

VI. Boosting Private Investment in the Long Term

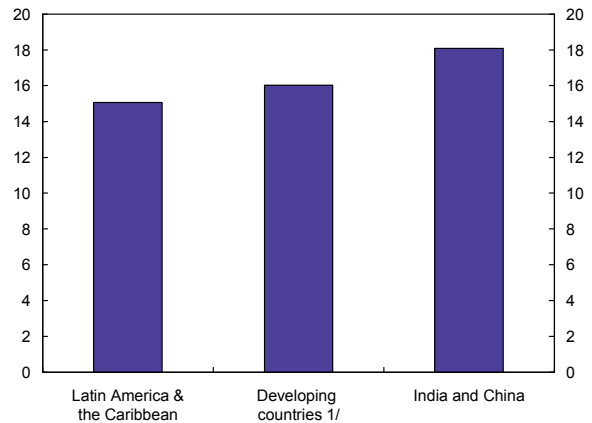
Investment Still Lagging

The long-run growth record in the LAC region has been disappointing.³⁷ This reflects many factors, including a history of macroeconomic instability and institutional weaknesses. An important role has also been played by investment rates that have been low, including in the private sector, and especially when compared with fast-growing economies in other regions, including Asia.

Private investment has risen as a share of GDP in recent years, becoming a more important driver of the region's impressive growth since 2003. Nonetheless, investment-to-GDP ratios remain below those in other regions. Moreover, investment has not increased uniformly across all countries. The rise in the aggregate investment-to-GDP ratio has been driven especially by increases in Colombia and Venezuela and by the recovery in Argentina. Private investment in other countries, such as Brazil and in the Caribbean region, has risen less over this period.

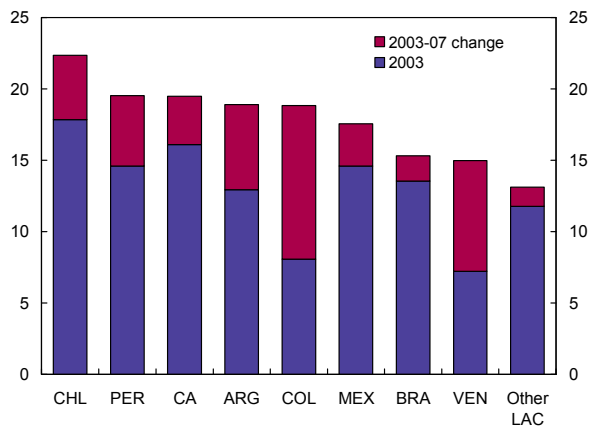
Further increasing private investment will likely be an important part of the effort to boost the region's still-moderate long-term growth rates. This chapter seeks to understand the factors behind the performance of private investment in the region in recent years. It concludes that, at an aggregate level, increased macroeconomic stability has played an important role in encouraging private investment in the past while the impact of other macro factors, including the recent terms of trade improvements, is less clear. The analysis is extended to the micro level by looking at firm-level data in the period since 2003, during which the region's resilience has increased substantially. The chapter presents the

Private Investment
(In percent of GDP; 1993–2007 average)



Source: IMF, *World Economic Outlook* (WEO) database.
1/ Excluding India, China and the countries of Latin American and the Caribbean.

Increase in Real Private Investment
(In percent of real GDP)

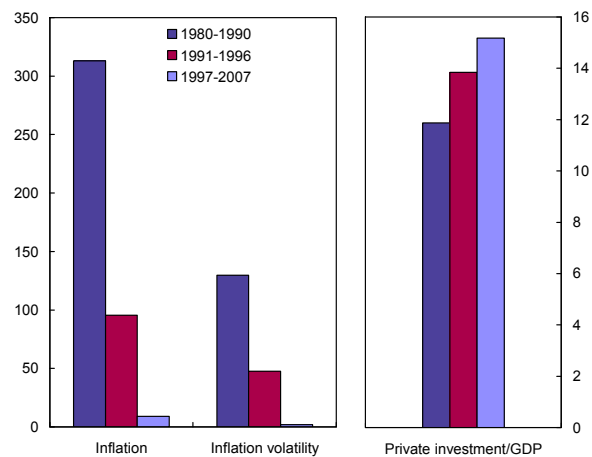


Source: WEO database, IMF.
Note: Country abbreviations follow ISO codes.

Note: This chapter was prepared by Jingqing Chai and Vikram Haksar.

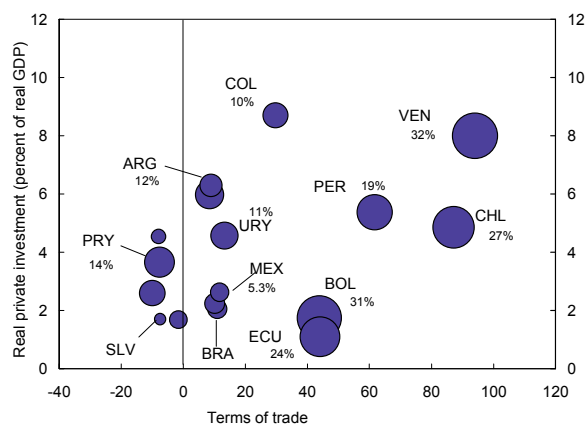
³⁷ Over 1980–2007, real GDP growth in the region averaged 2.9 percent, compared with 7.3 percent in emerging Asia.

Inflation, Volatility, and Investment
(In percent)



Sources: WEO database, IMF; and IMF staff calculations.

Terms of Trade and Private Investment 1/
(2003-07 change; in percent)



Sources: WEO database, IMF; and *Commodity Trade Statistics*, United Nations.
Note: Country abbreviations follow ISO codes.
1/ Size of bubble proportional to commodity exports in percent of GDP (2006).

results of a new cross-country analysis showing that firms in Latin America, especially smaller firms, continue to face important financing constraints that hold back investment, despite the recent gains on macro stability.³⁸ Indeed, the cost of financing for firms in the region is almost double that in Asia. All told, the analysis emphasizes the importance for growth and investment of preserving hard-won gains on low and stable inflation and the need to press on with the development of banking systems and capital markets to ease financing constraints.

Importance of Macro Stability

To analyze the macroeconomic determinants of private investment, we conducted a cross-country empirical analysis for 1980–2007 relating private investment in the LAC region to various macro factors, including real GDP, the rate of inflation, the volatility of inflation, real interest rates, and the terms of trade, among other variables. The details of the estimation results and methodology are presented in Appendix 6.1.³⁹ The main findings are presented below along with some observations.⁴⁰

- *The reduction in inflation has supported investment.* The decline in both the level and volatility in inflation, especially through the mid-1990s, has encouraged higher private investment. This may be because low and stable inflation gives investors assurances that the viability of long-term investment projects is less likely to be disrupted by macroeconomic instability.⁴¹
- *Borrowing costs are important.* As expected, the analysis shows that lower real interest rates

³⁸ Previous country studies for the region look at financing constraints in the period prior to 2002 (see Box 6.1).

³⁹ The analysis draws on Chai and Haksar (2008).

⁴⁰ External debt and national savings effects turn out to be hard to identify, although they have the expected signs. They may be captured in the variation of real output. There is some evidence that public investment has crowded out private investment in the LAC region, though further analysis is needed of the importance of infrastructure quality for private investment.

⁴¹ See, for example, Greene and Villanueva (1991).

support private investment. Real lending rates in the region, while still high, have come down in the last years, facilitating the pick-up in investment. The reduction in real interest rates likely reflects a lower inflation premium given the improved inflation environment in the region. The substantial strengthening in public sector balance sheets has also contributed to impressive drops in risk premia.

- *Output growth and financial development also matter.* As in many other studies, real GDP growth on average was found to be highly significant in explaining real private investment in both in the long and short run. This reflects that output growth likely captures the effects of other important determinants of investment, including productivity growth and the rate of return on capital, and overall strengthening of economy-wide balance sheets. There is also some aggregate evidence that access to finance, measured by the level of real private credit, has had a positive effect on private investment.
- *Mixed effect of terms of trade.* Finally, while the terms of trade have improved significantly in a number of Latin American countries, their contribution to aggregate private investment for the region as a whole is mixed. There is substantial dispersion in investment rates and terms of trade gains across the region, with no clear overall pattern emerging. Nonetheless, four of the largest beneficiaries of the commodity boom, Chile, Colombia, Peru, and Venezuela, have seen important increases in private investment rates. In addition, at the firm level, on average, firms in commodity sectors have had much faster growth in investments and output (based on data from Brazil, Chile, Mexico, and Peru). On the other hand, some net commodity importers, including in the Caribbean

region, have seen smaller gains on investment.

Beyond Macro Stability

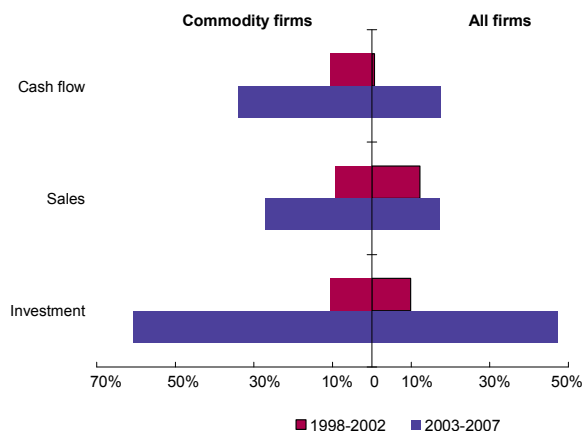
Macroeconomic factors alone, however, cannot quite explain why the LAC region has invested less than some of the other emerging market economies. Indeed, inflation and volatility in the larger regional economies are now comparable to other emerging market countries. Also, cross-border risk premia have fallen sharply to levels that are only marginally higher than spreads in emerging market comparators.

Despite the achievement of macroeconomic stability, the region lags behind in some key structural and financial dimensions that may be important to increase further investment. On average, the LAC region is less conducive to doing business than some of the other emerging market regions, particularly in the areas of public administration efficiency and ease of entry, as shown by the cost of doing business indicators compiled by the World Bank. There is also a considerable gap in financial development, measured by bank credit to GDP and stock market capitalization. Moreover, local nongovernment bond markets in the region are relatively small compared with other emerging markets. Recent reductions notwithstanding, the average real cost of borrowing facing Latin American firms remains substantially higher than that for firms in other emerging market regions. Reflecting these and other impediments, total factor productivity grew at less than 1 percent a year during 1990–2006 in the major countries in the region, compared with over 2 percent on average in other emerging market countries.

In sum, diverse structural and institutional features matter for private investment.⁴² It is also clear that financial sector development and the cost

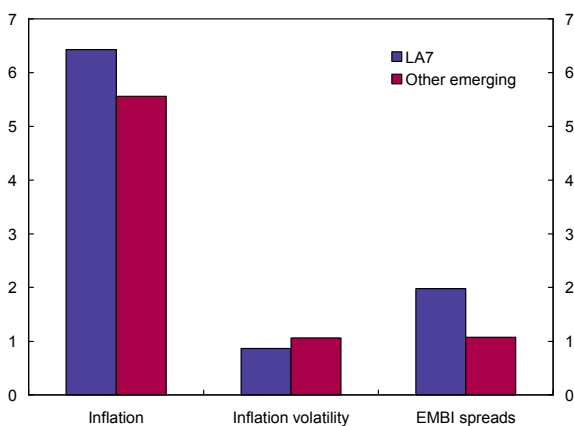
⁴² Further discussion of the investment, growth, and productivity nexus in the region can be found in Singh and Cerisola (2006) and IMF (2007).

Performance of Firms in Commodity Sectors
(Percent)



Sources: Worldscope; and IMF staff calculations.

Inflation, Volatility, and Risk Premia in EMs
(2005-07 average; in percent)



Sources: WEO database, IMF; and Bloomberg.

of borrowing are key determinants of investment. In the remainder of this chapter, we focus on the impact of financing constraints on investment.

Role of Financing Constraints

Much analysis in the corporate finance literature has highlighted the importance of financing constraints as a limiting factor for investment at the firm level (Box 6.1).⁴³ Financial market frictions, including imperfect information facing lenders, typically make it hard for firms to obtain “external” financing (that is, financing from outside the firm, rather than from retained earnings) for investment projects that would otherwise be profitable.

While the importance of financing constraints has been documented for firms across the world, including in developed countries, they may be particularly severe in the LAC region. This is manifested in both the relatively high cost of financing and the lack of access to credit for many LAC firms, despite the recent improvement in the region’s corporate performance.

Cross-country firm-level data analyzed show that financing costs in the LAC region have fallen a bit over the last decade. However, they remain very high in comparison with other regions, in fact almost double those facing firms in the Asian region. Moreover, analysis of the distribution of financing costs across firms in the LAC region compared with, for example, Asian emerging markets reveals striking differences.⁴⁴ First, the distribution of financing costs for both large and

⁴³ Analyzing firm-level data allows for testing for how constraints vary across firm size and avoids well-known aggregation bias problems with aggregate investment data (see Bond and Lombardi, 2004).

⁴⁴ We draw the frequency distribution of financing costs over all firms in the sample using kernel density estimates. The x-axis of the graph shows the percent value of financing costs. The y-axis shows the percent of firms that face the corresponding level of financing costs. A rightward tilt of distribution A compared with distribution B means that more firms in distribution A face higher levels of financing costs than in B.

Box 6.1. Literature on Financing Constraints and Investment

Investment by firms should depend on economic returns—the marginal productivity of new capital—and the costs of acquiring and installing that new capital. In a world of perfect capital markets, a firm’s financial structure ought not to matter for its investment decisions. Firms could borrow all the funds required to maximize returns on capital at prevailing market rates (the Modigliani-Miller (1958) irrelevance of capital structure result). However, adverse selection and principal-agent problems make evaluation and monitoring costly for lenders, who tend to charge a higher lending interest rate or ration credit—relative to a perfect information benchmark—to compensate for the extra risk (Stiglitz and Weiss, 1981). This highlights the importance of thinking about the role of financing constraints in investment decisions by firms.¹

With financial constraints, the firm’s investment decision can be shown to be a function not just of fundamental opportunities (i.e., the expected marginal productivity of capital), but also of balance sheet characteristics. Evidence of financial constraints is usually inferred by finding strong relationships between investment and measures of internal funds—typically, cash flow. Arguably, the more financially constrained a firm is, the more it would rely on internal as opposed to external funding, all else equal.

One important problem with this approach is that cashflow is also likely to contain information about the future profitability of investments and thus be correlated with investment for reasons other than constrained access to external funds. In response to this problem, most empirical studies use additional information on the firms in the sample to sort them into groups that can be expected to face differing levels of access to market finance. An obvious criterion to use in this context is firm size. Another approach to circumventing this problem of interpretation of cash measures, is to use the stock of cash rather than cashflow (Forbes, 2007). This is intuitively appealing because, while financially constrained firms might be expected to accumulate cash stocks to fund investment, it is not obvious that cash stock on a firm’s balance sheet is a good predictor of the expected returns on additional investment.

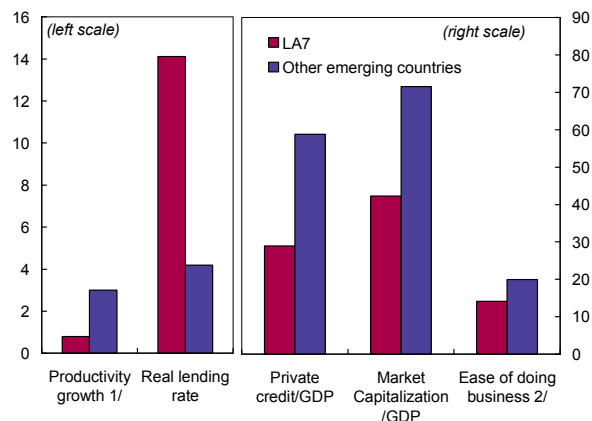
The additional empirical challenge for estimating models of investment is to find good proxies for the fundamental value of investment opportunities. Gilchrist and Himmelberg (1998) show that the marginal product of capital can be proxied for by the (level of) sales-to-capital stock ratio. Some other studies (e.g., Gelos and Werner, 2002) use the change in sales as a proxy for the expected profitability of capital. Another popular proxy is “Tobin’s q ”—the ratio of market value to replacement cost of capital (Hayashi, 1982), but it is unlikely to adequately reflect marginal q for developing country firms (Hubbard, 1998), and the lack of stock-market liquidity is a further problem.

Many empirical studies have been based on this framework. Fazzari and others (1988) cover U.S. manufacturing firms, while Love and Zicchino (2006) apply a similar approach for emerging market countries, and Bond and others (1997) do the same for European developed economies. Empirical studies of Latin American countries have found the existence of financing constraints in most economies studied (see an overview in Galindo and Schiantarelli, 2003). Gelos and Werner (2002) found that financial liberalization in Mexico resulted in an easing of financing constraints for some, in particular small firms. Forbes (2007) showed that financing constraints in Chile increased for smaller firms during the period of capital controls. De Brun, Gandelman, and Barbieri (2003) showed that small firms in Uruguay face higher financing constraints. Meanwhile, Castañeda (2003) shows that Mexican companies affiliated with banking groups are less financially constrained.

Note: This box was prepared by Alvaro Piris.

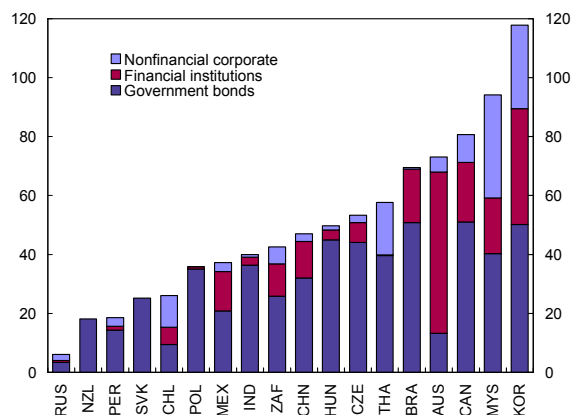
¹While this is not the focus of this chapter, the “financial accelerator” literature notes that swings in aggregate investment appear larger than justified by changes in interest rates or measures of expected profitability (Bernanke and Gertler, 1989; Bernanke, 2007). Models in this literature take as a starting point that firms with high net worth will be more creditworthy and better able to access external finance at a lower cost. The observed volatility in aggregate investment is linked to procyclical movements in firms’ net worth—high-asset prices or investor optimism in upswings lead to falls in the premia firms pay for external finance, thus boosting investment by more than might be explained by other fundamentals.

Impediments to Higher Private Investment
(In percent, unless otherwise noted, 2002-06)



Sources: World Bank, *Doing Business*; and IMF staff calculations.
1/ Productivity growth over period 1990-2006.
2/ Qualitative indicator between 0 and 100 where higher values convey greater ease of doing business. Average 2003-06.

Size of Domestic Bond Markets 1/
(In percent of GDP)



Sources: Bank for International Settlements; and IMF staff calculations.
1/ Outstanding stock as of September 2007.

small LAC firms is shifted to the right of those in the Asia region; that is, firms in the LAC region face higher financing costs across the board. Also, the distribution of financing costs for small firms in both regions is to the right of that for larger firms; that is, small firms in both regions face higher financing costs. However, it is particularly striking that the gap between the distributions for small and large firms is wider in the LAC region than in Asia. smaller firms in the LAC region face higher financing premia than in Asia.

Moreover, survey data from the World Bank in 2006 document that, on average, about 30 percent of LAC firms have access to bank loans or lines of credit, compared with 70 percent in the east Asian region. The survey results also illustrate that LAC firms rely much more heavily on internal funds to finance new investments or to provide working capital (60 percent of total firm investment is internally financed in the LAC region compared with 30 percent in Asia). This in part reflects the relatively small size of financial systems in many LAC countries.

As discussed in Box 6.1, in a world with no financial market imperfections, a firm's investment decision would not be constrained by its choice of financing. There would be no need for it to retain internal funds (cashflow) with the specific purpose of using this to finance investment—funding from outside the firm could always be found for profitable ventures. In reality, firms that face external financing constraints would tend to have lower investment and higher internal retention of funding (net cash flow) for investment. Another way of looking at the financing constraints from a cross-country perspective is that for two otherwise operationally identical firms, the firm that operates in a less developed financing environment will tend to invest less, on average, than the firm that has easier access to credit. Indeed, firms in the LAC region on average conserve a relatively large portion of their net cash flow from sales compared with those from the other emerging market regions, but at the same time they have

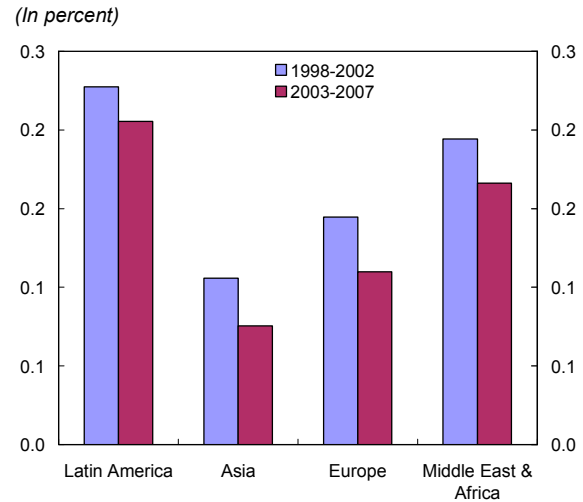
much lower investment rates. This means that firms in other emerging market regions have been able to invest more with less cash hoarding, again suggesting the presence of larger financing constraints for LAC firms.

To analyze the effect of credit constraints on private investment more rigorously, we estimated a regression model linking investment by a firm to the marginal productivity of capital, and the extent of credit constraints. As is common in this literature, the productivity of capital is proxied by the ratio of sales to capital, with the intuition being that strong sales should signal expected returns on additional investment. Meanwhile, financing constraints are proxied by the firm's stock of cash (the idea being that firms that are financing constrained keep more cash on hand, all else equal).

We also test for whether smaller firms tend to be more vulnerable to credit constraints. This model is fitted to the financial statement data of the publicly listed nonfinancial firms in four countries in the LAC region (Brazil, Chile, Mexico, and Peru). Similar analysis for individual countries in the region has documented the presence of financing constraints in the period before 2003. Our analysis focuses on the period 2003–07, to examine whether the gains on macro stability and strengthened balance sheets had diminished the importance of financing credit constraints.

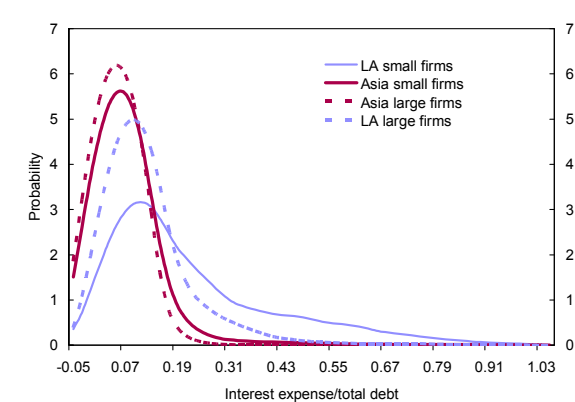
The analysis confirms that financing constraints remain very much a factor affecting corporate investment in the LAC region, especially for smaller firms. In general, cash stock has a highly significant and positive effect on investment in most cases, suggesting that credit constraints are important. When firm size is included in the regression, the estimated coefficient is large and positive. Importantly, the results suggest that smaller listed companies in the LAC region face substantially higher financing constraints than larger firms, a result consistent with findings from other country-specific studies

Firm Level Cost of Financing in Emerging Markets 1/



Sources: Worldscope; and IMF staff calculations.
1/ Median firm value in finance expense/total debt.

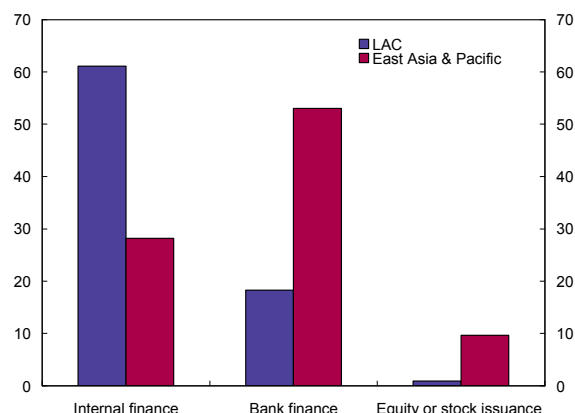
Distribution of Cost of Debt in Listed Firms, 2003–07 1/



Sources: Worldscope; and IMF staff calculations.
1/ Small and large firms are defined as having total assets below 25 percentile and above 75 percentile, respectively, of all firms' asset values in the same region.

Sources of Financing

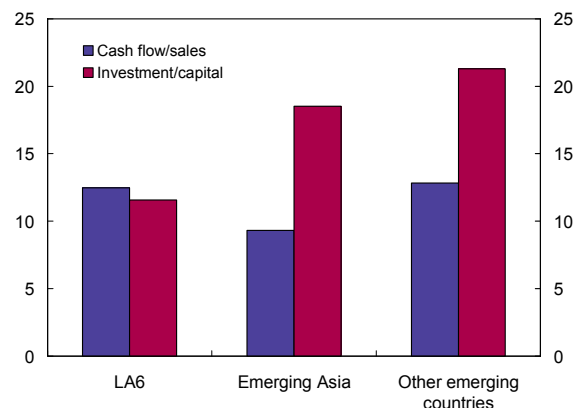
(In percent of total investment financing)



Source: World Bank Enterprises Surveys.

Investment and Financing Constraints

(In percent)



Sources: Worldscope; and IMF staff calculations.

Investment and Financing Constraints 1/

| Explanatory Variables | Estimated Coefficients | |
|------------------------|------------------------|-----------|
| | Fixed effects | S-GMM 2/ |
| Net sales | 0.085 *** | -0.005 |
| Cash stock | -0.021 * | 0.008 *** |
| Small dummy*cash stock | 0.537 *** | 0.502 *** |
| Log (total assets) | 0.14 | 0.937 *** |
| No. of observations | 2,921 | 2,079 |

Source: IMF staff estimates.

1/ Estimates of empirical model with investment-to-capital ratio as dependant variable.

2/ Estimates from the system generalized method of moments estimator.

***, * represent significance at 1%, 10% level, respectively.

(including for Chile by Forbes, 2007). In addition, investment is found to be an increasing function of firm size (total assets), suggesting higher investment rates for larger firms beyond the impact of financing constraints.

The finding that smaller firms are more affected by financing constraints suggests that such constraints could be even more important in the LAC region than we are able to detect in our sample of publicly listed firms. Firms outside our sample of listed companies are likely to be even smaller, and therefore even more affected.

Conclusions

The analysis in this chapter raises two principal policy issues concerning further increasing private investment in the LAC region.

First, it is crucial at the current juncture to preserve the region’s disinflation gains. Any sustained increase in inflation or price level volatility would likely undermine investment, and therefore growth prospects.

Second, the size and persistence of financing constraints, especially for smaller firms in the region, gives additional impetus to the need to deepen financial systems, strengthen capital market development and credit institutions, and promote access to finance. Priorities include strengthening the financial infrastructure (e.g., ratings agencies, transparent and better accounting standards) and implementing sound legal frameworks (property rights, foreclosure process and bankruptcy reform); improving intermediation and lowering obstacles to increased bank and capital market funding for mid-sized and smaller firms; and implementing regulations to facilitate technological innovations that help low-income families and small firms gain access to financial services (see de la Torre, 2007, and Rojas-Suarez, 2007).

Furthermore, while they are not the specific focus of analysis in this chapter, broader structural policies to boost productivity will remain

additional policy imperatives to boost investment and growth. These cover a wide range of areas, including actions to increase labor market flexibility, improve the ease of doing business, and strengthen competition.

Appendix 6.1. Estimation Methods

Determinants of Aggregate Real Private Investment

There is a substantial literature arguing that long-run aggregate investment is determined by returns on investment and uncertainty associated with investment returns (see Roache, 2006, for further discussion). Other factors that are considered include proxies for business climate, financial development, and cost of borrowing. Given that unit root tests show these are all nonstationary time series (except for the real interest rate and inflation volatility), we test for the existence of a long-run co-integrating relationship. Investment is found to be co-integrated with real output, Y (proxy for returns), and inflation, π (proxy for uncertainty), respectively. Accordingly, we estimated an error correction model for investment where other financial and macro factors affecting private investment in the short run are represented by Z .

$$\Delta I_t = \mu + \sum_i a_i \Delta Y_{t-i} + bZ + c(I_{t-1} - Y_{t-1} - \pi_{t-1}) + \varepsilon_t$$

We estimated the above error correction model for a panel of the 18 largest Latin American and Caribbean countries over 1980–2007 and 1990–2007 to account for the very high and lower inflation episodes. The model was estimated using the Pooled Mean Group methodology (Pesaran, Shin, and Smith, 1999), which allows for a country-invariant long-run co-integration relationship and country-specific short-run dynamics in a panel setting. The results of the estimated model over the two periods are shown below.

Dynamic Panel Estimates of Macro Model (1980-2007)

| Variables | (1) | (2) | (3) |
|-----------------------------|--------------------------|--------------------------|------------------------|
| Long run | | | |
| GDP 1/ | 1.058 *** [0.0514] | 1.121 *** [0.0538] | 1.086 *** [0.0589] |
| Inflation | -0.00115 * [0.000636] | -0.00038 *** [0.0000] | -0.002 [0.00113] |
| Error correction | | | |
| | -0.262 *** [0.0574] | -0.261 *** [0.0551] | -0.326 *** [0.0655] |
| Short run | | | |
| <i>In first differences</i> | | | |
| GDP 1/ | 2.426 *** [0.583] | 2.933 *** [0.529] | 3.019 *** [0.553] |
| Public investment 1/ | -0.135 ** [0.0613] | | |
| External debt/GDP | -0.576 [0.407] | | |
| National savings 1/ | | 0.074 [0.0787] | |
| Terms of trade (in log) | | | -0.0108 [0.118] |
| Private credit 1/ | 0.214 *** [0.0787] | 0.084 [0.0909] | 0.114 [0.0808] |
| <i>In levels</i> | | | |
| Inflation volatility | -1.130 ** [0.531] | 0.000 [1.255] | -1.626 ** [0.742] |
| Real interest rate | | | -0.003 [0.00258] |
| Observations | 414 | 416 | 359 |

Source: IMF staff estimates.

Note: Error correction with long-run co-integration; Standard errors in brackets; *** p<0.01, ** p<0.05, * p<0.1. 1/ In logarithm of real values.

The Role of Financing Constraints in Firm-Level Investment

We employed a parsimonious model where cashflow measures and sales are used as proxies for credit constraints and the marginal profitability of capital, respectively. Other financial variables are also used to capture aspects of financing structure that may determine the external financing premium. Given the importance of the size effect, we applied three definitions to establish whether a firm is small or not. The first size cutoff is defined relative to the size of firms in the 25th percentile of country i 's own firm size distribution. Alternate size cutoffs are also used based on how firms in country i compare in size with firms at the 25th percentile of the size distribution in Brazil and separately in Mexico. As such, the model estimated is

$$\frac{I_{i,t}}{K_{i,t-1}} = \alpha_i + \beta_1 * \frac{Sales_{i,t}}{K_{i,t-1}} + \beta_2 * \frac{Cash_{i,t-1}}{K_{i,t-1}} + \beta_3 * Cash_{i,t-1} * Small_i + \beta_4 * Z_{i,t} + f_i + d_i + \varepsilon_{i,t}$$

The variables are scaled by aggregate capital stock (see Gilchrist and Himmelberg, 1998, for a motivation). The annual firm-level financial

statement data for Brazil, Chile, Mexico, and Peru for 2003–07 are taken from the Economatica database. While investments by these publicly listed firms account for between 5 and 30 percent of the aggregate private investments in respective countries, their dynamics mirror closely that of the aggregate private investments, suggested by high sample correlation coefficients.

We first estimated the model using a fixed-effects (OLS) estimator, which helps address the potential endogeneity bias related to unobserved time-invariant firm-specific effects (such as quality of management and country effects). However, since OLS estimators will be biased if an unobserved shock is serially correlated or there are effects from lagged investment, we further used a GMM-difference estimator developed by Arellano and Bond (1991) and others. This estimator first-differences each of the variables to eliminate the firm-specific effects, and then uses lagged levels of the variables as instruments. Results are shown below.

Fixed Effect OLS Estimates

| Variables | (1) | (2) | (3) | (4) | (5) |
|--------------------------|------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Sales | 0.0463 *** [0.0172] | 0.0856 *** [0.00141] | 0.0853 *** [0.00162] | 0.0839 *** [0.00269] | 0.0856 *** [0.00142] |
| Cash stock | 0.465 *** [0.0424] | -0.022 ** [0.0109] | -0.0211 * [0.0108] | -0.0192 * [0.0113] | -0.022 ** [0.0108] |
| Small firm dummy 1 | | 0.537 *** [0.0109] | | | 0.537 *** [0.0109] |
| Small firm dummy 2 | | | 0.536 *** [0.0109] | | |
| Small firm dummy 3 | | | | 0.531 *** [0.0119] | |
| Total assets | | | | | 0.14 [0.0983] |
| Observations | 2921 | 2921 | 2921 | 2921 | 2921 |
| Number of code | 761 | 761 | 761 | 761 | 761 |
| R ² /Hansen P | 0.900 | 0.997 | 0.997 | 0.991 | 0.997 |

Source: IMF staff estimates.

Note: *** p<0.01, ** p<0.05, * p<0.2.
Robust standard errors in brackets.

Details of associated robustness and specification tests are presented in Chai and Haksar (2008).

Dynamic Panel Estimates of Macro Model (1990-2007)

| Variables | (4) | (5) | (6) |
|-----------------------------|---------------------------|------------------------|--------------------------|
| Long run | | | |
| GDP 1/ | 1.090 *** [0.0507] | 1.082 *** [0.0482] | 1.005 *** [0.106] |
| Inflation | -0.00959 *** [0.00141] | -0.00104 [0.00163] | -0.0276 *** [0.00537] |
| Error correction | -0.308 *** [0.0709] | -0.328 *** [0.0674] | -0.229 *** [0.0707] |
| Short run | | | |
| <i>In first differences</i> | | | |
| GDP 1/ | 2.658 *** [0.717] | 3.557 *** [0.609] | 3.732 *** [0.632] |
| Public investment 1/ | -0.162 ** [0.0753] | | |
| External debt/GDP | -0.421 [0.476] | | |
| National savings 1/ | | 0.131 [0.129] | |
| Terms of trade (in log) | | | -0.067 [0.209] |
| Private credit 1/ | 0.163 [0.120] | 0.003 [0.143] | 0.012 [0.108] |
| <i>In levels</i> | | | |
| Inflation volatility | -0.375 [0.634] | 0.475 [1.287] | -0.759 [0.811] |
| Real interest rate | | | -0.00641 * [0.00345] |
| Observations | 298 | 298 | 280 |

Source: IMF staff estimates.

Note: Error correction with long-run co-integration;
Standard errors in brackets: *** p<0.01, ** p<0.05, * p<0.1.
1/ In logarithm of real values.

System GMM Estimates

| Variables | (1) | (2) | (3) | (4) | (5) |
|--------------------------|-----------------------|--------------------------|--------------------------|----------------------|--------------------------|
| Sales | -0.0164 [0.0143] | -0.00661 [0.00677] | -0.00669 [0.00676] | -0.0109 [0.0119] | -0.0049 [0.00709] |
| Cash stock | 0.0144 * [0.00780] | 0.00789 *** [0.00270] | 0.00807 *** [0.00273] | 0.00492 [0.00461] | 0.00758 *** [0.00277] |
| Small firm dummy 1 | | 0.557 *** [0.0558] | | | 0.502 *** [0.0165] |
| Small firm dummy 2 | | | 0.568 *** [0.0715] | | |
| Small firm dummy 3 | | | | 0.354 ** [0.155] | |
| Tradable sector dummy | | | | | |
| Commodities sector dummy | | | | | |
| Total assets | | | | | 0.937 *** [0.336] |
| Observations | 2079 | 2079 | 2079 | 2079 | 2079 |
| Number of code | 675 | 675 | 675 | 675 | 675 |
| R ² /Hansen P | 0.260 | 0.400 | 0.310 | 0.560 | 0.239 |

Source: IMF staff estimates.

Note: *** p<0.01, ** p<0.05, * p<0.2.
Robust standard errors in brackets.