

A TALE OF TWO REGIONS: INVESTMENT IN LATIN AMERICA AND EAST ASIA

Manuel R. Agosin*

ABSTRACT

This paper examines why the investment rates of Latin American countries have been so low, in comparison with those of the fast growing East Asian countries. First, the paper compares the private and public investment ratios of eight Latin American countries, and their likely determinants, with those of five dynamic Asian countries. Second, it estimates an econometric model for the ratio of private investment to GDP in Latin American and Asian countries, respectively. The econometric results and a casual examination of the data suggest that the causes for the poor performance of private investment in Latin America relative to Asia are: considerably slower economic growth; more stringent domestic credit constraints; the adverse impact of the debt crisis on Latin American investment, a factor which was absent in the Asian countries; an important fall in complementary public investment in Latin America, which did not take place in Asia; and a greater degree of macroeconomic and relative price instability,

SINTESES

Este trabajo indaga las razones por las cuales las tasas de inversión en América Latina han sido bajas, en comparación con las de los países del este asiático que han crecido rápidamente. En primer lugar, el trabajo compara las tasas de inversión privada y pública para ocho países latinoamericanos con las de cinco países dinámicos de Asia. Segundo, se estima un modelo econométrico para la razón inversión privada a PIB en los países latinoamericanos y asiáticos, respectivamente. Los resultados econométricos y un examen casual de los datos sugieren que las causas para el pobre desempeño de la inversión privada en América Latina (en comparación al Asia) son: tasas de crecimiento considerablemente más bajas; restricciones crediticias más fuertes; el impacto adverso de la crisis de la deuda en América Latina, un factor que estuvo ausente en Asia; una importante caída en la inversión pública complementaria en América Latina, que no ocurrió en Asia; y el mayor grado de inestabilidad macroeconómica y de precios relativos.

* Professor, Department of Economics, Universidad de Chile. The author wishes to thank Ricardo López and Oscar Landerretche for efficient research assistance and Yilmaz Akyüz, Gustavo Crespi, and Roberto Frenkel for useful comments.

A TALE OF TWO REGIONS: INVESTMENT IN LATIN AMERICA AND EAST ASIA*

Manuel R. Agosin

1. INTRODUCTION

Over the past few decades, the growth performance of the Latin American countries has been poorer than that of the export-oriented economies of South and East Asia (for a dissenting view, see Fishlow, 1991). While a variety of structural, policy and political-economy factors have been invoked to explain the difference, attention has focused on the observation that Latin American countries have secularly saved and invested a smaller proportion of aggregate output than their more dynamic counterparts of Asia. This paper examines the long-term investment performance of eight of the larger Latin American economies (Argentina, Brazil, Chile, Colombia, Mexico, Peru, Uruguay and Venezuela) and compares it with that of five dynamic Asian economies (Korea, Indonesia, Malaysia, Singapore, and Thailand). The overt purpose of the paper is to explain the poor investment rates of most countries in Latin America, with a view to elucidating the policies that are required to achieve sustained high investment and growth. Although the paper examines data for a longish period (1968-1992), the emphasis is placed on the behaviour of these economies since the onset of the debt crisis and the subsequent recovery that began in the late 1980s-early 1990s.

The paper is organized as follows. Section II looks at the record of private and public investment for the Latin American and Asian countries. Section III reviews the investment theories available and the adaptations needed to take into account the specific characteristics of developing countries. In section IV, the evolution of some of the variables expected to affect investment is examined, for both Latin American and Asian economies. Section V resorts to econometrics to explain the behaviour of gross private fixed investment in Latin America and Asia. Section VI draws some conclusions and policy implications.

* *Estudios de Economía*, publicación del Departamento de Economía de la Facultad de Ciencias Económicas y Administrativas de la Universidad de Chile.

2. THE INVESTMENT RECORD

Indeed, the gross investment rates of the Latin American countries have been considerably lower than those of the Asian countries. Table 1 shows unweighted average gross domestic investment (GDI) ratios for five-year periods from 1968 to 1992.¹ For the Latin American countries, GDI peaked in the period just before the eruption of the debt crisis and declined significantly since then. The most recent period (1988-1992), which coincides roughly with the return of private foreign capital to the region, saw a mild recovery of GDI ratios; however, they still remain below their peaks and are not significantly higher than in the late 1960s. It is interesting to note that neither recent economic reforms giving the market a greater role in the allocation of resources nor the large-scale return of capital flows to Latin America that began in the late 1980s has led to a significant improvement in investment performance.

TABLE 1

LATIN AMERICA AND ASIA: GROSS DOMESTIC INVESTMENT RATIOS
(As a percentage of GDP)

	1968-72	1973-77	1978-82	1983-87	1988-92
Latin America					
Argentina	20.9	25.0	22.7	19.9	16.1
Brazil	20.8	23.4	22.8	18.8	21.4
Chile	14.8	13.8	17.7	17.5	23.8
Colombia	18.9	18.6	19.3	19.2	18.7
Mexico	21.0	22.7	25.4	19.9	21.4
Peru	16.1	22.4	26.2	22.5	20.8
Uruguay	11.4	13.5	16.1	12.6	12.2
Venezuela	30.3	32.0	29.6	18.7	18.6
Unweighted average	19.3	21.4	22.5	18.6	19.4
East Asia					
Indonesia	16.0	22.3	26.4	28.5	34.9
Malaysia	21.1	26.2	31.7	29.6	31.6
Rep. of Korea	25.2	27.2	31.3	29.2	35.3
Singapore	34.8	40.3	44.6	43.3	37.1
Thailand	24.4	26.2	26.2	24.1	32.4
Unweighted average	24.3	28.4	32.0	31.0	33.7

Source: Author's calculations, based on data provided by CEPAL.

¹ In order to take into account the impact of the debt crisis on economic aggregates, the data were also averaged for the following periods: 1968-1971, 1972-1976, 1977-1981, 1982-1986, and 1987-1992. However, the differences with the averages for the periods used in the study were negligible.

The Asian countries have had much higher investment rates than the Latin American countries during the whole period under discussion. Moreover, the disparity in investment performance has tended to widen with the passage of time. During 1968-1972 the unweighted average GDI ratio for the Asian countries was 25 per cent higher than that for the Latin American countries; by 1988-1992, this gap had widened to 75 per cent. Another important feature of the Asian data is that GDI ratios increase (almost) monotonically over time. In other words, there is no evidence of a debt-crisis effect after 1982.

The data on gross fixed investment were also disaggregated into their private and public components (shown in table 2 for Latin America and table 3 for Asia). The averages for the eight Latin American countries show a steady but moderate increase in both public and private investment until 1978-1982. However, individual country trends differed widely. Private investment rose strongly in Brazil, Chile and Peru, remaining unchanged or even declining in the other countries.

TABLE 2

LATIN AMERICA: GROSS FIXED PRIVATE AND PUBLIC INVESTMENT
(As a percentage of GDP)

	1968-72	1973-77	1978-82	1983-87	1988-92
Private investment					
Argentina	12.8	14.1	14.2	14.9	11.9
Brasil	15.5	18.1	20.1	16.4	18.2
Chile	8.6	10.6	14.4	14.0	19.8
Colombia	11.6	10.2	9.9	9.0	9.6
Mexico	13.2	12.3	13.2	12.2	14.6
Peru	10.7	13.9	18.8	17.4	16.8
Uruguay	8.2	8.1	9.5	7.0	7.9
Venezuela	16.7	17.6	14.6	9.7	8.3
Unweighted average	12.2	13.1	14.3	12.6	13.4
Public investment*					
Argentina	8.1	9.4	8.0	4.7	4.1
Brasil	4.2	3.8	2.6	2.5	3.2
Chile	7.0	5.7	2.9	2.5	2.9
Colombia	5.6	5.4	6.6	8.4	7.3
Mexico	5.8	8.0	10.5	6.3	4.7
Peru	4.0	7.2	4.7	4.5	3.2
Uruguay	2.6	4.5	6.4	4.2	3.6
Venezuela	7.1	10.5	15.0	9.1	10.2
Unweighted average	5.6	6.8	7.1	5.3	4.9

Source: Author's calculations, based on data provided by CEPAL.

* Excluding public enterprises, which are included in the private investment data.

As regards public investment (defined as excluding the investment of public enterprises, which is included in private investment²), the trend was sharply downward in Chile (as a result of deliberate policy) and Brazil; it remained largely unchanged in Argentina, Colombia and Peru; and it increased strongly in Uruguay, Mexico and Venezuela, in the latter two countries aided by strong oil prices.

With the onset of the debt crisis, both average ratios decline abruptly in the period 1983-1987. While the ratio of private gross fixed investment to GDP shows a modest improvement in 1988-1992, the ratio of public investment continues to decline. In other words, the crisis affected both types of investment, but the impact was particularly severe on public investment. If there is complementarity between public and private investment, as several studies have shown (Servén and Solimano, 1993; Cardoso, 1993; and Larraín and Vergara, 1993), the continued drop in public investment can partly explain the low levels attained by private investment.

The recovery in private investment since the late 1980s has been very uneven as regards its country distribution. The strongest increase has taken place in Chile. Other countries have experienced either a weak recovery or further declines in private investment. The first group includes one which has undertaken wide-ranging market-oriented reforms (Mexico) and two others where reform is fairly recent (Colombia and Brazil). Until recently, the latter country also had experienced the most extreme case of macroeconomic disequilibrium in the region. In the other countries surveyed, private investment continued to decline in 1988-1992 from the already low levels recorded during the height of the debt crisis.

The behaviour of private and public investment has been quite different in the five Asian countries (table 3). Both private and public investment have risen steadily as a share of GDP. As with the investment ratio as a whole, in the 1983-1987 period, there was only a mild decline (from their already high levels) in the private and public investment ratios. Finally, there are no wide disparities in investment performance as between countries: the upward trends mentioned are visible, more or less, in all five countries, and they are shared, broadly, by both private and public investment.

² It should be noted that data on public investment are weak in several Latin American countries, which affects the reliability of the econometric results obtained using them.

TABLE 3

**EAST ASIAN COUNTRIES: PRIVATE AND PUBLIC GROSS
FIXED INVESTMENT**
(As a percentage of GDP)

	1968-72	1973-77	1978-82	1983-87	1988-92
Private investment					
Indonesia	9.4	10.0	12.4	17.7	24.2
Malaysia	11.4	14.0	13.2	13.2	15.3
Rep. of Korea	15.8	20.1	24.9	22.9	28.9
Singapore	21.7	22.5	23.8	20.4	20.0
Thailand	17.8	19.0	18.7	16.8	26.0
Unweighted average	15.2	17.1	18.6	18.2	22.9
Public investment					
Indonesia	5.6	9.2	11.6	10.8	10.3
Malaysia	6.5	9.6	17.7	16.2	15.8
Rep. of Korea	7.4	5.0	6.0	5.9	5.8
Singapore	9.5	13.0	17.0	21.6	20.6
Thailand	5.7	4.5	6.1	6.7	5.2
Unweighted average	6.9	8.3	11.7	12.2	11.5

Source: Author's calculations, based on data provided by CEPAL, and World Bank, World Tables.

3. THE THEORY OF INVESTMENT IN A DEVELOPING COUNTRY SETTING

There is a large literature on the investment function of the representative firm going back to Keynes. In a nutshell, this literature suggests that the main determinants of investment are expectations of growth in demand and the user cost of capital (the interest rate plus the rate of depreciation minus the expected increase in the value of capital goods) relative to the wage rate (see Servén and Solimano, 1992, and Rama, 1993, for concise reviews of this literature).

In the absence of uncertainty, credit rationing, or foreign exchange constraints, following Rama (1993), the investment decision can be modeled in the following way. The problem facing the representative firm is to maximize the increase in the value of the firm over its lifetime (n periods) caused by an investment made in the present (I_0), which is equal to the present value of future dividends, plus discounted capital gains over the time horizon of the investment,

minus the value of the investment. The objective function of the firm is given in (1), under the simplifying assumptions that there are only two factors (capital and labour); that there are no intermediate inputs; and that the price of capital goods, the interest rate and the wage rate are known and remain unchanged:

$$\Delta V = \sum_1^n (p_t * Q_t - w * L_t) / (1 + r)^t + v * [(K_n) / (1 + r)^n - K_0] - v * u_0 * K_0 \quad (1)$$

where

- ΔV = increase in the present value of the firm
- Q_t = output
- p_t = real price of output
- w = real wage rate
- L_t = labour input
- r = real interest rate
- v = real price of capital goods
- K_t = physical capital of the firm
- u_0 = I_0 / K_0 ,
- I_0 = real investment in the initial period

This function is subject to several restrictions. First, there is the restriction that tomorrow's capital stock is equal to today's plus today's investment minus depreciation:

$$K_{t+1} = K_t * (1 + u_t) / (1 + \delta) \quad (2)$$

where

- δ = rate of depreciation
- u_t = u_0 for $t = 0$, 0 for $t = 1, \dots, n$

Second, the firm's output and inputs are related by a production function, which for simplicity we shall assume is of the Cobb-Douglas variety:

$$Q_t = K_t^\alpha * L_t^\beta \quad (3)$$

where

- $0 < \alpha < 1$
- $0 < \beta < 1$

For firms in markets characterized by monopolistic competition, the demand curve faced by the individual firm represents another restriction relating prices and output:

$$Q_i = A(Y) * p_i^{-\sigma} \quad (4)$$

where

Y = aggregate demand

A = strength of demand facing the firm (function of Y)

σ = constant price elasticity of demand

If the market for the firm's output were competitive, $\sigma \rightarrow \infty$, and equation (4) would play no function in determining the optimal investment rate. In other words, there would be no role for aggregate demand. Since practically all empirical studies have found that aggregate demand is a highly significant explanatory variable of investment, we retain equation (4) in the theoretical model.

The first order conditions with respect to p_i and I_0 of maximizing (1) subject to (2) through (4) yield an equation of the following form:

$$I/K = f(\Delta Y/Y, \Delta c/c, \Delta w/w) \quad (5)$$

where $c = r + \delta$

So far, this model does not incorporate the stylized facts of developing countries. We will take into account three of these stylized facts. In the first place, in developing countries the lack of public infrastructure acts as a constraint on private investment projects and lowers their profitability. Second, credit tends to be rationed in all economies, but more so in developing countries, either because of "financial repression" or because informational asymmetries and poorly developed capital markets cause the market for investment funds to be typically in situations of disequilibrium. Third, foreign exchange availability often acts as an additional constraint to investment in countries where a large share of investment takes the form of imported capital goods and where foreign exchange is in chronic shortage.³

³ The "two-gap" model of development popular in the 1960s but practically ignored in the recent literature was an effort to incorporate this idea into the analysis of investment in developing countries.

The existence of an infrastructure externality of public capital on private firms can be easily incorporated into the theoretical structure developed above. All that is needed is to introduce (the relevant) public capital into the firm's production function (3):

$$Q_i = KG_i^\tau * K_i^\alpha * L_i^\beta \quad (3a)$$

where KG = public capital; $0 < \tau < 1$

One explanation of credit rationing relies on the view that financial markets do not differ much from any other market and that financial constraints to investment arise because of government intervention in credit markets. Economists such as McKinnon and Shaw tend to stress the existence of various symptoms of "financial repression", including the fixing of nominal interest rates below the rate of inflation (for a recent exposition, see McKinnon, 1991, chapters 2-4). The presumption behind this approach is that, if offered positive real interest rates on financial saving, households would increase their saving through financial institutions. Financial repression implies that credit markets are in excess demand and that firms face credit rationing. Therefore, an increase in interest rates following internal financial liberalization will increase the funds available for investment and will cause investment to rise.⁴

An alternative approach considers that disequilibrium is endemic to capital markets, even in the absence of government intervention. According to this view, capital markets are different from other markets in that they are rife with informational asymmetries which give rise to moral hazard and adverse selection. That is, as banks raise their interest rates, they attract riskier loans with a lower probability of repayment. Therefore, banks (everywhere, and not just in developing countries) tend to ration credit and charge lower-than-market-clearing interest rates (Stiglitz and Weiss, 1981; and Stiglitz, 1994). In the process, many privately and socially profitable investment projects are rationed out of the market. Credit rationing is likely to be an even greater constraint to investment in developing than in developed countries, because the importance in the economy of small firms without collateral is greater in the former than in the latter countries. Moreover, in developed countries large firms have alternatives to bank credit in the form of securitized borrowings from capital markets which are not open to firms in developing countries.

⁴ For a discussion of the conditions that must be present to validate the McKinnon-Shaw hypothesis, see Morisset (1993). There is a more sophisticated version of this view of the world which stresses institution-building and institutional innovation rather than mere liberalization. According to this approach, an important constraint on investment in developing countries is the undeveloped nature of capital markets. If capital markets, and financial intermediation in general, were deeper, both saving and investment would rise (King and Levine, 1993).

There is little question that, until the liberalizations of the 1980s (1970s in Chile), financial repression was a trait of practically all Latin American financial markets. Since then, there has been a significant amount of financial liberalization, to the point where it is difficult to speak of financial repression under current circumstances. Financial repression - e.g., directed credits, preferential interest rates for favored borrowers, and interest rate ceilings on deposits - was also present in several of the East Asian countries for a good part of the period under review (see World Bank, 1993, chapter 2).

It is difficult to settle the dispute between those who point to financial repression as the cause for low investment and those who claim that financial markets are everywhere characterized by credit rationing, since both hypotheses lead to similar empirical results. These two possible sources of credit rationing imply that firms suffering from it are in a disequilibrium situation (i.e., their desired rate of investment is higher than the one they can achieve owing to the existence of credit rationing). Theoretically, when investment is constrained by the availability of credit, this supersedes the equilibrium relationship (5) by the following:

$$I = CR/v \quad (6)$$

where

CR = finance available (internal financing, net credit, and new equity capital)

Likewise, firms may be operating in a disequilibrium situation owing to the existence of a foreign exchange constraint. In this case, the investment function is displaced by:

$$I = (e * F) / \Phi \quad (7)$$

where

F = availability of foreign exchange (in foreign currency)

e = exchange rate (units of domestic currency per unit of foreign currency)

Φ = proportion of imports in total investment

Finally there is the issue of uncertainty. The mainstream theory of investment assumes that the returns from investment are known with certainty. However, investment involves a large element of sunk costs (markets for used capital goods are thin or non-existent, particularly in developing countries) against uncertain returns. Therefore, the degree of relative price uncertainty should have an impact

on investment even when the expected value of returns for an individual investor remain unchanged (Pindyck, 1993; Caballero, 1993; and Hubbard, 1994).

If one assumes that a certain proportion of firms are affected by credit rationing, another by foreign exchange availability, with the remaining firms being unconstrained, one can posit an investment equation that can be tested empirically and which contains the variables in the equilibrium relationship as well as those that appear in the disequilibrium models. In our case, this assumption is appropriate, for both theoretical and empirical reasons. Large firms are likely to be unconstrained by either foreign exchange or credit availability, with the brunt of these restrictions falling on small firms. From an empirical point of view, the estimations we conduct using panel data for several countries also seem to lend themselves to heterogeneous situations such as those assumed here. If one also includes (in an ad hoc manner) a variable reflecting relative price uncertainty (e.g., the variance of the real exchange rate, $\text{var } e^*$), the appropriate investment equation is:

$$I/K = g [\Delta Y/Y, \Delta c/c, \Delta w/w, IG/K, CR/v \cdot K, (e \cdot F/\Phi \cdot K), \text{var } e^*] \quad (5a)$$

where

- IG = public investment (d KG/dt)
- e^* = $e (p^*/p)$
- p = domestic price level
- p^* = foreign price level

In the econometric estimates discussed in section V, we use the ratio of external debt to the value of exports of goods and services and the terms of trade as proxies for the foreign exchange constraint. For the Latin American countries, the sharp increase in debt toward the end of the seventies and into the 1980s led to a drastic reduction in capital inflow. Therefore, the use of debt is appropriate. We scale the level of external debt to exports rather than GDP, as recent studies have done (e.g., Servén and Solimano, 1993; and Larraín and Vergara, 1993), since exports are a more accurate indicator of the ability to meet external payments. In countries which typically export one or two commodities and import a wide range of manufactures (as is the case of most Latin American countries), the terms of trade are an important determinant of foreign exchange availability. The terms of trade also have an impact on the ability of governments to finance complementary public investment: public enterprises are exporters in a number of countries (Venezuela, Mexico and Chile), and/or taxes on foreign trade are an important source of government revenue. Therefore, a deterioration in the terms of trade could have an adverse impact on private investment through the indirect route of impairing the ability of governments to finance complementary public investment.

4. DETERMINANTS OF INVESTMENT IN LATIN AMERICA AND ASIA

We next examine the data available on some of these potential determinants of investment for the eight Latin American countries in our sample, and we compare their values with those for the five outward-oriented exporters of manufactures of Asia. The variables examined are the rate of growth of GDP, the real interest rate, the ratio of the stock of bank credit to the non-bank private sector to GDP, the ratio of foreign debt to exports, and the coefficient of variation of the real exchange rate.

TABLE 4
LATIN AMERICA AND ASIA: RATES OF GROWTH OF REAL GDP
(Percentage)

	1968-72	1973-77	1978-82	1983-87	1988-92
Latin America					
Argentina	3.2	2.8	-0.1	1.1	2.7
Brazil	8.8	6.9	2.9	6.1	-0.2
Chile	3.3	--	1.4	5.0	7.1
Colombia	6.5	4.2	3.2	4.4	3.3
Mexico	6.5	4.8	6.1	1.1	3.5
Peru	5.6	3.0	3.5	6.3	-4.2
Uruguay	2.1	3.5	1.0	4.5	3.1
Venezuela	4.7	6.9	-0.1	2.7	3.9
Unweighted average	5.1	4.0	2.2	3.9	2.4
Coef. of variation	0.41	0.52	0.88	0.49	1.29
Asia					
Indonesia	7.5	7.1	6.5	6.4	7.0
Malaysia	8.2	7.0	7.4	3.2	9.0
Rep. of Korea	9.4	9.5	4.8	10.2	7.1
Singapore	13.3	6.4	8.9	4.4	7.5
Thailand	6.8	7.1	5.1	6.2	11.0
Unweighted average	9.0	7.4	6.5	6.1	8.3
Coef. of variation	0.25	0.14	0.23	0.39	0.18

Source: Author's calculations, based on data provided by CEPAL and World Bank, *World Tables*.

As shown in table 4, there has been a steady decline in the rates of growth of GDP in all of the eight Latin American countries with the exception of Chile. This decline predates the debt crisis, although it acquired considerable momentum with its onset. Moreover, in most countries there was no recovery in growth with the relief that took place in their external accounts beginning in the late 1980s. Another interesting phenomenon is the increasing dispersion of growth rates across countries, indicating that growth has become increasingly differentiated. Thus, clearly, one of the causes for the failure of private investment in Latin America to increase has been the secular deterioration in growth performance. Of course, the two factors feed upon each other in a sort of vicious circle: low investment leads to slow growth and poor growth prospects prevent investment from rising.

Table 4 also shows that the dynamic exporters of manufactures in Asia have been able to maintain consistently higher growth rates than those of the Latin American countries. Moreover, the decline in growth rates in the late 1970s and early 1980s was considerably more moderate and short-lived. The dispersion of growth rates has also been significantly smaller in Asia, indicating that the five countries broadly shared in the strong growth performance.

Therefore, the first, and probably most important, factor to highlight as explaining the difference in investment rates between the manufactures exporters of Asia and the Latin American countries is the difference in growth performance. The Asian countries were able to enter upon a virtuous circle in which growth and investment fed upon each other; and this virtuous circle was unbroken during the 1980s. By contrast, with few exceptions, the Latin American countries were unable to do the same, and those countries that had generated a significant growth momentum during the 1960s and 1970s (Brazil, Colombia, Mexico, and Venezuela) were derailed by the debt crisis of the 1980s.

Real interest rates in these countries have been either strongly negative, very high, or quite erratic (see table 5). Neither negative nor very high real interest rates are favourable to investment (see Díaz-Alejandro, 1985). Negative real rates are usually associated with severe credit rationing, which lends itself to rent seeking and corruption in the allocation of credit. On the other hand, very high real rates, usually associated with the relaxation of controls over domestic financial transactions, transfer income from entrepreneurs to rentiers and discourage productive investment while encouraging speculation: projects with "normal" rates of return are not profitable at extremely high real interest rates (say, exceeding 10 per cent); and the only "investments" that have yields in excess of the interest rate are speculative ones, which thus tend to crowd out productive investments. Finally, domestic financial liberalization may lead to another form of crowding out of productive private investment: in financially repressed economies, there are borrowing constraints on the purchase of consumer durables; the lifting of such constraints leads to an increase in the demand for consumer credit, raising interest rates and crowding out productive investment.

The data in table 5 lead to the presumption that the interest rate must have played a secondary role in the determination of private investment ratios in these countries. There appears to be a relationship between interest rates and investment only in the case of Chile, where sharp declines in real interest rates since the early 1980s could have been a factor facilitating the significant increase exhibited by private investment.

TABLE 5
LATIN AMERICA AND ASIA: REAL INTEREST RATES*
(Percentage)

	1968-72	1973-77	1978-82	1983-87	1988-92
Latin America					
Argentina	..	-14.1	-8.6	-1.5	48.3
Brazil	1.5	-8.5	-18.1	14.2	185.7
Chile	..	60.9	29.3	11.3	10.9
Colombia	4.9	-2.0	9.1	14.9	12.0
Mexico	..	6.0	-8.1	-12.0	9.2
Peru	-3.8	-16.5	-21.4	-29.4	33.0
Uruguay	..	14.0	16.2	16.6	27.2
Venezuela	..	1.3	-2.8	-5.7	-11.4
Asia					
Indonesia	6.1	-9.8	0.6	5.1	4.7
Malaysia	2.2	-4.0	-1.7	5.4	1.1
Rep. of Korea	9.9	2.7	0.9	7.5	5.8
Singapore	..	2.1	3.0	2.5	-6.4
Thailand	..	0.7	2.9	8.2	4.5

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

* Money market lending rates minus the annual rate of increase in consumer prices.

Although real interest rates turned moderately negative briefly in 1973-1977 (suggesting the presence of financial repression), by and large, the dynamic Asian countries avoided the Scylla of negative real interest rates and the Carybdis of very high real rates. It is impossible to tell to what extent this was due to controlled (i.e., "repressed") financial markets, as is sometimes claimed, at least for Korea (see Amsden and Euh, 1993), or to prudent macroeconomic management. Whatever the case may be, it is clear that real interest rates were supportive of

larger volumes and a greater productivity of investment in Asia than in Latin America.

TABLE 6
LATIN AMERICA AND ASIA: BANK CREDIT TO THE PRIVATE SECTOR
(Percentage of GDP)

	1968-72	1973-77	1978-82	1983-87	1988-92
Latin America					
Argentina	21.9	22.7	30.7	21.7	20.7
Brazil	30.3	51.0	46.4	45.7	44.7
Chile	9.3	11.6	49.8	72.1	60.7
Colombia	17.8	25.4	30.5	37.2	32.7
Mexico	32.9	27.9	19.0	14.3	24.2
Peru	18.0	18.8	14.2	16.4	9.9
Uruguay	15.0	20.1	41.9	50.0	34.9
Venezuela	28.8	41.9	58.5	55.6	31.9
Asia					
Indonesia	8.2	11.7	10.5	18.0	33.4
Malaysia	18.2	25.1	36.1	58.3	65.6
Rep. of Korea	33.2	34.5	39.1	51.6	57.1
Singapore	44.6	57.2	69.7	89.4	86.3
Thailand	18.7	24.5	30.6	43.4	57.3

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

If interest rates have not played a role in the behaviour of private investment, it is likely that credit rationing has. We use the provision of bank credit to the non-bank private sector (in nominal terms) as a share of GDP as a proxy for this variable.⁵ As can be seen in table 6, the share of bank credit to the private sector in GDP is quite low in almost all Latin American countries. Since the beginning of the debt crisis, it has declined in most countries, owing to the impact of high inflation on real money balances (as liquidity preference falls sharply with the increase in inflation) and to efforts to combat the inflationary consequences of internal and external disequilibria through tight money. Since the late 1980s, credit to the private sector as a ratio to GDP has declined in Chile and Colombia, owing

⁵ In the case of the Latin American and some Asian countries, the high rates of inflation prevailing during most of the period and particularly during the 1980s lend an upward bias to this indicator, since the credit variable is a stock valued at the end of each year and GDP is a flow variable valued at average prices for the same year. In order to correct this bias, we took the geometric average of the stocks of credit at the end of the year and at the end of the preceding year.

to attempts to sterilize the accumulation in reserves associated with the return of private international capital flows (see Ocampo and Steiner, 1994; Agosin, Fuentes, and Letelier, 1994; and Cárdenas and Barrera, 1994).

In this respect, the Asian countries also provide a strong contrast. While in 1968-1972 the ratios of bank credit to the private sector to GDP in the Asian countries were similar to those observed in the Latin American countries, in Asia the ratios show a steady increase and now far exceed those in Latin America. There may be several explanations for this difference. In the first place, macroeconomic policies have been steadier in Asia, and inflation rates have been lower. No Asian country has experienced the hyperinflations that were widespread in Latin America in the 1980s. As a result, the Asian countries have not had to contend with the disruptions to their financial sectors usually associated with hyperinflation. Moreover, these economies have not required the large periodic doses of financial stringency that have been characteristic of the Latin American countries. Thus, the availability of credit has been less of a constraint to the steady rise in investment ratios in Asia than in Latin America.

TABLE 7

LATIN AMERICA AND ASIA: RATIO OF EXTERNAL DEBT TO EXPORTS OF GOODS AND SERVICES
(Percentage)

	1968-72	1973-77	1978-82	1983-87	1988-92
Latin America					
Argentina	257.6	188.9	296.8	559.7	472.3
Brazil	201.1	251.5	364.3	410.0	332.1
Chile	176.6	133.3	165.5	271.3	212.5
Colombia	249.3	220.8	268.3	404.8	179.6
Mexico	208.8	270.1	304.8	368.4	293.6
Peru	241.4	313.5	281.4	373.3	469.2
Uruguay	120.9	130.6	125.0	301.3	340.4
Venezuela	41.4	41.7	162.7	270.9	233.4
Asia					
Indonesia	327.6	165.3	116.7	205.0	258.4
Malaysia	54.6	45.2	68.3	130.7	61.6
Rep. of Korea	256.9	150.1	157.0	136.8	55.4
Singapore	7.4	4.6	2.8	1.0	0.1
Thailand	118.3	82.1	144.4	212.4	124.8

Source: Author's calculations, based on data provided by CEPAL and World Bank, *World Tables*.

As already noted, the ratio of external debt to export earnings is a candidate for explaining Latin America's low and declining investment rates in the 1980s.⁶ Moreover, the lower incidence of the debt problem in the dynamic Asian economies could also be of significance in explaining why the latter have been able to maintain considerably higher investment rates than the Latin American countries. As shown in table 7, the debt-export ratio grew sharply in all Latin American countries up to the mid-1980s, and, again with the exception of Chile, declined only moderately in the most recent period. In the Asian countries, by contrast, average debt-export ratios have been significantly lower. In fact, in several countries (Malaysia, Republic of Korea and Thailand), debt-export ratios have tended to decline over the last decade.

TABLE 8
LATIN AMERICA AND ASIA: COEFFICIENTS OF VARIATION OF
REAL EXCHANGE RATES*
(Percentage)

	1968-72	1973-77	1978-82	1983-87	1988-92
Latin America					
Argentina	18.9	25.3	35.8	20.8	9.7
Brazil	1.5	2.9	4.0	17.5	17.5
Chile	23.8	33.1	5.7	12.2	8.4
Colombia	0.9	6.8	3.4	13.4	3.2
Mexico	1.7	10.8	9.7	6.9	11.9
Peru	2.0	7.1	8.7	24.0	23.2
Uruguay	10.3	10.0	11.8	8.9	11.5
Venezuela	0.3	2.4	6.3	16.7	12.0
Asia					
Indonesia	4.3	16.2	11.9	11.6	2.1
Malaysia	2.9	4.9	5.2	2.4	5.1
Rep. of Korea	3.2	5.1	4.9	4.0	5.1
Singapore	2.5	6.3	2.5	1.3	8.8
Thailand	1.2	1.9	1.9	5.1	4.6

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

* The real exchange rate is defined as the nominal price for the US dollar deflated by the consumer price index and inflated by the US wholesale price index.

⁶ By now there is consensus that the debt crisis has had protracted effects on investment and growth in Latin America. For a thorough analysis, see Amadeo (1993).

Finally, the variability in relative prices (as proxied by the coefficient of variation of the real exchange rate) has been quite high in Latin America, and it has been considerably higher than in Asia (table 8). As already discussed, instability is likely to affect investment adversely by raising the uncertainty of returns. Practically all Latin American countries exhibit high coefficients of variation of the real exchange rate for the entire period since the late 1960s or for parts thereof. Brazil, Colombia, Peru and Venezuela, which had been able to maintain relatively stable real exchange rates up to the early 1980s, show a considerable deterioration in this indicator beginning in the period since 1983. On the other hand, the variability of the real exchange rate diminishes significantly over time in Chile. It is suggestive that the investment ratios of the former countries have tended to decline, while that of the latter exhibits a strong increase.

In the Asian countries, the coefficients of variation of the real exchange rate have been considerably and consistently lower. Three reasons can be advanced for this difference. In the first place, the Asian countries export manufactures and, hence, their terms of trade are more stable than those of the commodity-exporting Latin American countries. Second, the greater degree of price stability in the Asian countries has led to less volatility in relative prices.⁷ Third, and perhaps most importantly, controls on capital inflows have been more widespread and more successful in several of the Asian countries.

5. MODELING PRIVATE INVESTMENT IN LATIN AMERICA AND ASIA

For estimation purposes, equation (5a) has been turned into the following equation explaining the ratio of private investment to GDP:

$$\ln I/Y = h[(\Delta Y/Y)_{-1}, \ln CR/Y, \ln D/X, \ln IG/Y, \ln (p_x/p_m), r, \ln \text{var} (\Delta P/P)] \quad (5b)$$

where

$(\Delta Y/Y)_{-1}$	=	growth in aggregate demand, lagged one year
D	=	stock of external debt
X	=	exports of goods and services
p_x	=	export prices
p_m	=	import prices
$\text{var} (\Delta P/P)$	=	variance of the annual inflation rate

⁷ We are aware of the fact that the price level is a nominal variable which, under certain commonly made assumptions, would not affect real variables. However, price volatility definitely affects the nominal exchange rate; and variations in the latter have been shown to affect the real exchange rate (Krugman, 1989).

In this equation, which is straightforward enough, the real (lending) interest rate is used rather than the user cost of capital because the latter is difficult, if not impossible, to estimate. The variance of inflation was used as a proxy for instability in relative prices because it worked better than the coefficient of variation in the real exchange rate in the estimations of the model. It was calculated around a three-year moving average (the current value and two lags) of the inflation rate.

TABLE 9

EQUATIONS EXPLAINING PRIVATE INVESTMENT
IN LATIN AMERICA AND EAST ASIA
[Method of estimation: OLS; dependent variable: $\ln(I/Y)$]

Explanatory variables	Latin America			East Asia		
	(1)	(2)	(3)	(4)	(5)	(6)
$(\Delta Y/Y)_{t-1}$	1.018 (2.85)	1.111 (3.25)	1.106 (3.25)	1.140 (1.76)	1.107 (1.77)	1.067 (1.68)
$\ln(CR/Y)$	0.109 (2.87)	0.106 (2.91)	0.090 (2.93)	0.280 (4.30)	0.332 (5.12)	0.328 (5.00)
$\ln(D/X)$	-0.130 (-3.64)	-0.127 (-3.71)	-0.123 (-3.61)	0.068 (2.63)	0.087 (3.39)	0.087 (3.36)
$\ln(IG/Y)$	-0.128 (-2.81)	-0.110 (-2.53)	-0.116 (-2.65)	-0.141 (-2.17)	-0.208 (-3.13)	-0.204 (-3.03)
$\ln(p_x/p_y)$		-0.189 (-4.02)	-0.172 (-3.55)		0.314 (3.01)	0.310 (2.94)
$\ln \text{var}(\Delta p/p)$			-0.034 (-1.46)			-0.005 (-0.45)
Adj. R^2	0.626	0.662	0.666	0.566	0.604	0.605
N	168	168	168	105	105	105

Source: Author's calculations.

Notes: t-ratios in parenthesis; coefficients of country dummy variables omitted.

The above equation was estimated separately for the eight Latin American and five Asian countries by OLS and SUR (seemingly unrelated regressions) methods, using annual panel data for the period 1970-1990. Dummy variables for each country were used in order to capture individual country effects. The main results are presented in tables 9 and 10, omitting the dummy variables. The results are

quite interesting and shed some light on why private investment rates have been much higher in East Asia than in Latin America. The SUR regressions were run in order to correct for the possible existence of intercountry heteroskedasticity in the OLS regressions, since all countries in a region could be subject to more or less similar external shocks, the debt crisis in Latin America being a case in point.

TABLE 10

EQUATIONS EXPLAINING PRIVATE INVESTMENT IN
LATIN AMERICA AND EAST ASIA
[Method of estimations: SUR; dependent variable: $\ln(I/Y)$]

Explanatory variables	Latin America			East Asia		
	(1)	(2)	(3)	(4)	(5)	(6)
$(\Delta Y/Y)_{-1}$	0.269 (0.96)	0.242 (0.91)	0.391 (1.53)	0.898 (1.84)	0.745 (1.51)	0.752 (1.46)
$\ln(CR/Y)$	0.065 (2.27)	0.076 (2.77)	0.083 (2.76)	0.361 (5.86)	0.505 (6.59)	0.503 (6.60)
$\ln(D/X)$	-0.085 (-2.58)	-0.113 (-3.56)	-0.144 (-4.61)	0.072 (4.37)	0.095 (5.37)	0.095 (4.93)
$\ln(IG/Y)$	0.272 (7.56)	0.280 (8.31)	0.278 (9.24)	-0.522 (-6.17)	-0.582 (-6.76)	-0.573 (-6.48)
$\ln(p_x/p_y)$		-0.384 (-7.08)	-0.514 (-9.62)		0.463 (5.18)	0.469 (5.27)
$\ln \text{ var } (\Delta p/p)$			-0.030 (-2.06)			0.001 (0.17)

Source: Author's calculations.

Note: t-ratios in parenthesis; coefficients of country dummy variables omitted.

In the OLS regressions, for the Latin American countries, the lagged growth in aggregate demand, the ratio of domestic credit to GDP, and the ratio of external debt to GDP have the expected signs and are highly significant. On the other hand, the coefficient of the ratio of public investment to GDP is very significant but has the "wrong" sign, something which also happens in the regressions for Asia. On the other hand, in the SUR regressions for Latin America, the negative sign of the public investment coefficient turns positive and is highly significant.

It is interesting that, generally, public investment turns out not to be unambiguously related to private investment in the way the theoretical model hypothesizes.⁸ It could be that public investment, the way it is defined in the national accounts, is not the relevant variable and that one needs to use a more restrictive concept (e.g., investment in infrastructure). Or it could be that, simply, the "externality" effect of public investment is outweighed by the "crowding out" effect, working through the availability of either credit or foreign exchange. However, the crowding out impact relates not to public investment but to public expenditure generally. Therefore, future research ought to include tests of whether government investment has a different impact on private investment than government consumption; or whether, once one takes into account the crowding-out effects of public deficits, the effect of government investment turns positive.

The results also suggest that, in Latin America, improvements in the terms of trade are adverse for private investment. This is somewhat of a puzzle, since an improvement in the terms of trade can be expected to relieve the foreign exchange constraint and lead to higher private investment. One possible interpretation of the negative partial correlation between the terms of trade and private investment is that it reflects a Dutch-disease type of phenomenon, with private investment increasing in sectors other than the major commodity export when the terms of trade deteriorate, while investment in the major export sector remains unchanged. The opposite would be the case when the terms of trade improve.⁹ In the SUR estimations, the significance of the terms of trade improves, and the absolute value of the coefficient grows, strengthening the conclusions derived from the OLS regressions.

The contrast with East Asia is telling. In the East Asian case, domestic credit is also very significant, has the expected sign, and is quantitatively even more important than for Latin America. On the other hand, the ratio of debt to exports is significant but positively correlated with private investment, both in the OLS and SUR regressions.¹⁰ This suggests that, for this group of countries, there was no debt crisis. On the contrary, rising external debt provided greater access to financial resources which simultaneously relieved both the credit and foreign exchange constraints.

⁸ In this respect, our results are different from those of some other recent studies (Servén and Solimano, 1993; and Larraín and Vergara, 1993), which consistently obtain positive and significant coefficients for the public investment ratio.

⁹ This is the interpretation that De Gregorio (1992) gives for the lack of significance of the terms of trade in his equations explaining long-run growth in Latin America. His hypothesis is that the favorable effect on growth of improving terms of trade, via relieving the foreign exchange constraint, is a short-term phenomenon which is cancelled out in the long term by a Dutch-disease effect.

¹⁰ Here again our results are at variance with those of Larraín and Vergara (1993), who obtain a negative and significant coefficient for the ratio of debt to GDP.

With regard to the terms of trade, the coefficient in the equations for East Asia was significant, but with a positive sign. No Dutch disease for this group of countries. In most of them, exports are diversified over a wide spectrum of manufactures.¹¹ Therefore, improvements in the terms of trade have two reinforcing positive effects: they raise the profitability of the most dynamic sector of the economy and increase the availability of foreign exchange.

The interest rate was not a significant variable in any of the private investment equations, and therefore it was omitted. The insignificance of the interest rate is weak evidence in favor of the Stiglitz hypothesis of pervasive credit rationing. If credit rationing were the result of "financial repression" (as posited by McKinnon-Shaw), one would have expected that both the interest rate and the availability of credit would have been significant explanatory variables of private investment, with the interest rate having a positive coefficient. Of course, we cannot rule out the possibility that the interest rate chosen is not the appropriate one, or that the cost of capital is not adequately represented by the variable used.

The estimated equations for Latin America suggest that private investment is negatively influenced by the variance of inflation, particularly in the SUR equations. In the case of the East Asian countries, the significance of the coefficient attached to inflation instability is nil. Thus, instability seems to affect investment, particularly when it exceeds a certain threshold. The level of inflation was also tried as an explanatory variable, but proved to be not significant. The impact of inflation on private investment seems to be mediated by the credit variable: when inflation is high, credit availability in real terms tends to decline, which affects investment adversely.

How do these results compare with those of other empirical research on the same subject? Rama (1993) summarizes this research. Most studies find that private investment is positively correlated to income growth (also usually lagged), to credit availability, and to a wide variety of proxies for the foreign exchange constraint (e.g., level of reserves or exports). Many studies either do not include relative prices or come to differing results. The results of this study lend credence to theories that stress the need to include a broader set of variables in the analysis of investment in developing countries than is customary and than those included in analyses of the same issue in developed countries. It also finds that there are substantial structural differences between Latin America and East Asia which account for a good part of the difference in investment performance, this difference being a major explanation for divergences in growth performance. Thus, the effects on investment of some explanatory variables as between the two regions are quite

¹¹ This is more so in Korea, Singapore and Thailand than in Indonesia or Malaysia, where raw materials are still important contributors to export earnings. Nonetheless, in both countries manufactures have been increasing their participation in export earnings at a very fast rate.

different: witness the findings with regard to the changes in the terms of trade, debt-to-export ratios, and public investment.

6. CONCLUSIONS AND POLICY IMPLICATIONS

The protracted debt crisis that affected the Latin American countries in the 1980s had lasting effects on investment through various channels. In the first place, the direct impact on private investment was compounded by an indirect effect through the decline in growth. Secondly, complementary public investment was also adversely affected by the need to institute stringent fiscal adjustment measures to tackle internal and external disequilibria. Third, the balance-of-payments crisis of the 1980s made it imperative for the monetary authorities to put in place restrictive monetary and credit policies, with further adverse consequences for the rate of private investment. The debt crisis brought to a halt the long-term upward trend in investment ratios of several economies.

In more recent years, the economic environment has not improved much, in spite of pro-market reforms and large capital inflows: with few exceptions, growth is still slow, and economic instability has not been achieved on a durable basis (as witnessed by the recent Mexican crisis). Exchange rates continue to fluctuate very widely in real terms. Structural change rendering the economy more resilient to external shocks and more able to sustain long-term rapid growth has also been slow: by and large, export earnings continue to depend on a few primary commodities.

By contrast, the Asian countries have been able to increase domestic investment in a secular fashion. In the dynamic Asian economies, there was no external shock arising from the debt crisis, and increases in external indebtedness relieved foreign exchange and domestic credit constraints. In the Asian countries public investment has not declined. Increases in private investment have gone hand in hand with increases in public investment. In all Asian countries, there has been a steady increase in the ratio of credit to the private sector to GDP. In other words, the large swings in this variable that can be observed in Latin America are absent in Asia, where financial deepening has not been interrupted by hyperinflation or by the need to impose overly tight monetary policies. In Asian countries, the commodity composition of exports has become increasingly diversified and has continued to evolve toward manufactures with high income elasticities of demand. Finally, all of the Asian countries have attained considerably greater real exchange rate stability than the Latin American countries, and this has reduced the uncertainty of investment decisions.

The results reported in this paper have important policy implications. In the first place, macroeconomic stability is essential for achieving a permanent increase in investment. The availability of credit tends to decline when governments

implement anti-inflationary policies, and the protracted nature of the inflationary phenomenon in Latin America has required repeated doses of monetary stringency over long periods. In addition, it is difficult to pursue policies of financial deepening in unstable environments and when liquidity preference is declining as a consequence of inflation.

The significance of credit rationing in the private investment equations carries other interesting policy implications. Most Latin American economies can no longer be described as financially repressed. However, sources of funds external to the firm continue to be very inadequate. The promotion of deeper capital markets through institutional innovation is a step in the right direction. However, it is likely to be insufficient, since it does not solve the basic problems that give rise to credit rationing. A need will remain for supplementing private capital markets in the provision of investment funds. Owing to their inability to provide adequate collateral, the problems faced by small and medium-sized firms in obtaining access to investment financing are particularly acute. In this regard, Latin American countries need to take a fresh look at the possibilities offered by public development banks.

Finally, greater stability in the real exchange rate will require greater control of international capital movements, particularly those which are of a speculative nature. It can be argued that the liberalization of the capital account has been taken too far in many countries. Large fluctuations in capital inflow have large effects on the real exchange rate - and on economic uncertainty. Besides, the recent phenomenon of the very rapid growth of firms' indebtedness in dollars has introduced a direct - and undesirable - link between exchange rate fluctuations and the liquidity position of the firm. When firms face credit rationing and must finance investments from internally generated funds, an increase in the volatility of their liquidity positions is bound to affect investment adversely. The implications are that what is needed - again, taking a lesson from the successful Asian countries - is a much greater degree of pragmatism with respect to the liberalization of international capital flows than has been in evidence in the recent economic reforms implemented in many countries of the region.

REFERENCES

- AGOSIN, M. R., J. R. FUENTES, y L. LETELIER (1994): "Los Capitales Extranjeros en las Economías Latinoamericanas: El Caso de Chile", en J. A. Ocampo (editor), *Los Capitales Extranjeros en las Economías Latinoamericanas*, Red de Centros de Investigación Económica Aplicada, Inter-American Development Bank and FEDESARROLLO, Bogotá.
- AMADEO, E. (1993): "Adjustment, Stabilization, and Investment Performance: Chile, Mexico, and Bolivia", en E. L. Bacha (editor), *Savings and Investment Requirements for the Resumption of Growth in Latin America*, Centers for Research in Applied Economics, Inter-American Development Bank and Pontificia Universidade Católica do Rio de Janeiro, Washington, D.C.
- AMSDEN, A. H., y Y. D. EUH (1993): "South Korea's 1980s Financial Reforms: Good-bye Financial Repression (Maybe), Hello New Institutional Restraints", *World Development*, Vol. 21; 3.
- CABALLERO, R. J. (1993): "On the Dynamics of Aggregate Investment", en L. Servén and A. Solimano (editors), *Striving for Growth after Adjustment - The Role of Capital Formation*, World Bank, Washington, D.C.
- CARDENAS, M. y F. BARRERA (1994): "Efectos Macroeconómicos de los Capitales Extranjeros", en J. A. Ocampo, (editor), *Los Capitales Extranjeros en las Economías Latinoamericanas*, Red de Centros de Investigación Económica Aplicada, Inter-American Development Bank and FEDESARROLLO, Bogotá..
- CARDOSO, E. (1993): "Macroeconomic Environment and Capital Formation in Latin America", in L. Servén and A. Solimano (editors), *Striving for Growth after Adjustment - The Role of Capital Formation*, World Bank, Washington, D.C.
- DE GREGORIO, J. (1992): "Economic Growth in Latin America", *Journal of Development Economics*, Vol. 39, July.
- DIAZ-ALEJANDRO, C. F. (1985): "Good-bye Financial Repression, Hello Financial Crash", *Journal of Development Economics*, Vol. 19, No. 1/2, September-October.
- FISHLOW, A. (1991): "Some Reflections on Comparative Latin American Economic Performance and Policy", en T. Banuri (editor), *Economic Liberalization: No Panacea*, Clarendon Press, Oxford.
- HUBBARD, H. G. (1994): "Investment under Uncertainty: Keeping One's Options Open", *Journal of Economic Literature*, Vol. 32, December.
- KING, R. G., and R. LEVINE (1993): "Finance and Growth: Schumpeter Might be Right", *Quarterly Journal of Economics*, Vol. 58, No. 3, August.

- KRUGMAN, P. R. (1989): *Exchange Rate Instability*, The MIT Press, Cambridge, Mass., and London.
- LARRAÍN, F., y R. VERGARA (1993): "Inversión y Ajuste Macroeconómico: El Caso del Este de Asia", *El Trimestre Económico*, No. 238, April-June.
- McKINNON, R. I. (1991): *The Order of Economic Liberalization*, The Johns Hopkins University Press, Baltimore.
- MORISSET, J. (1993): "Does Financial Liberalization Really Improve Private Investment in Developing Countries?", *Journal of Development Economics*, Vol. 40.
- OCAMPO, J. A., y R. STEINER (1994): "Los Capitales Extranjeros en las Economías Latinoamericanas", en J. A. Ocampo (editor), *Los Capitales Extranjeros en las Economías Latinoamericanas*, Red de Centros de Investigación Económica Aplicada, Inter-American Development Bank and FEDESARROLLO, Bogotá.
- PINDYCK, R. S. (1993): "Irreversibility, Uncertainty, and Investment", en L. Servén and A. Solimano (editors), *Striving for Growth after Adjustment - The Role of Capital Formation*, World Bank, Washington, D.C.
- RAMA, M. (1993): "Empirical Investment Equations for Developing Countries", en L. Servén and A. Solimano (editors), *Striving for Growth after Adjustment - The Role of Capital Formation*, World Bank, Washington, D.C.
- SERVEN, L., y A. SOLIMANO (1992): "Private Investment and Macroeconomic Adjustment: A Survey", *World Bank Research Observer*, Vol. 7, January.
- _____ (1993): "Economic Adjustment and Investment Performance in Developing Countries: The Experience of the 1980s", en L. Servén and A. Solimano (editors), *Striving for Growth after Adjustment - The Role of Capital Formation*, World Bank, Washington, D.C.
- STIGLITZ, J. E. (1994): "The Role of the State in Financial Markets", *Proceedings of the World Bank Annual Conference on Development Economics 1993*, Washington, D.C.
- STIGLITZ, J. E. y A. WEISS (1981): "Credit Rationing in Markets with Imperfect Information", *American Economic Review*, Vol. 71, June.
- WORLD BANK (1993): *The East Asian Miracle*, Oxford University Press, Washington, D.C.