

Fiscal Policy, Hidden Deficits, and Currency Crises

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Abstract

Budget deficits, as conventionally measured, suffer from many measurement and methodological problems. Researchers who have used these conventional deficits to explain currency crises, therefore, unsurprisingly, have found little evidence of any systematic link between the two. We provide an alternative definition of budget deficit and show that there is a close association between the number of currency crises and our measure of deficit.

If asked to pick a single concept that best measures the fiscal situation of an economy, many of us would pick “budget deficit,” but budget deficit, as conventionally measured, suffers from many problems. These problems, which are mostly measurement-related and methodological in nature and more severe in developing than in industrial countries, arise because of a variety of reasons. These range from complicated budgetary accounting practices to noninclusion of corporate and bank restructuring expenses, incurred during financial crises, into the budget. Not many attempts have been made in the literature to find out how

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much difference it would make to the reported budget deficit if some or all these problems are taken into account. As a consequence, conventional budget deficits are rarely found to be useful to explain macroeconomic issues, be they the inflationary impact of budget deficit or discussion of long-term growth.

The deficiency of the conventional budget deficit to accurately reflect the fiscal position of an economy is most evident in the currency-crisis literature. One of the long-standing explanations of currency crises is that they result from profligate fiscal policies (Krugman 1979). A natural implication of this hypothesis is that the collapse of a fixed exchange rate is preceded by large and persistent budget deficits.¹ Even the most ardent critics of this hypothesis agree that many currency crises in the developing countries during the 1970s and 1980s, and some of the recent crises, like Brazil's devaluation in 1999, have been driven primarily by indefensible fiscal policies. Surprisingly, however, the large body of empirical work aimed at explaining currency crises has found little evidence of any systematic link between currency crises and reported budget deficits.²

The lack of evidence has regrettably been interpreted as a rejection of Krugman's model. We, however, argue that the evidence should be interpreted as yet another reason why "budget deficit" as conventionally measured is in need of a fix. The following two observations have led us to make such a claim.

First, we empirically confirm the importance of looking beyond the reported budget deficit in assessing the fiscal situation in a country, especially in developing countries. We do so by providing an alternative definition of budget deficit that is referred to as the actuarial budget deficit. Unlike the conventional deficit, which is a flow concept, actuarial deficit is computed using stock variables and is defined as the change in the stock of public debt and the money base (that is, total stock of government liabilities). The quantitative difference between the actuarial and the conventional deficits is called the hidden deficit. Using

1. Krugman's (1979) model has been extended in several directions to show that collapse of the peg may be preceded by deterioration of economic fundamentals, including loose monetary policy, bank failures, and an appreciation of the real exchange rate. For a recent review of the literature, see Flood and Marion (1997).

2. For example, see Kaminsky, Lizondo, and Reinhart (1997) and Frankel and Rose (1996).

data from 32 countries, from 1980–97, we show that the average hidden deficits are relatively large in developing countries as compared to industrial countries, and in some countries are larger than even their conventional budget deficits. Second, we demonstrate empirically that there is a close link between the number of currency crises and hidden and actuarial deficits. This link is nonexistent if one uses conventional deficits in place of actuarial deficits.

The concept of hidden deficits and its association with currency crises has important policy implications. First, an increase in hidden deficits is found to affect the expectations of market participants in the same way as an increase in visible deficits of the same amount, so any attempt on the part of the policymaker to keep the visible deficits small by running large hidden deficits is futile. Second, while designing policies to reduce the likelihood of currency crises, one should bear in mind that currency crises may be caused by past hidden deficits, as well as by current and prospective hidden deficits.³ Although it is difficult to distinguish these two cases, recent research shows that policymakers, using nonperforming loans of the banking system and movement of bank shares, may be able to deduce the approximate size of prospective hidden deficits. Third, hidden deficits, when averaged over a long period, say 20–30 years, provide a crude approximation of how much contingent claims and capital gains and losses the government is likely to absorb in the long run. Therefore, an efficient intertemporal budgetary allocation calls for making provision in the budget every year for an amount equal to its long-run average hidden deficit, so that the country can meet future contingent claims and capital gains and losses without resorting to sharp changes in the tax rate or sudden contraction in government expenditure, or both.

It is important to point out that, while actuarial deficit is a better indicator to measure the fiscal position of the economy than the conventional deficit, it does have limitations. First, it provides a precise measurement of the fiscal situation only of the past years and not of the future years, because it does not take into account existing, unrealized contingent liabilities of the government. Second, the government's assets are not taken into account when computing hidden deficits, and therefore the numbers generated here may slightly overstate the actual fiscal constraints of the government.

3. For a discussion of prospective deficits, see Burnside, Eichenbaum, and Rebelo (1998).

The rest of the article is organized as follows. In the section “The Problems with Conventional Budget Deficits,” we elaborate on the problems associated with the concept of budget deficit as conventionally measured, with special reference to developing countries. In the section “An Alternative Definition of Budget Deficit,” we introduce the concept of actuarial budget deficit and show that it is significantly different, often considerably higher in magnitude, from conventional budget deficit. In the section “Links with Currency Crises,” we provide cross-country evidence linking hidden deficits to currency crises and discuss how the two are potentially linked. The section “Institutional Implications and Concluding Remarks,” discusses the institutional implications of these new concepts of budget deficits in terms of budgetary accounting practices and managing debt and budgetary risks and the conclusion.

The Problems with Conventional Budget Deficits

We begin with a simple textbook definition of budget deficit. *Conventional deficit* is defined on a cash basis as the difference between total government cash outlays and total government receipts:⁴

$$D_t^c = r_t B_{t-1} + (G_t - T_t) + (H_t - H_{t-1}) \quad (1)$$

where D_t^c is the conventional budget deficit in period t ; G_t and T_t are the government expenditure and tax revenue, respectively; B_t is the stock of government's debt (foreign plus domestic) in period t ; and H_t is the base money.

The problems associated with the above concept of budget deficits are well known. Blejer and Cheasty (1991) note that “conventional measures of the fiscal (*budget*) deficit miscalculate the public sector's true budget constraint and give a misleading picture of the economy's fiscal stance.”⁵ The miscalculation to which they refer primarily arises from the following two factors.

One, it is measured using flow variables. Eisner and Pieper (1984) have pointed out that budget flows do not distinguish between current and capital accounts, and thus measures of surpluses and deficits may

4. The monetary authority (that is, the central bank) is treated as part of the government.

5. Easterly (1998) and Brixi (1998) provide much anecdotal evidence in which governments comply with ceilings on budget deficits by switching to hidden liability accumulation.

be inconsistent with changes in the real value of net debt. In particular, all gains and losses in the capital account arising from fluctuations in relative prices (real exchange rate, domestic inflation, change in cross-currency exchange rate) are excluded from budgetary accounts even when they affect the total stock of government debt.

Two, in practice, conventional budget deficits are often calculated without full inclusion of expenses incurred by the government on realized contingent liabilities.⁶ In a recent paper, Daniel, Davis, and Wolfe (1997) argue that the standard government finance statistics (GFS)-based system of the International Monetary Fund (IMF) inadequately captures the fiscal cost of most bank assistance operations.⁷ They closely examine how bank restructuring (bailout) expenses are accounted for in the budget and find that, in many countries, noncash operations are completely excluded from the budget. Though we are not aware of any studies looking at how corporate restructuring expenses are accounted for in the computation of the budget, it is likely that such expenses are also not fully included in the budget deficit. Another important item that is likely to be excluded from the flow definition of budget deficit is quasi-fiscal cost associated with sterilization of capital inflows.

Several economists have, therefore, proposed that budget deficit be measured as a change in net worth of the government. While theoretically appealing, and considered the right conceptual measure of deficit by many (for example, Buiters 1985; Eisner 1984; Easterly 1998), this approach also suffers from measurement and definitional problems.⁸ For example, despite the use of a forward-looking framework to compute net worth, it does not include the existing, unrealized contingent liabilities as part of its calculation.⁹

6. It is, of course, well known that conventional budget deficit completely excludes contingent claims that are likely to be made on the government in the future.

7. Note that the GFS is the prime source for data on budget deficit for developing countries.

8. See Blejer and Cheasty (1991). It should, however, be mentioned that Easterly (1998) takes a positive step by empirically testing this concept for developing countries. His paper, however, does not provide an operational estimate of "net worth." Rather, it tests the implications of a fiscal model with net worth.

9. According to the international accounting standards, contingent liabilities do not have to be reported in the balance sheet and net worth calculation, unless their realization is probable.

To our knowledge, there have been no studies that look at net worth measures for the public sectors of developing countries. Intuitively, we believe that the deficiencies of the conventional measures of the budget deficit are even more severe in developing countries than in industrial countries.¹⁰ This is because public investment in developing countries is a significantly higher share of total public spending than in industrial countries, and thus the failure to differentiate between current and capital spending is more misleading. Second, because developing countries borrow in foreign currencies, and in a variety of foreign currencies reflecting donor government aid programs, they are especially vulnerable to capital gains and losses stemming from exchange-rate changes. Last, as recent crisis events have shown, the contingent liabilities assumed by developing country governments can be very large. For example, some estimates put the cost to the public sector of Indonesia's 1997–98 financial crisis at 50 percent or more of GDP.¹¹

An Alternative Definition of Budget Deficit

We propose an alternative approach to measure fiscal balance of a country, which we call the actuarial budget deficit. It is defined as the change in the total stock of government liabilities, that is,

$$D_t^a = (B_t - B_{t-1}) + (H_t - H_{t-1}) \quad (2)$$

where D_t^a is the actuarial budget deficit in period t . Theoretically speaking, equations (1) and (2) should yield similar numbers, but as shown later, in practice, a wide gap exists between the actuarial and conventional deficits. Hidden deficit (D_t^h) is defined as

$$D_t^h = D_t^a - D_t^c \quad (3)$$

10. Apart from the conceptual issues noted below, developing countries also have less standardized accounting practices that make the cross-country comparability of deficits particularly problematic. Kotlikoff (1989) shows how easy it is for governments to manipulate the deficit figure while maintaining the same fiscal policy. Easterly (1998) presents empirical evidence suggesting that much of the observed change in deficits associated with adjustment programs is indeed a fiscal illusion.

11. The latest cost estimate of bank recapitalization, announced by the finance minister, Bambang Subianto, on July 15 is Rp 550 trillion (\$73 billion). The ratings agency Standard and Poors estimates that the cost could run to \$87 billion, which is 19 percent higher than the official estimate (see EIU 1999).

Before we compare the numbers generated from equations (1) and (2), one caveat is in order. We use gross debt rather than net debt in the estimation of actuarial deficit. We do so for two reasons. The first reason is one of practicality. It is known that public assets are hard to measure, and even financial assets, such as directed credit, are often not worth their face value. The general experience with public assets has been that they do not yield commercial rates of return, and even the privatization returns are small when averaged over long periods. Perhaps for this reason, there is a tradition of not including assets in practical applications, such as EMU convergence criteria.¹² The second reason concerns the public policy choice of the government. In many countries, asset accumulation is a secondary implication of policy, not a driver of spending. For example, if a country's objective is to maintain a fixed exchange rate with low inflation, the country may sterilize foreign capital inflows, building up both foreign exchange reserves and domestic debt at the same time. The asset, though, is then a by-product of such a policy decision, and it is not tied to the liability, so while the asset can be used up to defend the exchange rate, the liability would remain. In this scenario, the change in gross debt is the price for maintaining a fixed exchange rate regime.

Using equations (1) through (3), we compute conventional, actuarial, and hidden deficits for 32 countries.¹³ Data from the *World Development Indicators (WDI)* are used, except for transition countries (that is, Czech Republic, Hungary, Poland, and Russia), the data for which are obtained from "Datastream."¹⁴ WDI reports the ratios—that is, B_t/Y_t and D_t^c/Y_t —where Y_t is the economy's GDP in period t . Using the data on Y_t we reconvert the series into levels. The data on base money, H_t , is obtained from the International Financial Statistics. All the variables are then scaled by nominal exchange rate and expressed in current U.S. dollars.¹⁵

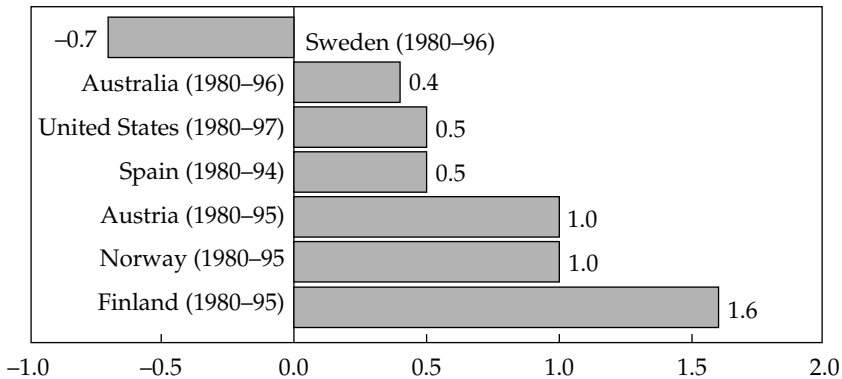
12. European Monetary Institute 1998.

13. We could find continuous long-time series data for the 1980–97 period (for transition countries, 1992–97) for only 32 countries. They are Argentina, Australia, Austria, Bahrain, Brazil, Chile, Cyprus, Czech Republic, Finland, Hungary, India, Indonesia, Israel, Jordan, Korea, Malaysia, Mauritius, Mexico, Norway, Pakistan, Philippines, Poland, Spain, Sri Lanka, South Africa, Sweden, Thailand, Tunisia, Turkey, Uruguay, the United States, and Republica Bolivariana de Venezuela.

14. Data are for the central government only, except for the transition countries, where general government data are used.

15. The use of the exchange rate as the deflator rather than an index of domestic price level was motivated by two factors. First, use of the dollar value

FIGURE 1. AVERAGE HIDDEN DEFICITS FOR INDUSTRIAL COUNTRIES



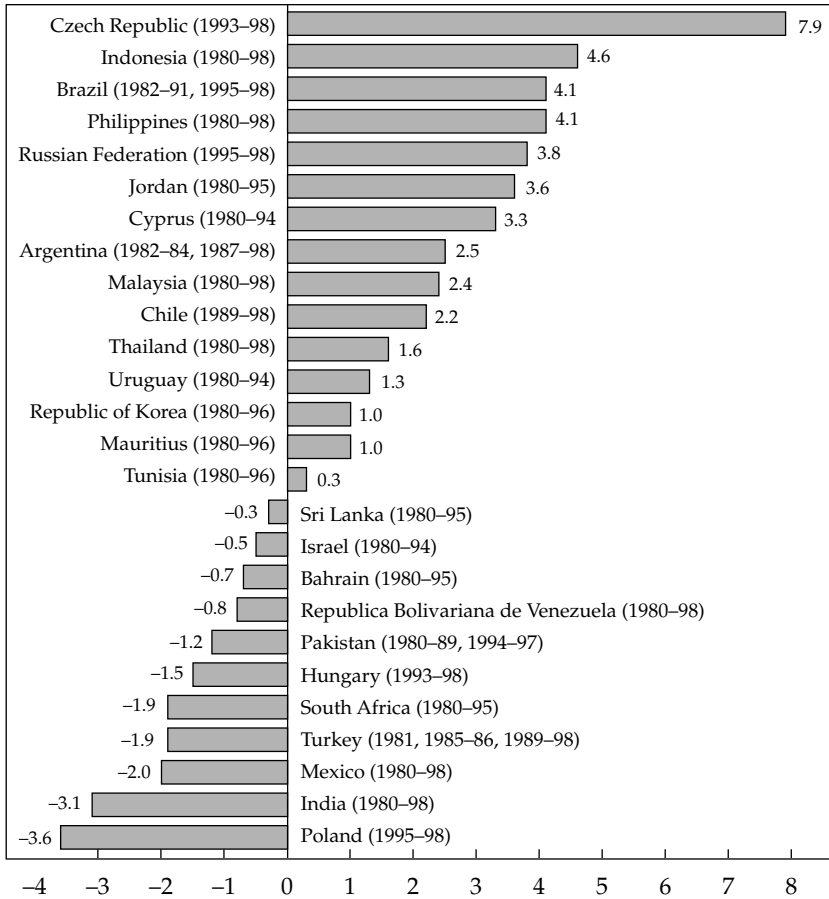
The magnitude of the average hidden deficits, as shown in figure 1, ranges from a maximum of 1.6 percent of GDP per year in Finland to a minimum of -0.7 percent in Sweden. These numbers are small compared to their corresponding average conventional deficits reported during the same period, that is, 4.6 percent in Finland and 5.4 percent in Sweden. Note, however, that the Nordic countries, Finland and Norway, which experienced financial crises in 1992-93, are also the countries in which the hidden deficits are relatively larger compared to other industrial countries.¹⁶

In contrast to the industrial countries, the developing countries have extremely large hidden deficits or surpluses. Figure 2 below shows that in 16 out of 25 developing countries, the average hidden deficit (or surplus) exceeds 1.5 percent per year. This is significantly higher compared to the 1 out of 7 for industrial countries.

(at current prices) facilitated intercountry comparisons. Second, it proved useful to get around the problem of dealing with episodes of hyperinflation in some of our sample countries, where it has been observed that use of the domestic price index introduces significant noise to the data. The exchange rate used to convert base money into dollars is obtained from the International Financial Statistics (line *rf*, that is, the average value of the period).

16. It is important to note that governments in industrial countries are involved in financial bailouts and other such activities as well, but either they include these expenses within their budgets, or their capital gains and losses offset some of the extrabudgetary expenditures or both, resulting in smaller hidden deficits than in developing countries.

FIGURE 2. AVERAGE HIDDEN DEFICITS FOR DEVELOPING COUNTRIES



There can be many potential reasons why some countries, like India, Mexico, and Poland have large negative hidden deficits. First, the country may have received generous debt forgiveness (for example, Poland), used its privatization revenue to retire debt (for example, Mexico), obtained large amount of aids and grants from multilateral and bilateral donors to finance its budget (for example, India), or its capital gains because of a favorable change in prices (high inflation or large appreciation of the real exchange rate, or both) may have more than offset its off-budgetary expenses.¹⁷

17. See Dooley (1999) and Kharas and Mishra (forthcoming) for more discussion about this.

Links with Currency Crises

In this section, we first show that actuarial deficits are more closely linked to the number of currency crises than conventional deficits. Then we explore the potential channels that can explain the link between hidden deficits and currency crises. Specifically, we distinguish between currency crises caused by realization of past contingent liabilities versus currency crises caused by the prospect of large current and future contingent liabilities.

To identify currency crises, we use Kaminsky and Reinhart's (1999) methodology to construct a currency-crisis index. It is a weighted average of nominal depreciation rate and change in reserves, where weights are chosen such that the conditional volatilities of both the components are equal. The year in which the index exceeds a certain threshold is taken as the crisis year.¹⁸

The scatter plots between the number of currency crises and two alternative definitions of deficits, as shown in figure 3, reveal that the actuarial deficit is more closely associated with the number of currency crises than the conventional deficit. The correlation coefficient between number of crises and conventional deficit is only 0.15, while with respect to actuarial deficits it is 0.55. The coefficients of the exponential and the linear (not shown) trends are found to be significant with respect to actuarial deficits and not with respect to conventional deficits.

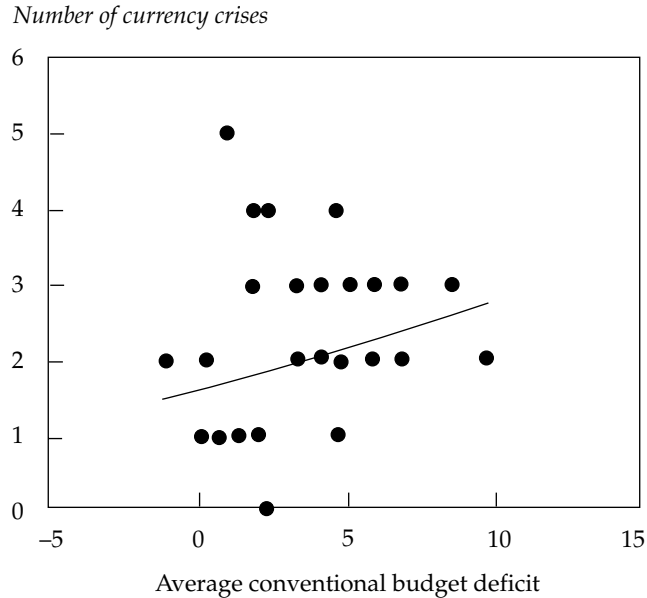
The evidence from the scatter plots is further strengthened when more formal examination of this relationship is conducted using regression analysis. Assuming that only successful, but not unsuccessful, speculative attacks are observed and that the occurrence of two crises is a worse outcome than the occurrence of one crisis, we estimate an *ordered*, limited, dependent variable model using the following log likelihood function:

$$\begin{aligned}
 \ln(\beta, \theta) = & \\
 & \sum_{i \ni y_i = 0} \log (Pr(y_i = 0 | x_i, \beta, \theta)) + \sum_{i \ni y_i = 1} \log (Pr(y_i = 1 | x_i, \beta, \theta)) + \dots + \\
 & \sum_{i \ni y_i = 5} \log (Pr(y_i = 5 | x_i, \beta, \theta))
 \end{aligned}$$

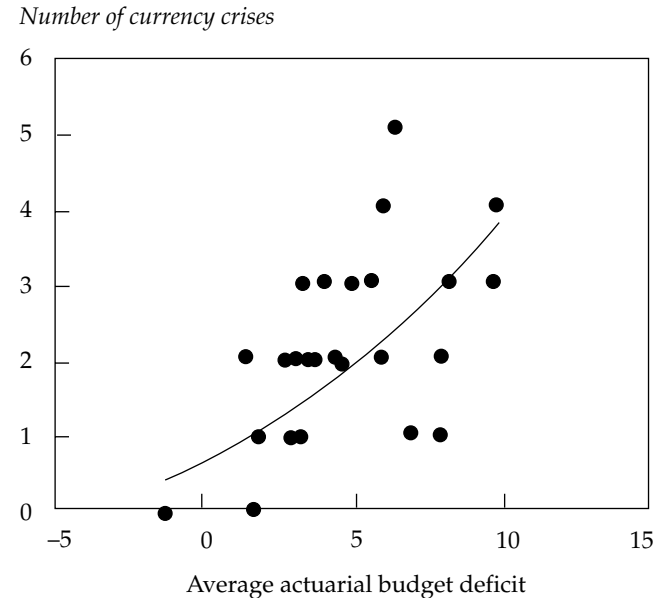
18. Readers are referred to Kaminsky and Reinhart (1999) and Eichengreen, Rose, and Wyplosz (1995) for details on how to construct such an index.

FIGURE 3. SCATTER PLOTS BETWEEN ALTERNATIVE DEFINITIONS OF DEFICITS AND NUMBER OF CRISES

a. Number of currency crises versus average conventional budget deficit



b. Number of currency crises versus average actuarial budget deficit



Note: Correlation (conventional deficit, number of crises) = 0.15; correlation (actuarial deficit, number of crises) = 0.55.

where y denotes the number of currency crises, x the explanatory variables (in our case four variables: average deficits, real exchange rate, loss of reserves, and number of banking crises), θ the threshold values, and β the slope coefficient. Note that y is an integer, and in our case, ranges from 0 to 5.

The error terms are assumed to have normal distribution, so we estimate an ordered probit model using the maximum likelihood estimation procedure. The results from the cross-section regressions are shown in table 1. First we estimate three bivariate regressions, in which the number of currency crises a country has experienced is regressed separately on conventional deficit, actuarial deficit, and hidden deficit. The first three rows of table 1 report the results from these regressions. It shows that average conventional deficit is not statistically significant in explaining the number of currency crises, while actuarial and hidden deficits are significant at 1 and 10 percent levels, respectively. The next three columns report the results from the multivariate regressions where three additional regressors are included, namely change in real exchange rate, number of banking crises, and change in reserves as a percentage of GDP.¹⁹ Again, the conventional deficit is not significant, although the actuarial and hidden deficits are significant in explaining the number of currency crises. The last three columns in table 1 give two diagnostic tools that can be interpreted as goodness-of-fit tests. They show that the log likelihood and pseudo- R square are bigger when actuarial or hidden deficits, rather than conventional deficits, are included in the regression.

Identical sets of regressions were estimated assuming that the error terms have logistic or exponential distribution. The results from these regressions, not reported here, continue to validate the main hypothesis of the article, that is, the actuarial and hidden deficits are statistically significantly linked to the number of currency crises, but the conventional deficit is not.

The obvious question that arises from our empirical findings is how hidden deficits and the number of currency crises may be linked. There are two potential linkages. One, in times of economic weakness, past government promises or contingent liabilities may be called upon, resulting in a buildup of hidden deficits that would put pressure on the

19. These variables are chosen because previous studies have shown that they are important in explaining currency crises. For example, see Sachs, Tornell, and Velasco (1996) and Kaminsky and Reinhart (1999).

TABLE 1. RESULTS FROM CROSS-COUNTRY CROSS-SECTION REGRESSIONS

(method: ordered probit.; number of countries included = 28; dependent variable = number of currency crises between 1980 and 1997 [range from 0 to 5])

Equation	Explanatory variables						Diagnostic statistics	
	Conventional deficit	Actuarial deficit	Hidden deficit	Number of banking crises	Change in RER	Change in reserve	Log likelihood	Pseudo-R ² (LR index)
1	0.093 (1.155)	—	—	—	—	—	-41.04	0.02
2	—	0.216*** (2.755)	—	—	—	—	-37.77	0.09
3	—	—	0.140* (1.771)	—	—	—	-40.12	0.04
4	0.074 (0.874)	—	—	0.039 (1.090)	0.062 (1.343)	-0.281 (-1.146)	-38.85	0.07
5	—	0.375*** (3.751)	—	0.649** (2.068)	0.157*** (2.838)	-0.433* (-1.667)	-31.01	0.26
6	—	—	0.346*** (3.118)	0.577* (1.877)	0.129** (2.431)	-0.681** (-2.403)	-33.37	0.20

Note: The numbers in parentheses are the z-statistics. Also, *, **, and *** denote that the estimate is significant at 10, 5, and 1 percent level respectively. — Not available.

exchange rate. Since these realized contingent claims are generally not included in the conventional deficit, one will not observe any increase in the latter. According to this channel, large hidden deficits are likely to *precede* currency crises, which is consistent with the Krugman (1979) proposal.

There can be a second link, which has been proposed by Burnside, Eichenbaum, and Rebelo (1998). Using the experience of East Asian countries, they argue that, while these countries had budget surpluses prior to the currency crisis in 1997, they also had large prospective deficits. Although they did not distinguish between visible and hidden deficits, but as we have argued before, most of these prospective deficits, when realized, are treated by the governments as extrabudgetary items and therefore, according to this channel, sharp increases in hidden deficits are likely to *follow* currency crises.

It is not easy to distinguish whether a currency crisis was triggered by the realization of past contingent claims or the prospect of contingent liabilities coming due in the future. Burnside, Eichenbaum, and Rebelo (1998) are one of the first to attempt to estimate the size of prospective deficits for Thailand and Korea, using data on total nonperforming bank loans and estimated liabilities from nonbank foreign borrowing as a proxy for future government liabilities.

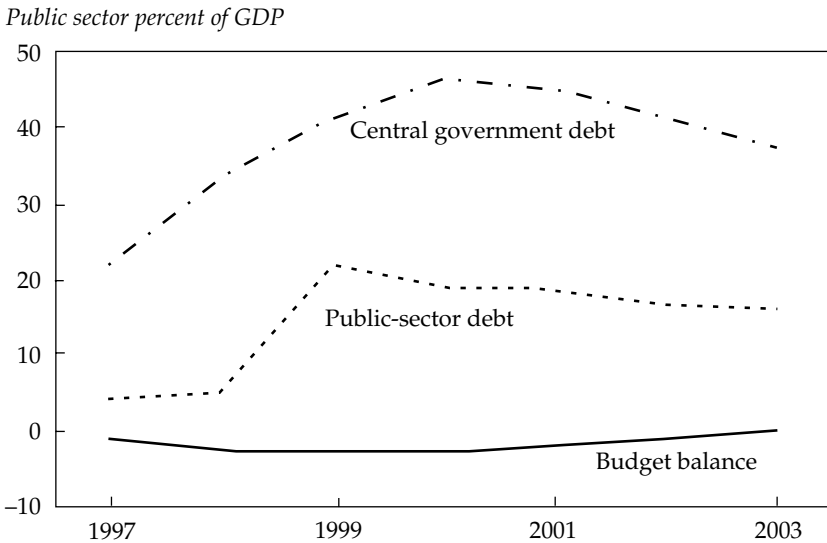
We make two additional observations here that link hidden deficits to the East Asian currency crisis. First, while East Asian countries did have small visible deficits, and, in a few cases, surpluses, prior to the crisis they actually had large hidden deficits during the 1992–96 period, as shown in table 2. While we do not claim that the East Asian countries tripped into the crisis solely because of these hidden deficits, the numbers in table 2 do provide further evidence that Krugman's first generation currency-crisis model is not completely irrelevant to the East Asian case. The researchers, however, need to pay attention to actuarial deficits and not to conventional deficit for such evidence.

TABLE 2. AVERAGE ACTUARIAL, CONVENTIONAL, AND HIDDEN DEFICITS FOR EAST ASIAN COUNTRIES (1992–96)

<i>Country</i>	<i>Average actuarial</i>	<i>Average conventional</i>	<i>Average hidden</i>
Indonesia	2.4	-0.9	3.3
Korea, Rep. of	1.0	-0.2	1.2
Malaysia	4.9	-0.7	5.6
Philippines	8.9	0.1	8.8
Thailand	1.1	-2.4	3.5

Second, an examination of the fiscal balance of the East Asian countries during the postcrisis period shows that most bank and corporate restructuring expenses are not being fully included into the budget and thus hidden deficits are on the rise. For example, in Thailand, while central government's debt has increased from 22 percent of GDP in 1997 to more than 46 percent of GDP in 1999 (see figure 4), the visible budget deficits have been less than 5 percent for both 1998 and 1999. The imbalance between the change in debt stock and conventional deficits worsens if one includes the debt of the central bank and the public sector enterprises. Thus the hidden deficits have substantially increased in Thailand in the first two years following the crisis. Similarly, according to the Economist Intelligence Unit report, a total of W 76.7 trillion in public funds, more than 15 percent of country GDP, has been spent on the restructuring of domestic financial sector by end-1999 in Korea. But the conventional budget deficit has been reported to be only 3 percent in 1998 and 3.3 percent in 1999, not alarmingly large compared to the precrisis periods. Thus it clearly suggests that if the East Asian crisis was caused by prospective deficits, as argued by Burnside, Eichenbaum,

FIGURE 4. DEBT AND DEFICIT IN THAILAND FOLLOWING THE EAST ASIAN CRISIS



Source: Economist Intelligence Unit report on Thailand, February 2000.

and Rebelo, the researchers should be looking for evidence in the actuarial and hidden deficits and not in the conventional deficit.

Institutional Implications and Concluding Remarks

One of the important objectives of the article was to bring out the limitations of conventional budget deficits so that debt managers will pay closer attention to hidden deficits. The fact that hidden deficits are more tightly linked to currency crises than are conventional deficits demonstrates that market participants tend to ignore reported deficits and make their own judgment about the actual fiscal position of the government, using techniques that are likely to be similar to the one proposed here. Any effort on the part of the policymaker, therefore, to report small visible deficits by running large hidden deficits is wasted and should not be attempted.

The evidence presented here also indicates that the debt and budget management techniques in developing countries have to be expanded well beyond the traditional concerns. Since the growth of debt has more to do with off-budget than with in-budget transactions, the sources of hidden deficits need careful monitoring and management. For transparency reasons, actuarial deficit should be reported alongside the conventional deficit in the budget.

The magnitude of average hidden deficits of most developing countries is shown to be very high and sometime higher than their corresponding magnitudes of conventional deficits. Because many of these hidden deficits are incurred during financial crises, they are initially paid by domestic and external borrowings, and finally by temporarily raising taxes or shrinking government expenditures, or both. These sudden temporary spikes in tax rates and cuts in government expenditures are likely to be associated with large deadweight losses. Therefore, budgetary allocation can be made intertemporally more efficient by keeping aside a part of government revenue every year, equal to the long-run average hidden deficits amount, to meet future contingent claims and capital gains and losses.

The literature on hidden deficits, contingent liabilities, and prospective deficits is still in its infancy. More research is called for to clearly distinguish between when a currency crisis is caused by the realization of past hidden deficits, and when it is caused by the prospect of hidden deficits in the future, in line with the work of Burnside, Eichenbaum, and Rebelo (1998). Similarly, it is important that the framework to manage contingent liabilities as proposed by Brixi (1998) and Brixi, Ghanem,

and Islam (1999) be firmly integrated with the financial crisis literature to be able to find a more accurate measure of prospective hidden deficits.

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