

3 A tale of two crises

Latin America in the 1980s and the 'HPAEs' in the 1990s

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Introduction

This chapter reviews the Latin American growth disaster of the 1980s and considers its implications for the causes of the Asian financial crisis. The impressive growth performances of a small group of Asian countries made those countries an ideological battlefield (Wade 1996). For those of a neoclassical persuasion, it became important to demonstrate that the so-called miracles achieved their miracles by following orthodox policy dogma, especially 'sound macro fundamentals'. It was equally important to the heterodox school to claim the 'miracles' as their own. When 'show case' countries transubstantiated into 'basket cases' (see Pincus and Ramli 1998), each school sought to an explanation consistent with its particular political economy.

It would be an analytical step forward if one did not find commentators taking predictable positions on the Asian crisis. With few exceptions, those who saw the miracles as paragons of orthodox virtue explain the crisis by an alleged failure to maintain this orthodoxy previously ascribed to them (Corsetti, Pesenti and Roubini 1998). Those of a 'structuralist' persuasion single out the deregulation of capital markets as their perpetrator of preference (Kregel 1998 and Palma 1998). That writers take predictable positions does not make their analysis wrong, but shifts of position take on particular credibility. For example, given his previous work on stabilisation and structural adjustment in Latin America, Poland, and Russia, one would not have expected Sachs to view the Asian crisis from a notably heterodox point of view (for example, Radelet and Sachs 1998).

This chapter does not champion a cause of the Asian crisis. It considers a narrower, empirical issue: can one credibly argue that the failure to follow orthodox macro fundamentals explains the Asian debacle? The answer reached is 'no'. If this is not unexpected, given the author's arguments elsewhere (Weeks 1999), it is potentially productive for the pursuit of causality, which requires some common ground between the two political economies. It may be that the fundamental cause of the crisis was internal, e.g. the putative 'cronyism'; or external, e.g. an inherent instability of international financial markets. Internal or external, the crisis was not a result of bad behaviour on the 'fundamentals'.

In pursuit of the role of 'sound macro fundamentals' in crises, we first review the relative growth records of two groups of countries, eighteen in Latin America

and four so-called high-performing asian economies (HPAEs). The orthodoxy attributes the difference in performance between the Latin American countries and the HPAEs to basic differences in policy-orientation: it holds that the HPAEs pursued sound macro policies, while Latin American governments persisted with 'closed economy', import-substitution regimes characterised by heavy state intervention.¹ This interpretation has been the source of considerable mischief in policy-advice from international organisations. If the Latin American governments failed on the macro basics, while the HPAE governments excelled prior to some crisis period, then it provides a superficial explanation for the Latin American crisis and, by implication, for the later Asian crisis. The Latin American crisis would be explained by unwise policy choices over several decades, and the Asian crisis by deterioration in what had previously been sound policy fundamentals. Errant behaviour by the HPAEs would need to be established empirically but, prior to this, it must be established that the differences between the two groups of countries, before the Asian crisis, can be explained by policy differences.

Inspection of the statistics yields somewhat unexpected conclusions. Some of the oft-quoted 'stylised facts' prove invalid: on average, fiscal deficits were not higher in the Latin American countries, and nor did government expenditure take a significantly larger share of national income. The empirical evidence leads to an inspection of the relative burden of external debt for the two regions. To pursue this point further, the results of a previous modelling exercise are summarised, which support the view that debt service was central to the explanation of Latin America's performance.² At that point, the chapter turns to a discussion of the Asian crisis.

A comparison of the evidence

Growth and exports

The conventional wisdom on the relative performance of Latin American countries and HPAEs is that the latter achieved an outstanding growth record compared to the former on the basis of an 'orthodox' policy framework (World Bank 1993: 2, 5). To sustain or reject this hypothesis, we employ the straightforward statistical technique of the difference-of-means test. The two relevant groups are the eighteen Iberian-American countries (excluding only Cuba) and the four crisis-struck HPAEs: Indonesia, Korea, Malaysia and Thailand.³

Table 3.1 presents the statistics for the rate of growth of gross national product, measured in constant US dollars of 1987. Over the thirty-five years, the mean for all Latin American countries was 3.4 percentage points below the mean for all HPAEs, both for GDP and per capita GDP.⁴ While it is incontestable that the HPAEs grew faster, it is also the case that the difference in growth rates is not statistically significant at the standard 10 per cent level of probability, except for 1980–4. The measurement of the statistically significant difference in means indicates the periods during which the two groups of countries can be treated analytically as behavioural groups. This is clear, for example, for 1970–4 compared to 1980–4. Of the twenty-two countries during 1970–4, the three with the highest

Table 3.1 Growth of real GDP for Latin American and four HPAEs, 1960–94 (constant US\$)

<i>Means and standard deviations</i>	1960–4	1965–9	1970–4	1975–9	1980–4	1985–9	1990–4
Latin America							
Mean	5.2	4.9	5.3	4.1	-0.3	2.3	3.8
Std dev	2.0	1.6	3.4	3.0	2.8	3.1	2.3
HPAEs							
Mean	5.5	7.5	8.0	7.9	6.3	7.3	8.3
Std dev	2.2	2.2	0.6	0.8	0.6	2.3	1.1
Differences in means, significance:	nsgn	nsgn	nsgn	nsgn	0.05	nsgn	nsgn

Note:

For this and subsequent tables, Latin America includes all Spanish speaking countries but Cuba, plus Brazil. The HPAEs are Indonesia, Republic of Korea, Malaysia, Taiwan, and Thailand.

Source: Weeks (2000).

growth rates were in Latin America: Brazil, the Dominican Republic, and Ecuador, leaving Korea to take fourth place. Assume that in this period, the twenty-two had been pooled, and two randomly-selected groups of four and eighteen countries created. The probability is overwhelming that the average growth rates of the two groups would have been virtually the same as for the groups selected on the basis of geography. On the other hand, during 1980–4, the probability is that such a random selection of groups would have produced averages significantly different from the averages based upon geographic location. While the mean growth rates of the HPAEs were above the mean of the Latin American countries, the dispersion of individual countries around their respective means suggests that before the 1980s *the two sets of countries could have been drawn from the same population* (the null hypothesis); selection on the basis of geography does not correspond to selection based upon performance.

The non-significance of differences in growth rates results from the uneven performance of the Latin American countries. In some time periods, some Latin American countries had strong growth performances, but no country had a strong performance across most or all periods. In each period there were Latin American ‘high performers’, but the high performer in one period not infrequently suffered low growth during another period.⁵

Central to the conventional wisdom story of the Asian growth miracle is the claim that the HPAEs exhibited extraordinarily high rates of growth of exports, and that it was this ‘outward orientation’ that in part explains the high GDP growth rates. Table 3.2 demonstrates this point, with an important caveat: *for none of the periods is the difference in means in export growth between Latin America and the HPAEs statistically significant*. This does not contradict the claim that exports grew faster for

the HPAEs. Rather, it indicates the great variation across Latin American countries, and over time for particular countries. In some Latin American countries exports performed well in some periods, while in others the performance was poor.⁶ The same point applies to ‘openness’, measured by the share of exports in GDP (Table 3.3).⁷ On average, the HPAEs had higher export–GDP ratios, *after the 1960s*, but for no time period does the t-statistic approach the required level for statistical significance. Inspection of country data shows that as late as 1970–4 three of the four HPAEs (Indonesia, Korea, and Thailand) had export shares below the *average* for Latin America. In the 1990s Indonesia’s percentage was below that of seven Latin American countries. This does not deny the greater export-orientation of the HPAEs, but suggests that judgements about relative ‘openness’, in the quantitative sense, need to be related to structural characteristics such as size of economies and composition of GDP.⁸

Along with the emphasis on the greater outward orientation of the HPAEs has gone an equally strong supposition that rates of investment were extremely high in those countries. The World Bank (1993) cited high rates of fixed capital investment as a ‘major engine’ of miraculous growth (see also Kuznets 1988).⁹ One finds that during the 1960s, when the HPAEs began their rapid growth, the investment rates for the two regions were virtually the same on average, with the Latin American mean slightly *higher* for both halves of the decade (Table 3.4).¹⁰ In the 1970s, the HPAE mean was above the Latin American, but non-significant. During the debt crisis the situation changed: the difference in means increases in significance, falling below the 10 per cent probability for 1980–4 and 1990–4. On average for the fifteen years 1980–94, the investment rate in the HPAEs was considerably higher than for the Latin American countries, 9 to 13 percentage points, compared to 2 to 3 for the 1970s. Thus it appears that one cannot explain the higher *long-term* growth of the HPAE countries by *long-term* differences in investment rates (i.e. they were substantially higher for less than half the thirty-five year time period). If one had inspected the statistics of the two groups in 1980, the observer would not have been struck by differences in investment rates.

Higher investment rates have been attributed to higher *savings* rates, with the implication that the latter facilitated the former in the HPAEs and, further, that Latin America’s debt crisis in part reflected countries ‘living beyond their means’ in terms of domestic resources. This conclusion derives from a macro framework in which saving is treated in a full-employment, general equilibrium context. If one adopts a quantity-constrained framework, then the level and rate of savings in national income are the *ex post facto* consequence of the rate of autonomous expenditure, of which investment is usually the major component. Several authors have argued that in the HPAEs the high savings rates reflected retained earnings by corporations (Singh 1996), derivative from accumulation, and were not its cause.¹¹ The disagreement over causes may be academic, because the evidence shows that savings rates in the HPAEs were not significantly above those in Latin America until the debt crisis (Table 3.5). As for investment rates, the share of savings in GDP was higher for the Latin American group during the 1960s, and only slightly lower for the 1970s.

Table 3.2 Growth of the volume of exports, Latin America and four HPAEs, 1960–94 (constant US\$)

<i>Means and standard deviations</i>	1960–4	1965–9	1970–4	1975–9	1980–4	1985–9	1990–4
Latin America							
Mean	4.7	5.6	5.9	6.5	0.4	4.2	6.3
Std dev	5.4	3.8	7.0	5.4	6.7	4.7	2.8
HPAEs							
Mean	8.4	13.1	13.2	11.2	6.7	9.0	10.7
Std dev	8.1	12.3	6.4	5.2	5.8	2.0	2.5
Difference in means, significance	nsgn	nsgn	nsgn	nsgn	nsgn	nsgn	nsgn

Source: Weeks (2000).

Table 3.3 Exports as a percentage of GDP for Latin America and four HPAEs, 1960–94 (constant US\$)

<i>Means and standard deviations</i>	1960–4	1965–9	1970–4	1975–9	1980–4	1985–9	1990–4
Latin America							
Mean	17.7	18.3	19.6	22.1	20.3	22.2	22.6
Std dev	7.9	8.6	8.4	9.0	8.1	7.9	9.0
HPAEs							
Mean	19.1	19.7	24.7	31.1	34.8	38.1	43.6
Std dev	17.6	14.6	9.5	12.9	14.2	16.9	22.3
Difference in means, significance	nsgn	nsgn	nsgn	nsgn	nsgn	nsgn	nsgn

Source: Weeks (2000).

Macro policy indicators

The review of growth, export, investment and savings performance between the two groups of countries showed that while the indicators were stronger for the HPAEs, there was substantial variation within groups. It does not appear that these indicators can account for Latin America suffering a crisis in the 1980s, while the HPAEs did not. This raises the question: does the evidence support the conclusion that the HPAEs pursued ‘fundamentally sound macroeconomic policies’ to an extent that Latin American did not?¹² Comparable data on policy variables exist for fiscal deficits, a key measure of ‘sound’ macroeconomic policy. In the orthodox view, slippage on the deficit results in inflation and the crowding out of private investment.

Table 3.4 Gross domestic investment as a percentage of GDP for Latin America and four HPAEs, 1960–94 (current prices)

<i>Means and standard deviations</i>	1960–4	1965–9	1970–4	1975–9	1980–4	1985–9	1990–4
Latin America							
Mean	18.2	19.0	21.4	23.7	20.4	18.8	19.9
Std dev	6.3	4.6	4.5	5.1	4.3	4.8	4.2
HPAEs							
Mean	15.8	18.8	23.7	26.8	29.9	28.6	35.9
Std dev	3.9	6.8	2.9	2.7	3.4	4.2	5.8
Difference in means, significance	nsgn	nsgn	nsgn	nsgn	0.10	nsgn	0.10

Source: Weeks (2000).

Table 3.5 Saving as a percentage of GDP for Latin America and four HPAEs, 1960–94 (current prices)

<i>Means and standard deviations</i>	1960–4	1965–9	1970–4	1975–9	1980–4	1985–9	1990–4
Latin America							
Mean	17.1	18.1	19.4	22.5	19.7	18.5	17.0
Std dev	8.7	8.9	8.9	7.5	6.6	7.0	7.7
HPAEs							
Mean	14.1	17.1	21.7	27.3	27.7	26.2	31.7
Std dev	9.9	10.1	6.2	4.1	4.0	4.1	2.3
Difference in means, significance	nsgn	nsgn	nsgn	nsgn	nsgn	0.10	0.05

Source: Weeks (2000).

The evidence indicates that fiscal deficits in Latin America were not significantly different from those in the HPAEs; indeed, hardly different at all until the second half of the 1980s.¹³ This is shown for the overall fiscal deficit, in Table 3.6, which covers both the current and capital account (including the domestic currency equivalent of foreign debt service). There are no comparable data for the 1960s. The results for the 1970s show that Latin American fiscal deficits were slightly *lower* than for the HPAEs: when the HPAEs began their rapid growth (see Table 3.1), they ran, on average, slightly *higher* deficits than the Latin American countries. If small deficits gain good marks for fiscal management,¹⁴ then the Latin American governments were on average better students of orthodox macroeconomics than

the governments of the HPAEs in the 1970s, and not much worse in the early 1980s. The Latin American fiscal deficits in the 1970s would not appear to be harbingers of the hyper-inflation suffered by several countries in the 1980s. The evidence on deficits implies that it is necessary to reconsider the argument that high inflation in Latin America resulted from the excesses of 'populist' macroeconomics. During some years some Latin American governments ran large fiscal deficits; most did not.¹⁵ The Latin American deficits exceeded those in the HPAEs by the greatest amount during the last two periods; that is, during and after Washington Consensus adjustment policies.

As a further indication of sound macro policy in the HPAEs, it has been suggested that the size of the state in GDP has been notably small compared to other developing regions (Kuznets 1988). A smaller state, some argue, stimulates a more vigorous private sector by reducing 'crowding out' and fostering private incentives via lower tax levels.¹⁶ Whatever the merit of such arguments, state expenditure as a percentage of GDP was virtually the same in both regions (Table 3.7, where the variation within regions is so great as to reduce the t-statistics to near zero). The perception that the Latin American region was characterised by large state sectors derives from a small number of countries, none of which maintained large ratios of public expenditure to GDP throughout the twenty-five years.¹⁷ While there is a correlation between the size of the public sector and the accumulation of external debt, it is quite low, suggesting that other factors dominate.¹⁸

Inspection by country reveals that the share of total government expenditure in GDP was astoundingly low for many of the Latin American countries. While none of the HPAEs had shares less than 15 per cent of GDP for all five time periods, there were three such countries in Latin America (Colombia, Guatemala and Paraguay). Further, government expenditure accounted for more than 30 per cent of GDP in Malaysia during the last three time periods, and only two Latin American countries averaged over 30 per cent in as many as two time periods.¹⁹

These statistics on deficits and government expenditure do not necessarily invalidate the conventional wisdom about the HPAEs having relatively small states. They indicate that conclusions cannot be drawn on the basis of simple calculations. Research has shown that both state expenditure and revenue are correlated with structural characteristics of countries, such as the importance of mineral production in the economy. Just as any conclusion about relative degree of openness should be based on adjustment for size of country (the most obvious influence), so should conclusions about the relative size of the state be derived from an analytical framework.

The final macro indicator we consider is the real exchange rate. We follow the common practice of treating it as an index with no presumption as to its equilibrium value,²⁰ so it does not lend itself to the analysis of Tables 3.1–3.7. The question is, to what extension was the crisis of the 1980s exacerbated by over-valued exchange rates? Appreciating exchange rates do not in and of themselves establish that the exchange rate contributed to the crisis. But the absence of appreciating rules this out. There are eighteen countries to consider, and exchange rate movements during

Table 3.6 Overall fiscal deficit as a percentage of GDP for Latin America and the HPAEs, 1972–94 (current prices)

<i>Means and standard deviations</i>	1970–4	1975–9	1980–4	1985–9	1990–4
Latin America					
Mean	-2.6	-2.6	-5.1	-4.4	-1.5
Std dev	2.70	2.47	4.25	5.12	2.58
HPAEs					
Mean	-3.1	-3.5	-4.7	-2.0	0.9
Std dev	2.4	1.9	4.2	1.6	1.1
Difference in means, significance	nsgn	nsgn	nsgn	nsgn	nsgn

Source: Weeks (2000).

Table 3.7 Total government expenditure as a percentage of GDP for Latin America and four HPAEs, 1972–94 (current prices)

<i>Means and standard deviations</i>	1972–4	1975–9	1980–4	1985–9	1990–4
Latin America					
Mean	15.6	17.4	21.7	21.2	19.0
Std dev	5.0	5.5	9.2	9.4	7.6
HPAEs					
Mean	14.3	16.9	22.6	22.0	21.6
Std dev	5.0	5.4	8.6	7.3	9.2
Difference in means, significance	nsgn	nsgn	nsgn	nsgn	nsgn

Source: Weeks (2000).

1960–80 were quite diverse. To make the issue manageable, we focus on the five major countries, Argentina, Brazil, Chile, Mexico, and Venezuela (see Figure 3.1). There was some appreciation of the Mexican peso in the 1970s, but considerably less than one might have expected given that the country was a petroleum exporter.²¹ The other petroleum producer, Venezuela, did experience a substantial appreciation in the 1970s. Though counterproductive in the long run, this appreciation can hardly be assigned to policy failure, given movements in the price of petroleum. This leaves the three non-petroleum-exporters as candidates for a crisis-enhancing mismanagement of exchange rates. Chile can be excluded, for its exchange rate depreciated sharply during 1974–5, then remained well below its 1973 level to the end of the decade. In this case, it was exchange rate mismanagement *during* the

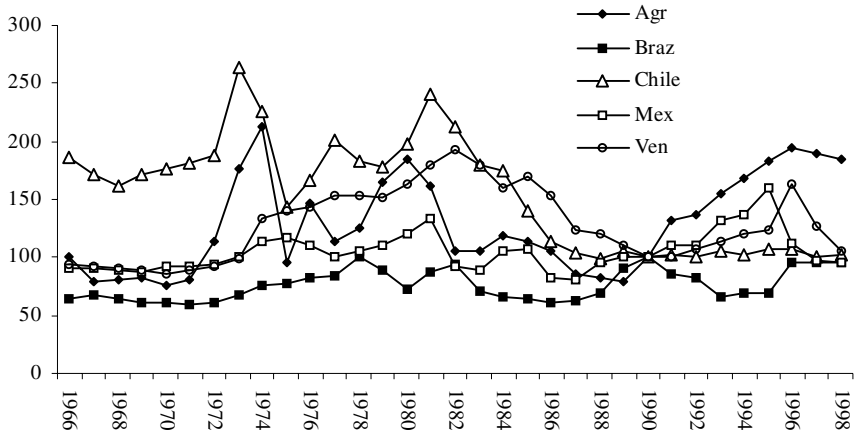


Figure 3.1 Latin America, major countries: real exchange rate for exports, 1966–98 (1990 = 100, a rise is an appreciation)

crisis that made matters worse (that is, in the early 1980s). Argentina and Brazil did have appreciating exchange rates in the 1970s, without the push of petroleum prices. However, we shall see below that during the 1970s two HPAEs experienced even greater exchange rate appreciations (Indonesia and Malaysia), and they did not suffer an economic collapse in the 1980s. Prior exchange rate over-valuation may account for part of the Latin American crisis of the 1980s, but a regional generalisation is not possible.

Debt service between groups

The foregoing supports an obvious point: there was a debt crisis in Latin America and not for the HPAEs because the debt service of the former countries was so much larger than of the latter; this is rendered non-trivial by the discovery that basic macro indicators provide little guide to the cause of the difference. We now consider how much larger the Latin American debt service was.

Table 3.8 provides the statistics on debt service as proportion of export earnings. Even without disaggregation, the differences between the two regions are substantial, averaging 11 percentage points cross all five periods. A clear pattern presents itself, with the difference in debt service high and rising during 1970–84, then sharply narrowing in the second half of the 1980s, with the latter a harbinger of a crisis to come for the HPAEs. The sharp reduction in the difference between the two groups was the result of both increased debt service for the HPAEs (especially Indonesia),²² and a decline for the Latin American countries, in part due to debt rescheduling. The group average for Latin America conceals great variations. Analytically we can divide the eighteen countries into three sub-groups: those whose ratio of debt service to GDP averaged over 30 per cent across the five

periods ('highly indebted', seven countries); those whose average lay between 20 and 30 per cent ('moderately indebted', six); and those whose average was below 20 per cent ('lowly indebted', five).²³ The first group accounted for 75 per cent of the Latin American population in the mid-1990s, and the second group for 18 per cent. Thus the vast majority of Latin Americans lived in highly-indebted countries.

For the high debt countries, debt service as a proportion of export earnings was significantly higher (10 per cent probability or lower) than for the HPAE countries during three time periods: 1975–9, 1980–4, and 1990–4, and quite close to the 10 per cent probability during 1970–4.²⁴ Somewhat surprisingly, the highly-indebted Latin American countries had a *relatively* greater debt burden compared to the HPAEs in the 1970s than the 1980s. Indeed, in the second half of the 1980s, the difference in debt burdens between the Latin American highly-indebted countries and the HPAE was less than in the first or second half of the 1970s.

To estimate the quantitative impact of debt service on Latin America's growth, an expanded Harrod–Domar model was formulated, with a partial adjustment to equilibrium mechanism. Given the four arguments of debt service, gross domestic investment, foreign investment, and export growth, the model shows that debt service accounts for 20 per cent of the difference between HPAE and Latin American growth rates, 1970–94, and the largest single factor.²⁵ When secondary effects of the debt service burden are included, manifested primarily in demand compression, the total debt effect accounted for 40 per cent of the difference in growth rates between the two regions. This modelling indicates that the Latin American 'debt crisis' was exactly that. It was a depression brought on by excessive debt burdens (see Weeks 1989), and exacerbated by what De Pinies called 'overadjustment' (De Pinies 1989). Demand-depressing monetary and fiscal policies reduced imports in order to generate trade surpluses, following the Washington Consensus. Figure 3.2 emphasises this point, presenting the annual average growth rate across eighteen countries, the three-year moving average of that growth rate, and (in the negative quadrant) the number of countries with negative growth rates. From 1961 through 1980, the average growth rate varied in a narrow range, between 4.5 and 6 per cent, with no more than three countries with negative rates in any year. During 1991–8, the performance was significantly less robust,²⁶ but the number of countries with negative growth was never more than four (in 1998). Indeed, were these two periods joined in an interrupted chain, they would appear to be part of a relatively stable growth process, perhaps leaving one to wonder why the radical reforms of the 1980s were required. The years 1981–90 were disastrously different: in 1982 thirteen countries suffered negative growth, twelve did in 1983, and five did in three of the next seven years.

Thus in the 1980s the Latin American countries suffered more than a growth interruption; the decade was a debt disaster. Debt, not policy mismanagement, caused the Latin American crisis. On this issue, we agree with Palma, that the Latin American debt crisis resulted from 'over-lending and over-borrowing [that] are basically endogenous market failures of over-liquid and under-regulated financial markets' (Palma 1998: 789). We now turn to the Asian crisis, to investigate whether it can credibly be attributed to macro policy errors.

Table 3.8 Foreign debt service as percentage of exports for Latin America and four HPAEs, 1970–94 (current prices)

<i>Means and standard deviations</i>	<i>1970–4</i>	<i>1975–9</i>	<i>1980–4</i>	<i>1985–9</i>	<i>1990–4</i>
Latin America					
Mean	22.5	27.9	36.7	32.0	28.5
Std dev	13.33	17.15	15.36	13.38	13.79
LA, high debt					
Mean	34.8	45.5	51.3	41.8	31.5
Std dev	12.86	11.2	10.59	12.55	7.35
LA, moderate debt					
Mean	17.1	20.0	34.1	28.0	33.9 (26.3)
Std dev	6.35	9.55	6.18	12.85	19.25 (5.55)
LA, low debt					
Mean	11.9	12.7	19.4	22.8	17.9
Std dev	2.87	4.71	5.52	4.47	7.98
HPAEs					
Mean	12.4	14.2	18.6	28.5	17.3
Std dev	5.58	3.87	5.89	7.51	12.17
Differences in means:					
LA – HPAEs					
significance	nsgn	nsgn	nsgn	nsgn	nsgn
LA HD – HPAEs					
significance	nsgn	0.05	0.05	nsgn	0.10
LA MD – HPAEs					
significance	nsgn	nsgn	0.10	nsgn	nsgn
LA LD – HPAEs					
significance	nsgn	nsgn	nsgn	nsgn	nsgn

Notes:

The Latin American countries are divided on the basis of their average ratio of debt service to exports across all periods.

High debt (HD): greater than 30 per cent; Argentina, Bolivia, Brazil, Chile, Mexico, Peru, and Uruguay (7);

Moderate debt (MD): between 20 and 30 per cent; Colombia, Costa Rica, Ecuador, Nicaragua, Panama, and Venezuela (6); and

Low debt (LD): less than 20 per cent; Dominican Republic, El Salvador, Guatemala, Honduras, and Paraguay (5).

The Asian crisis considered

Growth performance

Unlike the Latin American crisis, the Asian growth collapse was unexpected, virtually up to the moment of its onslaught.²⁷ This in itself casts doubt upon the macro fundamentals hypothesis: if the world's most sophisticated risk assessors

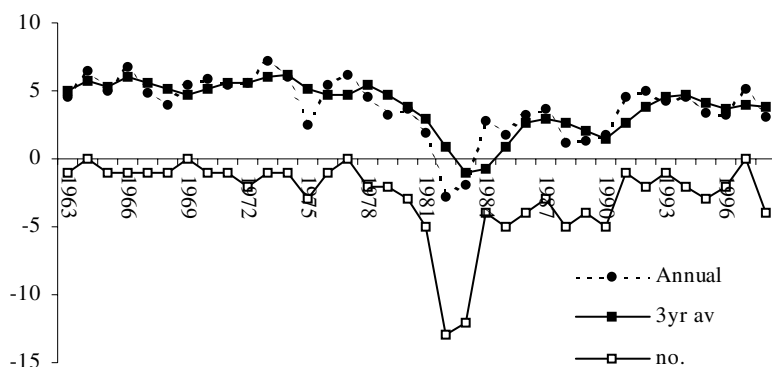


Figure 3.2 Latin America: growth rates and number of countries with negative growth, 1963–98

signalled no cause for worry, why would one expect their private sector subscribers to do so? It might be argued that while the famous rating agencies pursued a Pollyanna-like delusion, negative signals from the four miracles were reaching international corporations. These accumulated doubts intensified, until there came a collapse of confidence. This interpretation has an unsettling hint of perfect hindsight and, if valid, implies that there were clear indications of approaching instability. The empirical evidence for this argument is considered below.

Table 3.9, part A, shows the growth rates of the four countries by five-year periods. Indonesia, the country whose GDP decreased most in 1998, grew faster in the 1990s than in the 1980s. In two of the four countries growth rates were higher in the first half of the 1990s, and for a third, Korea, the rate was the same as during the second half of the 1980s. Figure 3.3 shows that for only one, Thailand, might a pessimistic observer have concluded that the growth miracle was coming to an end. Even for Thailand, 1994–5 brought a recovery to near double-digit growth rates. Indeed, to the extent that one might have divined a fall in growth rates for the countries in the 1990s, a rational observer might well have interpreted this a cyclical phenomenon, or an adjustment to a more realistic and sustainable long-term rate. Figure 3.4 averages the growth rates across the four countries, and applies a three-year moving mean. The average performance during 1990–6, ‘smoothed out’ for external shocks, fits well into a longer-term cyclical pattern. However, a rational observer would have asked whether the growth could be sustained, and would have looked to relevant indicators to answer this question.

Basic macro indicators and policy outcomes

Since the orthodox macro fundamentals hypothesis assumes that agents are rational, it would be fair to assume that the rational agent would have had some model of growth determination. A rational agent would not be panicked by a negative signal from one, or even several indicators, but would weigh such information in a systematic manner. A reasonable approximation of such a model would include the rate

Table 3.9 Macro indicators for four 'miracles', by time period

<i>A. GDP growth</i>					
<i>Period</i>	<i>Indonesia</i>	<i>Korea</i>	<i>Malaysia</i>	<i>Thailand</i>	<i>Average</i>
1960–64	2.3	6.1	6.7	7.0	5.5
1965–69	4.9	10.0	6.4	8.5	7.5
1970–74	8.2	8.4	8.2	7.1	8.0
1975–79	7.4	9.0	7.2	8.0	7.9
1980–84	6.7	6.3	6.9	5.6	6.3
1985–89	6.0	9.5	4.7	9.0	7.3
1990–94	8.0	7.6	8.7	9.0	8.3
1995–98	1.9	3.8	4.5	0.9	2.8
Average:	5.9	7.7	6.7	7.0	6.8
<i>(thru 1996)</i>	<i>6.4</i>	<i>8.2</i>	<i>7.1</i>	<i>7.7</i>	<i>7.0</i>
<i>B. Investment/GDP</i>					
<i>Period</i>	<i>Indonesia</i>	<i>Korea</i>	<i>Malaysia</i>	<i>Thailand</i>	<i>Average</i>
1960–64	10.5	14.7	19.8	18.4	15.8
1965–69	9.2	23.3	19.5	23.3	18.8
1970–74	19.3	25.8	24.9	25.0	23.7
1975–79	24.0	30.5	26.1	26.6	26.8
1980–84	26.2	29.7	34.8	29.0	29.9
1985–89	27.5	30.6	26.3	29.9	28.6
1990–94	29.5	36.7	36.5	40.9	35.9
1995–98	27.0	32.8	38.6	35.9	33.6
	21.8	28.2	28.3	28.7	26.7
<i>C. Exports/GDP</i>					
<i>Period</i>	<i>Indonesia</i>	<i>Korea</i>	<i>Malaysia</i>	<i>Thailand</i>	<i>Average</i>
1960–64	11.2	5.3	44.1	15.9	19.1
1965–69	9.8	11.3	41.0	16.7	19.7
1970–74	19.4	21.3	40.3	17.9	24.7
1975–79	25.4	29.6	49.3	20.2	31.1
1980–84	28.3	35.1	53.2	22.6	34.8
1985–89	23.5	36.6	63.2	29.1	38.1
1990–94	26.9	29.2	81.5	36.7	43.6
1995–98	33.5	37.2	98.6	47.1	54.1
	22.2	25.9	58.2	25.5	33.0
<i>D. Debt service/Exports</i>					
<i>Period</i>	<i>Indonesia</i>	<i>Korea</i>	<i>Malaysia</i>	<i>Thailand</i>	<i>Average</i>
1960–64	na	na	na	na	na
1965–69	na	na	na	na	na
1970–74	14.5	17.4	4.5	13.3	12.4
1975–79	18.2	12.5	8.9	16.6	14.2
1980–84	16.9	21.7	10.2	21.9	18.6
1985–89	36.4	22.9	22.6	24.1	28.5
1990–94	32.9	8.6	9.3	14.0	17.3
1995–98	28.7	8.2	7.7	11.2	14.0
	29.7	15.2	11.6	17.6	17.7 \Contd

Table 3.9 continued

<i>E. Fiscal deficit/GDP</i>					
<i>Period</i>	<i>Indonesia</i>	<i>Korea</i>	<i>Malaysia</i>	<i>Thailand</i>	<i>Average</i>
1960–64	na	na	na	na	na
1965–69	na	na	na	na	na
1970–74	-2.1	-1.5	-6.7	-2.1	-3.1
1975–79	-3.0	-1.6	-6.2	-3.3	-3.5
1980–84	-1.4	-2.2	-10.6	-4.4	-4.7
1985–89	-2.0	0.2	-4.5	-1.6	-2.0
1990–94	.4	-0.4	0.4	3.2	0.9
1995–98	-0.1	-1.4	1.3	0.6	0.1
	-1.4	-1.1	-4.4	-1.3	-2.0
<i>F. Trade balance/GDP</i>					
<i>Period</i>	<i>Indonesia</i>	<i>Korea</i>	<i>Malaysia</i>	<i>Thailand</i>	<i>Average</i>
1960–64	1.3	-9.7	4.7	-1.5	-1.3
1965–69	-4.4	-10.4	4.7	-2.2	-3.1
1970–74	2.1	-7.7	2.0	-2.4	-1.5
1975–79	4.6	-4.2	6.5	-4.7	0.5
1980–84	5.2	-3.1	-3.2	-5.1	-1.6
1985–89	2.4	5.1	8.4	-0.8	3.8
1990–94	2.8	-0.9	-0.4	-5.2	-0.9
1995–98	-0.7	-1.9	-0.5	-3.8	-1.7
Average:	1.8	-4.2	2.9	-3.2	-0.7
<i>G. External current account balance</i>					
<i>Period</i>	<i>Indonesia</i>	<i>Korea</i>	<i>Malaysia</i>	<i>Thailand</i>	<i>Average</i>
1980–84	-3.9	-3.3	-9.9	-5.6	-5.7
1985–89	-2.5	4.3	2.4	-2.0	0.5
1990–94	-2.2	-1.1	-5.1	-6.5	-3.7
1995–97	-2.9	-2.8	-6.4	-6.0	-4.5
Average:	-2.8	-0.4	-4.3	-4.9	-3.1
<i>H. Real exchange rate producer prices</i>					
<i>Period</i>	<i>Indonesia</i>	<i>Korea</i>	<i>Malaysia</i>	<i>Thailand</i>	<i>Average</i>
1970–74	164	95	114	106	120
1975–79	189	103	120	100	128
1980–84	150	92	133	98	118
1985–89	100	90	124	95	102
1990–94	104	99	97	104	101
1995–96	116	101	97	113	107

Source: World Bank (1999).

of investment, export performance, and debt service. Should any of these manifest an unhealthy movement, the rational agent might then look to other indicators: the fiscal deficit, inflation, the external balance, and the real exchange rate. Thus we ask the question: in early 1997, with the information from 1996, would a rational agent have had cause for concern?

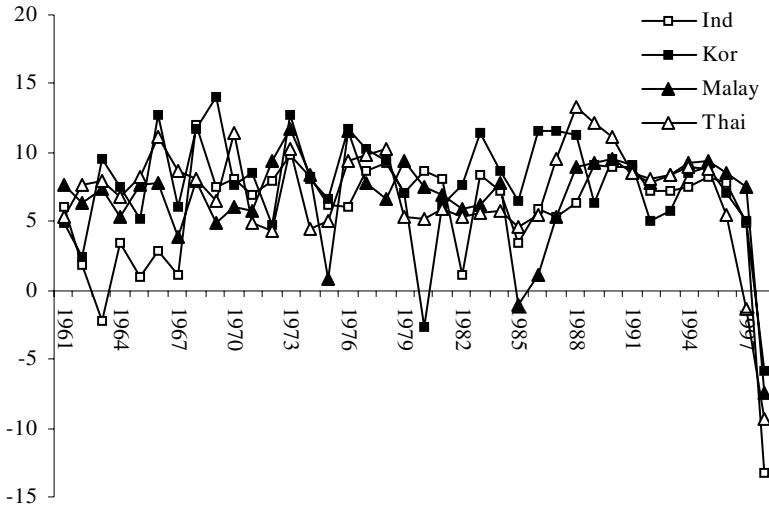


Figure 3.3 Growth rates of four 'miracles', 1961–98

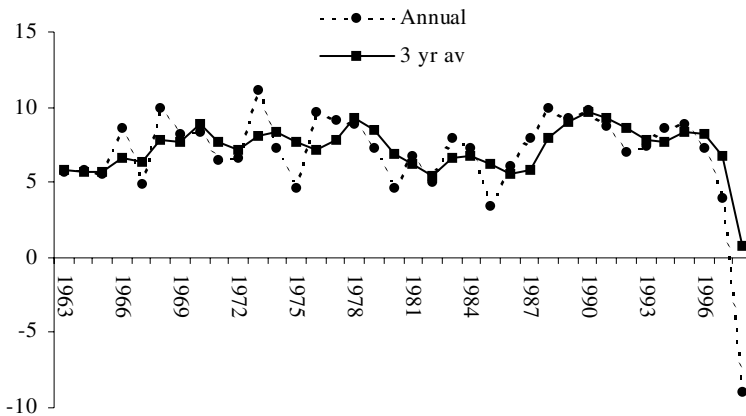


Figure 3.4 Average growth rate for four 'miracles', 1961–98

The agent would have discovered that, during 1995 and 1996, the rate of investment was higher in three of the four countries than in the immediately previous years (Korea being the exception). For every country there was a statistically significant, long-term upward trend. It would have been a pessimist, indeed, who would have foreseen an imminent fall in investment in any of the countries.

Some have identified the fiscal deficit, the external account, and the real exchange rate as signalling macro instability in the miracle countries just prior to the crisis. In order to consider the rational response to these, it must be noted that they are not policy variables as such, but policy outcomes. Governments have influence over these outcomes indirectly. As a result, the movement in the indicators

can reflect random shocks as well as purposeful policy. A rational agent would seek to discriminate between policy and shocks, in order to avoid over-reacting.

The typical approach to assessing the macro signals from the miracle countries has been to undertake a review, indicator by indicator, and pass judgement as to whether the movement in the indicator in question should be interpreted as a harbinger of the subsequent crisis, i.e. whether a rational agent would have viewed them with alarm. This is a fundamentally subjective approach, mere story-telling with an implicit political economy bias. As a result, different judgements can be reached on the same statistics, influenced by the assessor's ideological predilections. Further, if one believes firmly that macro instability reflects the mistakes of governments, there is a tendency to apply criteria that will generate this conclusion in each specific case. Such political economy assessments are informative, but lack the methodology to discriminate between competing explanations.

A theoretically rigorous approach would be to analyse indicators within a formal model, such that the model itself would generate the assessment rather than the subjectivity of the observer. However, in practice formal models are derivative from the author's political economy perspective, particularly with regard to closure conditions. Perhaps the closest one can come to objectivity is to explicitly state assumptions and pursue these logically. For the analysis we employ the following assumptions, that rational agents:

- 1 viewed the policy indicators for the four miracles as 'sound' during the five-year period 1990–4;
- 2 sought to discriminate between movements of indicators due to policy measures and movements due to random shocks;
- 3 made their judgements on the eve of 1997 by comparing the indicators during 1995–6 to 1990–4; and
- 4 employed the judgement criterion that a 1995–6 value less than one standard deviation from the 1990–4 average was 'stochastic', and a variation in excess of one standard deviation (in the 'dangerous' direction) suggested an 'unsound' policy framework.

Other reasonable and theoretically credible assumptions could be made. For example, it may be that the agents whose actions precipitated the financial crisis operated on a much shorter time-horizon, and we should be specifying the rules in terms of quarters not years. It may be that one standard deviation is too great (or too small) as a yardstick for discriminating between policy and shocks. However, the approach has the advantage of generating objective judgements, and alternative criteria could be provided within this approach. Tables 3.9E–3.9H show the basic statistics, and Table 3.10 provides the results of the method of assessment. First, for the fiscal deficit (see also Figure 3.6), in both 1995 and 1996 each country had a deficit to GDP ratio well within one standard deviation of the mean value for 1990–4. If an agent had asked the question 'Given the values of the fiscal deficit for 1995 and 1996, what is the probability that 1995–9 will not be significantly different?', the answer would have been '60 to 80 per cent'.

Assessment of the trade balance as a per centage of GDP would have been mixed (see Figure 3.7). For two of the countries, Malaysia and Thailand, the deficit was well within one standard deviation of the relevant average, but it was outside this range into the ‘danger’ zone for Indonesia and Korea. However, if the agent had made his or her assessment on the basis of the current account deficit, only Korea would have given cause of anxiety (see Figure 3.8). With regard to debt service, all four countries were well within the postulated stochastic region in 1995 and 1996 (Figure 3.9).

After the four countries began their economic free-fall, some quite definitive judgements were made alleging over-valuation of exchange rates in the four countries as either the proximate or fundamental cause of the crisis (Figure 3.10). It would appear that these judgements rest more on predilection than fact, for it is difficult to assess this indicator by strictly quantitative criteria. As the annex to this chapter shows, different measures of the real exchange rate show different movements. For example, if one used the index preferred by Corsetti, Pesenti and Roubini (1998), there would have been no cause for concern in any of the four countries. With Radelet and Sachs’ measure, Indonesia and Malaysia would have been outside the stochastic zone, but not Korea and Thailand. With the index preferred here, based on manufacturing purchasing power parity, only Indonesia appears to have a non-stochastic overvaluation.

Since rational agents would have been interested in indicators of competitiveness, and each of the countries was an exporter of manufactures, the final indicator we consider is real unit labour cost. A rational agent could have obtained an estimate of this by going to the relevant UNIDO manufacturing database and calculating average wages and constant price productivity, then adjusting with the nominal exchange rate. The relevant calculation would be:

$$[\text{RULC(Exch adj)}]_{it} = [W_{it}/L_{it}][L_{it}/VA_{it}]E_{it}$$

Where $[W_{it}/L_{it}]$ = total wages divided by total employment,
 $[L_{it}/VA_{it}]$ = employment per unit of output,
 E_{it} = nominal exchange rate, and i is country and t is year.

The result of the calculation is shown in Figure 3.11, for the countries with data. Inspection of the time series in the chart would show, as expected, a strong negative correlation between real unit labour costs and exports for two of the countries, and a weak negative correlation for the third.²⁸ If one treated these correlations as credible, Figure 3.11 would give no cause for concern. For Korea and Malaysia, real unit labour costs for 1995–6 were well below the average for 1990–4 (Korea), or virtually the same (Malaysia). The rational agents would have found no data for 1996 for Indonesia. If he or she had taken 1995 as the relevant indicator, there would have been no cause for worry, for this value was 3 per cent below the 1990–4 average. As for the other indicators, the available information on real labour costs would have not sent out a danger signal to a rational agent.

To carry our analysis to an overall assessment, subjectivity enters, because we have specified no weights to the elements in Table 3.10. Perhaps, at a minimum,

Table 3.10 provides quantitative judgements that can be generally accepted; namely, that it was *highly unlikely* at the end of 1996 that macro indicators from Malaysia would have provoked serious concern by rational agents, *unlikely* for Korea and Thailand, but not absurd; and *somewhat likely* for Indonesia.

Summing up

Any rational agent observing relevant macro indicators of the major Latin American countries at the end of 1981 would have immediately and unambiguously concluded that an extremely costly financial and economic adjustment was in the offing. While the Mexican government's famous announcement in autumn 1982

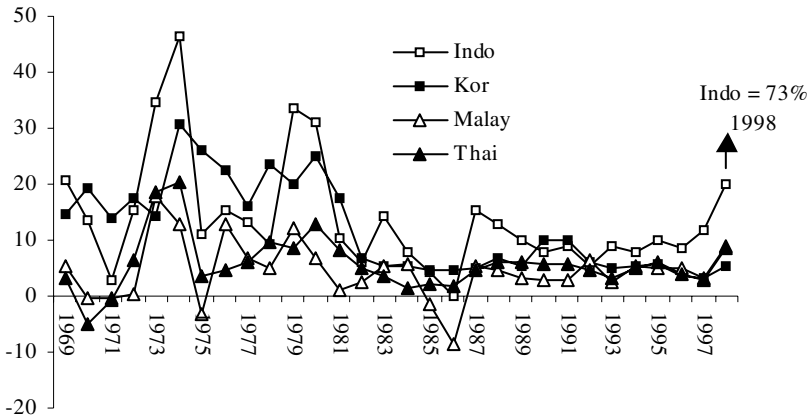


Figure 3.5 Inflation rates in four 'miracles', 1969–98

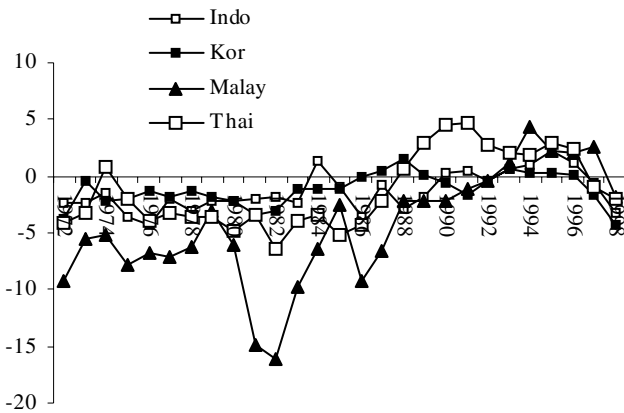


Figure 3.6 Fiscal deficits as a percentage of GDP for four 'miracles', 1972–98

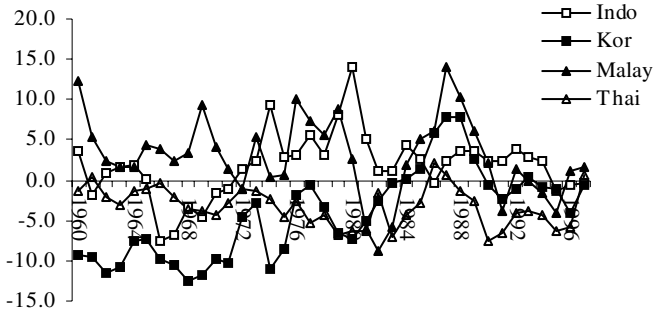


Figure 3.7 The trade balance in GDP for four 'miracles', 1960–97

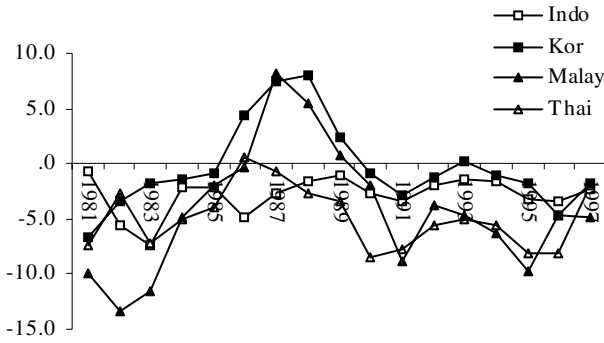


Figure 3.8 Current external account balance in GDP for four 'miracles', 1981–97

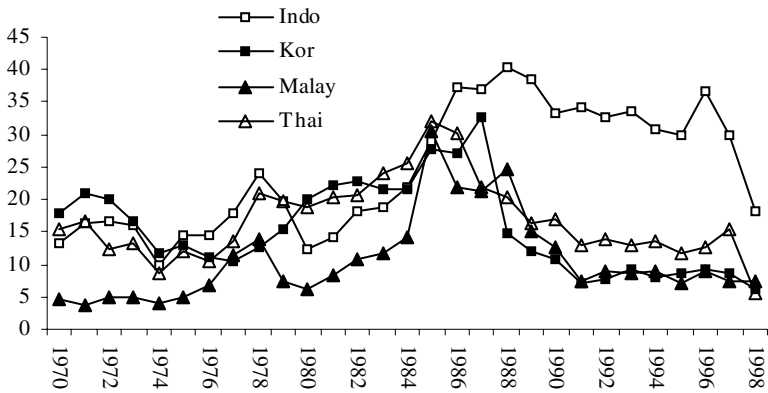


Figure 3.9 Debt service as a portion of exports for four 'miracles', 1970–97

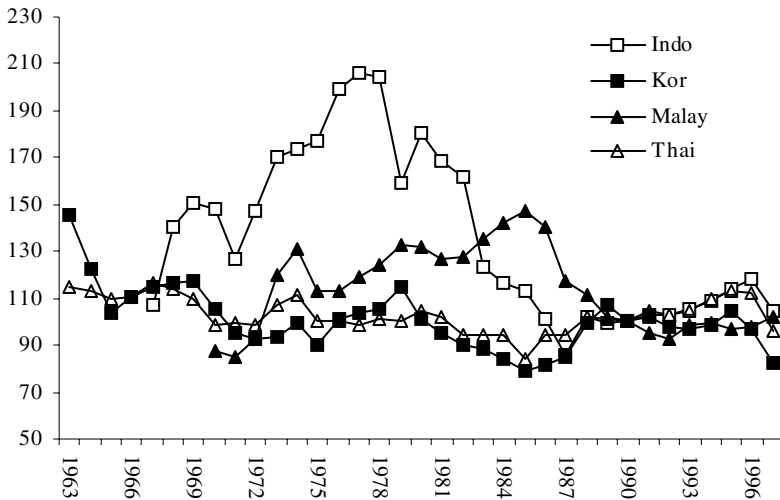


Figure 3.10 Real (PPP) exchange rates for four ‘miracles’, 1963–97 (1990 = 100, a rise shows an appreciation)

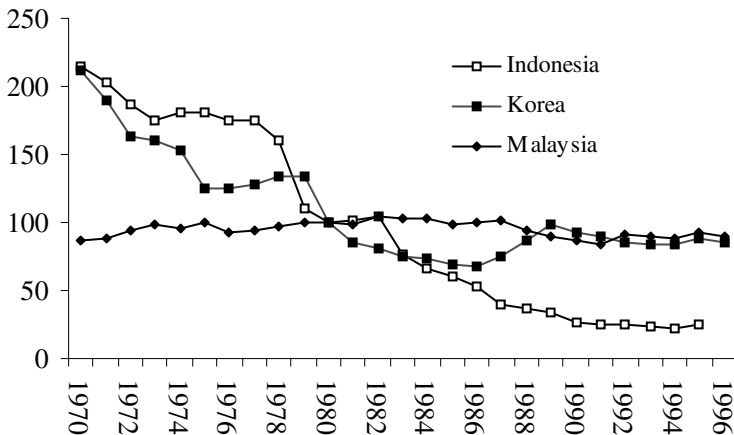


Figure 3.11 Exchange rate adjusted real unit labour costs in manufacturing, three ‘miracles’, 1970–96 (natural logs, 1980 = 100)

came as a shock, it was not a surprise. Similarly, just over ten years later, the extraordinary current account deficits run by Mexico should have signalled to any rational observer that a currency collapse was highly probable.

In contrast, an extremely high degree of pessimism and Cassandra-esque foresight would have been required to prompt serious anxiety about the state of the four miracles at the end of 1996. If private agents read policy mismanagement into the macro indicators from these four countries at the end of 1996, the

Table 3.10 Evaluation of policy outcomes for four miracles: was 1995–6 within one standard deviation of average for 1990–94?

<i>Country</i>	<i>Fiscal Deficit</i>	<i>Trade Balance</i>	<i>Current Account</i>	<i>Debt Service</i>	<i>Exchange Rate</i>
Indonesia	yes	no	yes	yes	no*
Korea	yes	no	no	yes	yes
Malaysia	yes	yes	yes	yes	yes
Thailand	yes	yes	yes	yes	no*

Note:

*At least one index shows no significant appreciation. See text for discussion.

Table 3.11 A likely assessment of signals from macro indicators at the beginning of 1997, for four ‘miracles’

<i>Is it likely that a problem would have been perceived?</i>					
<i>Indicator</i>	<i>Indonesia</i>	<i>Korea</i>	<i>Malaysia</i>	<i>Thailand</i>	<i>Comment</i>
GDP growth	no	no	no	perhaps	
Inv/GDP	no	perhaps	no	no	
Exports/GDP	perhaps	no	no	no	Export share was rising for 3 of 4
Debt/GDP	perhaps	no	no	no	Indonesia’s debt service ratio was high, but well below the 1980s
Inflation	perhaps	no	no	no	Rate in each country below what research suggests would be detrimental
Fiscal Deficit/GDP	no	no	no	no	During 1992–4 all four had surpluses
Trade balance/GDP	no	yes	no	no	Deficit lower in 1996 than 1995, except Korea
Current account/GDP	no	no	no	perhaps	Thailand had persistent deficits, 1995–6 same as 1990–1
Exchange rate	perhaps	no	no	perhaps	Depends on the index chosen
Manufacturing competitiveness (Exch rate adj RULC)	no	no	no	no data	No notable change in mid-1990s
Summary	Most likely	Unlikely	Least likely	Unlikely	

probability of any country consistently sending positive signals to ‘financial markets’ lies somewhere between slim and none. Stochastic variation alone would undo the best efforts of policy-makers if ‘markets’ demand such a narrow range of outcomes.

As noted at the beginning of this chapter, a review of opinions on the Asian financial crisis reveals a polarisation, between explanations that attribute the crisis to policy mismanagement (the orthodoxy), and explanations that attribute it to the inherent instability of international financial markets (the heterodoxy). The statistics presented in this chapter indicate that the dichotomy is false. If, as argued here, in 1997 ‘financial markets’ were alarmed, then driven to panic, by variations in policy indicators that were within the range stochastic fluctuations, then the ‘policy mismanagement’ argument collapses. Governments can hardly be blamed if financial markets expect them to maintain indicators within ranges that are too small for the inherent effectiveness of the policy instruments available to those governments. In other words, if the so-called investors expect a performance that the science and practice of economic policy cannot reasonably deliver, those markets are, by definition, unstable.

Annex on exchange rates

This annex demonstrates that judgements about whether exchange rates in the four miracles were overvalued at the end of 1996 depends on what index one uses. For all four countries the following three indices are presented:

- 1 the producer price parity index, compiled by the author, which is the nominal exchange rate multiplied by the domestic price index for manufacturing, and divided by the US producer price index (PrdPrI);
- 2 the index used by Radelet and Sachs (1998), which is the nominal exchange rate weighted by trade, multiplied by the domestic consumer price index, divided by a ‘foreign’ wholesale price index (Sachs); and
- 3 the index used by Corsetti, Pesenti and Roubini (1998), which is cited as being from J.P. Morgan (CP&R).

For Thailand, the real effective exchange rate from the *World Development Indicators 1999* is also included. Inspection of Figures 3.A1–3.A4 show considerable variation in the measured degree of appreciation during 1990–6. For each country there is a measure, and not always the same one, which indicates a quite small appreciation.

Notes

- 1 Bulmer-Thomas argues that it is an exaggeration to characteristic the region by this term (Bulmer-Thomas 1992).
- 2 For a sympathetic presentation of the Washington Consensus (albeit by another name), see Rodrik (1996).
- 3 The application of the difference in means test is justified in some detail in Weeks (2000). The data sources are given in that paper. The most important is the World

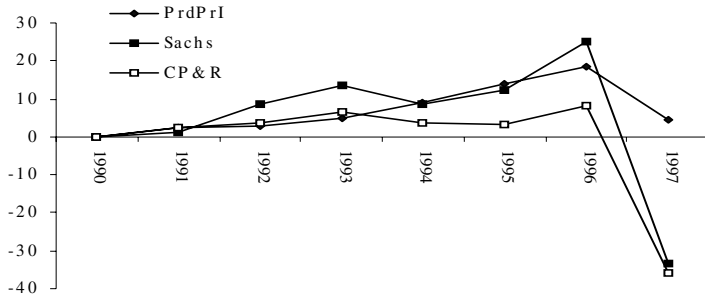


Figure 3.A1 Alternative exchange rate indices (1990 = 0): Indonesia 1990-7

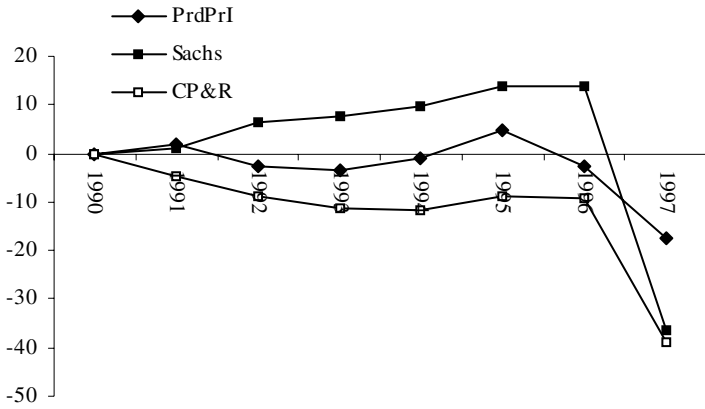


Figure 3.A2 Alternative exchange rate indices (1990 = 0): Korea 1990-7

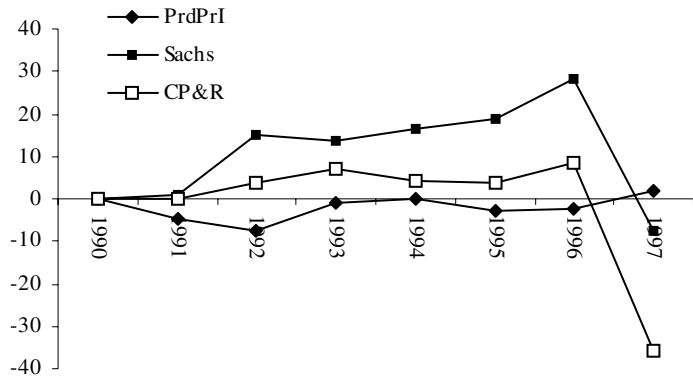


Figure 3.A3 Alternative exchange rate indices (1990 = 0): Malaysia 1990-7

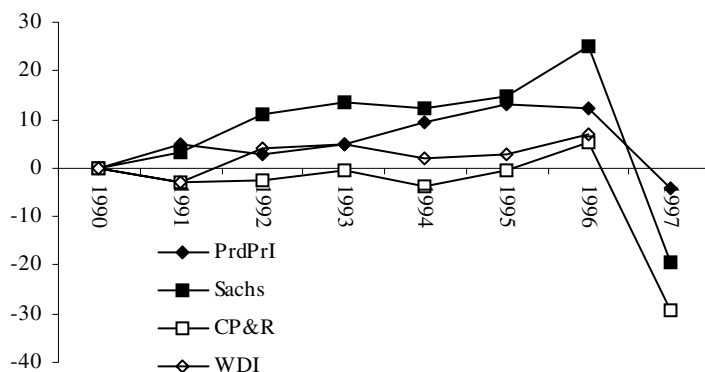


Figure 3.A4 Alternative exchange rate indices (1990 = 0): Thailand, 1990–7

Bank's *World Development Indicators 1999* (CD-ROM). In that paper the two groups are the same as here, with the exception that Taiwan is included in the Asia set for most tables.

- 4 For GDP itself, the average for the thirty-five years was 7.1 for the HPAEs and 3.6 for Latin America. Per capita GDP growth was 5.1 per cent per annum compared to 1.6.
- 5 During most of the 1970s Chile's growth rate was quite low, and it was low in the early 1980s. Subsequently it enjoyed growth rates comparable to the 'miracles'.
- 6 As with national income, export growth was uneven in Latin America, across countries, and over time for specific countries. Non-oil-exporting countries with export growth in excess of 10 per cent per year were: Brazil and Costa Rica during 1970–4; Argentina, Chile, and Uruguay during 1975–9; Brazil and the Dominican Republic during 1980–4; Colombia and Paraguay during 1985–9; and Bolivia, Chile, Costa Rica, the Dominican Republic, and Nicaragua during 1990–4.
- 7 The stress given to 'openness' derives from the view that 'open economies do grow faster' (Dollar 1992). Pritchett (1996) demonstrated that the various measures of openness used in empirical work are not correlated with each other. For another critique of the usual measures, see Subasat (1999).
- 8 The conclusion that the HPAEs were more open might be strengthened by such an analysis, since several of the Latin American countries are quite small and, for several, minerals dominated exports. Both of these tend to inflate the export–GDP ratio.
- 9 All writers do not stress high investment rates. See, for example, Kagami (1995) and Institute of Developing Economies (1990), where it is noted that Latin American and East Asian rates of capital accumulation were quite similar.
- 10 The surprisingly low average for the HPAEs during 1960–4 is partly the result of the low investment rate in Indonesia during the last years of the Sukarno government.
- 11 Palma argues that higher saving rates in the HPAEs than in Latin America can largely be explained by state policies to coerce a lower consumption level and foster corporate retained earnings. He concludes that the HPAE performance is explained by 'forced household savings, massive government savings as in Singapore, credit restrictions on luxury consumption and mortgage operations, or attractive long-term returns on savings' (Palma 1996: 44).
- 12 'More than most developing countries, the HPAEs were characterised by responsible macroeconomic management. In particular, they generally limited fiscal deficits to levels that could be prudently financed without increasing inflationary pressures' (World Bank 1993: 12).

- 13 This casts doubt upon the concept of 'macroeconomic populism' in Latin America, especially as set out by Dornbusch and Edwards (1991). Kaufman and Stallings (1991) also view the concept sceptically.
- 14 Which, evidently, they do in the judgement of the World Bank. See the 'Fiscal Policy Stance Index' in World Bank 1994: 48.
- 15 In a 1998 speech, Stiglitz repeated the standard view of Latin American deficits: 'Budget deficits were very high – *many* were in the range of 5 to 10 per cent of GDP [in the early 1980s]' (Stiglitz 1998: 2, emphasis added). Across the eighteen countries and five time periods (ninety observations) there were sixteen cases in which deficits averaged over 5 per cent of GDP, six during 1980–4 and five during 1985–9. Only five countries averaged over 5 per cent in more than one time period, two of which were major countries (Mexico and Brazil, the others being Honduras, Nicaragua, and Panama). The HPAE group had a persistent offender, Malaysia, with deficits in excess of 5 per cent during 1970–84. During the 1980–4 period, only two Latin American countries had deficits greater than Malaysia's (Nicaragua and Bolivia).
- 16 This is suggested in some World Bank reports (1993 and 1994), but one finds a more nuanced approach in World Bank (1997).
- 17 Due to petroleum revenues, Venezuela had a large state sector for the entire thirty-five years.
- 18 A simple OLS regression of expenditure as a portion of GDP and debt service as a portion of exports, across the eighteen countries and over the five time periods, yields an elasticity of 0.4, a correlation coefficient of 0.07, and the regression coefficient is significant at 0.05 probability.
- 19 The ratio was over 30 per cent for Brazil during 1985–9 and 1990–4, Nicaragua during 1980–4 and 1985–9, and Chile 1980–4, and for no others during any of the periods.
- 20 In the absence of explicit modelling, the base year for an exchange rate has no normative implications, and movements from that base year, whether up or down, cannot be judged as movements toward or away from the optimum exchange rate. For example, an appreciating exchange rate implies unsound policy if and only if it is a movement away from, not towards, the equilibrium level.
- 21 The exchange rate index for 1974–80 was 5 per cent higher than for 1965–73, according to the CEPAL 'real effective exchange rate for exports'.
- 22 According to World Bank figures, Indonesia's debt service as a portion of export earnings was: 1975–9, 19 per cent; 1980–4, 17 per cent; and 1985–9, 36 per cent. For Korea, Malaysia, and Thailand, debt service rose sharply in the 1980s, but briefly, with rapid export growth and rescheduling reducing the percentages to 10 to 15 per cent in the early 1990s. Taiwan had a net positive external capital account.
- 23 In the first group, only for five observations out of thirty-five was debt service less than 30 per cent of exports. Two of these were during 1970–4, before the major debt accumulations (Bolivia and Chile), and two during 1990–4, after the debt reduction measures of the late 1980s (Brazil and Chile). The fifth, for Peru during 1985–9, reflected the Garcia government's policy of limiting debt service payments. For the 'moderate' group, the debt service ratio was *more* than 30 per cent in eleven time periods, five of which were during the debt crisis period of 1980–4. For the 'low' group, the ratio was over 30 per cent in only one time period (Honduras, 1990–4), and above 20 per cent in only eight. Honduras is a marginal case with an average for the five periods just over 20 per cent.
- 24 Only one country among the HPAEs had debt service over 30 per cent of export earnings, Indonesia during 1985–9 and 1990–4, which is not unrelated to the country's financial crisis during 1997–8. Even with Indonesia, the HPAE group is in the 'low debt' category in all time periods except 1985–9.
- 25 The model was estimated for five-year periods, with some variables lagged. See Weeks (2000).

- 26 A trend analysis with a shift term for 1991–8 shows a negative and significant coefficient of 1.2 per centage points.
- 27 Radelet and Sachs point out that the Asian collapse was not anticipated by financial markets:

The credit rating agencies...provide an on-going assessment of credit risk in the emerging markets. If the markets expected a financial crisis...the ratings of bonds should have fallen in the run-up to the crisis. Instead...we find that the rating agencies did not signal increased risk until after the onset of the crisis itself.

Radelet and Sachs 1998: 11

- 28 The relevant statistics for the simple regressions are given in the table below. The dependent variable is the natural logarithm of level of exports measured in constant US dollars of 1995 (from *World Development Indicators 1999*). The independent variable is exchange rate adjusted real unit labour costs, as defined in the text (UNIDO 1998).

Table 3.12 Exports and real labour costs

Country	Elasticity, exports and RULC	Significance of T-statistic	R ² and DF
Indonesia	-0.15	0.00	0.87 24
Korea	-0.51	0.00	0.90 32
Malaysia	-1.04	0.08	0.12 25

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