

**DOES DEVALUATION LEAD TO ECONOMIC RECOVERY
OR ECONOMIC CONTRACTION?
THEORY AND POLICY WITH REFERENCE TO THAILAND**

by

Graham Bird* and Ramkishen S. Rajan**

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* Surrey Centre for International Economic Studies, University of Surrey, Guildford UK. E-mail: g.bird@surrey.ac.uk

** School of Economics, University of Adelaide, Australia and Institute of Policy Studies, Singapore. E-mail: ramkishen.rajana@adelaide.edu.au

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Abstract

Most analyses of the East Asian financial crisis have focused on its causes and the links between currency and banking crises. However a related question is what happens in the aftermath of a crisis? What factors determine the path of an economy in the post-devaluation phase? Does it swiftly bounce back, with the crisis being followed by a period of economic recovery, or does it face a period of economic recession if not outright output collapse? An important element in answering these questions is to consider the response to devaluation, since this constitutes an almost invariant component of economic stabilisation. This paper examines these questions analytically the main as well as by using Thailand as a case study.

Key words: *capital flows, currency crisis, contraction devaluation, economic contraction, economic recovery, Thailand*

JEL Classification: *F30, F32, F41*

1. Introduction

Most analyses of financial crisis have focused on its causes, whether it is fundamentals-based or self-fulfilling, and the links between currency and banking crises. However a related question is what happens in the aftermath of a crisis? What factors determine the path of an economy in the post-devaluation phase? Does it swiftly bounce back, with the crisis being followed by a period of economic recovery, or does it face a period of economic recession or even output collapse? An important element in answering these questions is to consider the response to devaluation since this constitutes an almost invariant component of economic stabilisation.

The conventional textbook view is that devaluation is the end of the crisis as the ensuing nominal depreciation, if translated into a real depreciation, would have expansionary effects because it increased the demand for tradeables (Dornbusch, 1988). In developing countries additional demand could be associated with the price related switch of demand away from imports and the additional incentives to supply exports provided by the increase in their domestic currency supply price. In circumstances where an economy enjoyed quasi-full employment, it was recommended that expenditure switching devaluation should be accompanied by expenditure reducing policies (i.e. contractionary monetary and fiscal policies) to offset its inflationary repercussions. Thus the IMF's conventional wisdom was to combine exchange rate devaluation with measures to deflate aggregate domestic demand.

“New Structuralists” challenged both this analysis and the policy prescription that followed on from it (Krugman and Taylor, 1978, and Taylor, 1981). They argued that devaluation would be contractionary and that IMF programmes were stagflationary.

Whether devaluation was expansionary or contractionary was therefore apparently an empirical issue. Regression analysis of twelve developing economies for the period 1965-80 by Edwards (1986) suggested that real devaluations have a small contractionary effect in the short run but are neutral in the long run. However in a broad survey of the empirical evidence, Kamin (1988) concluded that there was no empirical evidence to support the claim that devaluation *per se* was contractionary. He found that more often than not, recessions preceded devaluation.

Nonetheless following the East Asian crisis of 1997-98 many economies in the region expressed a sharp decline in output (Figure 1 and Cerra, et al., 2003). Does this experience in the aftermath of devaluation provide new evidence suggesting that devaluation can indeed be harshly contractionary in certain sets of circumstances? And if so, what are these circumstances? Is there anything different in the East Asian case that distinguishes it from the earlier cases which seemed to be empirically inconsistent with the idea that devaluation would lead to sharp recession?

This paper examines these questions analytically in the main, but also uses Thailand as a case study. We focus on Thailand because it was the “trigger” country in the region-wide crisis in East Asia in 1997-98. Sections 2 and 3 examine the channels through which devaluation may have an impact on economic activity. While Section 2 briefly reviews the well-rehearsed potential effects of devaluation on aggregate demand and supply, the focus of Section 3 is on the less familiar effects of devaluation on the capital account. These effects have until recently been somewhat overlooked in the analysis of devaluation by comparison with its effects on the current account, but have been important in the case of the East Asian crisis, given that it has frequently been presented as a crisis of the capital account. Certainly, capital account effects have

come to the fore in the context of analysing crises (Yoshitomi and Ohno, 1999).¹ Having established the circumstances that may link a currency crisis and exchange rate devaluation with economic collapse, Section 4 goes on to examine whether these circumstances existed in Thailand in the mid and late 1990s. Section 5 concludes the paper by examining the implications for crisis management.

2. Contractionary Effects of Devaluation: The Current Account

There are various well established routes via which devaluation may in principle have a contractionary effect spanning both aggregate demand and aggregate supply (Edwards, 1989, Lizondo and Montiel, 1989, and van Wijnbergen, 1986). On the demand side, and with both a high average propensity to import and a low price elasticity of demand for imports, devaluation will tend to divert domestic monetary demand away from home produced goods. A similar impact may be felt in the case of highly indebted countries which, with external debt denominated in foreign currency, will experience an increase in the domestic currency costs of servicing debt (Cooper, 1971), implying that other forms of government expenditure will have to be reduced if the fiscal balance is not to weaken.

The income redistributive effects of devaluation will favour profits in the traded goods sector – the mechanism through which devaluation affects the current account – and disfavour real wages, as the price level rises. However spending and savings propensities may differ as between those receiving profits and wages. If the marginal propensity to save is higher from profits than from wages the economy's

¹ For instance Caballero and Krishnamurthy (1998) have observed that:
the Asian crisis is just the most recent chapter of an increasing trend toward shifting the 'blame' from current to capital account issues. Many think that this trend is an almost unavoidable side effect of increasing globalisation of capital markets (p.2).

average propensity to save will rise and this will tend to be demand contractionary (Diaz-Alejandro, 1963, Knight 1976). The increase in the price level will also increase the nominal demand for money or, what comes to the same thing, reduce the real supply of money. There will therefore be an increase in the rate of interest which will tend to deter consumption and investment. The effect will again be contractionary. Related declines in asset prices may also discourage investment via the effect on Tobin's q .

Imported Inputs Effect: On the supply side there are again a number of channels through which devaluation may exert a deep recessionary impact. Arguably the most important source of contraction is due to the rise in the domestic currency costs of imported inputs. Given the relevance of this issue to a number of developing countries it bears fleshing out a little more formally (Lizondo and Montiel, 1989).

$$\text{Let } P = (EP_t)^\beta (P_n)^{1-\beta} \quad (1)$$

where: E = baht per US dollar, $\beta = (ec_t)/(ec_t + c_{nt})$, c_t = real consumption of tradeables and c_{nt} = real consumption of nontradeables.

Eq. (1) simply states that the overall price level is a weighted average of the price of tradeables (P_t) and nontradeables (P_n). The weights in turn are based on the relative importance of tradeables and nontradeables in the overall consumption basket

$$\text{Let } P_t = 1$$

$$\text{Let } y = Y/P = Y_n/P + Y_t e/P - EM/P \quad (2)$$

where: M = imports.

$$\begin{aligned} \text{So, } y &= Y_n/(E^\beta P_n^{1-\beta}) + Y_t e/(E^\beta P_n^{1-\beta}) - M/(E^\beta P_n^{1-\beta}) \\ &= y_n e^{-\beta} + y_t e^{-\beta} - m e^{1-\beta} \end{aligned} \quad (3)$$

where: e = real exchange rate.

$$\begin{aligned} dy/de &= e^{-1} [y_t e^{1-\beta} - \beta(y_n e^{-\beta} + y_t e^{1-\beta})] - (1-\beta)e^{-\beta} m - e^{1-\beta} (dm/de) \\ &= e^{-1} (\alpha - \beta)(y_n e^{-\beta} + y_t e^{1-\beta}) - (1-\beta)e^{-\beta} m - e^{1-\beta} (dm/de) \end{aligned} \quad (4)$$

(a) (b) (c)

where: $\alpha = (ey_t)/(ey_t + y_n)$.

Ignoring for the moment the terms (b) and (c) in eq. (4), if $\alpha < \beta$, dy/de is unambiguously negative. Now consider terms (b) and (c). Note that term (b) is less than 0 and term (c) is greater than 0 (as $dm/de < 0$). Thus eq. (4) cannot be signed unambiguously. However assuming that dm/de is close to zero (i.e. imports are relatively exchange rate inelastic in the short run), it is likely that $dy/de < 0$, i.e. devaluation is contractionary.

This is of course an extremely simple model focussing only on real income effects. But even in this case the impact on output of a devaluation is far from straightforward. In addition there are also other substitution effects that need to be considered (Lizondo and Montiel, 1989). For instance a rise in the real exchange rate implies a shift in demand from tradeables to nontradeables. Furthermore the increased domestic rate of interest will raise the costs of production for firms that rely heavily on

bank credit. These things will tend to shift the economy's aggregate supply schedule to the left. At the same time as being contractionary, they may therefore be inflationary.²

3. Contractionary Effects of Devaluation: The Capital Account

While the literature on the contractionary effects of devaluation has concentrated heavily on the effects that devaluation will have via the current account of the balance of payments, it may also have effects on domestic economic activity via its impact on the capital account. Indeed it is unlikely that the "conventional" contractionary effects of devaluation via the current account can explain the *magnitude* and *ferocity* of some economic contractions following devaluation. This in turn has led to recent interest in "new-style" crisis models.

According to Dornbusch (2001)

A new-style crisis involves doubt about credit worthiness of the balance sheet of a significant part of the economy – private or public – and the exchange rate...when there is a question about one, the implied capital flight makes it immediately a question about both...the central part of the new-style crisis is the focus on balance sheets and capital flight...Because new-style crises involve the national balance sheet they involve a far more dramatic impact on economic activity than mere current account disturbances; this far larger impact arises both in terms of magnitude of the financial shock as well as disorganisation effects stemming from illiquidity or bankruptcy (pp.2-3).

In view of the importance of the balance sheet effect in recent financial crises in developing economies it would be useful to consider a simple formalisation of the issue based on a variant of the framework initially outlined by Aghion, Bachetta and Banerjee (2000).

² We generally assume throughout that the *nominal* depreciation does in fact translate into a

3.1 Balance Sheet or Stock Effects

Consider the following set of equations which represent a stylised developing open economy

$$1 + i_t = (1 + i^*)(E_{t+1}/E_t) + rp_t \quad (5)$$

$$y_t = \sigma k_t + x(E_{t-1}/P_{t-1}) \quad \text{and} \quad x'(\cdot) > 0 \quad (6)$$

$$k_t = w_t + d_t \quad (7)$$

$$d_t = \mu_t w_t \quad (\text{capital market imperfection}) \quad (8)$$

$$\mu_t = \mu(i_{t-1}) \quad \text{and} \quad \mu'(\cdot) < 0 \quad (9)$$

$$\pi_t = P_t y_t - C_t \quad (10)$$

$$C_t = (1 + i_t)P_t d^c + (1 + i^*)(E_t/E_{t-1})P_t(d_t - d^c) \quad (11)$$

where: i_t = domestic interest rate; i^* = foreign interest rate; rp_t = risk premium; y_t = real output; k_t = real capital stock; P_t = domestic price level; x_t = export function; w_t = domestic wealth in real terms; μ_t = profit function; C_t = costs in nominal terms; d_t = total debt in real terms; d^c = domestic debt in real terms; $(d_t - d^c)$ = unhedged foreign debt in real terms.

Eq. (5) is the usual uncovered interest parity condition. Eq. (6) states that long run, sustainable output is characterised by linear production technology with capital as the sole input, but output in the short-run could deviate from the sustainable level in the case of export demand shocks. Exports in turn are positively related to exchange rate variations (i.e. real devaluation stimulates exports and output).³ Eq. (7) states that

real depreciation. This is consistent with the East Asian experience in the 1990s.

³ In other words we abstract from the Structuralist reasons as to why devaluation may be contractionary. Aghion et al. (2000) do not incorporate the export demand effect.

the capital stock is financed by available wealth (“entrepreneurship”) as well as debt/borrowing. Eq. (8) states that the amount of borrowing to finance capital spending is a proportion of available wealth (μ_t).⁴ Eq. (9) states that μ_t is inversely related to domestic interest rates.⁵ Eq. (10) is simply the profit function (revenues less costs). Eq. (11) is the cost function. The only cost considered here is that on interest incurred on borrowing. Specifically, the first term on the r.h.s of eq. (11) is the interest cost on domestic debt while the second term on the r.h.s. is the interest cost on foreign debt.

With the appropriate substitutions we have:

$$\pi_t = P_t y_t - [(1 + i_t)P_t d^C + (1 + i^*)(E_t/E_{t-1})P_t(d_t - d^C)]. \quad (12)$$

$$w_{t+1} = (1 - \alpha)\pi_t/P_t \quad (13)$$

$$= (1 - \alpha)\{P_t y_t - [(1 + i_t)P_t d^C + (1 + i^*)(E_t/E_{t-1})P_t(d_t - d^C)]\}/P_t \quad (13^1)$$

The question we are interested in here is what is the impact of a change in E_1 on Y_2 ?

From eq. (6),

$$Y_2 = \sigma(1 + \mu(i_1))W_2 + X(E_1/P_1) \quad (14)$$

What is W_2 ?

$$W_2 = (1 - \alpha)\pi_1/P_1 = (1 - \alpha)\{P_1 Y_1 - [(1 + i_1)P_1 D^C + (1 + i^*)(E_1/E_0)P_1(D_1 - D^C)]\}/P_1 \quad (15)$$

⁴ Intuitively, the total amount of borrowing is limited by available collateral.

⁵ Intuitively, as interest rates in the economy increase, other things being equal, the greater the probability of economy-wide bankruptcies and consequently the lower the lending propensity

So,

$$Y_2 = \sigma(1 + \mu(i_1))\{(1 - \alpha)\{Y_1 - [(1 + i_1)D^C + (1 + i^*)(E_1/E_0)(D_1 - D^C)]\} + X(E_1/P_1)\} \quad (16)$$

(a) (b)

dY_2/dE_1 cannot be signed a priori. Why? While term (b) in eq. (16) is unambiguously *positive*, i.e. the “competitiveness effect”, term (a) has three sub-effects:

- I. $\mu'(i_1)$ is *positive* signifying greater credit availability due to the reduction in interest rate post devaluation.
- II. $(1 + i_1)d^C$ is *positive* signifying lower interest burden on domestic debt as the devaluation allows for a reduction in interest rates.
- III. $(1 + i^*)(E_1/E_0)(d_1 - d^C)$ is *negative* as there is an increase in domestic value of existing unhedged foreign debt due to currency depreciation (“balance sheet” effect).

This simple model highlights a number of channels via which devaluation may have an impact on output.

3.2 Flow Effects

While the foregoing has focussed on the “stock” of debt, another important component relates to its “flow” dimension. Krugman (1999) nicely describes the issue in the case of East Asia:

If there is a single statistic that captures the violence of the shock to Asia most dramatically, it is the reversal in the current account: in the case of Thailand, for example, the country was forced by the reversal of capital flows to go from a deficit of some 10 percent of GDP in 1996 to a surplus of 8 percent in 1998. The need to effect such a huge change in the current account represents what may be history's most spectacular

of banks.

example of the classic “transfer problem” debated by Keynes and Ohlin in the 1920s. In practice this swing has been achieved partly through massive real depreciation, partly through severe recession that produces a compression of imports (p.9).

But how exactly might devaluation affect capital flows? The *a priori* reasoning is ambiguous. A quick answer is that where devaluation serves to create or restore confidence it will tend to have a positive effect; while where it fails to create confidence, or even damages it, it will also fail to turn capital outflows around and may even speed them up. Thus where devaluation is part of a credible macroeconomic strategy, is combined with appropriate counter-inflationary fiscal and monetary policy, and leads to a new exchange rate that is perceived by private capital markets to be close to the equilibrium real rate or below it, it will have a positive effect on creditworthiness and capital flows. Where on the other hand, it is perceived as a panic measure, is combined with excessively expansionary fiscal and monetary policy, and leads to a new rate that is still seen as involving currency overvaluation, it will be associated with further capital outflows.

This analysis may be re-interpreted within the context of a simple asset market framework. As noted earlier, devaluation will tend to be initially associated with rising interest rates as the price level rises and the real supply of money falls. On its own this may encourage capital inflows. But there is another element. What happens to expected exchange rate changes or risk premium? Where the exchange rate is not expected to fall further, there will be a positive effect on capital flows. However where a contemporary devaluation creates an expectation of a further future fall in the value

of the currency or arise in the risk premium, then this will tend to have a negative effect on capital flows.⁶

In other words, where devaluation restores confidence, recession will be avoided and the devaluing country will recover quickly assisted by capital inflows. However where devaluation leads to the further evaporation of confidence, economic contraction becomes more likely, especially as there is a “self-fulfilling prophecy” at work. If devaluation damages confidence it will result in additional capital outflows which will cause the further decline in the currency’s value that was anticipated. This internal dynamic can then lead to short run overshooting beyond the equilibrium real exchange rate. As Calvo (1996) has noted, “if there is a ‘bad’ equilibrium lurking in the background, a devaluation - especially, an unscheduled devaluation - could coordinate expectations and help push the economy to the ‘bad’ equilibrium” (p.219).

This then has implications for the macroeconomic policies that accompany devaluation and shifts in exchange rate regime. If the capital account effect of devaluation leads to a drying up of capital inflows, the domestic monetary authorities are left with an awkward choice. If they allow capital outflows to reduce the domestic money supply there will almost certainly be a recessionary macroeconomic effect. As the East Asian crisis has made clear, there are also important balance sheet effects at work. In such a case, a conventional discretionary absorption reducing (i.e. high interest rate policy) monetary policy could raise the probability that a country will be unable to service its debt, further swelling the share of non-performing loans (NPLs)

⁶ Conceptually, one can think of this flow argument as entering the BP schedule as follows: $BP = T(E, y, y^*) + K(i, i^*, E)$, where $K_E < 0$. Whether T_E is positive or negative depends on exchange rate elasticity of exports and imports (*where*: T = trade account, K = capital account).

held by financial institutions.⁷ Decapitalised banks may in turn curtail their lending intensifying the recession (supply side effect). It is therefore not surprising that currency crises in emerging and developing economies tend often to be accompanied by banking crises. The co-existence of banking and currency crises has been found to be the norm during the late 1980s and early 1990s (Kaminsky and Reinhart, 1999), and these twin crises seem to be far more pervasive in developing economies than developed ones (Glick and Hutchison, 1999)⁸. In addition the rise in local currency debt (and thus fall in corporate net worth) along with the collapse in asset prices that tend to accompany - in fact precede - devaluation could deepen the “credit crunch” caused initially by loss of access to international capital markets.⁹ There is a complex interaction between adverse balance sheet effects and capital flight.

⁷ This is referred to as the so-called “Laffer curve” effects of monetary policy (LCEMP). It has been the focus of a great deal of attention since the East Asian crisis. See for instance Aghion et al. (2000), Furman and Stiglitz (1998), Goldfajn and Baig (1998) and Lahiri and Vegh (2001). As with the conventional Laffer curve effects pertaining to taxes and economic growth, there is limited empirical evidence in support of the LCEMP. In terms of eq. 4, the LCEMP may be incorporated by assuming that risk premium is a positive function of the interest rate, and that effect outweighs the direct exchange rate impact of an interest rate change.

⁸ These “twin crises” have inspired a number of recent theoretical contributions to the literature on financial crises in emerging and developing economies. The pioneering work in this area is Velasco (1987), who introduced a banking sector within a conventional Krugman (1979) framework.

⁹ As Kasa (1998) has noted:

collateralised lending is a powerful propagation mechanism. When borrowing must be backed by the value of collateral, a dynamic feedback process arises between asset prices and aggregate economic activity. In particular, a sudden decline in the value of collateral (e.g., land or equity prices), or a sudden increase in the real value of debt (due, e.g., to a currency devaluation) tends to reduce borrowing capacity, and therefore investment, in those sectors with the strictest collateral requirements, e.g., small businesses with little access to secondary debt markets....(O)nce a shock occurs, feedback effects between collateral values, investment, and aggregate economic activity tend to propagate its effects over time (pp.2-3).

4. Thailand: A Case Study

This section has a modest objective. We do not attempt to model formally the ideas discussed above. What we do instead is to describe what happened in Thailand and attempt to relate it to the foregoing discussion. Is there at least preliminary evidence to support the notion that the capital account response to devaluation may be a conduit for economic recession? This does not involve us in a comprehensive analysis of the Thai crisis.¹⁰ Rather we draw attention to key characteristics related to the initial *crisis* (i.e. devaluation) and the outright financial and economic *collapse* that ensued (Rajan, 2001). This important distinction between the initial devaluation and ensuing financial and economic collapse was initially brought up by both Calvo and Mendoza (1996) and Sachs et al. (1996) in the case of the Mexican crisis of 1994-95¹¹

4.1 The Thai Crisis in Brief: From Devaluation to Collapse

An important characteristic of the pre-devaluation period in Thailand was that the monetary authorities sterilised reserve outflows so as to ensure smooth growth of money supply during the crisis period (Rajan, 2001, Rajan and Sugema, 2000 and World Bank, 1999). MacIntyre (1999) succinctly summarises the course of events in Thailand during this period:

(a) side effect of injecting large scale emergency funding into the...failing finance companies was blowing out the money supply...This served to sharpen the fundamental contradiction in the government's overall macroeconomic position. At the same time as it

⁹ See for instance BOT (1998), Rajan (2001) and Warr (1998).

¹¹ In the case of Mexico though, the emphasis was more on *equity flows* than *bank lending*. There also remains some disagreement as to whether the initial devaluation of the peso was self-validating (Sachs et al., 1996) or fundamentals-based *a la* KFG (Calvo, 1996 and Calvo and Mendoza, 1996). Focusing on Mexico and Thailand, Montiel (1999) also stresses the importance of bad fundamentals leading to devaluation, which if postponed, could precipitate an outright liquidity crisis.

was pumping money into insolvent finance companies to keep them afloat, the central bank was also spending down reserves to prop up the exchange rate...(T)his was not a sustainable strategy (p.14).

The analytics of the crisis, based on the foregoing discussion, may be simply noted below using the following two identities:

$$CAD = -\Delta R + \Delta K \quad (17)$$

$$\Delta H = \Delta R + \Delta NDA \quad (18)$$

where: CAD is the current account deficit; ΔR is the change in reserves; ΔK represents capital flows; ΔH is the change in the monetary base; and ΔNDA is the change in net domestic assets. Eq. (17) is simply the balance of payments accounting identity stating that a current account deficit must be financed through drawing down international reserve holdings or through capital inflows. Eq. (18) states that changes in the monetary base must be an outcome of changes in international reserves and net domestic assets. Substituting eq. (17) into (18) we get:

$$CAD + \Delta H = \Delta NDA + \Delta K \quad (19)$$

With ΔK (ΔR) < 0 and $\Delta H = 0$ (given the costs of an interest rate hike), it follows that $\Delta NDA > 0$. If capital outflows and reserve losses are sustained, the result is inevitably that the currency will be expected to depreciate, leading to an increase in domestic interest rates. As reserves fall to some minimum level, the expected currency devaluation will become a reality. In Thailand, this happened on July 2nd 1997 (Rajan, 2001).

In the period leading up to the devaluation (i.e. first quarter of 1997) only the non-bank sector experienced capital outflows (Table 1). More precisely it was the non-

resident baht accounts (NRBAs) in particular, but also the “other loans” component that recorded net outflows. NRBAs are essentially nostro accounts held in domestic banks that serve various transactions, including baht clearing for foreign currency-related transactions and stock market transactions by foreigners. Net FDI inflows remained positive throughout 1997 and portfolio flows too only changed direction in November and December 1997. Private bank capital flows turned around sharply by over \$10 billion between the first half and second halves of 1997. This reversal intensified in 1998, with outflows reaching almost \$14 billion.

Of significance here is the fact that funds were still flowing into the country during the first half of 1997 right up to the devaluation. It was only *after* the devaluation that there was a massive exodus of these banking sector flows. Capital outflows from NRBAs were \$3.5 billion in the first half of 1997, over \$2 billion in the second half of the year and slowed to about \$2.7 billion for the 1998 as a whole. According to some reports, Thailand was pulled back from the brink of national bankruptcy at the end of 1997 only because creditors agreed to roll over their foreign loans to local firms (Bangkok Post, December 22, 1997).

While the preceding has highlighted the dynamics of capital flows from Thailand, Table 3 provides data on the foreign asset and liability positions of Thailand with BIS-reporting foreign banks (i.e. the “stock” position). The data are divided on the basis of banks versus non-banks. It is clear that the bulk of liability accumulation in Thailand has been by banks (86 percent in 1996). These high net liability positions by the Thai banks emphasise the existence of significant mismatches in the sense that a large part of the foreign deposits was lent predominantly to domestic investors (referred to as “out-in” transactions). Insofar as foreign borrowing was largely unhedged (given sustained exchange rate stability and the credibility of its

continuation), this left the financial system open to grave foreign currency mismatches. To be sure, financial institutions in Thailand did generally have a natural hedge against exchange rate risks by lending domestically in foreign currencies, thus transferring the risks to the corporate borrowers. Nevertheless all this really implied for the financial institutions was that the foreign currency risks were converted to credit risks in the event of loan default by borrowers.

The difficulties faced by financial institutions led to large-scale domestic “credit rationing” in Thailand. While recognising that credit growth reflects both the demand for and supply of credit (for instance, see Kraay, 2000, Lane et al., 1999, Lindgren et al., 1999 and Stiglitz and Furman, 1998), at least in the case of Thailand, available evidence suggests that the credit crunch was more supply induced (Agenor, et al., 2000). Indeed available evidence points to a high and growing risk aversion on

Given this liquidity crunch, investment and output was severely curtailed in 1997-98. Domestic demand overall experienced an even sharper decline due to a fall in private consumption; the BOT’s composite consumption index fell sharply in mid 1997, with consumer durables being especially hard hit. While investment demand fell across-the-board, construction was worst affected, its share falling from half of total investment before the crisis to just 35 percent by 1999 (Table 4).

While Thailand was indeed on a downward growth trajectory pre-crisis, the devaluation of the baht seemed to precipitate an outright economic collapse emanating from the capital account. Thus GDP, which had declined by between 1 and 2 percent in 1997, fell dramatically by 10 percent in 1998. Supply and demand side channels via the current account then intensified the recessionary effects due to a sudden loss of access to international capital markets. A particularly important dimension in Thailand and the rest of crisis-hit East Asia was the balance sheet effects due to large unhedged

exposure to short term foreign currency denominated debt. In a recent review of the IMF response to the East Asian crisis, Fund economists noted:

(i)t was...not foreseen at the outset that these economies would adjust in a dysfunctional way to reduced external financing - largely through a collapse of private domestic demand rather than a boom in exports. This adjustment reflected in large part the harsh balance-sheet effects of the currency depreciations that occurred, given the unhedged foreign currency exposures of banks and corporations (Boorman et al., 2000, p.6).

Thus the rise in the baht value of external debts following the initial devaluation substantially worsened the balance sheet positions of domestic corporates and banks, which in turn worsened domestic economic conditions and intensified capital outflows (Krugman, 1999).

4.2 Role of Monetary and Fiscal Policy

A remaining question is whether the economic contraction in Thailand in the post-devaluation period was more to do with contractionary monetary and fiscal policy than the contractionary effects of devaluation? In the case of monetary policy, the Thai authorities in fact hesitated to raise interest rates in the first few months of the crisis in mid 1997. This policy vacillation may have undermined the credibility of the Fund-supported programme. Available evidence, based on estimated impulse response functions of real GDP growth to a given deceleration of the growth of real money, suggests that subsequent monetary tightening accounted for less than a quarter of the negative swing in GDP growth rates between 1997 and 1998 (Boorman et al, 2000 and Lane et al., 1999). Interest rates were below their pre-crisis levels by mid 1998, as exchange rates and capital outflows stabilised.

What about fiscal policy? In fact the fiscal policy stance was highly supportive of economic recovery, though this resulted in a sustained fiscal deficit since 1996 with

consequent implications for and concerns about public debt sustainability (IMF, 2000). Fiscal policy does not seem to have been important in explaining the past devaluation.¹²

While detailed discussions of recent macroeconomic trends beyond 1999 and 2000 in Thailand are beyond the scope of this paper, we do note that consumption demand rebounded sharply while export demand was buoyed by the depreciated currency, strong growth in the US and Europe, and economic recovery in the regional trading partners. However fixed investment demand remained depressed until late 1999 owing to the existence of excess capacity (particularly in the construction sector) and corporate debt overhang. Overall GDP growth bounced back to average 4 to 5 percent between 1999 and 2000.

The Thai experience in the aftermath of devaluation as analysed above, is largely consistent with the econometric evidence presented by Morley (1992) relating to the effects of real devaluation during stabilisation in twenty eight developing economies since 1974. His study reaches four conclusions. First, real devaluations do reduce output in the short run, and they take at least two years to have their full effect. Second, devaluations are less likely to be recessionary if they are accompanied by an increase in foreign lending. Third, expenditure reducing policies have a modest impact on output during the period under consideration. As he notes, “the typical stabilisation programme consisted of a real devaluation and a sharp fiscal and monetary

¹² Boorman et al. (2000) ask the question “did the tighter initial stance on fiscal policy have a negative effect on economic activity that persisted even though the initial tightening was unwound.” While they acknowledge that this is “a difficult to answer with available data”, they go on to note that “(i)n the case of Thailand...the program was introduced in August 1997 and, at the first quarterly review in November, as early projections suggested underperformance with regard to the initial fiscal targets, additional measures were introduced with a view to achieving the original targets. The latter further tightening of policies – intended at the time to avoid shaking confidence by weakening fiscal targets at the time of accession of

contraction...(T)hese demand-side policies did not play any independent role on capacity utilisation beyond their possible contribution in changing nominal devaluations into real devaluations.." (p.27). Fourth, the contraction was closely associated with a decline in investment. While Morley did not test for long run effects, as noted earlier, a number of other studies have found that the real exchange rate is neutral in the long run, i.e. it is neither contractionary nor expansionary. Any contractionary effects of devaluation appear to be reversed in the long run. This is also consistent with the rebound in growth in Thailand and the rest of East Asia.

5. Concluding Remarks

The traditional view regarding crisis management was that devaluation is expansionary/inflationary and needs to be accompanied by demand deflationary monetary and fiscal policy. New structuralist claims that it could be contractionary seemed to lack empirical support. However recent events in East Asia, particularly Thailand, have shown that devaluations may be associated with at least near term recession, and that this can be severe (i.e. outright collapse).

Analysis of the Thai example suggests that devaluation may have contributed to capital outflows, and that it was the associated loss of liquidity that both directly and indirectly caused recession. We can of course never know the counter-factual. What would have happened had the devaluations not occurred when they did? Moreover it is difficult to predict the response of capital markets to devaluation. Will it be seen as resolving economic problems, in which case it will generate confidence? Or will it be seen as a panic measure, in which case residual confidence may rapidly

a new government- was, in hindsight, mistaken; it delayed the easing of fiscal policy until about six months into the program" (p.51).

evaporate? It is notoriously difficult to explain short term capital flows, let alone anticipate how markets will respond to devaluations. At the same time, experience in Thailand and elsewhere has awakened us to the idea that there may be a recessionary threat associated with devaluation which works via the capital account response¹³. Being aware of the fact that certain countries may be vulnerable to contractionary consequences from devaluation should help in designing policies which minimise the likelihood of severe economic contraction. There will remain a policy tightrope, but it may help to realise that it is equally easy to fall off in either direction.

Uncertainty itself carries implications for policy design. First, it needs to be flexible enough to respond to circumstances as they evolve. Second, maximum effort needs to be put into avoiding the appearance that devaluation is a panic measure. In this context, an exchange rate stitch in time may save nine! Furthermore, governments in liaison with the IMF need to address the risk that devaluation may spook private capital markets. Devaluation must be presented as part of a credible economic strategy, and foreign capital needs to be bailed in to support it.

Low-income countries that have failed to attract short-term private capital will be less exposed to the recessionary consequences of a devaluation running through the capital account although it may still be contractionary in other ways. This will in turn have consequences for the design of the macroeconomic policy that accompanies devaluation in their case. Moreover, for industrialised countries it may be less that *devaluation causes panic* and more that *panic causes devaluation*. Thus the UK's

¹³ The BOT (1998) report on the Thai crisis also outlined the "official" reasons behind why a devaluation of the baht was perceived as doing more harm than good: high import content of Thai exports implying limited competitiveness benefit from a weakened currency; inflationary effects of devaluation leading to wage-price spiral; unhedged foreign currency debts of corporates leading to bankruptcies and unemployment; deterioration in asset quality of financial institutions due to a weakened corporate sector and a vicious spiral of escalating distress in the corporate and financial sectors, and higher interest rates (to contain inflation)

withdrawal from Europe's Exchange Rate Mechanism in 1992 was followed by a period of falling interest rates, low inflation and substantial economic recovery. The devaluation drew speculative capital movements to a close (Gordon, 1999). Thus, Krugman (1998) noted

nobody who looks at the terrible experiences of Mexico in 1995 or Thailand in 1997 can remain a cheerful advocate of exchange rate flexibility. It seems that there is a double standard on these things: when a Western country lets its currency drop, the market in effect says "Good, that's over" and money flows in. But when a Mexico or Thailand does the same, the market in effect says "Oh my God, they have no credibility" and launches a massive speculative attack. So the question for..(emerging and developing economies)..is, do you think that the market will treat you like Britain, or do you think it will treat you like Mexico? And this is not an experiment that any responsible policymaker wants to try.

References

- Agenor P, Aizenman J, Hoffmaister A. 2000. The Credit Crunch in East Asia: What Can Bank Excess Liquid Assets Tell Us?, *Working Paper*, **7951**, NBER, Cambridge, MA (October).
- Aghion, P., Bacchetta P, Banerjee A. 2000. A Simple Model of Monetary Policy and Currency Crises, *European Economic Review*, **44**: 728-738.
- Bank of Thailand (BOT). 1998. Focus on the Thai Crisis, *Quarterly Review of Thailand's Economic Issues*, **2**, BOT, Thailand (April-June).
- Boorman J, Lane T, Schultze-Ghattas M, Bulir A, Ghosh A, Hamann J, Mourmouras A, Phillips S. 2000. Managing Financial Crises: The Experience in East Asia, *Working Paper*, **00/107**, IMF, Washington, DC (June).
- Caballero R, Krishnamurthy A. 1998. Emerging Market Crises: An Asset Markets Perspective, *Working Paper*, **6843**, NBER, Cambridge, MA (December).
- Calvo G. 1996. Capital Flows and Macroeconomic Management: Tequila Lessons, *International Journal of Finance and Economics*, **1**: 207-223.
- Calvo G, Mendoza E. 1996. Mexico's Balance-of-Payments Crisis: A Chronicle of a Death Foretold, *Journal of International Economics*, **41**: 235-264.
- Cerra V, Sweta S. 2003. Did Output Recover from the Asian Crisis?, *Working Paper*, **03/48**, IMF, Washington, DC (March).
- Cooper R. 1971. Currency Devaluation in Developing Countries, *Princeton Essays in International Finance*, **86**, International Economic Section, Princeton University (June).
- Diaz-Alejandro C. 1963. A Note on the Impact of Devaluation and the Redistributive Effects, *Journal of Political Economy*, **71**: 577-580.
- Dornbusch R. 1988. *Open Economy Macroeconomics*. Basic Books, New York (second edition).
- Dornbusch R. 2001. A Primer on Emerging Market Crises, *Working Paper*, **8326**, NBER, Cambridge, MA. (June).
- Edwards S. 1986. Are Devaluations Contractionary?, *Review of Economics and Statistics*, **68**: 501-508.
- Edwards S. 1989. *Real Exchange Rates, Devaluation, and Adjustment: Exchange Rate Policy in Developing Countries*. MIT, Cambridge, MA.
- Furman J, Stiglitz J. 1998. Economic Crises: Evidence and Insights from East Asia, *Brookings Papers on Economic Activity*, **2**: 1-114.

Glick R, Hutchison M. 1999. Banking and Currency Crises: How Common Are Twins?, *Working Paper*, **PB99-07**, Center for Pacific Basin Monetary and Economic Studies, Federal Reserve Bank of San Francisco.

Goldfajn I, Baig T. 1998. Monetary Policy in the Aftermath of Currency Crises: The Case of Asia, *Working Paper*, **98/170**, IMF, Washington, DC (December).

Gordon R. 1999. The Aftermath of the 1992 ERM Breakup: Was there a Macroeconomic Free Lunch?, *Working Paper*, **6964**. NBER, Cambridge, MA (February).

International Monetary Fund (IMF). 2000. Thailand: Selected Issues, *Staff Country Report*, **00/21**. IMF, Washington, DC (February).

Kamin S. 1988. Devaluation, External Balance, and Macroeconomic Performance: A Look at the Numbers', *Princeton Studies in International Finance*, **No.62**. International Economics Section, Princeton University.

Kaminsky G, Reinhart C. 1999. The Twin Crises: The Causes of Banking and Balance-of-Payments Problems, *American Economic Review*, **89**: 473-500.

Kasa, K. 1998. Contractionary Effects of Devaluation, *Economic Letter*, **98-34**, Federal Reserve Bank of San Francisco.

Knight J. 1976. Devaluation and Income Distribution in Less Developed Economies, *Oxford Economic Papers*, **42**: 185-204.

Kraay A. 2000. Do High Interest Rates Defend Currencies During Speculative Attacks?, *Policy Research Working Paper*, **2267**. World Bank, Washington, DC (January).

Krugman P. 1979. A Model of Balance of Payments Crises, *Journal of Money Credit and Banking*, **11**: 311-328.

Krugman, P. 1998. Latin America's Swan Song, mimeo (undated).

Krugman P. 1999. Balance Sheets, The Transfer Problem, and Financial Crisis. In *International Finance and Financial Crises*. Isard P, Razin A, Rose A (eds.). Kluwer Academic Press, Boston.

Krugman P, Taylor L. 1978. Contractionary Effects of Devaluation, *Journal of International Economics*, **8**: 445-456.

Lahiri A, Vegh C. 2001. Delaying the Inevitable: Optimal Interest Rate Policy and BOP Crises, *Working Paper*, **7734**. NBER, Cambridge, MA (July).

- Lane, T, Ghosh A, Hamann J, Phillips S, Schultze-Ghattas M and Tsikata T. 1999. IMF-Supported Programs in Indonesia, Korea, and Thailand: A Preliminary Assessment, *Occasional Paper*, **178**. IMF, Washington, DC (June).
- Lindgren C, Balino T, Enoch C, Gulde A, Quintyn M, Teo L. 1999. *Financial Sector Crisis and Restructuring: Lessons from Asia*. IMF, Washington, DC.
- Lizondo S, Montiel P. 1989. Contractionary Devaluation in Developing Countries, *IMF Staff Papers*, **36**: 182-227.
- MacIntyre A. 1999. Political Institutions and the Economic Crisis in Thailand and Indonesia. In *The Politics of the Asian Financial Crisis*. Pempel T (ed.). Cornell University Press, Ithaca, Cornell.
- Montiel P. 1999. Policy Responses to Volatile Capital Flows, mimeo (March).
- Morley S. 1992. On the Effects of Devaluation During Stabilization Programs in LDCs, *Review of Economics and Statistics*, **74**: 21-27.
- Rajan R. 2001. (Ir)relevance of Currency Crises Theory to the Devaluation and Collapse of the Thai Baht, *Princeton Studies in International Economics*, **88**. International Economics Section, Princeton University (February).
- Rajan R, Sugema I. 2000. Government Bailouts and Monetary Disequilibrium: Common Fundamentals in the Mexican and East Asian Crises, *North American Journal of Economics and Finance*, **11**: 123-135.
- Sachs, J, Tornell A, Velasco A. 1996. The Collapse of the Mexican Peso: What Have We Learned?, *Economic Policy*, **22**: 15-63.
- Taylor L. 1981. IS/LM in the Tropics: Diagrammatics of the New Structuralist Macro Critique. In *Economic Stabilization in Developing Countries*. Cline W, Weintraub S (eds.). The Brookings Institution, Washington, D.C.
- Velasco A 1987. Financial Crises and Balance of Payments Crises: A Simple Model of the Southern Cone Experience, *Journal of Development Economics*, **27**: 263-283.
- van Wijnbergen S. 1986. Exchange Rate Management and Stabilization Policies in Developing Countries, *Journal of Development Economics*, **23**: 227-247.
- Warr P. 1999. 'What Happened to Thailand?', *World Economy*, **22**: 631-650.
- World Bank 1999. *Global Economic Prospects and the Developing Countries*. Oxford University Press, New York.
- Yoshitomi M, Ohno K. 1999. Capital-Account Crisis and Credit Contraction, *Working Paper*, **2**. Asian Development Bank Institute, Tokyo (May).

Table 1
Thailand: Composition of Net Private Capital Inflows (US\$ billions), 1997-1999

	1997	1998	1998		1999 Q1
			Q1	Q4	
Banks	-6,640	-13,944	1,244	-4,368	-5,497
Commercial banks	-1,727	-4,310	881	-2,445	-3,375
of which Recapitalisation	0	1,986	952	0	21
BIBFs	-1,913	-9,634	-2,125	-1,924	-2,123
Non-banks	-1,912	-2,024	-2,777	1,248	-469
Direct Investment	3,201	4,688	1,066	1,218	902
Foreign direct investment ^a	3,641	4,810	1,067	1,248	996
Thai direct investment abroad	-440	-123	-1	-30	-94
Other Loans	-3,783	-4,279	-1,981	-734	-1,239
Portfolio investment	4,494	539	437	-15	221
Equity securities	3,869	354	434	-75	230
Debt securities	625	185	3	60	-9
Nonresident baht account	-5,839	-2,714	-2,269	779	-315
Trade Credits	-242	-494	-186	-160	0
Others	256	237	156	160	-38
Total	-8,552	-15,967	-4,021	-3,120	-5,966

Notes: a) excluding \$2.1 billion in bank recapitalisation.

Source: Bank of Thailand

Table 2
Thailand: Foreign Assets and Liabilities Towards BIS Reporting Banks (US\$ billions), 1993, 1996 and 1997

	1993	1996	1997
Foreign Liabilities	34.73	99.27	79.66
Foreign Assets	5.01	9.00	9.81
Net Liabilities (Total)	29.72	90.27	69.84
Foreign Liabilities (Nonbanks)	9.14	14.13	12.00
Foreign Assets (Nonbanks)	1.63	1.90	2.06
Net Liabilities (Nonbanks)	7.50	12.22	9.94
Foreign Liabilities (Banks)	25.59	85.15	67.66
Foreign Assets (Banks)	3.38	7.10	7.75
Net Liabilities (Banks)	22.22	78.05	59.90

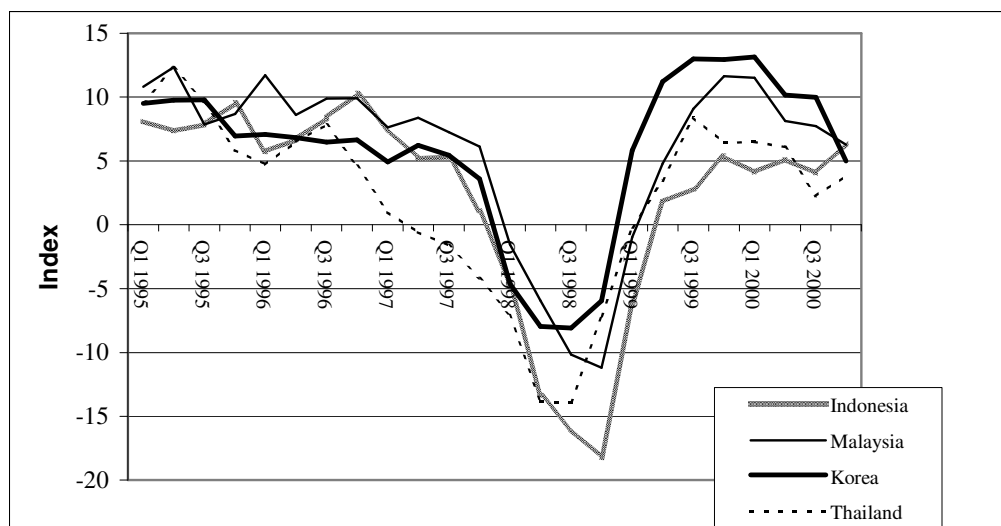
Source: BIS

Table 3
Thailand: Components of GDP Growth, 1991-1999
 (percent change)

	1991-94 (Average)	1996	1997	1998	1999	2000
Real GDP	8.5	5.9	-1.4	-10.5	4.4	4.6
Private Consumption	7.6	5.8	-1.4	-11.5	4.3	4.9
Public Consumption	6.5	12.1	-2.8	3.9	3.2	2.6
Gross Domestic Investment	9.5	5.2	-21.9	-50.9	8.7	10.9
Gross Fixed Investment	10.0	7.0	-20.5	-44.3	-3.2	5.5
Exports of goods & services	14.0	-5.5	7.2	9.0	9.0	17.6
Imports of goods & services	12.4	-0.6	-11.3	10.5	10.5	27.3

Source: Bank of Thailand and Asian Development Bank.

Figure 1
Quarterly GDP Growth Rate, Q1:1995 - Q4: 2000
 (% y-o-y)



Notes: Year-on-year changes.

Source: International Financial Statistics, IMF.