	41.4%
Bank	15.5%	15.5%	17.7%	16.6%	25.9%	18.4%
Trade Credit/Leasing	7.2%	7.2%	8.6%	9.3%	11.5%	8.1%
Equity	2.6%	2.6%	4.7%	2.7%	3.2%	8.5%

*Source: World Business Survey 2005.

TABLE 6

Dependent Variable:	Expected Investment Growth	Expected Employment Growth	Expected Exports Growth
Expected increase on Debt	0.202*** 0.0745	0.345*** 0.087	0.290*** 0.100
Expected Increase on Sales	0.352*** 0.114	0.437 0.134	0.321** 0.153
Average Importance of non-financial constraints	-0.146 0.106	-0.283*** 0.124	-0.051 0.141
# Obs	90	90	90
R2	0.19	0.29	0.15

* 10%, **5%, ***1%. Constant included but not reported.

TABLE 7

Dependent Variable: Expected Future Investment Growth	Small	Large	Local	Foreign	Young	Old
Future Expected Sales Growth	0.271 0.203	0.397*** 0.147	0.316** 0.149	0.598*** 0.183	-0.072 0.175	0.612*** 0.154
Past Sales Growth	0.368 0.228	-0.126 0.185	0.040 0.165	-0.034 0.303	0.251 0.171	-0.194 0.210
Average Importance of non-financial constraints	0.095 0.248	-0.139 .1301	-0.190 0.133	0.097 0.202	-0.247 0.165	-0.086 0.146
# Obs	32	58	67	23	44	46
R2	0.16	0.14	0.09	0.36	0.10	0.28

* 10%, **5%, ***1%. Constant included but not reported.

Tests (p-value)

H0: b_futuresalesgr=b_pastsalesgr	0.773	0.034	0.245	0.086	0.207	0.006
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TABLE 8

Granger-causality Tests (p-values)

Variable	<u>Private Credit does not G-cause Variable</u>			<u>Variable does not G-cause Private Credit</u>		
	<u>1963-2003</u>	<u>1963-1988</u>	<u>1989-2003</u>	<u>1963-2003</u>	<u>1963-1988</u>	<u>1989-2003</u>
Total GDP	0.423	0.017	0.197	0.123	0.105	0.250
Non-oil GDP	0.048	0.045	0.362	0.000	0.000	0.149
Non-oil Non-Tradable GDP	0.082	0.001	0.502	0.001	0.000	0.046
Non-oil Tradable GDP	0.204	0.924	0.152	0.027	0.010	0.015
Manufacturing VA High Ext. Fin. Dep.	0.160	0.333	0.030	0.087	0.002	0.539
Manufacturing VA Low Ext. Fin. Dep.	0.531	0.641	0.394	0.003	0.238	0.016

TABLE 9

Industry	External Finance Dependenc
Beverages	0.010
Fabricated metal products	0.201
Food products	0.097
Footwear, except rubber or plastic	-0.169
Furniture, except metal	0.198
Glass and products	0.297
Industrial chemicals	0.161
Iron and steel	0.037
Leather products	-0.089
Machinery, electric	0.515
Machinery, except electrical	0.300
Non-ferrous metals	0.100
Other chemicals	0.073
Other manufactured products	0.296
Other non-metallic mineral products	0.076
Paper and products	0.085
Plastic products	1.140
Pottery, china, earthenware	-0.298
Printing and publishing	0.097
Professional & scientific equipment	0.681
Rubber products	0.150
Textiles	0.180
Tobacco	-0.288
Transport equipment	0.267
Wearing apparel, except footwear	0.030
Wood products, except furniture	0.282

TABLE 10

Dependent Variable: Industry Real Value Added Growth

Share in Manuf Value Added _{t-1}	-0.709**	-0.620*	-3.975***	-0.574**	-4.148**	-4.647***
	0.331	0.332	0.874	0.283	0.760	0.800
Industry External Finance Dependence		0.104***		0.109***		
		0.039		0.033		
Private Credit Collapse period (1989-96)	-0.054**	-0.025	-0.033			
	0.021	0.024	0.024			
Industry External Finance Dep X Priv Credit Collapse period		-0.164**	-0.153**	-0.166***	-0.155**	-0.174**
		0.074	0.074	0.063	0.062	0.071
Industry Tradeability X Priv Credit Collapse period						0.181**
						0.081
Industry Durable Good X Priv Credit Collapse period						0.007
						0.057
Industry Investment Good X Priv Credit Collapse period						-0.008
						0.098
# Obs	777	777	777	777	777	746
R2	0.01	0.02	0.07	0.32	0.40	0.37
Industry FE	No	No	Yes	No	Yes	Yes
Year FE	No	No	No	Yes	Yes	Yes

* 10%, **5%, ***1%. Constant included but not reported.

TABLE 11

Dependent Variable: Industry Real Investment Growth

Real Value Added Growth	0.691**	0.661***	0.421	0.425	0.523	0.524
	0.318	0.163	0.401	0.414	0.362	0.375
Industry External Finance Dependence		-0.011	0.017		0.028	
		0.144	0.201		0.172	
Low Private Credit Period (1989-1998)	0.039		0.064	0.065		
	0.083		0.097	0.099		
Real Value Added Growth X Industry External Finance Dep		-0.429	1.193	1.142	0.896	0.848
		0.513	1.080	1.110	0.954	0.983
Low Priv Credit Period (1989-1998) X Industry External Finance Dep			-0.160	-0.167	-0.130	-0.135
			0.292	0.299	0.250	0.257
Real Value Added Growth X Low Priv Credit Period (1989-1998)	-0.095		0.281	0.279	-0.162	-0.174
	0.362		0.440	0.454	0.410	0.424
Real Value Added Growth X Industry External Finance Dep X Low Priv Credit Period (1989-1998)			-2.250*	-2.258*	-1.444	-1.450
			1.243	1.277	1.090	1.123
# Obs	488	488	488	488	488	488
R2	0.03	0.03	0.04	0.05	0.32	0.32
Industry FE	No	No	No	Yes	No	Yes
Year FE	No	No	No	No	Yes	Yes

* 10%, **5%, ***1%. Constant included but not reported.

TABLE 12

Dependent Variable: Employment Growth

Real Value Added Growth	0.406*** 0.026	0.191*** 0.021	0.320*** 0.035	0.314*** 0.035	0.327*** 0.033	0.319*** 0.033
Industry External Finance Dependence		0.009 0.017	0.006 0.020		0.006 0.019	
Low Private Credit Period (1989-1998)	-0.037*** 0.010		-0.035*** 0.012	-0.035*** 0.012		
Real Value Added Growth X Industry External Finance Dep		0.314*** 0.054	0.265*** 0.074	0.257*** 0.076	0.266*** 0.067	0.255*** 0.069
Low Priv Credit Period (1989-1998) X Industry External Finance Dep			-0.015 0.037	-0.017 0.037	-0.027 0.032	-0.030 0.033
Real Value Added Growth X Low Priv Credit Period (1989-1998)	-0.306*** 0.036		-0.230*** 0.043	-0.221*** 0.044	-0.215*** 0.043	-0.206*** 0.045
Real Value Added Growth X Industry External Finance Dep X Low Priv Credit Period (1989-			-0.176 0.114	-0.185 0.115	-0.274*** 0.104	-0.283*** 0.105
# Obs	777	777	777	777	777	777
R2	0.28	0.23	0.29	0.30	0.45	0.46
Industry FE	No	No	No	Yes	No	Yes
Year FE	No	No	No	No	Yes	Yes

* 10%, **5%, ***1%. Constant included but not reported.

TABLE 13

Dependent Variable: Real Capital Expenditure Growth

	Entire Sample		Venezuela			
Tobin's Q	0.001 0.001	-0.029*** 0.006	0.001 0.001	0.243 0.541	-0.081 0.561	-0.077 0.764
Net Income / Assets	0.714*** 0.204	0.748* 0.447	0.699*** 0.200	2.967*** 0.791	3.262* 1.541	5.542*** 1.757
Tobin's Q X Private Credit to GDP		0.160*** 0.0320				
Net Income / Assets X Private Credit to GDP		-0.109 .3914				
Tobin's Q X Venezuela			0.137 0.276			
Net Income / Assets X Venezuela			4.181*** 0.507			
Tobin's Q X Credit Collpase Period (1989-1996)				-0.240 0.615	0.690 0.581	-0.160 0.664
Net Income / Assets X Credit Collapse Period (1989-1996)				2.834*** 0.874	2.094 1.555	1.537 1.391
Credit Collapse Period (1989-1996)				0.189 0.596		0.162 0.626
# Obs	11655	11655	11655	52	52	52
R2	0.03	0.02	0.03	0.31	0.52	0.41
Country FE	Yes	Yes	Yes	No	No	No
Year FE	No	No	No	No	Yes	No
Industry FE	No	No	No	No	No	Yes

* 10%, **5%, ***1%. Constant included but not reported. Robust errors clustered at the year level.