THE ASIAN FINANCIAL CRISIS: LESSONS FROM THAILAND

LAURENT L. JACQUE

Mesmerized by the Asian economic miracle, Western pundits long probed the inner workings of Asian-style capitalism. Abnormally high savings, accumulated primarily by households, illustrated a distinct preference for low-risk bank deposits rather than riskier equities. Commercial banks, in turn, were the primary purveyors of long-term financing to highly leveraged corporations, which, by and large, could depend on patient and strategically-minded creditors to weather occasional shocks.

The Asian financial system–hailed in good times as alliance capitalism, and more recently maligned as crony capitalism–was generally credited for a quarter century of breakneck growth that had lifted impoverished nations to the enviable status of newly industrialized countries. It all came to a screeching halt when mayhem was unleashed with the abrupt devaluation of the Thai baht on July 3, 1997. In the ensuing weeks the crisis that wrecked the Thai financial system engulfed the rest of Southeast Asia. Singapore, Hong Kong, Taiwan and China resisted but did not escape.

Using the case of Thailand, this article discusses the origins of the Asian crisis, how it developed and the remedial policies initiated. Its major thesis is that unlike previous financial crises born out of government fiscal and monetary excesses the Asian crisis primarily originated in the private sector. It is a crisis of flawed resource allocation abetted by misguided government policies and unfortunately corrected by Western-style policies often ill-adapted to the idiosyncracies of Asian capitalism.

Special Features

WHEN THE ASIAN MIRACLE UNRAVELS

Southeast Asia had long exhibited the outward signs of superior economic performance. The Asian dragon economies had indeed delivered

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relentless and spectacular rates of economic growth averaging between 8 and 15 percent per annum over a 25 year period. Government finances were conservatively managed with surplus budgets, controlled inflation, enviable savings and relatively stable exchange rates. Equally impressive, each national central bank had accumulated large foreign exchange reserves, which buttressed each country's ability to defend its exchange rate were capital flows to turn outwardly hostile (Figure 1). Last but not least, credit rating agencies, such as Moody's and Standard & Poor's, readily obliged Asia by upholding favorable ratings for sovereign risk.[1] In the early 1990s, as the Asian miracle looked less miraculous and more credible with each day, the region started to attract unprecedented levels of foreign direct and portfolio investments, which propelled the recipient economies into "overdrive."

Yet, beneath the surface were not so hidden leading indicators of impending weakness. The Stock Exchange of Thailand index (SET) had long exhibited anemic growth, if not downright weakness and–if one accepts the predictive ability and collective wisdom of stock prices to anticipate the future course of economic activity–this was clearly a harbinger of things to come (Figure 2). More immediate was the rapid deceleration of export growth leading to large current account deficits deceptively masked by large short-term capital inflows (Figure 3). The reader may recall that in a pegged exchange rate system–as in the case of Thailand–a current account deficit can only be financed by a surplus in the capital account and/or depletion of a central bank's foreign exchange reserves. During 1996-1997, Thailand's current account deficit approached 8 percent of GDP and was largely financed by massive dollar-denominated short-term borrowing by Thai financial institutions that, in turn, had been encouraged by financial deregulation introduced in the early 1990s. Most notable were the creation of Bangkok International Banking Facilities meant initially to build up Bangkok's image as a regional financial center, but which turned out to be a regulatory conduit facilitating excessive Thai bank short-term offshore (eurodollar) financing for onshore longer-term (domestic) investments. When the loss of confidence in the ability of the Bank of Thailand to defend its currency started to gather momentum, financial panic led to sharp capital flows reversals. In the second half of 1997, the exodus of short-term capital is generally estimated to have exceeded the entire capital inflows of the previous eighteen months. As assets prices rapidly fell, the entire financial system unraveled, pushing the Thai economy into recession.

Fortuitous circumstances may have also led to the demise of the Thai currency. The peg against the U.S. dollar had steadily brought about a substantial overvaluation[2] of Thai currency by as much as 20 to 25 percent (Figure 4), which undermined Thailand's exports competitiveness and explained its yawning current account deficit. The abrupt depreciation of the Japanese yen against the U.S. dollar in 1996 to 1997 was really the *coup de grace* as the baht–pegged to the U.S. dollar–appreciated commensurately against the Japanese yen and disrupted bilateral trade relations with Japan.

Equally revealing was the looming real estate crisis, which betrayed outward signs of distress when Thai real estate developer Somprasong Land defaulted on its outstanding $80 million Eurobond issue in February 1997. Indeed, the tremendous overbuilding in the commercial and residential real estate market–symbolized by the crane being named the national bird of Thailand–was fueled by major commercial banks' lax lending practices, which had long violated sound business policies.

The Roots of the Crisis

Unlike previous financial crises, in which governments overborrowed and overinflated until they had to seek a bailout from the International Monetary Fund (IMF) or a multilateral debt rescheduling from foreign creditors (e.g., the Latin American debt crisis in the 1980s and Mexican peso crisis in 1994), the Asian crisis is clearly rooted in the private sector. A surge of private capital inflows in the form of bank loans and portfolio investments led to asset-price inflation that fueled a speculative bubble, as ever larger capital inflows kept pouring into unproductive investments resulting in decreasing returns. At its height in 1996, Thailand received the equivalent of 8 percent of its GDP in short-term capital inflows and its international debt overhang stood at approximately 50 percent of GDP, most of it short-term in nature.

Who was responsible for this phenomenon? The private sector–primarily financial institutions–or the public sector through its fiscal, monetary and exchange rate policies? The predominant consensus typically blames crony capitalists, who abused privileged positions to finance questionable investments, and greedy bankers, who abetted them by channeling the necessary funds. As one observer put it, the crisis has as much to do with whom decisionmakers know as what they know. Thus, resource allocation was flawed at two levels: at the investment decision level itself and/or at the level of financial intermediation. In both cases, the public sector was in part responsible for what went wrong as it provided false information to firms by pursuing misguided policies.

INVESTMENT DECISIONS. For any firm confronted with strategic capital allocation decisions, the standard capital budgeting model, based on computing net present values as derived from discounted cash flows, provides meaningful guidance. Investment decisions require two basic informational inputs: realistic projections of future net cash flows associated with the project–say an office complex on the outskirts of Bangkok (commercial real estate project) or a mini-steel mill in the Chomburi industrial park (manufacturing project)–and a discount rate (cost of capital), which is simply the weighted average cost of capital. For leveraged firms, as in the case of Thailand's corporate sector, the debt component is very sizeable. If much of the short-term debt is sourced externally from the Eurodollar market at the London Interbank Offered Rate (LIBOR) at a relatively small country risk premium,[3] and if no forward cover or hedge against the risk of baht devaluation is necessary nor mandated (because the baht is pegged to the dollar), it follows that the cost of capital is abnormally low. This, in turn, encourages projects that should not be undertaken in the first place.[4] Clearly, misguided exchange rate policies should be blamed for the private sector capital misallocation, which ultimately led to the financial debacle.

FINANCIAL INTERMEDIARIES AND MISGUIDED FINANCIAL INTERMEDIATION. Through a cozy arrangement between regulators and Thai commercial banks, the financial sector thrived as a tightly knit oligopoly dominated by Thai financial institutions. On the eve of the crisis, 15 Thai commercial banks controlled 95 percent of the industry's assets through some 2000 branches, whereas 14 foreign banks–each limited to operating one branch–had to console themselves with only 5 percent of the market. Under the pressure of the Thai banking lobby, regulators effectively froze out of the market many eager applicants by simply failing to grant them banking licenses. Thus, through highly effective entry barriers of a regulatory nature, the Central Bank of Thailand failed to spur the healthy competition that foreign competitors or entrants would undoubtedly have exercised on Thai banks. The Thai economy, therefore, was deprived of efficient financial intermediation.

This close relationship between bankers and government officials that is often viewed as an implicit promise or guarantee that banks will not be allowed to fail in the event of a crisis. In the case of Thailand, such an understanding would have allegedly encouraged commercial banks to focus on the upside, while the government and the infinite resources of its enlightened taxpayers would have absorbed the downside. This is what economists refer to as moral hazard–a distorted incentive structure that misleads decisionmakers into channeling resources toward suboptimal projects. Like any insurance plan, the insured has to ask himself or herself how credible is the insurance policy, and how well capitalized is the insurance company. The problem is, of course, that there were never any insurance contracts nor formal commitments by the Thai Central Bank to bail out the banking industry. Any informal commitment to rescue financial institutions, possibly credible on a case by case basis, collapses when governments are faced with systemic risk and financial meltdowns.

Equally responsible in misdirecting the financial intermediation process are finance companies, which are contiguous yet separate entities from commercial banks. They are best defined as hybrids of merchant banks cum brokerage firms and are involved in many of the same businesses as commercial banks with one major difference–they are not allowed to accept retail deposits. Instead, finance companies borrow funds from the public by issuing promissory notes or commercial paper. They are not subjected to the same capital adequacy guidelines as commercial banks. Indeed, they engaged in reckless leveraging until the Thai Central Bank closed down 57 of the 93 finance companies in existence in December 1997.

Also included on our list of co-conspirators in this financial intermediation saga are foreign financial institutions. Although it is far more fashionable to blame Asian business cronyism and corrupt bureaucracies, foreign financial institutions share half of the blame. Mesmerized by the Asian miracle, prone to linear extrapolative thinking and encouraged by myopic credit rating agencies, they failed in the prudent exercise of the art of granting credit and should be blamed for the late surge in short-term capital flows to Thailand.

THAILAND'S HALF ANSWERS

Under the prodding of the IMF, Thailand implemented orthodox macroeconomic policies in exchange for a short-term financial rescue. It also initiated an ambitious restructuring of its financial system. However, the workout of the corporate sector remains at a very embryonic stage.

MACROECONOMIC POLICIES. The initial rescue plan that the IMF formulated called for orthodox fiscal and monetary policies aimed primarily at restoring confidence in the Thai economy. As a prerequisite for the loan package, the IMF attached the usual conditions of 1) tight monetary policy and high interest rates to stabilize the exchange rate and thereby mitigate the inflationary consequences of the devaluation, and 2) a restrictive fiscal policy aimed at restoring a budget surplus. On a longer-term basis, the Thai government had to commit to structural reforms of its financial sector, promoting a stronger supervisory regime.

The Thai economy initially choked on too much of the good Samaritan's medicine, as restrictive monetary policies initially drove up interest rates to abnormally high levels. Instead of restoring confidence, the credit crunch rapidly asphyxiated the corporate sector as lax lending practices turned into overly prudent credit granting-decisions overnight and denied otherwise healthy concerns necessary working capital. Indeed these policies, inspired by the Latin American debt crisis, were ill-suited for an economy characterized by extremely high levels of corporate debt and low levels of inflationary expectations. Before the IMF had a chance to reverse course, the financial crisis engulfed the entire economy, and a severe contraction of GDP ensued.

Recapitalization of Commercial Banks. Since November 1997, the Bank of Thailand has pressured commercial banks into raising additional equity to meet capital adequacy guidelines set by the Bank of International Settlements (BIS), while quietly dropping its opposition to foreign equity ownership in Thai commercial banks. Over the same period, the Central Bank of Thailand considerably tightened its definition of nonperforming loans[5] by reducing the allowable delinquency period from twelve to three months. Although it is hard to find reliable statistics, it is generally believed that under such severe loan classification standards the percentage of nonperforming loans approaches 45 to 50 percent, making it exceedingly difficult for most commercial banks to find investors willing to inject the much needed equity capital into their capital base. So far only three banks have been able to partially recapitalize. Not surprisingly, the chosen few were already the strongest financial institutions in Thailand: Bangkok Bank (BBL), Thai Farmers Bank (TFB) and Bank of Asia (BOA). BBL and TFB were successful in raising, through new equity and rights issues, as much as $2 billion up to May 1998—still far short of the estimated $15 to 20 billion needed to recapitalize the entire financial sector.

The recapitalization of the Bank of Asia reveals the difficulties the commercial banking sector currently faces in attracting foreign investors who have longed to get involved in commercial banking in Thailand for the last 25 years. In April 1998, ABNAmro Bank purchased a 75 percent stake in the Bank of Asia at 5.27 baht per share, when it was trading at

20.25 baht, with a commitment to pay an additional 22.23 baht per share provided the Stock Exchange of Thailand's banking share price index rebounded to a predetermined level. The exact amount of additional capital depends on a complex formula based on BOA's net asset value at the end of 1999, plus or minus a premium reflecting the relationship between the share price and net asset value of three Thai banks of comparable size.

Clearly, ABNAmro was leery of buying into an opaque financial institution whose liabilities might continue to mushroom out of control as the economic crisis deepened. It was in effect signaling the investment community that it was cautiously getting involved by buying an option to discover the true extent of Bank of Asia's financial distress. As I will argue, the question of bank examination, monitoring and supervision remains at the core of the banking quagmire. The fact that almost no capital injection by foreign financial institutions into ailing Thai commercial banks had taken place for more than 18 months into the crisis reveals the continuing lack of transparency in the financial sector. Interestingly, the Thai government–recognizing the urgency of the situation–recently initiated a new policy in which it offers a "five year money back guarantee" to foreign investors who take a majority interest in Thai financial institutions.[6]

AUCTIONING OFF BAD LOANS AND THE FINANCIAL SECTOR RESTRUCTURING AUTHORITY (FRA). The other major impediment to a successful restructuring of the financial sector is the high and highly variable level of nonperforming loans, a significant portion of which are collateralized by real estate assets. The FRA is already committed to auctioning off 600 billion baht ($15 billion) that it inherited with the closure of 57 finance companies in 1997, which created an overhang on the banks' real estate loan portfolio. Until the auction is carried out, it is difficult for commercial banks to value their loan portfolio collateralized by real estate, making it that much harder to solicit an equity injection by foreign investors. Clearly the ABNAmro approach–although a creative solution—is not terribly favorable to Thai commercial banks most in need of fresh capital. Compounding the problem are antiquated foreclosure laws that continue to impede a swift resolution of the real estate crisis, which is further complicated by laws forbidding foreign ownership of land.

The second question mark over banks' loan portfolios is the outlook for the Thai economy, specifically in terms of exchange rate and interest rate scenarios. At the risk of oversimplifying, the value of most loans (and their collateral) is directly and positively related to a steady exchange rate and subsiding interest rate. Lessons learned from other countries that have experienced traumatic banking crises such as Sweden, Spain and the United States, is that the patient is best served by swallowing the bitter medicine in short order. This typically takes the form of instituting a quasi-public central asset management corporation, which would take over all but 5 percent of nonperforming loans from struggling financial institutions, thereby allowing them to be recapitalized sooner than smaller banks. Thailand's FRA has moved expeditiously in liquidating and, to a lesser extent, restructuring finance companies. However, much remains to be done with commercial banks.

Deleveraging the Corporate Sector. The abnormally high leverage ratio found in many Thai corporations was partly built on the cozy relationships that firms maintained with commercial banks. That ratio needs to be brought back to a viable level, especially since financial institutions are moving toward an arm's length relationship with their major client borrowers. Furthermore, the IMF pushed austerity measures promoting tight monetary policy, which initially translated themselves into punishing interest rates that exacerbated the leverage burden on most Thai corporations, thereby pushing the weakest ones into premature bankruptcy.

The IMF prescription calls for a harsh mix of bankruptcy for hopeless cases, restructuring for weakened but salvageable conglomerates and debt-equity swaps for everyone else, with little consideration given to the idiosyncracies of the Asian financial system. Unfortunately, the successful implementation of any of the above assumes a far better developed legal infrastructure than is currently in place, especially when it comes to the debt-equity swaps that would allow ailing firms' creditors to become shareholders.

Reengineering the Asian Miracle

There are some clear yet unlikely lessons to be drawn from the Thai financial crisis that can be readily translated into preventive policies to avoid future financial meltdown in other emerging market countries.

Think Globally, Act Locally. The old international adage adhered to by savvy geocentric marketeers applies to economic policymaking. In its rush to stabilize a near-panic situation and to manage systemic risk, the IMF and the U.S. Treasury hastily transferred to Asia the financial rescue technology package that seemed to have worked in resolving the

1994 Mexican crisis. Little effort, it seemed, was made to gauge the unique parameters of the Asian financial crisis. For a country like Thailand, which had enjoyed historically high savings and, until very recently, very healthy budgetary surpluses, fiscal stimulus rather than deflationary policies was the natural path to rekindling economic growth. Increasing taxes and interest rates exacerbated unnecessarily what was primarily a banking and a real estate crisis by forcing the real estate sector of the economy into a deep recession. This is precisely when risky but still performing loans became nonperforming.

MANDATORY MANAGEMENT OF CURRENCY RISK. As argued above, the rapid deterioration of the economic situation has much to do with offshore overborrowing by both financial and nonfinancial firms. The latter found themselves facing large foreign currency denominated liabilities, which had to be serviced by interest and principal denominated in dollars or yen, whose value in baht terms had been vastly increased. Most of the liabilities were unhedged, so that the full brunt of the devaluation was immediately shouldered in local currency by Thai borrowers. Quite clearly, a simple requirement by the Central Bank forcing resident firms to hedge fully (or even partly) outstanding foreign currency liabilities would have avoided *ex-post* the cash flow squeeze that most Thai firms experienced after the devaluation.[7]

Furthermore, it would have forced *ex-ante* a more realistic cost of capital into the capital allocation process. In fact, the above instruments and techniques were widely available from Thai financial institutions when the crisis struck. Forward exchange contracts and currency options for maturities up to 18 months and currency swaps for up to 5 years were regularly quoted by major commercial banks, and their use would have forced a reality check on Thai borrowers. For example, if Siam Cement had borrowed prior to the crisis $250 million from the eurodollar market at 6 percent per annum uncovered (this is an offshore dollar-denominated liability) rather than at 12 percent in Thai baht (an on-shore local currency-denominated debt), Siam Cement would have paid close to 6 percent for a forward cover. This effectively equalized the cost of dollar borrowing at 6 percent (nominal interest rate) plus 6 percent (forward cover), with the 12 percent domestic borrowing option[8] (nominal cost, which is also the effective cost, since there is no need for a forward cover, given the absence of foreign exchange risk). This cost of foreign borrowing needs to be compared with the actual cost of dollar financing once the baht had devalued from 25 to 50 bahts per U.S. dollar, pushing the effective cost of unhedged borrowing from 6 percent[9] to an astronomical [250 (1+.06) 50 - 250 (25)]/ 250(25) = 106 percent. Of course Siam's chief financial officer was well-apprised of the exchange risk but was repeatedly reassured that the B25=$1 peg was indeed unassailable. In effect, the Thai Central Bank was offering, free of charge, forward dollar purchase contracts to private sector borrowers–an offer that for the last 15 years had been very credible since the baht was last devalued in 1984.

MONITORING AND CONTROLLING SHORT TERM CAPITAL FLOWS. Such a policy would in turn call for comprehensive capital flow monitoring by the Central Bank and the systematic registration of any offshore borrowing, whether intermediated by Thai commercial banks or finance companies. Such a registration program should not have been taken lightly, as the inaccuracy and incompleteness of the Central Bank's information about the extent of the private sector international indebtedness was discovered weeks, if not months, into the crisis. This was not supposed to become a problem again. Since the early 1990s the international banking community had committed to the Bank of International Settlements (also known as the Central Bank of Central Banks) to disclose any international lending, so that each national central bank would have more accurate information about its capital account status and balance of indebtedness.

This brings us to the policy recommendation of mild capital controls. There is an emerging consensus among economists[10] and policymakers that unfettered capital flows may lead to unrealistic overshooting in asset prices including exchange rates, which, in turn, have a highly destabilizing impact upon the economy when the bubble bursts. This is especially true for emerging countries whose legal and institutional infrastructure may be ill-equipped to handle the transfer of financial innovations and large volume of footloose capital. Such mild capital controls–long regarded as anathema by believers in the free market gospel–have indeed been tried with considerable success in a somewhat different manner by Chile, a country that is hardly suspect of overbearing government intervention in its economy. Specifically, such controls call for minimum stay requirements for foreign portfolio investments and non-remunerated reserve requirements on other forms of capital inflows. This latter measure constitutes a de facto tax on foreign financing and would presumably reduce pressure on exchange rate overvaluation, which also impairs the country's export competitiveness. Most importantly, portfolio investments would be subjected to an exit tax if they were withdrawn on short notice (a so-called "cooling period" typically set at one year by countries which have implemented such mild capital controls). Finally, exchange controls decouple interest and exchange rate policies, thus allowing expansionary policies to take hold. As the Thai economy recovers and investor confidence returns, exchange restrictions should be progressively relaxed.

Reforming the Legal Infrastructure. Much of economic recovery will hinge on efficient restructuring of the private sector. Limited success in recapitalizing financial institutions is due to an inadequate legal infrastructure that has failed to keep pace with economic modernization. Specifically, bankruptcy laws have to be upgraded to allow for equitable and speedy liquidations of failed enterprises. Under current laws, it may take a bank as long as five years to foreclose on a loan, and, until the bank can convert a nonperforming loan into collateral that can then be sold off, the bank's loan portfolio restructuring remains an academic proposition. Similarly securities laws need to be rewritten to allow for debt-equity swaps, which are the only practical solution for removing the debt overhang from Thai corporations' balance sheets.

Will the Thai Phoenix Rise Again?

No one anticipated the depth of the Asian financial crisis or its contagious effects. Thailand has implemented most of the macroeconomic policies advocated by the IMF and initiated many of the structural reforms of its financial sector. Even if the Thai baht stabilizes at a realistic level, the current account swings back to surplus, interest rates decrease to pre-crisis level and inflation is held in check, Thailand's GDP will, nevertheless, contract by 15 to 20 percent in 1998. 1999 may fail to show the much anticipated rebound unless the country embarks on a resolute policy of fiscal and monetary stimulus. Unfortunately for Thailand, an export-led recovery is hostage to the state of the Japanese economy. As late as 1997, Japan purchased 50 percent of Thai exports and made 50 percent of foreign direct investment in Thailand. Furthermore, it was the plunge of the Japanese yen against the U.S. dollar that precipitated the baht devaluation on July 3, 1997. As Japan sinks deeper into recession–if not outright depression–Thailand has to expand its market horizons to other developed countries, where it will find itself in direct competition with the other victims of the Asian financial crisis and with China. China, so far, has been able to maintain a precarious stability in the parity of its currency but may eventually succumb to the temptation of competitive devaluation. Ultimately, Thailand's ability to weather this crisis hinges upon its socio-political reservoir of patience: as unemployment climbs and welfare expectations are shattered, can the social fabric provide the safety net that the government cannot provide? Buddhist societies have a long tradition of resilience to adversity, which may bode well for the Thai phoenix to rise again. ■

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NOTES

[1] See the international securitization deal Thai Cars (August 1996), which seemed to violate all prudent rules of credit analysis if not business common sense: it allowed Thai-automobile purchasers and leasers to lower their cost of consumer finance to 11 percent from a prevailing market rate of 13 percent–thanks to the placement of medium-term notes on the eurodollar market at 3 month LIBOR plus 22 basis points (London Interbank Offered Rate is the global short term interest rate benchmark). Standard & Poor had rated the transaction AAA allowing original borrowers to "pierce" the country ceiling with the help of credit enhancer MBIA. *Asia Money*, September 1996, 5.

[2] Overvaluation measures the gap between a currency's nominal exchange rate and its real exchange rate (derived from the theory of Purchasing Power Parity). Figure 4 uses 1984 as a base year for applying the Purchasing Power Parity formula against the U.S. dollar.

[3] As mentioned above, credit rating agencies were slow in warning foreign lenders about the deterioration of Thailand's financial system. The notation given to a borrower by the rating agency largely dictates the spread over LIBOR that the latter will have to pay. This spread is the so-called risk premium.

[4] A project's net present value is inversely proportional to the discount rate cost of capital used in the valuation formula. An unrealistically low cost of capital will encourage corporations to take on projects that are seemingly profitable when in truth they are not. Central banks seldom appreciate the damage that fixed exchange rate policy–often at an overvalued level–do to the resource allocation process.

[5] A nonperforming loan is simply a loan that fails to be serviced by the debtor in a timely fashion. Once recognized as such, the loan has to be removed from the bank balance sheet's assets, and a loss in the amount of the loan's principal and interest in arrears appears on the bank's income statement. Last, the bank's equity is reduced by a commensurate amount. Since Thai banks on average are required to keep 8 baht for every 100

baht loaned, large numbers of nonperforming loans will require massive recapitalization of banks compelled to write off many nonperforming loans.

[6] The money back guarantee doesn't include interest on the investment made and would be repaid in baht. "Thais Offer Money Back Deals," *Financial Times*, August 6, 1998.

[7] Most Thai firms had to contend with financing costs that doubled overnight when their debt was dollar denominated. For baht-denominated liabilities the increase was almost as punishing, as interest rates were drastically increased to allow for exchange rate stabilization. None of these firms was able to balance increased costs by increasing revenues, as the Thai economy promptly descended into a recession. Exports also failed–at least initially–to be stimulated by the devaluation. The resulting cash-flow squeeze pushed many firms into bankruptcy.

[8] This is the international finance theory known as Interest Rate Parity.

[9] As long as the exchange rate remains stable the nominal interest rate is the actual interest rate.

[10] See Paul Krugman, "Saving Asia: It's Time to Get Radical," *Fortune*, September 7, 1998.

FIGURE 1A

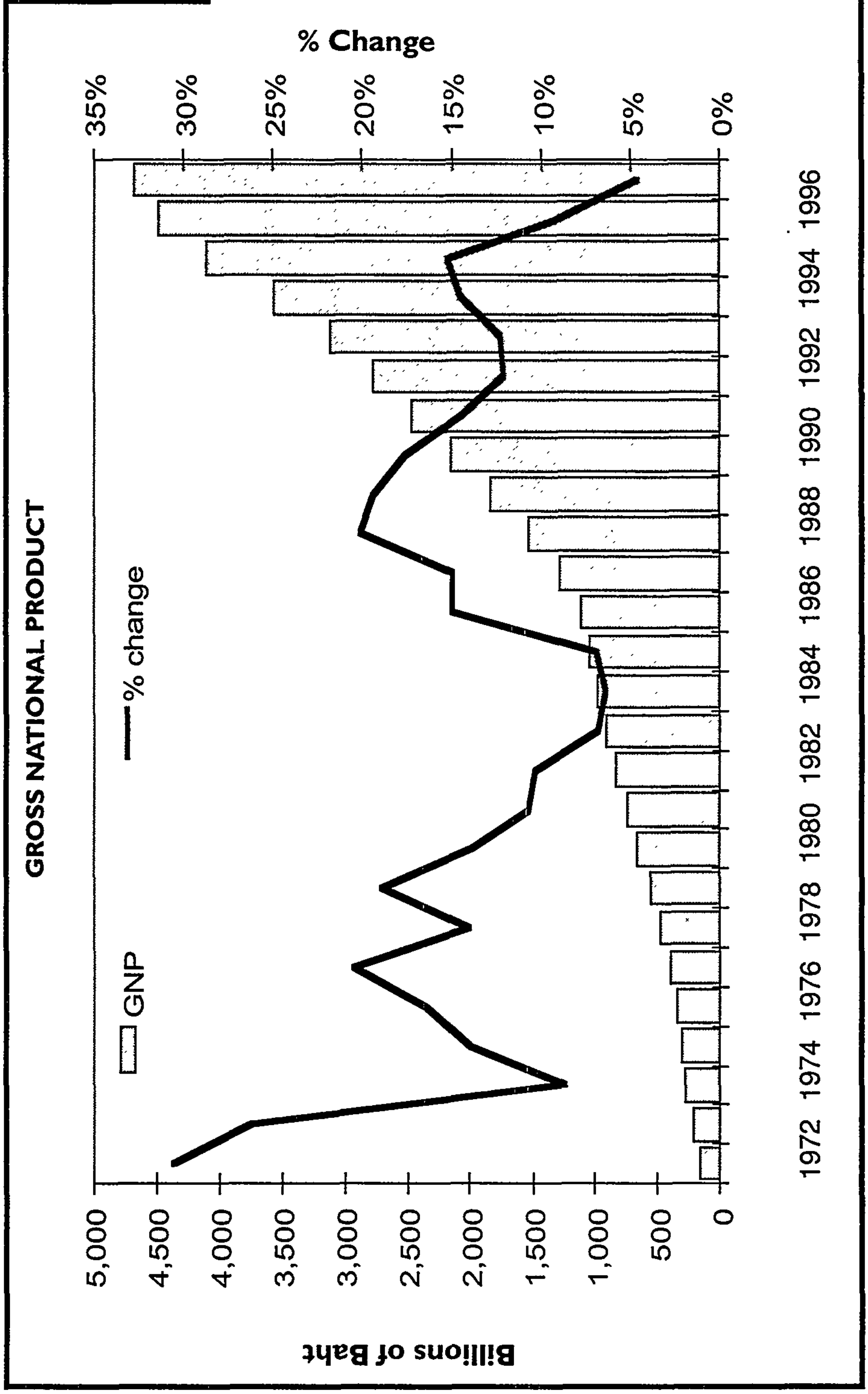

GROSS NATIONAL PRODUCT
GNP
% change
% Change
35%
30%
25%
20%
15%
10%
5%
0%
Billions of Baht
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
1972 1974 1976 1978 1980 1982 1984 1986 1988 1990 1992 1994 1996

FIGURE 1B

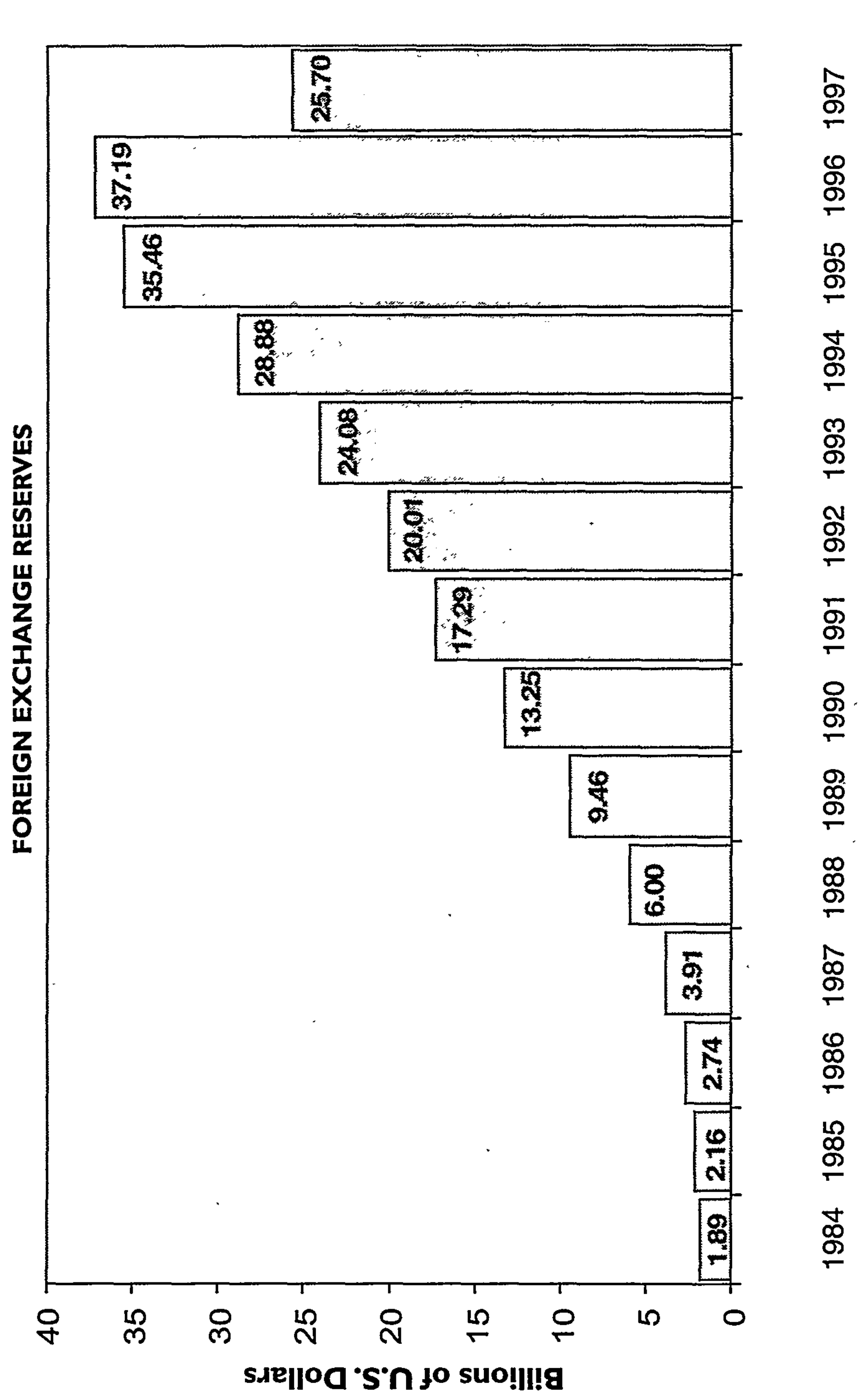

FOREIGN EXCHANGE RESERVES
Billions of U.S. Dollars
0
5
10
15
20
25
30
35
40
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1.89
2.16
2.74
3.91
6.00
9.46
13.25
17.29
20.01
24.08
28.88
35.46
37.19
25.70

FIGURE 2

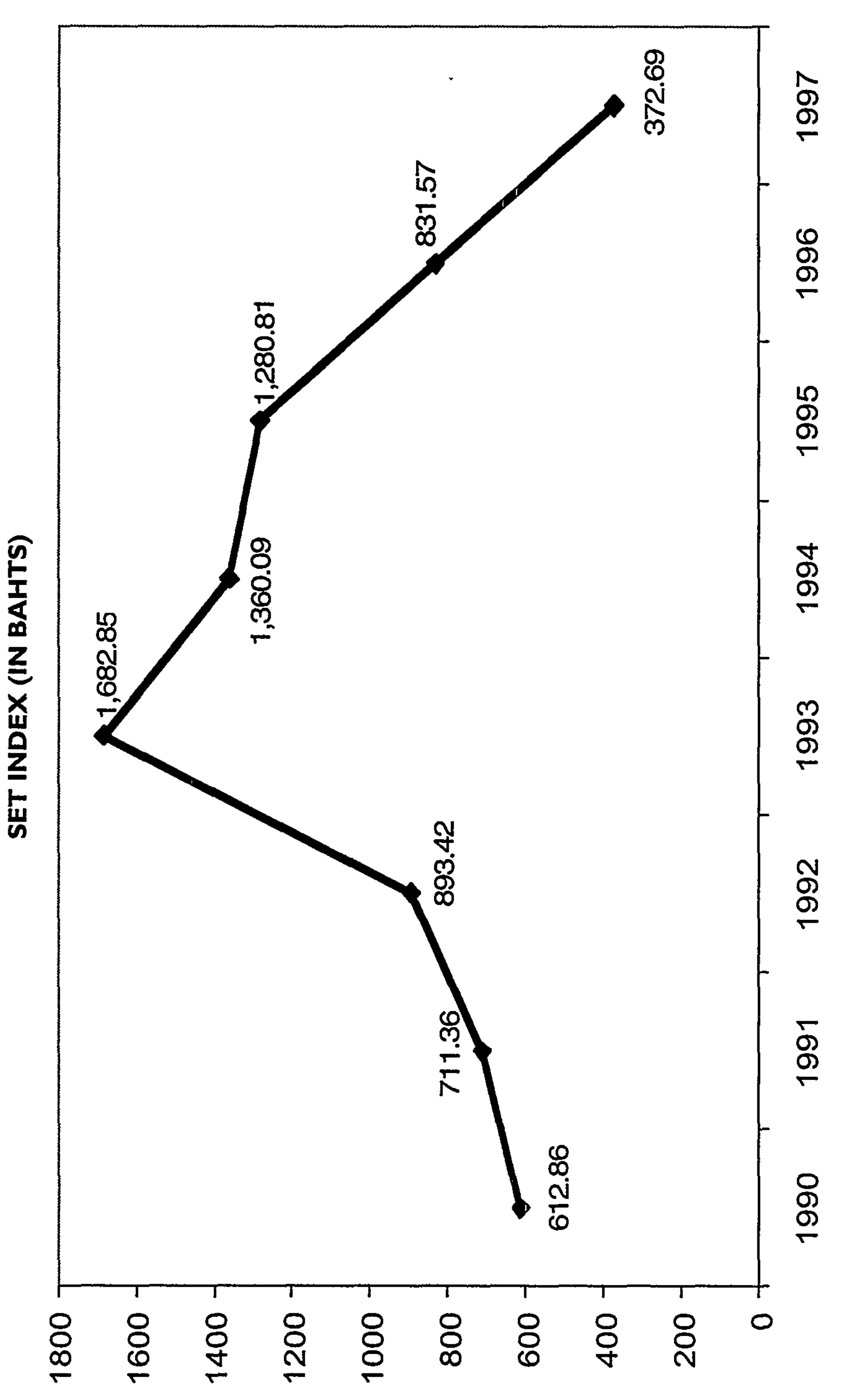

SET INDEX (IN BAHTS)
612.86
711.36
893.42
1,682.85
1,360.09
1,280.81
831.57
372.69
1990
1991
1992
1993
1994
1995
1996
1997
1800
1600
1400
1200
1000
800
600
400
200
0

FIGURE 3

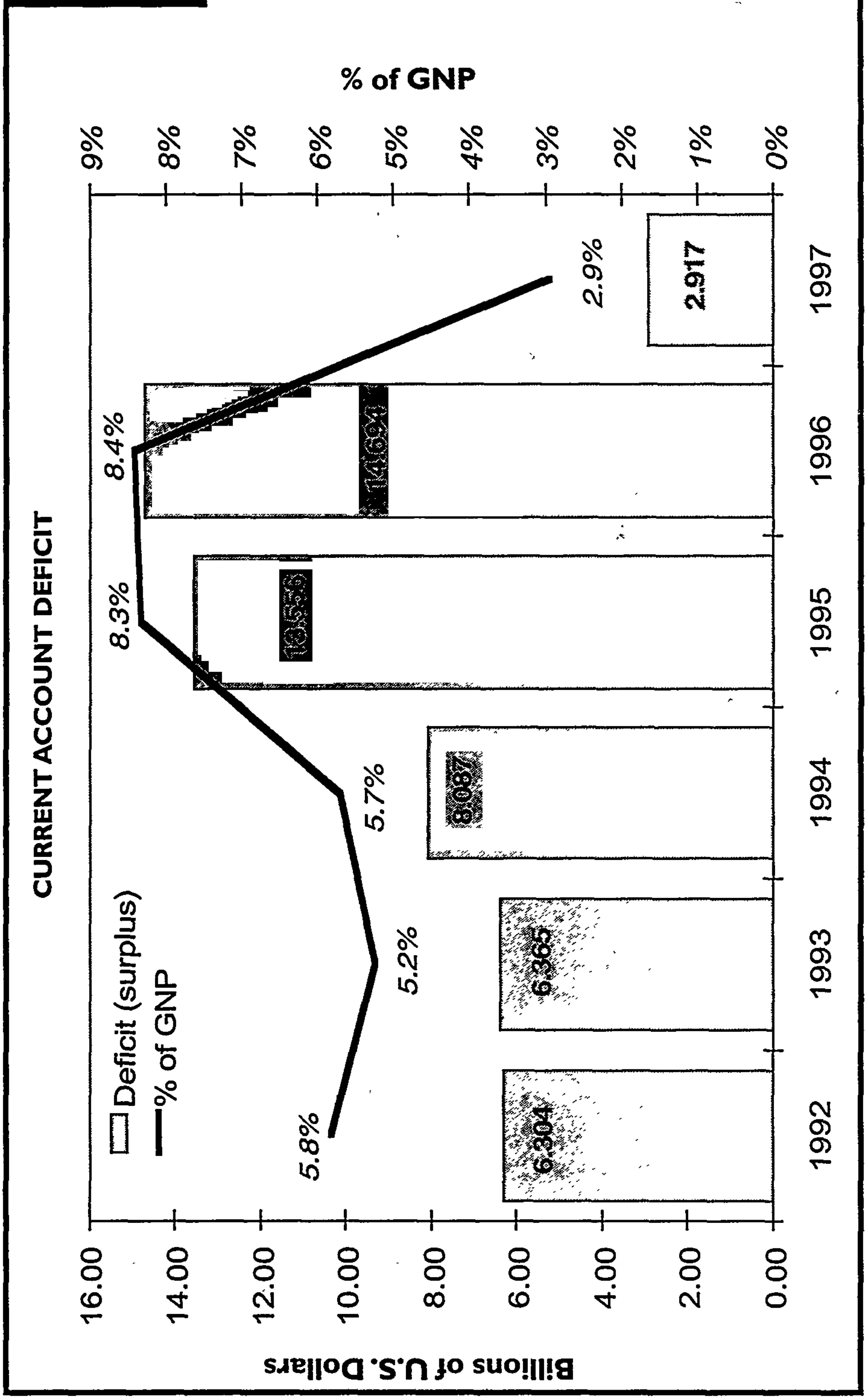

CURRENT ACCOUNT DEFICIT
% of GNP
9%
8%
7%
6%
5%
4%
3%
2%
1%
0%
Deficit (surplus)
% of GNP
5.8%
5.2%
5.7%
8.3%
8.4%
2.9%
6.304
6.365
8.087
2.917
1992
1993
1994
1995
1996
1997
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Billions of U.S. Dollars

FIGURE 4

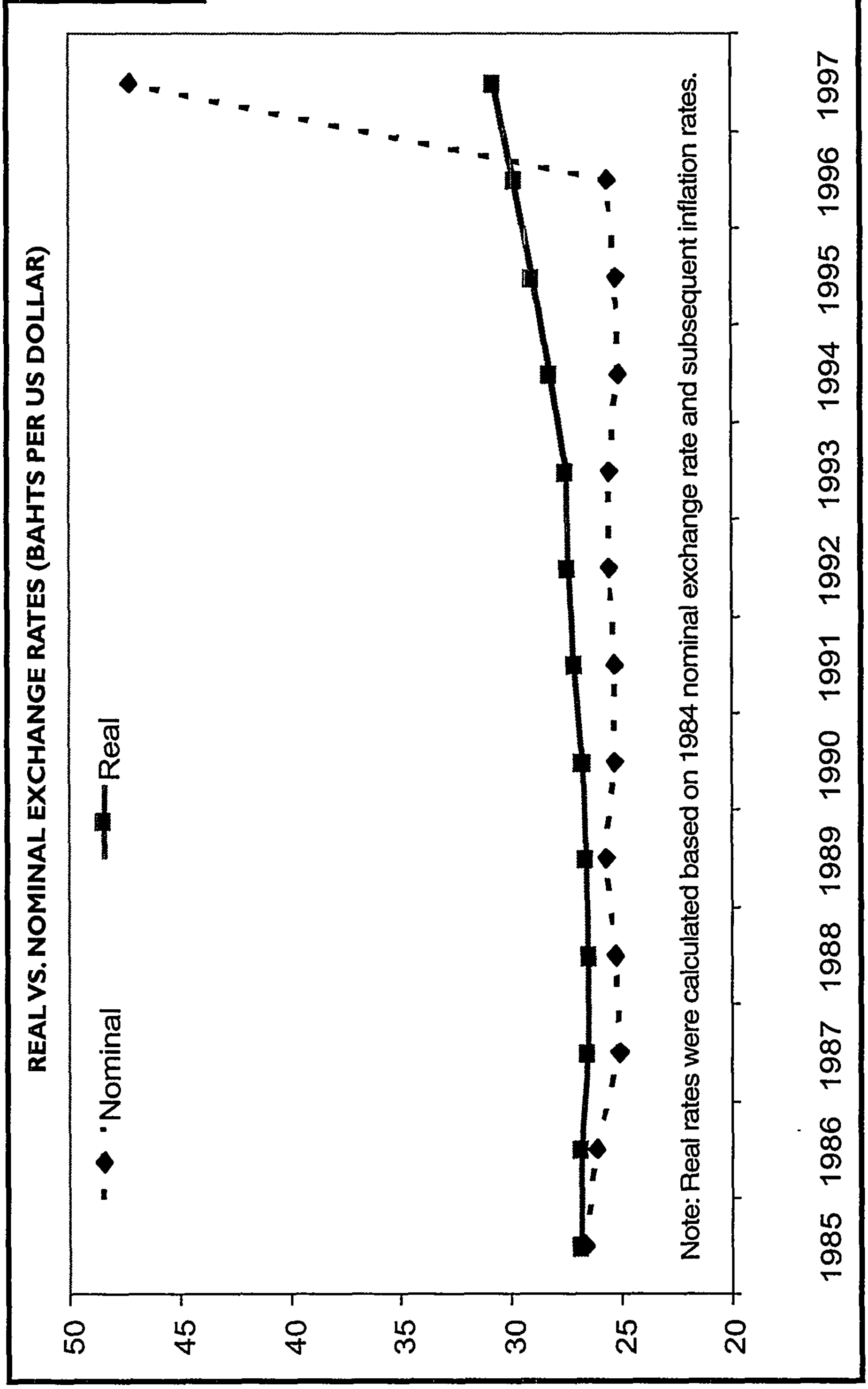

REAL VS. NOMINAL EXCHANGE RATES (BAHTS PER US DOLLAR)
Nominal
Real
Note: Real rates were calculated based on 1984 nominal exchange rate and subsequent inflation rates.
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
50
45
40
35
30
25
20

FIGURE 5A

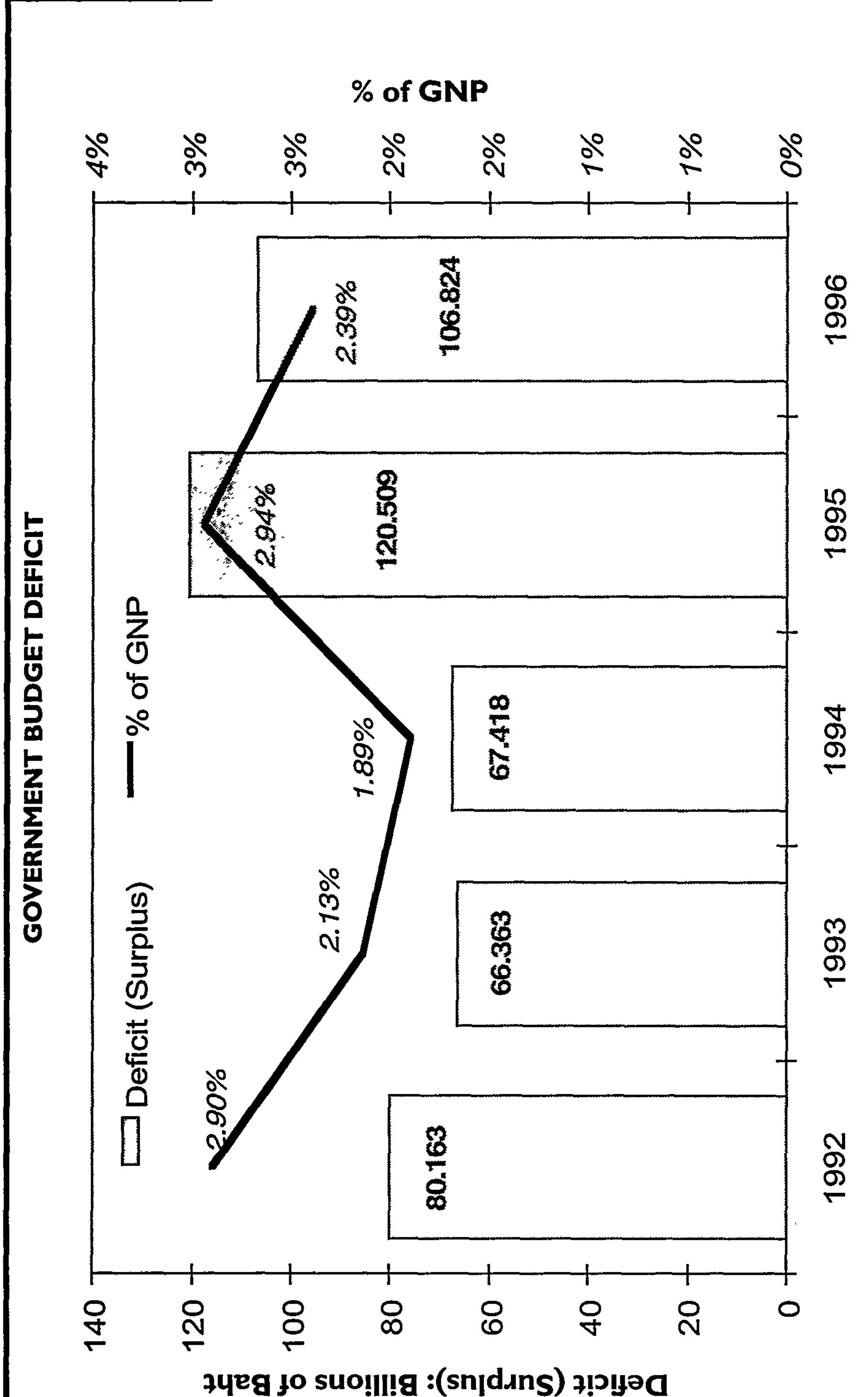

GOVERNMENT BUDGET DEFICIT
Deficit (Surplus)
% of GNP
% of GNP
4%
3%
3%
2%
2%
1%
1%
0%
140
120
100
80
60
40
20
0
Deficit (Surplus): Billions of Baht
1992
1993
1994
1995
1996
80.163
66.363
67.418
120.509
106.824
2.90%
2.13%
1.89%
2.94%
2.39%

FIGURE 5B

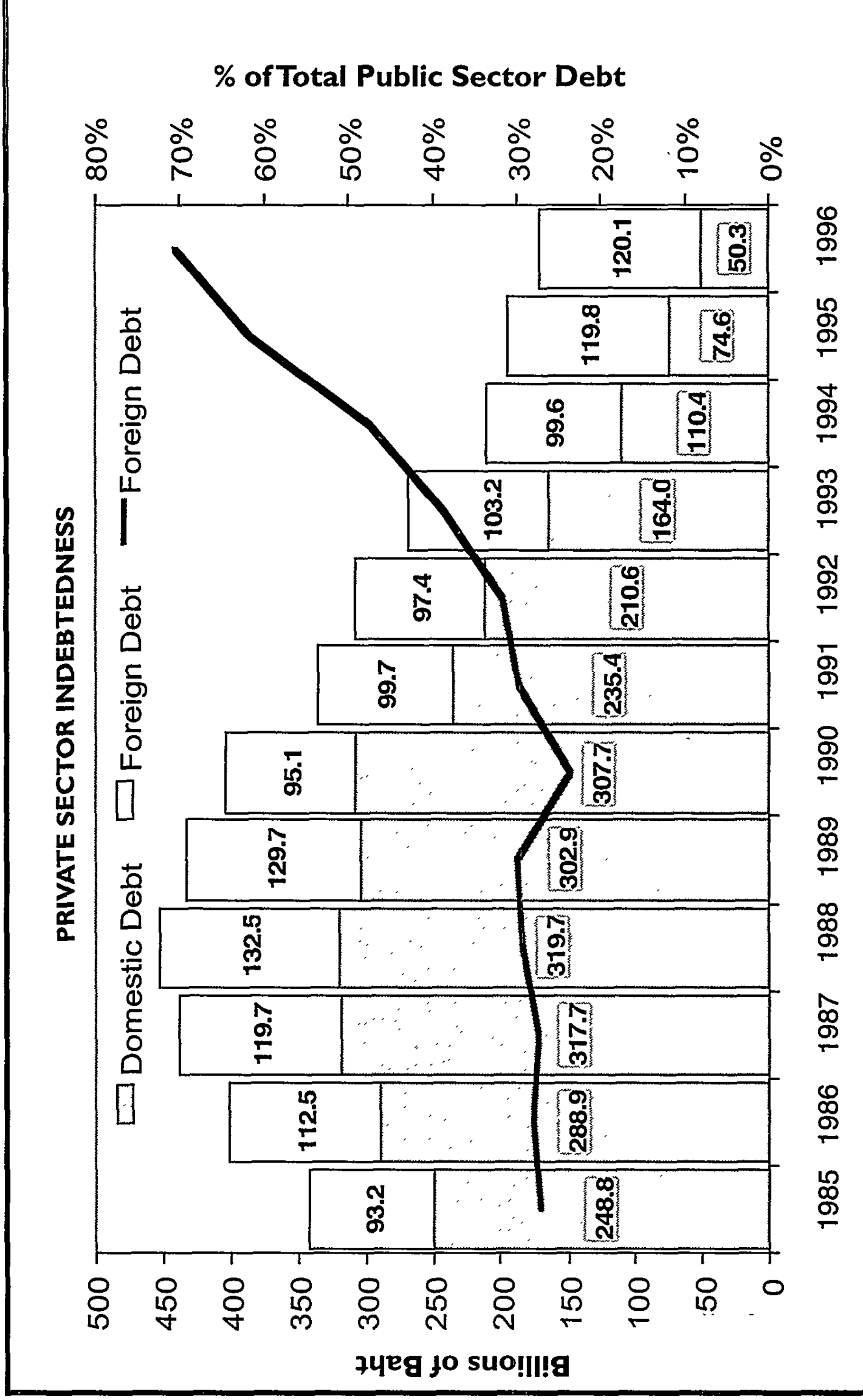
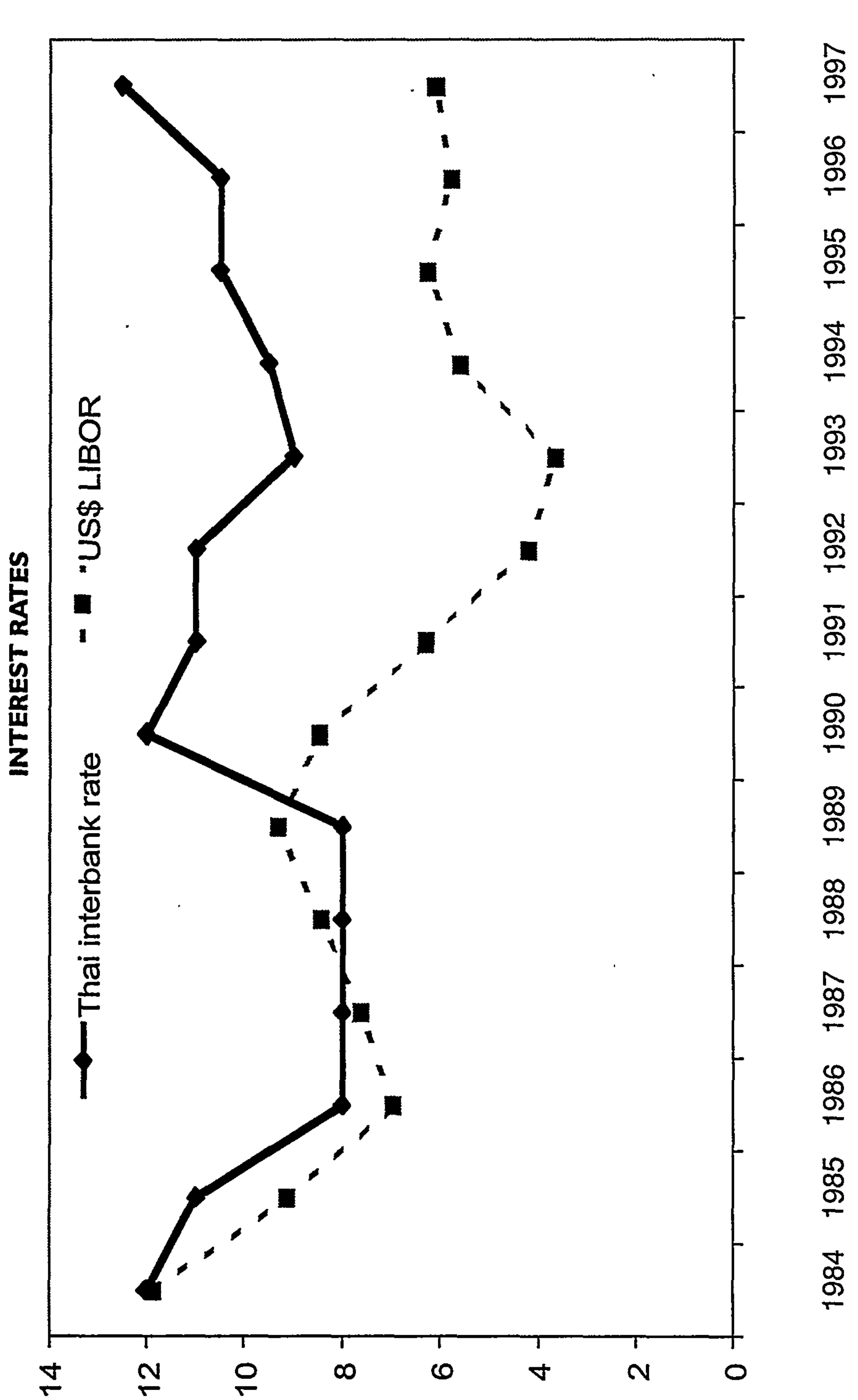

PRIVATE SECTOR INDEBTEDNESS
Domestic Debt
Foreign Debt
Foreign Debt
% of Total Public Sector Debt
Billions of Baht
0% 10% 20% 30% 40% 50% 60% 70% 80%
0 50 100 150 200 250 300 350 400 450 500
1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996
93.2
248.8
112.5
288.9
119.7
317.7
132.5
319.7
129.7
302.9
95.1
307.7
99.7
235.4
97.4
210.6
103.2
164.0
99.6
110.4
119.8
74.6
120.1
50.3

FIGURE 6


INTEREST RATES
Thai interbank rate
US$ LIBOR
14
12
10
8
6
4
2
0
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997